

**SYLLABI
FOR
STANDARDS VIII, IX & X**

(To be introduced in Standards VIII, IX and X
from the academic years 1982-83, 1983-84 and
1984-85 respectively)

(As sanctioned under Government of Maharashtra
Education, Employment and Youth Services Dept.
letter No. S. S. C. 1379/63852/XX-XXI dated
25th October 1979.)

**MAHARASHTRA STATE BOARD OF SECONDARY
AND HIGHER SECONDARY EDUCATION,
PUNE - 411 010**

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INTRODUCTION

According to the new 10+2 pattern of Secondary Education, the syllabi for Standards VIII to X were introduced progressively from the academic year June 1972. After implementing the syllabi during the last seven years it was felt necessary to revise the syllabi of compulsory subjects of Standards VIII to X. While revising the syllabi, the Board took into consideration the recommendations of the National Review Committee headed by Dr. Ishwarbhai Patel. One of the recommendations of the Review Committee was to lesser the quantum of the syllabus of the compulsory subjects so as to bring it within the reach of the pupils. The Board accepted the recommendation and revised the syllabi of compulsory subjects by reducing the quantum to the extent of 10 to 25 per cent. The syllabi have also been suitably restructured in the light of the syllabus frames developed by the National Review Committee. The pattern of study of languages for Stds. V to X was also reviewed and suitable modifications / changes were incorporated.

The revised pattern of study of languages for Stds. V to X and the syllabi of compulsory subjects for Stds. VIII to X have been sanctioned by the Govt. of Maharashtra vide their letter No. 1379 / 63852 /XX—XXI dated 25th October 1979. The syllabi will be introduced progressively in Std. VIII from the academic year commencing from June 1982 and the first S. S. C. Examination as per the revised syllabi will be held in March 1985.

Pune - 411 010.

Dated : 18 / 8 / 1981.

(P. T. Mahajan)
Chairman,
Maharashtra State
Board of Secondary & Higher Secondary Education,
and
Additional Director of Education,
Maharashtra State,
PUNE - 411 010

Final Pattern of the Study of Languages

Sr. No.	Medium of the school	Std. V	Std. VI	Std VII
1	2	3	4	5
1.	Marathi	i) Marathi ii) Hindi iii) English	i) Marathi ii) Hindi iii) English	i) Marathi ii) Hindi iii) English
	For those students whose mother tongue is Urdu	i) Marathi or Urdu ii) Hindi-Urdu (for those who study Marathi as First Language) or Hindi-Marathi (for those who study Urdu as First Language) iii) English	i) Marathi or Urdu ii) Hindi-Urdu (for those who study Marathi as First Language) or Hindi-Marathi (for those who study Urdu as First Language) iii) English	i) Marathi or Urdu ii) Hindi-Urdu (for those who study Marathi as First Language) or Hindi-Marathi (for those who study Urdu as First Language) iii) English
2.	Hindi	i) Hindi ii) Marathi	i) Hindi ii) Marathi	i) Hindi ii) Marathi
		iii) English	iii) English	iii) English
3.	Urdu	i) Urdu ii) Hindi-Marathi (Composite)	i) Urdu ii) Hindi- Marathi (Composite)	i) Urdu ii) Hindi-Marathi (Composite)
		iii) English OR i) Urdu ii) Marathi iii) Hindi iv) English	iii) English OR i) Urdu ii) Marathi iii) Hindi iv) English	iii) English OR i) Urdu ii) Marathi iii) Hindi iv) English

om Standards V to X

Standards-VIII to X

6

- i) Marathi
- ii) Hindi or Hindi+Sanskrit (Composite) or Hindi + Pali (Composite) or Hindi + Ardhamagadhi or a Classical Language.
- iii) English
 - i) Marathi or Urdu
 - ii) Hindi or Hindi + Urdu (Composite) or a Classical Language (for those who study Marathi as first language)
or
 - iii) Marathi or Hindi + Marathi (Composite) or Marathi + Sanskrit (Composite) or Marathi + Pali (Composite) or Marathi + Ardhamagadhi (Composite) or a Classical Language (for those who study Urdu as first Language).

iii) English

- i) Hindi
 - ii) Marathi+Sanskrit (Composite) or Marathi + Pali (Composite) or Marathi+Ardhamagadhi (Comporite) or a Modern Indian Language (except Hindi) or a Modern Foreign Language (Except English) or a Classical Language.
 - iii) English
-

- i) Urdu
 - ii) Marathi or Marathi+Hindi (Composite) or Marathi+Sanskrit (Composite) or Marathi+Pali (Composite) or Marathi+Ardhamagadhi (Composite) or a Classical Language.
 - iii) English
-

1	2	3	4	5
4.	English	i) English ii) Marathi	i) English ii) Marathi	i) English ii) Marathi
		iii) Hindi	iii) Hindi	iii) Hindi
5.	Gujarati, Sindhi, Kannada, etc.	i) Gujarati etc. ii) Marathi-Hindi (Composite)	i) Gujarati etc. ii) Marathi-Hindi (Composite)	i) Gujarati etc. ii) Marathi-Hin (Composite)
		iii) English	iii) English	iii) English
6.	English medium students whose mother-tongue is, however, not English and who want facility to study their mother- tongue such as Telugu, Bengali, etc.	i) English ii) Hindi-Marathi (Composite)	i) English ii) Hindi-Marathi (Composite)	i) English ii) Hindi-Mara (Composite)
		iii) Mother-tongue	iii) Mother-tongue	iii) Mother-tong
7.	Hindi medium students whose mother-tongue is however, not Hindi and who want facility to study their mother- tongue such as Telugu, Bengali, etc.	i) Hindi ii) Marathi	i) Hindi ii) Marathi	i) Hindi ii) Marathi
		iii) English iv) Mother tongue	iii) English iv) Mother tongue	iii) English iv) Mother tong

Note : Under Items 6 and 7 in the statement above, candidate shall be permitted to offer as a First Language either his/her mother-tongue or the medium of instruction.

-
- i) English
 - ii) A modern Indian Language (Except Hindi; or Marathi+Sanskrit (Composite) or Marathi+Pali (Composite) or Marathi+Ardhamagadhi (Composite) or a Modern Foreign Language (except English) or a Classical Language.
 - iii) Hindi
-

- i) Gujarati, Sindhi, Kannada etc.
 - ii) Hindi or Hindi+Sanskrit (Composite) or Hindi+Pali (Composite) or Hindi+Ardhamagadhi (Composite) or Hindi+Marathi (Composite) or a Classical Language.
 - iii) English
-

- i) English
 - ii) A Modern Indian Language (Except Hindi or Mother-tongue if offered as first language) or Marathi + Sanskrit (Composite) or Marathi + Pali (Composite) or Marathi + Ardhamagadhi (Composite); or a Modern Foreign Language (except English) or a Classical Language.
 - iii) Hindi (If English is offered as first language) or English (if Hindi or a language other than English is offered as first language)
-

- i) Hindi
 - ii) Marathi + Sanskrit (Composite) or Marathi + Pali (Composite) or Marathi + Ardhamagadhi (Composite) or a Modern Indian Language (except Hindi or a Mother tongue, if offered as first language) or a Modern Foreign language (except English) or a Classical language.
 - iii) English
-

**SCHEME OF SUBJECTS FOR THE
SECONDARY SCHOOL CERTIFICATE EXAMINATION
CONDUCTED BY THE
PUNE, NAGPUR AND AURANGABAD DIVISIONAL BOARDS**

Subjects and Number of Papers and Practicals for the Examination :

To qualify for the S. S. Certificate, a candidate must pass at one and the same Examination or in accordance with the provisions of Regulation 54 for the grant of exemptions – separately (i) in each of the six subjects under the Compulsory Group and (ii) must have secured at least C+ grade in the optional subject and (iii) also in the two school certificate examination subjects, as follows —

I—For Examination by the Divisional Board : (along with examination in practicals)

A—Compulsory subjects (Total six).

The following three languages in accordance with the language pattern for Standards V to X finally approved by Government. (Details in the table showing subjects, No. of papers etc. incorporated in this scheme.)

1. First language.
2. Second language.
3. Third language.

Other three subjects viz—

4. Mathematics (Algebra, Geometry)
Arithmetic (for Blinds.)
5. Science (Physics, Chemistry, Biology)
6. Social Sciences (History, Civics and Indian Administration, Geography)

B—Optional Subject (Candidates shall have to select one optional subject from any One of the following six branches.)

Branch I: Introduction to the World of Work.

OR

I : Home Science.

Branch II : Technical.

Branch III : Elements of Agriculture.

Branch IV : Elements of Commerce and Accounts.

Branch V : Elements of Fine Arts.

Branch VI : Elements of Industrial Crafts.

(The Examination in optional subjects except in Technical subject under Branch II Technical, shall be conducted by the secondary schools concerned.)

II— For School Certificate Examination :

1. Physical Education.

and

2. One of the following—

- i) Social Service
- ii) Scouting / Guiding.
- iii) N. C. C./Sea Cadet Corps (wherever facilities are available).
- iv) Defence Studies.
- v) Civil Defence.

(These two subjects will not be subjects for the S. S. C. Examination. But the candidate will not be held eligible to appear for the S. S. C. Examination unless he/she produces a certificate of having satisfactorily completed the courses in these two subjects.)

The names of the individual subjects to be taken according to the above scheme are shown below along with the number of papers, duration of papers and maximum marks.

Name of subject	No. of papers and practicals, if any.	Duration of papers	Maximum marks
1	2	3	4

I—Subjects for the Board's Examination :

Compulsory Subjects (Six)

(Three languages in accordance with the language pattern for Stds. V to X finally approved by Government)

First language:

One of the following languages—

Marathi)			
Hindi)			
English)			
Urdu)			
Gujarati)			
Kannada)	One	3 hours	100
Tamil)			
Telugu)			
Malayalam)			
Sindhi)			
Bengali)			
Panjabi)			

1	2	3	4
2. Second language —			
One of the following languages :			
Hindi)			
Marathi)			
Hindi (Composite with Marathi or Sanskrit or Pali or Ardhamagadhi or Urdu)			
Marathi (Composite with Hindi or Sanskrit or Pali or Ardhamagadhi)			
Urdu)			
Urdu (Composite with Hindi)			
Gujarati)			
Kannada)			
Tamil)			
Telugu)			
Malayalam)	One	3 hours	100
Sindhi)			
Punjabi)			
Bengali)			
German (Basic))			
French (Basic))			
Russian (Basic))			
Hebrew (Basic))			
Sanskrit)			
Sanskrit (Composite with Hindi or Marathi)			
Pali)			
Pali (Composite with Hindi or Marathi)			
Ardhamagadhi)			
Ardhamagadhi (Composite with Hindi or Marathi)			
Arabic)			
Persian)			
Avesta)			
Pahlvi)			
3. Third language			
One of the following languages:			
English)	One	3 hours	100
Hindi)			
4. Mathematics			
Algebra	One	2½ hours	75
Geometry	One	2½ hours	75
			} 150
5. Science			
Physics	One	2 hours	40 + 10
Chemistry	One	2 hours	40 + 10
Biology	One	2 hours	40 + 10
			} 150

	1	2	3	4
6) Social Science—				
History Civics & Indian Administration		One	2½ hours 60)	
Geography		One	2 hours 40)	100

II) Optional Subject

(For Standards IX and X)

Candidates shall have to select any **one** of the following subjects, as per the scheme given below :

Sr. No.	Name of subject	Marks for workbook	Marks for practical	Total marks
I.	Introduction to the World of Work and Any two Work-Experience Projects from the list given below ; (25 marks each).	50 —	— 50)	100
OR				
I.	Home Science and Two Work-Experience Projects : (i) Needle Work, Embroidery, Knitting & Crochet (ii) Preparation of Nutritious Food. (25 marks each).	50 —	— 50)	100
II.	Technical (Two)	40	60	100
III.	Elements of Agriculture	50	50	100
IV.	Elements of Commerce & Accounts (as in the list below)	50	50	100
V.	Elements of Fine Arts (Any one from the list below)	50	50	100
VI.	Elements of Industrial Crafts (Any one from the list below)	50	50	100

Work Experience Projects

(Any two projects : 25 marks each, Total 50 marks.)

1. Use of Common Tools
2. Maintenance and Production of School Science Apparatus.
3. Maintenance and Elementary Repairs of Radios.
4. Preparation of Plastic Articles.

5. Batik Art
6. Preparation of Suit Cases.
7. Maintenance and Elementary Repairs of Time-pieces.
8. Elementary Plumbing.
9. Maintenance and Elementary Repairs of Water Pump.
10. Elementary Chemical Technology.
11. Maintenance and Preparation of Teaching-Learning Aids.
12. Needle work, Embroidery, Knitting and Crochet.
13. Farm Operation.
14. Poultry
15. Preparation of Bread and Biscuits.
15. Pisciculture.
17. Horticulture.
18. Bee Keeping.
19. Preparation of Nutritious Food.
20. Marine Fisheries.
21. Animal Management.
22. Maintenance and Elementary Repairs of Typewriters.
23. Silkscreen Printing.
24. Fabric Painting.
25. Sign Board Painting
26. House Decoration.

Elements of Commerce and Accounts

Theory	Practical
1. Elements of Book-keeping OR	Typewriting
2. Elements of Commerce OR	OR
3. Economics.	Practical Work in Commerce.

Elements of Fine Arts (Any one)

A. Art	B. Art-Oriented Crafts
1. Drawing and Painting (History & Appreciation of Arts and Practical OR Work- Experience Projects) (Any two from the list above).	5. Clay & Modelling & Ceramics
2. Indian Music	6. Metal Craft
3. European Music	7. Furniture Design
4. Dancing.	8. Textile Design
	9. Interior Decoration.

Elements of Industrial Crafts (Any one)

1. Metal Fitting Craft.
2. Tailoring and cutting.
3. Embroidery and Needle work.
4. Typography.
5. Radio Engineering and Servicing
6. Jr. Chemical Technology.
7. Plastic Technology.
8. Handmade Paper-Making.
9. Cane and Bamboo work.
10. Fisheries.
11. Clay Modelling leading to Pottery.
12. Wood work.
13. Textile Technology Weaving (Power)
14. Textile Technology.
 - i) Dyeing and Bleaching.
 - ii) Engineering Drawing.
15. Preparation of Coir Articles.
16. Photography
17. Electronics
18. Puppetry.

III. For School Certificate Examination (Two).

- 1) Physical Education.
- 2) One of the following -
 - i) Social Service.
 - ii) Scouting/Guiding.
 - iii) N. C. C. / Sea Cadet Corps.
 - iv) Defence Studies.
 - v) Civil Defence.

- Notes :**
- i) The question paper in Composite subjects will be of 1½ hours' duration and will carry 50 marks.
 - ii) The question papers in the three language subjects will be set as per the level expected in the respective language.
 - iii) Practical examinations will be conducted by the Divisional Board concerned.
 - iv) The candidates studying in Stds. VIII-X in secondary Schools in Bombay only and who are cadets of Sea Cadet Corps. shall be exempted from undergoing the N. C. C. Course on production of a certificate from the Association concerned regarding satisfactory completion of the course.
 - v) The cases arising out of the offering of wrong combinations of the subjects shall be decided on the merits of each case by the State Board.

**Allotment of Periods for various Subjects
For Stds. VIII, IX & X**

Sr. Subject No.	No. of periods per week		
	Std. VIII	Std. IX	Std. X
1. First language	6	6	6
2. Second language	4	4	4
3. Third language	9	8	8
4. Mathematics	6	7	7
5. Science	6	8	8
6. Social Sciences	5	5	5
7. Art	3	—	—
8. Work Experience	2	3@	3@
OR			
One optional subject involving Work Experience.			
9. Physical Education	2	2	2
10. N. C. C./Scouting/Guiding/ Social Service/Civil Defence/ Defence Studies.	2	2	2
Total	*45	*45	*45

* The Heads of Schools shall be free to alter one or two periods for different subjects according to need.

- @Note :**
1. The schools teaching Technical subjects shall be permitted to allot 9, 12 and 12 periods for Stds. VIII, IX and X respectively.
 2. The schools teaching Agricultural subjects shall be permitted to allot 6 periods in Standards IX and X.

1. FIRST LANGUAGE

Modern Indian Languages

STANDARDS - VIII to X

The syllabus for the first language for these classes should be a continuation of the one studied in standards I to VII. At the end of the secondary school course, the pupil should have ordinarily attained such a command of the language as will meet his personal needs of life.

Language being the medium of communicating, content should be selected so as to help in the pupils proper attitudes to life and a set of social, cultural and ethical values.

Objectives :

To enable the pupils to —

Develop ability to listen with understanding to conversations, lectures, discussions, talks and various programmes presented through mass media and also cultivate ability to share ideas.

Acquire skill in reading aloud seen and unseen passages fluently and effectively with understanding and proper articulation, intonation, pronunciation.

Acquire skill in silent reading with understanding.

Acquire knowledge of the basic structure of the language, idioms, new patterns and principles of grammar.

Enrich and enlarge their vocabulary and promote the ability of word-formation.

Use dictionaries.

Comprehend a literary passage in its various aspects; such as structure, significance, development of the main thought, writer's point of views and style.

Develop oral ability to answer questions, narrate experiences, describe incidents, participate in conversation and discussion and express feelings and thoughts in standard language clearly, coherently and effectively.

Develop skill in writing thoughts, noted reports, letters, essays, dialogues, interviews, notices etc. in a standard language, a legible and good hand;

Be acquainted with various forms of literature and poets and thereby develop a good taste and love for literature.

Develop ability to enjoy and appreciate the language and its literature.

12. cultivate the creative ability and an understanding of social, cultural and values;

Note : In the teaching - learning process the objectives mentioned above can be ved by using different aids of which the text book is a very important one also necessary to see that the right type of method is adopted in teaching the fulfilment of these objectives exploiting the classroom situation. Some of these objectives can be tested by means of the written examination, objectives like speaking ability, taking part in a discussion, etc. will have tested by the teacher in the class.

1.1 MARATHI

STANDARD - VIII

1. Prose

About 60 pages (excluding introduction, notes, exercises, etc.).

2. Poetry

About 300 lines of which about 100 lines will be for recitation.

3. Supplementary Reading

A student is expected to read at least 4 books of 100 pages each from the list.

4. Composition

Essays and compositions (Total 12)

1) Paragraph writing (1)

2) Story writing from the given outlines (2)

3) Essay writing :

i) Narrative (2)

ii) Descriptive (2)

iii) Pen portraits or
a sketch (2)

Each about 150 words or 20 lines

4) Precis writing - (Comprehension of Prose passages) - (1)

5) Letter writing - Domestic (1), Leave application (1).

5. Grammar

I. Revision of the following items studied in Standards V to VII.

- A) The Alphabet - kinds of alphabets (vowels, consonants) kinds of vowels and consonants (mute, semivowels, sibilants, aspirates, hard, soft)
Sandhi- Different types of sandhis involving vowels, consonants and their functions
- B) Word study - Vikari (saveya) and avikari (aveyas) (Eight parts of speech and their functions)

- 1) Nouns – Three main kinds of nouns (common, proper and abstract).
- 2) Pronouns – Kinds of pronouns (personal, demonstrative, relative and interrogative)
- 3) Adjectives – Kinds of adjectives (qualitative, numeral and savranamik)
- 4) Verbs – Main kinds of verbs (transitive, intransitive, combine)
Three principal tenses, moods (indicative, imperative, potential, subjunctive).
- 5) Parsing of words (पदपरिस्फोट)
- 6) Compounds – Function and introduction of four kinds of compounds.

C) Sentence Study :

- 1) Voice – (Active, Passive and 'Bhave')
- 2) Introduction of phrases and proverbs
- 3) Punctuation – uses of all the marks of punctuation.
- 4) Orthography-Study of the orthographical rules formulated by the Marathi Sahitya Mahamandal.

New topics to be learnt :

(A) The alphabet — (1) Clear pronunciation of alphabet and words.

2) Sandhi- Special forms of Marathi Sandhi. (पूर्वरूप, पररूप.)

(B) Word study -

- (1) Nouns- ways of forming abstract nouns. Different ways of changing the gender and number of nouns.
- (2) Pronouns – common(सामान्य) and reflexive pronouns, gender, number and case of pronouns, correct use of pronouns.
- (3) Adjectives – Kinds of numeral adjectives (cardinal, ordinal and multiplicative). Way of changing the number of gender of adjectives. Functions and use of adjectives.
- (4) Verbs – Four main kinds of verbs (simple imperfect, perfect and habitual) and their use.
- (5) Compounds – Kinds of aveyibhav (अव्ययीभाव) and vibhakti tatpurusha (विभक्तीतत्पुरुष).

(C) Sentence study – Analysis

Kinds of sentences (simple, complex and compound)– Analysis of simple sentences.

(D) Vrittis and Figures of speech -

- (1) Vrittis - difference between prose and poetry, introduction of Laghu, Guru Gana and Matra.
(Bhujangaprayat, Shikharini, Vasant tilaka, Padakulak and Ovi)

- (2) Figures of speech – Anuprasa, Yamak, Upama, Utpreksha, Roopak.
- (3) Usages of phrases and proverbs arising out of the text.

STANDARD — IX

1. Prose

About 60 pages (excluding introduction, notes, exercises, etc.)

2. Poetry

About 275 lines.

3. Supplementary Reading

A student is expected to read at least 4 books of 100 pages each from library.

4. Composition

Essays and compositions – Total 12.

- 1) Expansion of ideas (2)
- 2) Story-writing on given heading or event (1)
- 3) Essay writing – Biographical (1)
Autobiographical (2)
Imaginative (2) } (Each 200 words or 25 lines)
- 4) Comprehension – Understanding a passage from poetry (1)
- 5) Letter writing – News letters, Report - writing (2)

5. Grammar

I. Items of revision :

- 1) Case – Kinds and pratyayas.
- 2) Parsing of words in a sentence.
- 3) Vrittis – revision of vrittis previously learnt.
- 4) Figures of speech – revision of the figures of speech previously learnt.
- 5) Marks of punctuation and orthography – revision of the rules.

II. New topics to be learnt –

- 1) Case – Common forms and meanings of cases, ideas of Karkarati Upapadartha.
- 2) Nouns – Words acting as noun substitutes (adjectives, verbal derivatives)
- 3) Adjectives – Adjectival use of nouns, pronouns and verbal derivatives

- 4) Verbs – sub-kinds of verbs (Sahayak, Samyukta, Prayojaka, Shakya and Aniyamit)
- 5) Avyayas – sub-kinds of avyayas, sub-kinds of kriyavisheshan, shabda-yogi, ubhayanoai and keval prayogi avyayas.
- 6) Prayogas – idea of bhavkartari and sankar prayogas.
- 7) Shabdashidhi – Information about four main kinds of words in the language – Tatsama, Tadbhava, Deshi, Foreign)
- 8) Compounds – Naya Tatpurusha, Upapada Tatpurusha, Madhemapad-
lopi, Dwandva (sub-kinds).
- 9) Sentences – Sub-kinds of complex and compound sentences.
- 0) Vrittas – Malini, Prithvi, Mandarkranta, Shardul-Vikridita, Dindi,
- 1) Figures of speech – Slesha, Apanputi, Ananvya, Vyetireka, Atishayokti.
- 2) Usages and proverbs – Use of usages of phrases and proverbs from the
textbook.
- B) Marks of punctuation – Knowledge of correct and incorrect words.
- H) Orthography – copying and dictation.

STANDARD — X

Prose

About 64 pages (excluding introduction, notes, exercises, etc.)

Poetry

About 40 lines.

Composition

Essays and compositions—Total 12.

- 1) Essay writing—Reflective (3) } Each of about 250 words or 30 lines.
on proverb or saying (1) }
- 2) Preis writing (2)
- 3) Appreciation (Prose or poetry) (1)
- 4) Letter-writing :
 - Invitation (1)
 - Felicitation (1)
- Thanks-giving (1)
 - Enquiry (1)
 - Demand (1)

4. **Grammar**

(I) Items for revision :

Vrittas-revision of all the vrittas studied upto Std. IX.

Figures of speech-revision of all the figures of speech studied upto Std. IX
Shabdasidhi-How are words formed, information about Upasarga, Pratyahara, Tadhita.

Marks of punctuation-revision of all the marks of punctuation studied previously.

Orthography-revision of all the rules of orthography of M. S. Mahamandal.

(II) New topics to be learnt :

- (1) Padaparisphot-Parsing words in a sentence (revision).
- (2) Analysis of sentences-Analysis of complex sentences.
- (3) Synthesis of sentences-Formation of simple, complex, and compound sentences from given sentences.
- (4) Compounds-Karmadharya, Dvigu, Bahuvrihi.
- (5) Vrittas-Arya, Abhanga, Navwadhu, Mukta Chhanda, Mandarmala.
- (6) Figures of speech-Arthantaranyas, Swabhavokti, Anyokti, Chetanguno Dristanta.
- (7) Usages and proverbs-Meaning and usages of phrases and proverbs arising out of the text.
- (8) Orthography-More information about correct and incorrect words.

Note : Questions for the final examination will be set on the portion prescribed for Std. X excluding the portion for revision.

1.2 Hindi

STANDARD-VIII

1. **Prose**

60 pages.

2. **Poetry**

300 lines (Ancient and mediaeval poetry 120 lines and recitation 100 lines)

3. **Supplementary Reading**

- (1) Two books of about 100 pages each.
- (2) Reading of educational journals.

Composition

compositions (Total 300 lines)

Grammar

-) Revision of the portion done in Standards V, VI & VII.
-) Nouns, pronouns, genders, numbers, cases, adjectives, tenses
-) Figures of speech—Yamak, Anuprasa, Rupak.
-) Idioms and proverbs.

STANDARD-IX

Prose

pages.

Poetry

lines (Ancient and mediaeval poetry 120 lines and recitation 100 lines)

Supplementary Reading

four books of about 100 pages each.

Composition

compositions (Total 300 lines)

Grammar

- Revision of the portion done in Std. VIII.
- Verbs and their kinds.
- Moods—Adnyartha, Vidhyartha, Sanketartha.
- Voices
- Adverbs, prepositions, conjunctions.
- Figures of speech—Utpreksha, Dristanta, Apanhuti, Atishayokti, Shlesha.

STANDARD-X

Prose

pages.

Poetry

lines (Ancient and mediaeval poetry 120 lines)

Composition

compositions (Total 350 lines)

4. Grammar

- (1) Revision of the portions done in Standards VIII & IX.
- (2) Parsing (पदपरिचय)
- (3) Sandhis and Samasas.
- (4) General knowledge of Upasarga, Pratyaya, Taddhita, Kridanta.
- (5) Figures of speech--Anyokti, Virodhabhas, Vakrokti.
- (6) Prosody--Doha, Choupai, Gittika, Mandakranta.

1.3 Urdu

STANDARD-VIII

1. Prose

About 60 pages (exclusies exercise etc.)

2. Poetry

- (i) About 300 lines.
- (ii) About 100 lines to be prescribed for recitation.

3. General Reading

Four books of 100 pages each from suitable books from the library.

4. Composition

- (i) Short narrative essays.
- (ii) Describing scenes, objects and places of visits.
- (iii) Stories from given outlines.
- (vi) Simple letters to relatives and friends.

Atleast 15 exercises should be written by the pupils and each composition should be of 200 words.

5. Grammar

(i) Parts of speech :

- (a) Nouns, Abstract noun (Ism-e-Kaifiyat), Collective noun (Ism-e-J)
- (b) Case, (Halat)
- (c) Pronoun; personal pronoun,
(Zameer-e-Shakhsi).
Sameer-e-Istihami;
Zameer-e-Ishara;
Zameer-e-Mausula.

(d) Adjectives (Sifat) ; Sifat-e-Zati,
Sirat-e-Nisbati : Sifat-e- Adadi,
Sifat-e-Miqdari.

(ii) Figures of speech :

Tashbih, Istiara, (Examples should be taken from the the text-book)

(iii) *Idioms and Phrases*

Arising out of text-books.

STANDARD - IX

1. Prose

About 60 pages (exclusive of notes, exercises etc.)

2. Poetry

(i) 275 lines.

(ii) 100 lines to be prescribed for recitation, practice in scansion (Taqtee) without necessary identifying the ' Bahr ' should be extensively given.

3. Supplementary Reading from Library

Four books, each atleast of 100 pages, from the library should be read.

4. Composition

(i) Descriptive essays

(ii) Biographies

(iii) Precis-writing

(iv) Letters : Business letters, Applications, Letters to Editors.

Atleast 15 exercises should be written by the pupils during the course of the year. Each composition should be of about 250 words.

5. Grammar

(i) Verb :

(a) Lazim ; Motaddi, Naqis Murakkadi, Imadadi,

(b) Lawazim-e-Foil ;

(1) Taur, Halat,

(2) Tenses :

(i) Hal-e-Mutlaq, Tamam, Natamam, Ihtemali.

(ii) Mazi Mutalaq, Mazi Bayeed, Mazi Ihtemali.

(iii) Mustaqbil, Mutalaq, Mudaam.

- (ii) Adverb :
Kaifiyat, Zaman, Makan, Illaat.
- (iii) Figures of Speech :
Tajnis-e-Tam; Tajnis-e-Naqis; Tazad, Talmeeh and revision of those prescribed for Standard VIII.
- (iv) Formation of word : Prefixes and suffixes.
- (v) Placing diacritical marks on words selected from the text-book which are likely to be mispronounced.
- (vi) Study of similar sounding words selected from the text - book which are differently spelt.

STANDARD-X

1. Prose

60 pages (exclusive of notes and exercises etc.)

2. Poetry

About 400 lines.

3. Composition

- (i) Reflective essays
- (ii) Imaginative description
- (iii) Precis-writing
- (iv) Expansion of ideas
- (v) Autobiographies
- (vi) Letter writing : Business, Social and Official.
- (vii) Writing Review (brief) of books read by the pupils.
- (viii) Pen-portraits of some characters
- (ix) Dialogue and Play-writing

Atleast 15 exercises should be written by the pupils during the course of the year.
Each composition should be of about 300 words.

4. Grammar

- (i) Kinds of sentences : Simple, Compound and Complex.
- (ii) Figures of speech : Murat-un-Nazir and Mubalagha.
- (iii) Prosody : Hajaz-Musamman-Salim; Mutaqarib - Musamman - Salim; Ramal-Musamman-Mehzoof.
- (iv) Proverbs and idioms : Arising out of the text book

1.4 GUJARATI STANDARD-VIII

1. Prose

About 60 pages (exclusive of notes and exercises etc.)

2. Poetry

(i) About 300 lines

(ii) About 100 lines to be prescribed for recitation.

3. General Reading from Library

Four books of 100 pages each.

4. Composition

(i) Short narrative essays.

(ii) Describing scenes, objects and places visited.

(iii) Short stories from given outlines.

(iv) Simple letters to friends and relatives.

Atleast 15 exercises should be written by the pupils during the course of the year.

Composition should be about 200 words each.

Grammar

(Grammar should be related to the rules of orthography wherever possible).

(i) General knowledge of the rules of orthography.

(ii) Vowels and consonants : (revision), their classification according to the origin.

(iii) Simple Swara and Vyanjana Sandhis and Sandhi rules.

(iv) Parts of Speech : Detailed study of nouns, pronouns, gender, number and Vibhakti adjectives, simple tenses, moods and terminations.

(v) Kinds of verbs, auxiliary and casual.

(vi) Idioms and proverbs as occurring in the text.

(vii) Principal figures of speech : Upama, Rupak, Atishayokti, Utpreksha, Vyatirek, Virodhabhas, Swabhovakti, Uparant, Anupras, Varnsagai, Yamak and Pras.

(viii) Prosody : general idea about Laghu-Guru, Yati, Charan, Doahra and Chaupai.

Students should be introduced to the use of Jodanikosh published by Gujarat Vidyapeeth.

STANDARD-IX

Prose

About 60 pages. (exclusive of notes and exercises etc)

Poetry

(i) 275 lines of which 150 lines should be from old poetry.

(ii) 100 lines to be prescribed for recitation.

General Reading from library

About 4 books of 100 pages each.

Composition

(i) Descriptive essays

(ii) Biographies

(iii) Precis-writing

(iv) Letter-writing : Social and Business.

Atleast 15 exercises should be written by the pupils during the course of the year.

Composition should be about 250 words each.

5. Grammar

- (i) Further study of sandhi rules, formation and dissolution.
- (ii) Tenses - : Perfect, Imperfect and Continuous Compound Tenses, Compound and irregular verbs of frequent occurrence.
- (iii) Compounds : Dvandwa, Tatpurusha, Karmadharaya, Bahuvrihi, Dwigu and Avyaybhava.
- (iv) Principal Figures of Speech : सजीवारोपण, दृष्टान्त, अपन्हुती, व्याजस्तुती, अर्थान्तरन्बास, and अन्वय.
- (v) Prosody : General idea about छंदोविचार, अक्षरमेळ, मात्रामेळ, अनुष्टुप, उपजाती, छोटक, दोहरा, चौपाई and हरिगीत.

STANDARD-X

1. Prose

About 60 pages (exclusive of notes and exercises etc.)

2. Poetry

About 400 lines.

3. Composition

- (i) Reflective essays,
- (ii) Imaginative description,
- (iii) Precis-writing,
- (iv) Expansion of idea,
- (v) Autobiographies,
- (vi) Letter writing : Social, Business and Official.

Atleast 15 exercises should be written by the pupils during the course of the year.
Composition should be about 300 words each.

4. Grammar

As arising out of the text-

- (i) Parsing
- (ii) Sandhis, Samasas, Idioms and Proverbs, Prefixes and Suffixes (Purvage-Upsarga, Pratyaya-Krit and Taddhita) and simple word-formation as arising out of the prescribed texts.
- (iii) Prosody : Anushtup, Vasanta-tilaka, Harini, Sikharini, Mandakranta, Prithvi, Shardool - Vikreedita, Dohra, Harigeet, Manhar.
- (iv) Figures of speech : Anuprasa, (Varanasagai, Yamaka and Prasa), Shlesha, Swabhavokti, Upama, Roopaka, Utpreksha, Ananvaya, Vyatireka, Dristanta, Arthantaranyasa, Atishayokti.

1.5 Kannad

1.7 Telugu

1.6 Tamil

1.8 Malayalam

I. Syllabus in Prose, Poetry, General Reading, Composition and other literary activities.

STANDARD-VIII

1. Prose

About 60 pages (exclusive of introductions, notes and exercises etc.)

2. Poetry

(i) About 300 lines of which 120 lines should be from mediaeval.

(ii) About 100 lines to be prescribed for recitation.

3. General Reading

Four books in prose of about 100 pages each from the school library.

4. Composition

Essays and other kinds of writings (Total 12)

(i) Paragraphs writing (1)

(ii) Story-writing on given out lines (2)

(iii) Essay writing:

(a) Narrative (2)

(b) Descriptive (2)

(c) Pen-pictures (2)

(Each one consisting of about 150 words.)

(iv) Comprehension of prose passage of about 150 words (1)

(v) Letter writing to relatives (1)

(vi) Application for leave (1)

STANDARD-IX

1. Prose

About 60 pages (exclusive of introductions, notes and exercises etc.)

2. Poetry

(i) 350 lines of which 150 lines should be from ancient and mediaeval.

(ii) About 100 lines to be prescribed for recitation.

3. General Reading

4 books in prose of about 100 pages each from the school library.

4. Composition

Essays and other kinds of writings (Total-12)

- I. Essays - (a) Biographical (1) } (Each one consisting
(b) Autobiographical (2) } of about 200 words)
(c) Immaginative (2) }

II. Expansion of ideas (2)

- (d) Story writing on given outlines (2)
(e) Comprehension of a poem consisting of about 16 lines (1)
(f) Letter-writing : Informative and Descriptive (2)

STANDARD-X

1. Prose

About 64 pages (exclusive of introductions, notes and exercises etc.

2. Poetry

About 400 lines of which 175 lines from ancient and mediaeval.

3. Composition

Essays and other kinds of writing (together 12)

- (1) Essays -
a) Reflective (3) } Each one consisting
b) On given proverbs (1) } of about 250 words.
(2) Precis writing of a prose passage consisting of about 175 words. (2)
(3) Comprehension of a prose passage consisting of 175 words or a poem consisting of 20 lines (1)
(4) Letter - writing : (i) Invitation (1)
(ii) Congratulation (1)
(iii) Thanks - giving (1)
(iv) Enquiry (1)
(v) Demand (1)

II. Syllabus in Grammar

1.5 Kannada

STANDARD - VIII

1. Revision of the portion studied in Stds. V to VII.

2. Additional - a) Varna - Vichara
Proper pronunciation of words and varnas, Kannada Sandhis and Sanskrit Sandhis.
b) Shabda - Vichara
Nama, Sarvanama, Purusha, Linga, Vachana, Vibhakti and Kalabheda.
c) Nama - Visheshana, and kriyavisheshana.
d) Compounds : Tatpurusha, Karmadharaya and Dwigu.
e) Kridantas and Taddhitas (rules are not expected).
3. Idioms and proverbs (mere recognition)
4. Kinds of sentences : Simple, compound and complex.
5. Figures of speech : Anuprasa and Yamak
6. Prosody :
 - a) Knowledge of Guru, Laghu, Matra, Matragana, Yati and Prasa.
 - b) Matravruttas (as arising out of texts)

STANDARD-IX

1. Revision of the portion covered in Std. VIII.
2. Additional -
 - a) Shabda-Vichara
Kridanta, Taddhita and Upasargayukta words and their formations.
 - b) Tatsama and Tatbhava words (rules are not expected)
 - c) Compounds : Anshi, Dwandwa, Kriya and Bahuvrihi.
3.
 - a) Analysis of sentences and recognition of its parts.
 - b) Active and passive voices and their transformations.
 - c) Idioms and proverbs and their uses.
4. Figures of speech : Upama, Rupaka and Utpreksha.
5. Prosody :
Akshara, Aksharagana, Aksharavruttas (as arising out of texts.)

STANDARD - X

1. Revision of the portion done in the earlier years.
2. Parsing, analysis, synthesis and transformation of sentences.
3. Samasas, Sandhis, Idioms, proverbs, prefixes, suffixes and simple word formations.
4. Prosody :
 - a) Ansha, Anshagana, Anshavruttas :
Tripadi and Sangatya only.
 - b) Matra-vruttas. Kanda, Shatpadi (Bhamini and Vardhaka only),
Ragale (Three varieties.)

- c) Aksharvrittas : Champakamala, Utpalamala, Mattehba, and Shardula vikreeditas.
5. Figures of speech : Swabhavokti, Apahnuti, Artnantnaranyasa.
(Note : From among the items of prosody and figures of speech, only those which occur in the prescribed text-books taught.)

II. Syllabus in Grammar

1.6 Tamil

STANDARD - VIII

1. Revision of grammar portions covered in Standards V to VII.
2. Words : Peyar, Vinai, Idai, Urichorkal.
3. Thinai, Pal, Enn, Idam, Vetrumai.
4. Kalam
5. Peyarecham, Vinaicham, Vinaimuthru.
6. Punarchi - Nilai Mozhi, Varu Harzhi.
a) Iyalbu Punarchi, (b) Vikara Punarchi (Thoural, Thiridhal, Keduthal, Udambadu Mai)
7. Figures of speech : (1) Yamagam (2) Madakku.
8. Idioms and proverbs - only recognition (arising out of the textual portion.)

STANDARD - IX

1. Chol - Peyarchol - (i) Panbu peyar, (ii) Thozhil peyar.
(iii) Vinailanaiyum peyar.
2. Pagu Padha uruppukkal - Paguthi, vigudhi, Idainilai, and their importance.
varzhuvoo chorkalum, thuruthamum.
3. Vinaimutru - Eval, Viyangol, Theririlai, Kurippu.
4. Sentences - Ezhuvai Payanilai, Seyappadoo porul, Adai Morzhigal.
5. Kinds of sentences.
6. Uvamaigalum, Pazhamo-zhikalum.
7. Niruthakkurikal
8. Figures of speech - Thanmai Navirchi, Uyarvu, Navirchi, Izhivu, Navirchi.
9. Punarchi : Vallinam migum Idangal, Miga Idangal.

STANDARD - X

1. Chol - a) Agu Peyar (Porul, Idam, Kalam, Sinai, Gunam, Thozhil, Uvamai)
b) Idaichol - urichol and their importance.
c) Vetrumai - Revision in detail.

- Vinai- a) Than Vinai, pira vinai.
b) Udanbadu, Ethirmarai.
c) Sai vinai, seyappathu vinai.

Language study : different kinds of sentences and transformation of sentences.

Prosody - Nalvagai Pakkalum, Pavinangalum.

Figures of speech - Uvamai Ani, Uruwaga Ani, Tharkurippetra Ani.

II. Syllabus in grammar

1.7 Telugu

STANDARD-VIII

Revision of the portions covered in Std. VII.

Additional **Varnavicharamu**

- a) Proper pronounciation of words and.
b) Telugu Sandhulu **Varnas**.

Kridanta, Taddhita and Upasarga.

Namavachakamu, Sarvanahamu, Lingamu, Vibhakti, Vachanahu, Visheshanamu.

Tatsamamu. Tadbhavamamu.

Compound and Alankras :

- (a) Tatpurusha, Karmadharaya, Dvigu.
(b) Yamakamu, Anuprasamu.

STANDARD-IX

Revision of the Grammar Portion Covered in Std. VIII.

Compounds - Dvandva, Bahuvrihi,

- (a) Analysis of Sentences and Recognition of its Parts.
(b) Active and passive voices and their transformations.
(c) Idioms and Proverbs and their uses.

Figures of speech : Upama, Rupaka, Utpreksha.

Prosody - Guru, Laghu, Yati, Prasa, Gana.

STANDARD - X

Revision of the porition done in the early year.

Parsing analysis, Synthesis and Transformation of sentences.

Samasas, Sandhees, Idioms. Proverbs, Prefix and Suffixes and Single word formations.

4. Prosody : A) Vrittamulu-Shardula, Matte Bhamu,
Chempakamala, Utpalamala.
B) Matra Vrittamulu-Kanda, Ataveladi, Tetageeti.
5. Figures of speech :-
Swabhavokti, Arthantaranyasa, Apanhuti.

Note : From among the items of prosody and figures of speech only those which occur in the prescribed text book be taught.

II. Syllabus in Grammar

1.8 Malayalam

STANDARD-VIII

1. Revision of portions covered under Std. VII.
2. Parts of speech
3. Nouns - kinds.
4. Gender 3 - Number 2 - Case.
5. Parsing of Nouns.
6. Punctuation marks.
7. Sentences and kinds.
8. Vidhi Nishedham (Changing Vidhi to Nishedham and vice-versa)
9. Analysis - Choornika Vakyam only.
10. Alankara - Elementary Study of Alankaram.
Arthalankaram & Shabdalanakaram.
Important Alankarams like Upama and Roopakam may be introduced
11. Metre - Elementary study of Metre -
Guru, Laghu, Matra, Ganam, Yati should be introduced.
Metres like Indravarga, Upendravarga and Vasanthathilakam.
(Those arising out of text to be taught).

STANDARD-IX

1. Revision of portions taught in Std. VIII.
2. Verbs - (a) Sakarmakam and Akarmakam.
(b) Poornam and Apornam.

3. Tenses – Three kinds.
4. Parsing of verbs.
5. Elementary study of sandhis (4 kinds).
6. Visheshanam (3 kinds): Nama Visheshanam, Kriya visheshanam and Visheshana Visheshanam
7. Elementary study of samasams (4 kinds)
8. Changing Namam to Visheshanam and vice-versa.
9. Elementary study of Idioms and proverbs arising out of the text-book.
10. Some important Alankaram.
 - a) Shabdalkaram like Anuprasa, Dwideeya, Ksharaprasa.
 - b) Arthalankaram like Anuprasam, Yamakam, Upama and Rupakam.
11. Metre – Sanskrit and Dravidian Metres.

Sanskrit Metres and Bhasha Vrittas.
Sanskrit Metres like Champakamala, Utpalamala,
Mathebhavikreeditha, Shardoolavikreeditha.
Mathra vrittas like Keka, Kakali, Manjari etc.
P. S. – Those metres and alankarams which come in the prescribed poems may be taught.

STANDARD-X

1. Revision of the portions covered in VIIIth & IXth Standards.
2. Parsing, Analysis, synthesis and Transformation of sentences.
3. Sandhis, samasas, Idioms and proverbs, simple word formation – prefixes and suffixes.
4. Prosody – Knowledge of prosody of the verses included in the text book.
 - a) Akshara Vrithas (Sanskrit vrithas like Champakamala, Uppalamala) mathebha vikreeditha, Shardoola Vikruditha.
 - b) Mathra vritham (Bhasha vrithas like Keka, Kakali, Manjari, and Dwipadi.
5. Figures of speech – Swabhavokthi, Utpreksha, Athi Shayokthi, and Arthantharanyasam.

1.9 Sindhi

1.10 Bengali

1.11 Punjabi

I. Syllabus in Prose. Poetry, General Reading and Composition

STANDARD-VIII

Prose

About 60 pages (exclusive of notes and exercises).

Poetry

(i) About 300 lines.

(ii) About 100 lines to be prescribed for recitation.

General Reading

About 4 books of 100 pages each.

Composition

(i) Short narrative essays.

- (ii) Describing scenes, objects and places visited.
- (iii) Short stories from given outlines.
- (iv) Simple letters to friends and relatives.

Atleast 15 exercises should be written by the pupils during the course of t year. Composition should be of about 200 words each.

STANDARD-IX

1. Prose

About 60 pages (exclusive of introduction, notes and exercises etc.)

2. Poetry

- (i) About 275 lines
- (ii) About 100 lines out of these 275 lines to be prescribed for recitation.

3. General Reading from Library

4 books of about 100 pages each.

4. Composition

- (i) Descriptive, narrative and imaginative essays.
- (ii) Biographies.
- (iii) Precis-writing.
- (iv) Comprehension.
- (v) Letter-writing : Social and Business.

Atleast 15 exercises should be written by the pupils during the course of th year. Composition should be of about 250 words each.

STANDARD-X

1. Prose

About 60 pages (exclusive of introduction, notes, exercise etc.)

2. Poetry

About 400 lines

3. Composition

- (i) Reflective and Imaginative essays.
- (ii) Precis-writing
- (iii) Comprehension
- (iv) Expansion of ideas

- (v) Autobiographies
- (vi) Letter-writing : Business, Social and Official.

Atleast 15 exercises should be written by the pupils during the course of the year. Composition should be of about 300 words.

II. Syllabus in Grammar

1.9 Sindhi

STANDARD-VIII

Revision of grammar done in the Previous standard.

- i) Detailed study of Parts of speech and Parsing of Nouns, Pronouns, Adjectives.
- ii) Analysis of Simple sentences
- iii) Simple punctuation (Full stop, Comma, Question mark and Mark of exclamation)
- iv) Word formation (Nouns from Verbs, Adjectives from Nouns and vice-versa)
- v) Common Idioms, Proverbs and Phrases as arising out of the text.

STANDARD-IX

- i) Revision of the work done in Std, VIII.
- ii) Prayoga, Tenses, including participles and moods.
- iii) Parsing of parts of speech.
- iv) Clause Analysis.
- v) Synonyms and Antonyms, Formation of words (Change from one part of speech to another).
- vi) Idioms, Proverbs and Phrases as arising out of the text
- vii) Figures of Speech : (simile) Upama Alliteration (बजतीस खती), Hyperbole and Metaphor, (इस्तारो, मबालीओ).
- viii) Detailed punctuation.

STANDARD-X

- i) Revision of parts of speech in details.
- ii) Prayoga.
- iii) Clause Analysis.

- (iv) Formation of words.
- (v) Antonyms and Synonyms.
- (vi) Figures of speech (Simile, Alliteration, Hyperbole and Metaphor).
- (vii) Idioms, Proverbs and Phrases as arising out of the text.

II. Syllabus in Grammar

1.10 Bengali

STANDARD-VIII

Revision of the grammar done in previous standard.

- (i) Sandhi : Swarasandhi, Vyanjansandhi, Visargasandhi.
- (ii) Detailed study and Parsing of Nouns, Pronouns and Adjectives, Verbs and Adverbs.
- (iii) Karakas and Vibhaktis.
- (iv) Transformation of Nouns to Adjectives and vice-versa.
- (v) Simple Tenses and Moods.
- (vi) Simple sentences and their analysis.
Punctuation (Dari, Comma, Question and Exclamation)
Voice and change of voice.
Idioms and Phrases as arising out of the text.

STANDARD-IX

- (i) Revision of the grammar done in previous years.
- (ii) Detailed morphology of verbs including Compound Tenses.
- (iii) Indeclinables (Avyaya).
- (iv) Formation of Feminine Gender and change of Gender.
- (v) Word formation (change from one part of speech to another).
- (vi) Simple Samasas.
- (vii) Analysis of sentences.
- (viii) Transformation of sentences.
- (ix) Idioms, Proverbs and Phrases as arising out of the texts.
- (x) Figures of Speech : Upama, Rupaka, Atishyokti and Anuprasa.
- (xi) Punctuation.

STANDARD-X

- i) More detailed study of the topics, done in the earlier standards.
- ii) Revision of Parts of Speech in detail in the earlier standards.
- iii) A general idea of Secondary verbs (Causatives, Denominatives).
- iv) Outline of Samasas
- v) Bengali Suffixes—both Primary (Krit) and Secondary (Taddhita) including 'Foreign' Suffixes.
- vi) Upasargas and Anusargas.
- vii) Analysis.
- viii) Synonyms and Antonyms.
- ix) Idioms, Proverbs and Phrases arising out of the text.
- x) Figures of Speech : Upama, Roopaka, Atishayokti, Anuprasa, Shlesha, Svabhavokti and Utpreksha.

(Students will be expected to have a knowledge of standard Literary (Sadhu) and standard Colloquial (Kathva) forms and elements of Bengali Prosody).

Recommended Books on Bengali Grammar :

Adhunik Bangla Vyakaran by Jagdish Chandra Ghosh.

Bhashaprakash Bangla Vyakaran by Dr. Suniti Kumar Chatterjee.

Bangla Vyakaran—by Dr. Sukumar Sen.

Syllabus in Grammar

1.11 Punjabi

STANDARD-VIII

Revision of the work done in Standard VII.

Detailed study and Parsing of Nouns, Pronouns, Adjectives, Verbs. and Adverbs.

Analysis of Simple Sentences.

Simple Punctuation ; Full stop, Comma, Question mark, Sign of exclamation.

Word formation, Nouns from Verbs.

Idioms, Proverbs, and Phrases as arising out of the text.

STANDARD-IX

Revision of work done in Std. VIII

Detailed study of Parts of Speech and parsing.

- (iii) Tenses
- (iv) Active and Passive Voices
- (v) Synonyms and Antonyms
- (vi) Word-formation (change from one part of speech to another)
- (vii) Compounds (Samasas)
- (viii) Clause Analysis
- (ix) Figures of speech : Upama, Rupaka, Anuprasa, Atkathni, Viaj-Ninda.
- (x) Idioms, Proverbs and Phrases as arising out of the text.
- (xi) Detailed punctuation.

STANDARD-X

- (i) Revision of parts of speech in detail.
- (ii) Clause Analysis
- (iii) Synthesis
- (iv) Prefixes-Suffixe
- (v) Word-formation-Revision.
 - (i) Formation of Nouns from verbs and vice-versa.
 - (ii) Formation of Adjectives from Nouns and vice-versa.
- (vi) Synonyms and Antonyms.
- (vii) Figures of Speech-Revision.
- (viii) Idioms, Proverbs and Phrases as arising out of the text.
(Grammar as arising out of the text)

First Language

1.12 English

The syllabus for English as the first language for Stds. VIII to X should be natural continuation of the course from Standards I to VII. At the end of secondary school course ordinarily the pupils should have attained such a command of the language and acquired such standard of language skills as will meet his normal needs of adult life such as reading with speed and comprehension, listening with comprehension and correct and idiomatic expression in speech and writing. Emphasis should be laid on self-learning.

Language being the medium of communication, content should be selected as to develop in the pupils proper attitudes to social life and a set of human and cultural values.

Objectives

To enable the pupils to : —

1. **acquire** knowledge of the basic structure of the language (grammar and idioms); **enrich** their vocabulary and promote the ability of word-building;
2. **develop** listening comprehension;
3. **develop** reading comprehension so as to understand a literary passage in its various aspects like structure, significance and development of the main thought;
4. **acquire** the skill in reading aloud with proper intonation and articulation;
5. **acquire** the ability to make notes or prepare reports on conversation, interviews and radio talks;
6. **develop** oral ability to answer questions and narrate incidents and experiences, to take part in discussion and to express views and feelings correctly, clearly and coherently;
7. **develop** the skill in writing letters, stories, essays and dialogues;
8. **get acquainted** with the important works of the great writers and poets;
9. **develop** the ability to use the language for the development of personality, the building of character and participation in social life;
10. **use** dictionaries;
11. **enjoy** and appreciate the language and its literature.

Note : In the teaching-learning process the objectives mentioned above can be achieved by using different aids of which the text-book is a very important one. It is also necessary to see that the right type of method is adopted in teaching for the fulfilment of these objectives exploiting the class-room situation. Several of these objectives can be tested by means of the written examination, though objectives like speaking ability, taking part in a discussion, etc. will have to be tested by the teacher in the class.

STANDARD-VIII

Prose

About 70 pages (exclusive of notes, exercises etc.) Students should be gradually introduced to various forms of literature, such as short stories, one-act plays, essays etc.

Poetry

About 400 lines of poetry including modern poetry suited to the age-group at this level.

3. General Reading

Pupils are expected to read at least three books (100 pages each) from the library in addition to the above.

4. Composition

- (i) Attention should be paid to punctuation, paragraphing and systematic presentation of ideas.
- (ii) Reproduction and building up of simple stories.
- (iii) Short narrative essays, describing familiar objects and places visited etc.
- (iv) Personal letters, invitations etc.
- (v) Exercises based on the text and the other books read from the library.
- (vi) Exercises in comprehension of unseen passages. Pupils should be expected to write 15 compositions.

5. Grammar

Revision of the work done in previous classes.

- (i) Compound sentences.
- (ii) Complex sentences with adjective, adverb and noun clauses.
- (iii) Transformation of sentences.
- (iv) Reported Speech : more advanced forms.
- (v) Prepositions.

6. Other Literary Activities

A few activities are suggested by way of guidance :

- (i) Reading out daily and weekly news bulletins.
- (ii) Celebrating national holidays and festivals suitably.
- (iii) Listening to radio broadcasts and discussing them.
- (iv) Debates.
- (v) Handwriting competitions.
- (vi) Writing diaries.
- (vii) Linguistic games.

Students should be encouraged, according to their natural aptitude, to do original writing of stories, poems, dramatic monologues, scenes from plays etc.

STANDARD - IX

Prose

About 70 pages (exclusive of notes and exercises etc.)

Poetry

About 400 lines suited to the age-group at this level.

About 50 lines will be for recitation.

General Reading

Pupils shall read at least three books (100 pages each) from the library introducing them to various forms of literature viz. plays, novels, essays, short-stories etc.

Composition

- (i) Paragraphing, systematic and logical presentation of ideas.
- (ii) Essays (narrative, descriptive and reflective) stories, character sketches suitable for the age-group at this level.
- (iii) Writing reports, advertisements, letters (formal and informal), writing of application, answers to advertisements etc.
- (iv) Exercises in comprehension and precis-writing.
- (v) Exercises based on the study of the text.
Pupils should be expected to write at least 12 compositions.

Grammar

Revision of previous work.

- (i) Transformation of sentences.
- (ii) Reported speech : more advanced, sequence of tenses.
- (iii) Synthesis of sentences.
- (iv) Word-building, phrases, idioms etc. as arising out of the text for intensive study.
- (v) Figures of speech as arising out of the text of intensive study (such as simple, metaphor and personification).
- (i) Punctuation.

Other Literary Activities

- (i) Use of reference books like dictionaries.
- (ii) Posters and class journals.

- (iii) Conducting school broadcasts.
- (iv) Small projects of preparing leaflets about books, persons, institutions etc.
- (v) Preparing advertisements.
- (vi) Literary exhibitions.

STANDARD-X

1. Prose

About 70 pages (exclusive of notes and exercises etc.)

2. Poetry

About 400 lines of modern poetry suited to the age-group at this level.

3. Composition

- (i) Essay : descriptive, narrative or reflective of about 300 words.
- (ii) Comprehension (with questions) of a prose passage of about 250 words and precis-writing.
- (iii) Appreciation of poems in the text-book.
- (iv) Letter-writing including business letters.

Pupils should be expected to write at least 12 compositions during the course of the year.

4. Grammar

- (i) Revision of work done in previous classes.
- (ii) Synthesis of sentences.
- (iii) Transformation of sentences.
- (iv) Reported speech.
- (v) Word-building, phrases and idioms arising out of the text.
- (vi) Figures of speech as arising out of the prose and poetry text for intensive study (such as Synecdoche, Metonymy, Transferred Epithet, Hyperbole and Irony).

2. Second Languages

Modern Indian Languages

Objectives :

To enable the pupils to –

1. develop listening, comprehension ; sharing the ideas of others.
2. develop skill in silent reading with comprehension.
3. acquire a fair knowledge of the structure of the language and the elements of grammar ;
4. enrich and enlarge their own vocabulary ;
5. acquire skill in speaking correct and simple language ;
6. acquire skill in writing correct and simple language in a legible and good hand ;
7. answer correctly in mother tongue questions on unseen prose passage in the language concerned within the range of the vocabulary.

Note :- In the teaching-learning process the objectives mentioned above can be achieved by using different aids of which the text book is a very important one. It is also necessary to see that the right type of method is adopted in teaching for the fulfilment of these objectives exploiting the class-room situation. Several of these objectives can be tested by means of the written examination, though objectives like speaking ability, taking part in a discussion, etc. will have to be tested by the teacher in the class.

2.1 Hindi

STANDARD – VIII

1. Prose

About 55 pages (exclusive of notes and exercises etc.).

2. Poetry

- (i) About 150 lines of modern poetry.
- (ii) About 80 lines from the above to be prescribed for recitation.

3. General Reading

- (i) A story-book of about 48 pages.
- (ii) Reading from children's Magazines and Newspapers.

4. Grammar

- (i) Revision of the portions done in Stds. V, VI and VII.
- (ii) Nouns, Pronouns and Adjectives, their kinds.
- (iii) Tenses.
- (iv) Word Formation-Nouns from Verbs, Adjectives from Nouns and vice-versa,
- (v) Idioms and proverbs arising out of the text.

5. Composition

- (i) Narrative essays.
- (ii) Descriptive essays.
- (iii) Report-writing.
- (iv) Short stories from given outlines.
- (v) Simple letters to friends and relatives.

Atleast 15 exercises, three each of the above types, should be written by a pupil during the course of the year. The composition should be of about 150 words each.

6. Oral work

- (i) Conversational practice.
- (ii) Story-telling.
- (iii) Reproduction of prose passages from the text.
- (iv) Describing a familiar topic.

The oral expression of the pupils should be tested from time to time and at the end of the year,

STANDARD - IX

1. Prose

About 48 pages (exclusive of notes and exercises etc.)

2. Poetry

About 120 lines of Modern Poetry, 50 lines from these to be prescribed for recitation.

3. Grammar

- (i) Revision of the portion done in the previous standards.
- (ii) General knowledge of the remaining parts of speech.
- (iii) Word-formation : use of Upasarga and Pratyaya.
- (iv) Use of cases.
- (v) Transformation of sentences, -from affirmative to negative, question into statement, statement into exclamation.
- (vi) Idioms and proverbs arising out of the text.

N. B, The teaching of grammar should be based on the prescribed text.

4. Composition

- (i) Descriptive essays.
- (ii) Report-writing.
- (iii) Preparing drafts for formal speeches.
- (iv) Comprehension of simple prose passages.
- (v) Formal letters-social.

At least 10 exercises, two each of the above types, should be written by a pupil during the course of the year. The composition should be of about 150 words each.

5. Oral work

It is expected that pupils should achieve sufficient proficiency in oral expression. Sufficient practice to develop the proficiency in the pupils should be given on the lines indicated in the Syllabus for Standard VIII. The oral expression of the pupils should be tested from time to time and at the end of the year.

STANDARD-X

1. Prose

About 48 pages (exclusive of notes, exercises etc.)

2. Poetry

About 120 lines of Modern Poetry.

3. Grammar

- (i) Revision of the portion done in the previous standards.
 - (ii) Auxiliary and causal verbs.
 - (iii) General knowledge of adverbs, prepositions and conjunctions.
 - (iv) Idioms and proverbs arising out of the text.
- N. B. The teaching of grammar should be based on the prescribed text.

4. Composition

- (i) Descriptive or narrative essays of 20 or 25 lines.
- (ii) Story writing from points, outlines or pictures.
- (iii) Comprehension of simple prose passages.
- (iv) Letter-writing-Personal and formal.
- (v) Preparing a short summary of unseen passages.

About 10 exercises, at least two each of the above types, should be written by a pupil during the course of the year.

2.2 Marathi

STANDARD-VIII

1. Oral Work

- (i) Conversational practice : Polite conversation on social occasions, participation in an interview.
- (ii) Story-telling.
- (iii) Preparation for written composition.
- (iv) Expressive recitation of prose passages.

2. Reading and Recitation

- (i) Prose :
About 60 pages from the prescribed Reader, exclusive of notes etc.
- (ii) Poetry :
About 120 lines of poetry (50 lines of old poetry from saint-poets.)
Recitation :
About 40 lines of poetry.
- (iii) Supplementary Reading :
4 books of about 32 pages each, selected from the pupils' library suitable to the level of the pupils.

3. Composition

- (i) Story-writing :
Building a story from points or an outline.
- (ii) Description of experiences, activities, incidents or places of interest.
- (iii) Letter-writing Personal.
- (vi) Comprehension Writing answers to simple questions on an unseen passage. A pupil should write at least 15 exercises during the year.

4. Grammar

- (i) Sentence and its two parts.
- (ii) Parts of speech : Nouns, Pronouns, Adjectives, Verbs, Adverbs, Indeclinables and their functions.

- (iii) Kinds of Nouns and Pronouns.
 (iv) Gender, Number and Person.

Gender :

The problem of knowing the gender of a noun in Marathi is a difficult one. Hence sufficient practice should be given in recognising genders of nouns from the text.

Number :

A few rules with a number of examples should be given to show how the changes in the formation of plurals of nouns are effected; e. g.

- (a) Masculine nouns ending in - आ; घोडा-घोडे, दरवाजा-दरवाजे, डोळा-डोळे.
 (b) Feminine nouns ending in - अ, ईभित-भिती, विहीर-विहीरी, पाटी-पाट्या
 वाटी-वाट्या, काठी-काठ्या.
 (c) Neuter nouns :

ending in अ : पान-पाने, पत्र-पत्रे.

ending in ऊ : लिबू-लिबे, वासरू-वासरे.

ending in ए : केळे-केळी, तळे-तळी.

- (v) Three tenses : present, past and future.
 (vi) Use of all marks of punctuation.
 (vii) Orthography : The following rules of orthography from मराठी साहित्य महामंडळ शुद्धलेखन नियमावली - Numbers 3, 5, 6, 7.
 (viii) Idioms and proverbs occurring in the text.

Note : While teaching grammar, pupils should be made familiar with the terminology of the grammar of Marathi. Vital differences regarding the use of structures and idioms in their mother tongue and Marathi should be brought to their notice. Efforts should be made to give the pupils adequate practice in the use of special forms peculiar to Marathi e. g. plurals, genders, tenses etc.

STANDARD-IX

Oral work

As for Standard VIII to be continued.

Reading and Recitation

i) Prose :

48 pages from the prescribed Reader, (exclusive of notes, exercises, pictures etc.

(ii) Poetry :

About 120 lines of poetry including 50 lines of old poetry from Saint-Poet
Recitation : About 40 lines of prose and poetry.

(iii) Supplementary Readings :

4 books of about 32 pages each, selected from the pupils' library.

3. Composition

(i) Story-writing from points or pictures

(ii) Description of experiences, activities.

(iii) Letter-writing : Personal letters. Formal letter such as writing of leave-notes and invitations.

(iv) Comprehension : Writing answers to simple questions on an unseen passage.
Listing the important points of a passage.

(Pupils are expected to write atleast 10 exercises during the year.)

4. Grammar

(i) Revision of the portions done in Std. VIII.

(ii) Case,

(iii) Formation of Samanya Roopa (सामान्यरूप) of nouns, pronouns and adjectives.

(iv) Kinds of Tenses : Simple Imperfect, Perfect, Habitual (रीती).

(v) Rules of Orthography from Marathi Sahitya Mahamandal.

(vi) Idioms and proverbs occurring in the text.

Note : While teaching grammar pupils should be made familiar with the terminology of Marathi Grammar. Vital differences regarding the use of structures and idioms in their mother-tongue and Marathi should be brought to their notice. Effort should be made to give the pupils adequate practice in the use of special forms peculiar to Marathi e. g, plurals, genders, tenses etc.

STANDARD-X

1. Oral work

(i) Adequate practice should be given to pupils on the lines suggested for previous standards.

(ii) Additional topics and activities :

(a) Short speeches at the time of various functions at the Class and School level.

(b) Dialogues from the text and outside.

(c) Giving the news of the day.

Reading

(i) Prose :

About 48 pages from the prescribed Reader (exclusive of notes, exercises, pictures etc.)

(ii) Poetry :

About 120 lines (including about 40 lines of old poetry.)

Composition

A pupil is expected to write at least 10 exercises during the year.

(i) Story - writing from points, outlines or pictures.

(ii) Descriptive or narrative essays of about 20 to 25 lines on topics connected with the personal experiences of the pupils.(Points may be given),

(iii) Letter-writing : personal and formal (invitations, orders, inquiries and complaints).

(iv) Applications and Reports.

(v) Comprehension : (a) Answers to simple questions on unseen passages.

(b) Preparing a short summary of unseen passages.

The passages should be within the vocabulary studied by the pupils and should not be more difficult than the textual matter studied by them,

Grammar

(i) Revision of the portion done in Standards VIII and IX.

(ii) Kinds of Verbs - transitive, intransitive; Introduction of Shakya (शक्य), Prayojaka (प्रयोजक) and Samyukta (संयुक्त) verbs.

(iii) Introduction of voices and moods.

(iv) Use of adverbs, conjunctions and prepositions.

(v) Introduction to Sandhis and Samasas as a feature of Marathi language, limited to examples occurring in the text. The emphasis should be on helping the pupils to understand the meaning. They are not expected to study details.

(vi) Kinds of sentences (Assertive, Interrogative, Imperative and Exclamatory).

(vii) Rules of Orthography.

(viii) Idioms and Proverbs occurring in the text.

2.3 Hindi

(Composite with Marathi or Sanskrit or Pali or Ardhamagadhi or Urdu)

STANDARD-VIII

Prose

About 30 pages (exclusive of notes and exercises etc.)

2. Poetry

- (i) About 75 lines of modern poetry.
- (ii) About 35 lines from the above to be prescribed for recitation.

3. General Reading

Reading from children's magazines and newspapers.

4. Composition

- (i) Descriptive essays.
- (ii) Short stories from outlines given.
- (iii) Simple letters to friends and relatives.

At least 8 exercises should be written by a pupil during the course of the year.
The size of the composition should be of about 120 words each.

5. Grammar

- (i) Revision of the portions done in previous standards.
- (ii) Tenses.
- (iii) Word-formation : Nouns from Verbs, Adjectives from Nouns and vice versa.
- (iv) Idioms and proverbs arising out of the text.

6. Oral work

- (i) Conversational practice
- (ii) Reproduction of prose passages.
- (iii) Story-telling.

The oral expression of the pupils should be tested from time to time and at the end of the year.

STANDARD - IX

1. Prose

About 24 pages (exclusive of notes, exercises etc.)

2. Poetry

About 60 lines of modern poetry.

3. General Reading from library

Reading from children's magazines and newspapers.

4. Grammar

- (i) Revision of the portions done in the previous standards.
- (ii) General knowledge of the parts of speech.

- (iii) Number, gender and cases.
- (iv) Word-formation ; Upasarga and Pratyaya.
- (v) Idioms and proverbs arising out of the text.

N. B. : The teaching of grammar should be based on the prescribed text.

5. Composition

- (i) Descriptive essays.
- (ii) Comprehension of simple prose passages.
- (iii) Story building.
- (iv) Formal letters : Social.

About 7 exercises at least, one each of the above types, should be written by the pupil during the course of the year.

Oral Work

It is expected that the pupils should achieve sufficient proficiency in oral expression. Sufficient practice to develop the proficiency be given on the lines indicated in the syllabus for standard VIII.

STANDARD-X

Prose

About 24 pages (exclusive of notes, exercises etc.)

Poetry

About 60 lines of modern poetry.

General Reading from library

Reading form children's magazines and newspapers.

Grammar

- (i) Revision of the portions done in the previous standards.
- (ii) Detailed study of tenses.
- (iii) Kridanta (कृदन्त), Taddhita (तद्धित).
- (iv) Kinds of sentences.
- (v) Idioms and proverbs arising out of the texts.

N. B. : The teaching of grammar should be based on the prescribed text.

Composition

- (i) Narrative essays.
- (ii) Autobiography.
- (iii) Report-writing.

(iv) Formal letters : Business.

About 7 exercises (at least one each of the above types) should be written by the pupil during the course of the year.

6. Oral work

It is expected that the pupils should achieve sufficient proficiency in oral expression. Sufficient practice to develop the proficiency should be given on the lines indicated in the syllabus for Std. IX.

2.4 Marathi

(Composite with Hindi or Sanskrit or Pali or Ardhamagadhi)

STANDARD-VIII

1. Oral work

Pupils should be given opportunities to express themselves clearly and correctly in the classroom and on social occasions.

2. Reading and Recitation

(i) Prose :

About 30 pages from the prescribed Reader, (exclusive of notes, pictures exercises etc).

(ii) Poetry :

About 60 lines of poetry (about 30 lines for recitation)

(iii) Supplementary reading :

One or two books with a total of about 64 pages from the pupils' library suited to the level of the pupils.

3. Composition

8 exercises should be written by the pupils during the year.

(i) Story-writing :

Reproduction of stories read or heard. Building a story from points, an outline, or pictures.

(ii) Letter writing :

Personal : relatives, friends, neighbours etc,

(iii) Descriptions of activities or experiences.

4. Grammar

(i) The main parts of simple sentence.

(ii) Parts of speech.

(iii) Gender, number and person.

Typical examples of words in common use.

(iv) Use of punctuation marks,

(v) Orthography Rules No. 1,3 and 5 of Marathi Sahitya Mahamandal.

Note : The emphasis should be on functional grammar and not on definitions. Efforts should be made to give pupils adequate practice in the use of special forms peculiar to Marathi plurals, genders, tenses etc.

STANDARD-IX AND X

The syllabus prescribed for Std. IX for Marathi (second language) should be completed in standards IX and X.

2.5 Urdu (Second or Third Language)

STANDARD - VIII

Note : Oral work and writing practice :

The first two months be devoted to giving the pupils some practice in speaking and writing. Simple questions on topics of common interest may be asked and answers elicited. The pupils be familiarised with the intricacies of the Urdu script through B. B. work followed by writing practice.

Prose

About 40 to 50 pages of simple Urdu Prose containing short stories from folklore, and/or passages relating matters of national interest and/or describing things of common interest etc.

Poetry

About 100 to 120 lines or 50 to 60 couplets.

(Some of the selected couplets may be from folk-songs or well known lines of a proverbial nature)

Recitation

About 15 to 20 lines.

Supplementary Reading

A small story book of about 40 to 50 pages from the pupils' library.

Composition

(i) Comprehension of simple prose passages.

(ii) Story-writing based on a given outline.

(iii) Descriptive and narrative essays.

Note : At least about 6 written exercises be done during the session.

6. Grammar

Functional grammar :

(i) Singulars and plurals :

Some practice in the formation of Urdu - plurals should be given during the study of the Text-Book.

(ii) Gender :

Study of gender in Urdu be done along with the study of the Text.

STANDARD-IX

Reading and Recitation

1. Prose

About 48 pages (exclusive of introduction and exercises, etc.)

2. Poetry

About 150 lines or 75 couplets.

3. Recitation

About 25 couplets or 50 lines from the Reader prescribed,

4. Supplementary Reading

A book of about 64 pages from the library to be read.

5. Hand writing

(i) Transcription of a short paragraph in good legible hand.

(ii) Copy-writing in ink, about 24 pages.

6. Composition

(i) Story writing : Building a story from given points.

(ii) Description : To describe in good language pupil's own experiences, observations and incidents.

(iii) Letter-writing : Personal letters to relatives etc.

(iv) Comprehension : Writing answers to simple questions on an unseen passage.

(v) Expansion of an idea.

7. Grammar

(i) Sentence and its two parts.

(ii) Parts of speech, nouns, pronouns, adjectives, adverbs, verbs.

- (iii) Kinds of nouns and pronouns.
- (iv) Gender, Number and Person.
- (v) Use of all punctuation marks.
- (vi) Rules of orthography.
- (vii) Simple word-formation.
- (viii) Idioms, proverbs and phrases as arising out of the text.

STANDARD - X

1. Prose

About 55 pages exclusive of introductory and exercises etc.

2. Poetry

About 80 couplets or 160 lines.

3. Composition

- (i) Story writing on the points given.
- (ii) Description ;
 - (a) Autobiographies.
 - (b) Descriptive and narrative essays of about three paragraphs and about 15 to 20 lines on topics connected with personal experiences.
- (iii) Letter-writing : Personal letters to relatives, Business letters.
- (iv) Simple dialogues based on personal experiences.
- (v) Comprehension.
- (vi) Precis writing of an unseen prose passage (narrative or descriptive).
About 8 exercises should be written by the pupils during the year.

4. Grammar

Revision of portion done in previous Standards.

- (i) Letter of the alphabet, long and short vowels. semivowels and consonants.
- (ii) Kinds of adjective, adverbs and verbs.
- (iii) Case.
- (iv) Kinds of sentences : assertive, interrogative, imperative and exclamatory; affirmative and negative.
- (v) Simple transformation of sentences.

2.6 Urdu

(COMPOSITE WITH HINDI)

STANDARD - VIII

1. Prose

27 pages approximately (exclusive of exercises, notes etc.)

2. Poetry

75 lines (i. e. 35 couplets) approximately.

3. Composition

(i) Narrative essays.

(ii) Describing scenes, objects and places of visits.

(iii) Framing stories from given out-lines.

(iv) Simple letters to relatives.

At least 7 exercises should be written by the pupils. Each composition should be of 150 words.

4. Grammar

(i) Parts of speech.

(ii) Idioms and phrases (arising out of text)

(iii) Figures of speech : Tashbeeh, Iste-a-ara.

Note : Teaching of grammar should be based on the prescribed text.

STANDARD - IX

1. Prose

27 pages approximately (exclusive of exercises, notes etc.)

2. Poetry

75 lines (i. e. 35 couplets) approximately.

3. Composition

(i) Descriptive essays

(ii) Biographies

(iii) Precis writing

(iv) Letters to friends.

At least 7 exercises should be done by the pupils during the course of the year.
Each composition should be of about 150 words.

4. Grammar

- (i) Kinds of Noun : abstract noun, collective noun.
- (ii) Kinds of Pronoun : Shakhsi
Istifhami
Ishara.
- (iii) Figures of speech : Talmeeh, Tazad.
- (iv) Formation of words :
Prefixes and Suffixes.

Note - The teaching of grammar should be based on the prescribed text.

STANDARD — X

1. Prose

27 pages approximately (exclusive of exercises, notes etc.)

2. Poetry

75 lines (i. e. 35 couplets) approximately.

3. Composition

- (i) Reflective essays.
- (ii) Imaginative description.
- (iii) Expansion of ideas.
- (iv) Letter-writing.
Applications ; Business letters
- (v) Autobiographies.

At least 7 exercises should be written by the pupils during the course of the year.
Each composition should be of about 150 words.

4. Grammar

- (i) Tenses.
- (ii) Proverbs and idioms occurring in the text.
- (iii) Figures of Speech : Tajnees - Tami.
Tajnees - e - Nagis and revision of the portion done in Standards VIII and IX.

Note—The teaching of grammar should be based on the prescribed text.

2.7 Gujarati

STANDARD - VIII

1. Prose

48 pages (excluding notes and exercises etc.)

2. Poetry

90 lines

3. Grammar

(i) Parts of speech : Nouns, pronouns, adjectives, verbs, adverbs.

(ii) Kinds of Nouns and Pronouns.

(iii) Gender and Number

(iv) Idioms and proverbs occurring in the text.

(v) Punctuations.

4. Composition

(i) Story-writing :

Building a story from points or an outline.

(ii) Description of experiences, activities, places of interest.

(iii) Letter-writing : Personal.

STANDARD-IX

1. Prose

48 pages (excluding notes and exercises etc.)

2. Poetry

90 lines.

3. Grammar

(i) Revision of the portions done in Std. VIII.

(ii) Case.

(iii) Kinds of Tenses : Simple, Imperfect, Perfect.

(iv) Idioms and proverbs occurring in the text.

4. Composition

(i) Story-writing from given points.

(ii) Description of experiences, activities.

(iii) Letter-writing : Personal letters.

(iv) Comprehension : Writing answers to simple questions on an unseen passage.

STANDARD — X

Prose

60 pages (excluding notes and exercises etc,)

Poetry

120 lines.

Grammar

- (i) Revision of the portion done in Stds. VIII and IX.
- (ii) Use of adverbs and conjunctions.
- (iii) Introduction to Sandhis and Samasas as a feature of Gujarati language, limited to examples occurring in the text. The emphaasis should be on helping the pupils to understand the meaning. They are not expected to study details.
- (iv) Kinds of sentences : Assertive, Interrogative, Imperative and Exclamatory.
- (v) Idioms and proverbs occurring in the text.

Composition

- (i) Story-writing from points, outlines or pictures.
- (ii) Descriptive or narrative essays. (Points may be given.)
- (iii) Letter-writing : Personal and Formal.
- (iv) Applications and Reports.
- (v) Comprehension : Answers to simple questions on unseen passages.

2.8 Kannad

2.9 Tamil

2.10 Telugu

2.11 Malyalam

STANDARD-VIII

Prose

About 50 pages exclusive of introduction exercises etc.

Poetry

About 120 lines. (45 lines Medieval Poetry and the rest Modern Poetry)

3. Recitation

About 40 lines.

4. Supplementary Reading

2 books of about 32 pages each selected from the pupils' library.

5. Composition

- 1) Story-writing based on given points or outlines.
 - 2) Narrative essays of about 100 words mainly based on experiences, activities, incidents or places of interest.
 - 3) Letter-writing—Letters to relatives and friends.
 - 4) Comprehension of a simple prose passage of about 100 words.
- N. B. Atleast 12 exercises be done during the year.

**Syllabus in Grammar
STANDARD-VIII**

2.8 Kannad

- 1) Swara, Vyanjana.
- 2) Vakya Mattu Vakya Ghatakagalu.
- 3) Namagalu, Sarvanamagalu.
- 4) Linga, Vachana, Purusha.
- 5) Vibhakti, Mattu Vibhakti Pratyayagalu.
- 6) Kriyapada - Bhuta, Vartamana Mattu Bhavishya.

2.9 Tamil

1. Alphabets - Vyirerguthu, Maiyeguthu, Uyiemai and Ayutha Equthu.
2. Words - Nouns and kinds of nouns. Verbs - tenses.
3. Sandhi - Combination of simple words.
4. Sentences - Subject, Predicate, Object.

2.10 Telugu

- (i) Swaramulu, Vyanjanamulu.
- (ii) Padamulu, Krudantamulu, Tadditantamulu.
- (iii) Drutamulu, Kalalu, Purusha, Ling. Vachanamu, Vibhaktulu.
- (iv) Tatsgma, Tadbhava, Deshya, Gramya.
- (v) Bhashabhegamulu (with examples)

2.11 Malyalam

- Sentence :1) Akhya and Akhyalam.
2) Parts of Speech
3) Namam and Kriya.
4) Kartha, Karmam of Kriya.
5) Kinds of nouns (Dhaya, Gnna, Kriya and Samoohanamam.)

STANDARD - IX

1. Prose

About 50 pages exclusive of introduction, excercises etc.

2. Poetry

About 125 lines (50 lines medieval poetry and the rest modern poetry).

3. Recitation

45 lines.

4. Supplementary Reading

3 books of 32 pages each selected from the pupils' library.

Composition

- (1) Story-writing based on given points or outlines.
- (2) Narrative and Descriptive Essays of about 120 words, mainly based on experie-
nce, activites, incidents or places of interest.
- (3) Letter-writing : Letters to Relatives, Friends and Teachers.
- (4) Comprehension of a simple prose passage of about 120 words.

I. B. : At least 12 exercises be done by the pupils during the year.

Syllabus in Grammar

STANDARD - IX

2.8 Kannad

1. Sandhis, Samasas.
2. Vakya Prakaragalu
3. Visheshana, Avyaya.
4. Sulbha Shabdarachanegalu.
5. Padenudi, Nannudi.

2.9 Tamil

1. Words : Noun-Thinai, Pal Enu, Idam, Vetrumai.
2. Sandhi : Udampadu Mai, Vallinam Migum Idangal, Vallinam Miga Idangal
3. Sentence : Punctuation marks.

2.10 Telugu

- (i) Sadharana vaky Nirmanamu,
- (ii) Karta, Karma, Kriya, Kalamulu (Tenses)
- (iii) Prayogamulu.
- (iv) Sanskruta Sandhulu.
- (v) Samasamulu - Avyayeebhava, Tatpurusha, Karmadharaya.

2-11 Malayalam

1. Kriya and kinds of kriya ; (1) Sakarmakam-Akramakam (2) Poornam and Apornam.
2. Gender - Pullingum, Strilingam and Napoosakalingam.
3. Number : Ekvachanam and Bahoovachanam.
4. Case : 7 kinds of vibhakties.
5. Kriya : Three kinds of tenses.
6. Gathi of Katakam.

STANDARD-X

1. Prose

About 55 pages exclusive of introductions, exercises etc.

2. Poetry

About 135 lines (50 lines medieval poetry and the rest modern poetry).

3. Composition

- 1) Story-writing – based on given points or out lines
 - 2) Narrative and Des essays of about 125 words mainly based on experiences, activities incidents or places of interests
 - 3) Autoboigraphic –
 - 4) Composition of a simple prose passage of about 125 words.
 - 5) Letters to 1) relatives, friends, teachers (2) Bussiness – letters
- N. B. Atleast 12 exercises be done during the year.

Grammar

2.8 Kannad

STANDARD-X

Samanya Vakya Vibhajane
Kartru, Karma Mattu Kriyapada
Namavisheshana, Kriyavisheshana.
Kartari Mattu Karmani Prayoga.
Sulabha Shabda – rachanegalu
Padenudi, Nannudi,

2.9 Tamil

STANDARD-X

1. Words – Vetrumaigal Eight and their Urubugal
2. Verbs – Finite and infinite verb, Udanbadu,
Eltirmarai Vinaimutru, Peyarecham,
Sentence – Kinds of sentence – 4 kinds
Proverbs – arising out of the text.

2.10 Telugu

STANDARD-X

- (i) Vakyabhedamulu (More details)
- (ii) Prayogamula Marpidi (Chonges)
- (iii) Idioms and Proverlas as arising out of Text.

(iv) Telugu Sandhulu.

(v) Samasmulu – Bahuvrihi, Dvigu, Dvandva

2.11 Malayalam

STANDARD-X

1. Elementary study of sandhis (4 kinds)
2. Visheshanam-3 Kinds-Nama Vishshenam Kriya Visheshanam and Vishesavishesa
3. Elementry study of Samasa : 4 Kinds
4. Changing Namam to Visheshnamam and ViceVersa.
5. Elementry study of idioms and proverbs arising out of the text book.

2.12 Sindhi

2.13 Punjabi

2.14 Bengali

STANDARD - VIII

Reading & Recitation :-

1. Prose

About 50 pages exclusive of introduction & exercises,

2. Poetry

About 150 lines including about 30 to 40 lines of old poetry.

3. Recitstion

About 50 lines from the prescribed text.

4. SuPplementary Reading

A book of about 50 to 60 pages from the library stories. biographics etc.

5. Composition

A papil is expected to write at least 10 exerclses during the year,

- a) Story writing from given outlines – 8 to 10 lines each.
- b) Present letters to relatives, frinds each of about 30 words.
- c) Simple descriptive essays of about 100 words each.

Grammar

- i) Simple parts of speech Nouns, adjectives and verbs.
- i) Use of punctuation marks—fullstop, coma, question.

STANDARD-IX

Prose

About 60 pages exclusive of introduction and exercises.

Poetry

About 200 lines (50 lines from old poetry)

Supplementary Reading

A book of about 60 to 70 pages from the library to be read.

Composition

- i) Story writing ; Building a story from given points of 10 - 15 lines each.
- ii) Letter writing ; Personal letters to relatives and friends each 30-35 words.
- ii) Essay writing : Essay about 20-25 lines
 - (i) Narrative Type
 - (ii) Descriptive Type

Grammar

- i) Sentence and its two parts.
- i) Parts of Speech (Verbs and Adverbs)
- i) Gender, Number and persons,
- i) Use of all punctuation marks.
- i) Simple word formation.
- i) Idioms, Proverbs and phrases as arising out of the Text.

STANDARD-X

Prose

About 60 pages.

Poetry

- i) About 200 lines including about 50 lines from old poetry.

3. Composition

(A pupil is expected to write at least 12 exercises during the year)

- (i) Story building from given outlines, points or pictures.
- (ii) Narrative and Descriptive essays.
- (iii) Letter writing : (i) Personal Letters to relatives and friends.
(ii) Business letters.
- (iv) Simple dialogues based on personal experience.
- (v) Autobiographies.
- (vi) Comprehension of unseen prose passage of about 100 words
(narrative or descriptive)

4. Grammar

- (i) Revision of the work done in the previous standards
- (ii) Word formation.
- (iii) Kinds of sentences assertive, interrogative, imperative, exclamatory, affirmative, negative.
- (iv) Simple transformation of sentences.
- (v) Idioms, proverbs and phrases as arising out of the texts.

Classical Languages

2.15 Sanskrit / Pali / Ardhamagadhi

Objectives

1. To enable pupils to have a fair acquaintance with the structure of Sanskrit/Pali/Ardhamagadhi language and elements of Sanskrit/Pali/Ardhamagadhi Grammar.
2. To create in them an awareness of the close relationship between Sanskrit / Pali / Ardhamagadhi on the one hand and the mother tongue the original language and the national language on the other.
3. To introduce pupils to the rich vocabulary in Sanskrit / Pali / Ardhamagadhi and its word building potential.
4. To enable them to enrich the vocabulary and expression of their mother-tongue with help of the knowledge of Sanskrit / Pali / Ardhamagadhi.
5. To train them in the fluent reading and recitation of Sanskrit / Pali / Ardhamagadhi with due regard to correct pronunciation, intonation and rhythm.

To encourage pupils to learn by heart meorable subhashitas Stanzas (गथा) subhashites in Sanskrit/Pali/Ardhamagadhi for pleasure and enlightenment.

To enable them to understand simple passages from Sanskrit/Pali/Ardhamagadhi Literature and appreciate their beauties,

To arose in them active interest in Sanskrit/Pali/Ardhamagadhi Literature so that they may get an idea of the great heritage of ancient Indian Traditions, wisdom and culture preserved in it.

2.15 Sanskrit

STANDARD-VIII

Prose

About 300 lines.

Poetry

About 100 lines, out of which 40 should be prescribed for recitation.

Grammar :

A) Acquintance with the Sanskrit alphabet

(Attention should be paid to correct and clear pronounciation.)

B) Pupils should be able to decline the following nouns and pronouns :-

Nouns :	1) Masculine - Ending in	अ - देव, राम
	Ending in	इ - कवि, हरि
2) Feminine -	Ending in	आ - माला, रमा,
	Ending in	इ - मति, रात्रि,
	Ending in	ई - नदी, नगरी,
3) Neuter	Ending in	अ - वन, पुष्प
	Ending in	इ - वारि.

Pronouns : 1) तद्, यद्, एतद्, किम्, अस्मद् आणि युष्मद्

Declensional forms of other nouns and pronouns occurring in the prescribed Text-book should be studied for recognition and comprehension.

C) Elementary knowledge of कारक S

- D) Pupils should be able to conjugate in the present and imperative tenses parasmaipadi and Atmanepadi roots of frequent occurrence from the 1st, 4th, 6th and 10th conjugations i. e. वम् व रम्, नम् व विद्, लिख व भु पुञ् व अर्थ,

Conjugational forms of other roots such as अस् and कृ occurring in the prescribed Text-book should be studied only for recognition and comprehension.

- E) Introduction of उपसर्गS of common occurrence and the changes in the roots. Change in the meaning, addition of force to the meaning and change in Pada that take place due to उपसर्ग S

F) **Vowel Sandhis :**

सवर्गा-दीर्घ, गुण and वृद्धि

4. Written work :

Types of written work based on Grammar and reading lessons in the prescribed text.

- 1) Translation into mother-tongue of Sanskrit sentences occurring in the Text-book and Similar simple sentences from outside. About 50 sentences in the course of the year.
- 2) Answer in the mother-tongue to questions on comprehension.
- 3) Questions on the Grammar portions giving aid and recognising forms.
- 4) Study of words : Synonyms and Antonyms filling in the gaps with appropriate words etc.
- 5) Matching parts of sentences.

STANDARD - IX

1. Prose

About 325 lines.

2. Poetry

About 100 lines out of which 40 lines shall be for recitation,

The students should be encouraged to make proper use in essays or talk in mother-tongue, of portion learnt for recitation,

3. Grammar

The pattern of Grammar prescribed for Standard VIII should be revised according to the need, as the knowledge that grammar has been presupposed for this syllabus.

(a) Declensions of the following nouns and pronouns.

Nouns :	(1)	Masculine	- Ending in	उ - तरू, भानु
		Feminine	- Ending in	उ - धेनु, तनु,
			Ending in	उ - बधू
		Neutar	- Ending in	उ - मधु

(2) Rikaranta (ऋकारान्त) nouns

Masculine पितृ

Feminine मातृ

Neutar नेतृ

(3) Takaranta (त्कारान्त) nouns

Masculine मरूत्

Feminine विद्युत्

Neutar जगत

Sakaranta (स्कारान्त) nouns

Masculine चन्द्रमस्

Feminine अप्सरस्

Neusar पयस्

Pronouns : Forms occurring in the Text-Book of nouns other than the above and of pronouns other than those already studied previously should be studied for recognition of their forms and knowing their meanings.

(b) **Roots** :

(1) Parasmaipadi and Atmanepadi. Imperfect प्रथम भूतकाल, and Potential विद्यर्थ forms of roots from the 1st. 4th. 6th and 10th conjugations, of ten in use,

(b) The forms in the present tense (वर्तमान काल)

Imperfect (प्रथम भूतकाल) Adnyarth (आशार्थ) and Vidhyarth (विध्यर्थ) of the following roots.

Second gana या आणि अस्

Eighth gana कृ

The forms of other roots, occurring in the Text - Book should be studied for recognition and knowing their meanings.

- (c) Sandhis : 1. स्वरसंधि - यण् and अयादि
2. विसर्गसंधि- all forms.
- (d) समास : द्वंद्व आणि अव्ययी भाव
- (e) Introduction of Infinitives of purpose ending in तुम् and Gerunds ending in त्वा, य and ल्या
- (f) Recognition of Bhutalwachaka (भूतकालवाचक धातुसाधित and Vidhyartha Dhatusadhit (विद्यर्थी धातुसाधित) adjectives
Students' attention should be drawn to the Dhatusadhit adjectives which are used in place of verbs in Sanskrit. Further the usage of the above two Dhatusadhit adjectives in Indian Languages should be explained to students with illustrations.
- (g) Recognition of kartari karmani and Bhave Prayogas (The change of voice not expected.)

4. Composition.

Exercises based on the lessons and Grammar in Text - Book.

1. Translation of sentences from Text - book and similar simple unseen sentences about 60 during the year.
2. Answers in mother tongue to questions for comprehension.
3. Explanation in mother-tongue of Subhashitas from the Text-Book.
4. Questions on Grammar - giving and recognising forms.
5. Study of words : Synonyms and Antonyms and Vakyapurti.

STANDARD - X

Syllabus of courses in Sanskrit Second language.

1. Prose

About 375 lines.

2. Poetry

About 140 lines out of which 60 lines should be for recitation,

3. Grammar

The knowledge of grammar from the syllabus for the preceding standards presupposed.

a) Declensions of the following nouns and pronouns

Nouns -	त्कारान्त	-	भगवत्
	इन्द्रन्त	-	शशिन् आणि करिन्
	नकारान्त	-	राजन्, आत्मन्, कर्मन्
	चकारान्त	-	वाच्,
	श्कारान्त	-	दिश्

Pronouns - इद्म्

The forms of nouns and pronouns other than the above words, occurring in the Text-book, should be studied with a view to knowing their meanings and recognising their forms.

b) Conjugation of the following roots.

1) Present, imperfect-Adhyartha and Vidhyartha

Second Gana	क्
Third Gana	दा
Fifth Gana	आप श्रु
Seventh Gana	भृज्
Eighth Gana	तन्
Ninth Gana	शा ज्ञा आणि ग्रह्य

The forms of other roots occurring in the Text-book should be studied with a view to knowing their meanings and recognising their forms.

2) Second future tense : वम्, भ्, आप कृ, नी, दा and वच्

3) परोक्ष भूतकाल, सामान्य भूतकाल, इच्छार्थक.

c) व्यंजनसंधि

d) Vartamankalwachak Dhatusandhita Visheshanas

(वर्तमानकालवाचक धातुसाधित विशेषणे - अत् आन आणि मान (प्रत्ययान्त)

e) The Proyojak forms of verb only for recognition and knowing their meaning :

f) Sankhyawachak adjectives संख्यावाचक विशेषणे from एक and Avruttiwachak आवृत्तिवाचके derived therefrom.

g) समास - कर्मधारय, तत्पुरुष, द्विगु, बहुव्रीहि

h) तरतमभाव वाचके

4. Composition :

Exercises based on the lessons and grammar in the Text-book.

- 1) Translation of extracts from the Text-book and Similar simple extracts from outside (about 75 sentences during the year),
- 2) Answers in mother-tongue to questions for comprehension (These questions for comprehension (These questions should also be in the mother tongue)
- 3) Questions on Grammar giving and recognising forms.
- 4) Study of words : Synonyms, Antonyms and Wakya-purti.
- 5) Pairing of broken sentences.

5. Other activities :-

Students should be encouraged to undertake following activities according to their, aptitude.

- 1) Collection of synonymous words.
- 2) Collection of Sanskrit sayings in use in the mother-tongue.
- 3) Recitation of Sanskrit prayers in use (with meaning)
- 4) Reading of Sanskrit dialogues with correct and clear pronunciations.

2.16 Sanskrit

(Composite with Hindi or Marathi)

STANDARD-VIII

1. Prose

About 225 lines.

2. Poetry

About 60 lines, out of which 30 should be prescribed for recitation.

3. Grammar

- (a) Acquaintance with the Sanskrit alphabet (Attention should be paid to correct and clear pronunciation).
- (b) Pupils should be able to decline following nouns and pronouns.

Nouns	:	(1) Masculine - ending in	अ	eg.	देव, राम
			इ	eg.	कवि, हरि,
(2) Feminine - ending in	:	आ	इ	eg.	माला, रमा,
			ई	eg.	पति, रात्रि
			ई	eg.	नदी, नगरी
(3) Neuter - ending in	:	अ	अ	eg.	वन, पुष्प
			इ	eg.	वारि

Pronouns 1) तद्, यद्, एतद्, किम्, अस्मद् and युष्मद्

(Only for recognition of forms)

Declensional forms of other nouns and pronouns occurring in the prescribed Text-Book should be studied for recognition and comprehension.

- (c) Elementary knowledge of कारक S
- (d) Pupils should be able to conjugate in the present वर्तमानकाल and imperative tenses Paramaipadi परस्मैपदी and atmanepadi आत्मनेपदी roots of frequent occurrence from the 1 st, 4 th, 6 th and 10 th conjugations. गम् - रम्, नश् - विद् लिख् - मुच् व पूज् - अर्थ Conjugational forms of other roots such as अस् and कृ occurring in the prescribed Text-Book should be studied only for recognition and comprehension,
- (e) Introduction of उपसर्ग S of common occurrence and the changes in the roots-change in meaning adding force to the meaning and in Pada that takes place due to उपसर्ग S
- (f) Vowel Sandhis - सवर्ण - दीर्घ गुण and वृद्धि

4. Written work

Types of written work based on Grammar and reading lessons in the prescribed text-

- 1) (a) Translation into mother-tongue of Sanskrit sentences occurring in the Text and about 50 similar sentences from outside in the course of the year.
- 2) Answers in the mother-tongue to questions on comprehension.
- 3) Question on the Grammar portion; guiding and recognising forms.
- 4) Study of words : Synonyms and Antonyms, filling in the gaps with appropriate words etc.
- 5) Matching parts of sentences.

STANDARD - IX

1. Prose

About 230 lines.

2. Poetry

About 80 lines out of which 30 shall be for recitation.

The students should be encouraged to make proper use in essays or talk in mother-tongue, of portion learnt for recitation.

3. Grammar

The portion of Grammar prescribed for standard VIII should be revised according to the need as the knowledge of that grammar has been presupposed for this syllabus,

(a) Declensions of the following nouns and pronouns.

Nouns :	(1)	Masculine - Ending in	उ - तरु, भानु	
		Feminine - Ending in	उ - घेनु, तनु,	
		Ending in	उ - वधू	
		Neutar - Ending in	उ - मधु	
	(2)	Rikaranta	(ऋकारान्त)	nouns
		Masculine	पितृ	
		Feminine	मातृ	
		Neutar	नेतृ	
	(3)	Takaranta	(त्कारान्त)	nouns
		Masculine	मरुत्	
		Feminine	विद्युत्	
		Neutar	जगत	
		Sakaranta	(स्कारान्त)	nouns
		Masculine	चन्द्रमस्	
		Feminine	अप्सरस्	
		Neutar	पयस्	

Pronouns : Forms occurring in the Text-Book of nouns other than the above and pronouns other than those already studied previously should be studied ; recognition of their forms and knowing their meanings.

(b) **Roots :**

(1) **Parasmaipadi and Atmanepadi.** Imperfect प्रथम भूतकाल, and Potential विद्यर्थ forms of roots from the 1st. 4th. 6th and 10 th conjungations, of ten in use,

(b) The forms in the present tense (वर्तमान काल)

Imperfect (प्रथम भूतकाल) Adnyarth (आज्ञार्थ) and Vidhyarth (विध्यर्थ) of the following roots.

Second gana या आणि अस्

Eighth gana कृ

The forms of other roots, occuring in the Text-Book should also be studied for recognition and the knowing their meanings.

c) Sandhis : 1. स्वरसंधि – यण् and अयादि

2. विसर्ग संधि – all forms.

d) समास द्वंद्व आणि अव्ययी भाव

e) Introduction of Infinitives of purposes ending in तुम् and Gerunds ending in त्वा, य and ल्या.

f) Recognition of Bhutkalwachaka Dhatusandh Visheshanas (भूतकालवाचक धातुसाधित विशेषणे) and Vidhyartha Dhatusandhit [विद्यर्थी धातुसाधित विशेषणे]
The Students' attension should be drawn to the Dhatusandhit adjectives which are used in place of verbs in Sanskrit. Further the usage of the above two Dhatusandhit adjectives in Indian Languages should be explained to students with illustrations.

4. Composition :

Exercises based on the lessons and grammar in the Text-book.

- 1) Translation of extracts from the Text-book and Similar simple unseen sentences about 60 during the year.
- 2) Answers in mother-tongue to questions for comprehension.
- 3) Explanation in mother-tongue of Subhashitas for the Text.
- 4) Questions of Grammar giving and recognising forms.
- 5) Study of words : Synonyms, Anotonyms and Wakyapurti.

STANDARD-X

1. Prose :

About 240 lines.

2. Poetry :

About 60 lines out of which 30 lines should be for recitation,

3. Grammar :

The knowledge of grammar from the syllabus for the preceding standards is presupposed.

a) Declensions of the following nouns and pronouns

Nouns -	त्कारान्त	-	भगवत्
	इभ्रन्त	-	शशिन् आणि करिन्
	नकारान्त	-	राजन्, आत्मन्, कर्त्तृन्
	चकारान्त	-	वाच्
	शकारान्त	-	दिश्

Pronouns - इद्म् Only for recognition of form

The forms of nouns and pronouns other than the above words, occurring in the Text-book, should be studied with a view to knowing their meanings and recognising their forms.

b) Conjugation of the following roots.

1) Present, imperfect-Adhyartha and Vidhyartha

Second Gana	व्
Third Gana	दा Only for recognition of forms
Fifth Gana	आपश्चु
Seventh Gana	भुज् Only for recognition for forms
Eighth Gana	तन्
Ninth Gana	ज्ञा आणि ग्रह्य

The forms of other roots occurring in the Text-book should be studied with a view to knowing their meanings and recognising their forms.

2) Second future tense : वम्, भ्, आप कृ, नी, दा and वच्

Only for recognition of forms

- c) व्यंजनसंधि
- d) Vartamankalwachak Dhatusandita Visheshanas
(वर्तमानकालवाचक धातुसंधित विशेषणे - ऋत् आन आणि मान प्रत्ययान्त)
(Only for recognition of forms.)
- e) The Proyojak forms of verb only for recognition and knowing their meaning :
- f) Sankhyawachak adjectives संख्यावाचक विशेषणे from एक to विंशती and the
Kramwachak क्रमवाचक adjectives and Avruttiwachaks (आवृत्तिवाचक)
derived therefrom.
- g) समास - कर्मधारय, तत्पुरुष, द्विगु, बहुव्रीहि

Composition

Exercise based on the lessons and grammar in the Text-book.

- 1) Translation of extracts from the Text-book and Similar simple extracts from outside (about 75 sentences during the year).
- 2) Answers in mother-tongue to questions for comprehension (These questions for comprehension (These questions should also be in the mother tongue)
- 3) Questions on Grammar given and recognising forms.
- 4) Study of words : Synonyms, Antonyms and Wakyparti.
- 5) Pairing of broken sentences.

Other activities

Students should be encouraged to undertake following activities according to their aptitude.

- 1) Collection of synonymous words.
 - 2) Collection of Sanskrit sayings in use in the mother-tongue.
 - 3) Recitation of Sanskrit prayers in use (with meaning)
 - 4) Reading of Sanskrit dialogues with correct and clear pronunciations.
-

2.17 Pali

STANDARD-VIII

1. Prose

About 300 lines.

2. Poetry

About 100 lines out of which 40 should be prescribed for recitation.

3. Grammar

- (a) Acquaintance with Pali alphabets (पाली वर्णमाला) स्वर आणि व्यंजने
- (b) To study वर्ण विकार & नामरूपसाधन,
- (c) Changes that take place in Pali in विसर्ग सन्धी in Sanskrit.
- (d) Changes that take place in Pali of the असंयुक्त & संयुक्त व्यंजण in Sanskrit आदेश & अन्त्य places.
- (e) Declension of the following Nouns & Pronouns
 - (1) Masculine Gender : बुद्ध, पितु, भिक्षू, इसि
 - (2) Feminine Gender : माला, मही, वहू, धीता
 - (3) Neuter Gender : वन, मधू, चरण
 - (4) Pronouns : Declension's of 3. म्ह, तुम्ह
- (f) (1) Declensions of the following roots, Present and Past tenses Imperative mood.

अकारान्त १, गच्छ, आकारान्त १, गा, एकारान्त १, ने, ओकारान्त १, हो

- (g) Past Passive Participles, हेस्वर्यक अव्यय and पूर्वकालवाचक, धातुसाधित अव्यय

4. Text : पालि प्रवेशिका (पालि - पवेसो) इयत्ता नववी

Published by Maharashtra State Board of Secondary Education, Pune.

Prose : Lessons 1, 2, 3, 4, 6, 8, 9, 11, 12, 13, 14, 16, 17.

Poetry : Lesson Nos. 5, 7, 10, 14, 15.

STANDARD - IX

1. Prose

About 325 lines.

Poetry

About 100 lines out of which about 50 should be for recitation. Students should be encouraged to make proper use in essays or talk in mother-tongue, of the portion learnt for recitation.

Grammar

The portion of Grammar prescribed for standard VIII should be revised according to the need as the knowledge of that grammar has been presupposed for this syllabus.

a) Declension of the following nouns and pronouns.

Nouns : 1) Masculine Gender : शिक्षु, बुद्ध

2) Feminine Gender : मातु

3) Common Gender ; पिया, कन्ता.

Pronouns : a) सम्ब, एस, इम

b) Conjugation. विद्यर्थ.

c) Present Participles, Potential.

4) पालि पवेसो (इयत्ता नववी)

published by Maharashtra State Board of Secondary and Higher Secondary Education, Pune.

Prose : Lesson Nos. 18, 19, 20, 21, 22, 24, 26, 27, 28, 29, 31, 32, 33, 36, 37,

Poetry : Lesson Nos. 30, 34,

STANDARD-X

Prose :

About 375 lines.

Poetry :

About 140 lines out of which 60 lines should be for recitation.

Students should be encouraged to make proper use in essays or talk in mother-tongue of the portion learnt for recitation.

Grammar :

The knowledge of grammar from syllabus for preceeding standards is presupposed.

a) Future Tense (b) Active & Passive voice.

c) संख्यावाचक विशेषणे from एको ते विसंति and कर्मवाचक विशेषणे.

- d) The prayojak forms of verbs and their usage.
- e) Comparative and Superlative Degrees of Adjectives.
- f) स्वरसंघि.
- g) समास : द्वंद्व, तप्पुरिस, बहुव्रीहि.

4. **Text :** पाली-परिचय [इयत्ता बहावी]

published by Maharashtra State Board of Secondary and Higher Secondary Education, Pune.

Prose : Lesson Nos. : 1, 2, 3, 4, 6, 7, 8, 10, 11.

Poetry : Lesson Nos. : 5, 9, 13.

2.18 Pali

(Composite with Hindi or Marathi)

STANDARD-VIII

1. Prose

About 225 lines.

2. Poetry

About 60 lines (out of which 30 lines should be prescribed for recitation.

3. Grammar

(a) Acquaintance with Pali alphabets (पाली वर्णमाला) स्वर आणि व्यंजने.

(b) To study वर्णविकार & नामरूपसाधन.

(c) Changes that take place in Pali in विसर्गसन्धी in Sanskrit.

(d) Changes that take place in Pali of the असंयुक्त-संयुक्त व्यंजन in Sanskrit आद्य, मध्य & अन्त्य places.

(e) Declension of the following Nouns & Pronouns:

(1) Masculine Gender : बुद्ध, पितु, भिक्षु, इसि.

(2) Feminine Gender : माता, बहु, धीता.

(3) Neuter Gender : वस, मघु, चरण.

4. **Pronouns :** Declensions of अहं, तुम्ह.

- (f) Declentions of the following roots, Present and Past tenses and Imperative mood :
अकारान्त - १] गच्छ, एकारान्त- १] ने, आकारान्त- १] गा, ओकारान्त- १] हो.
- (g) Past Passive Participles : हेत्वर्थक, अव्यय, and पूर्वकालवाचक, धातुसाधित अव्यय

Text

पालि - प्रवेशिका [पालि - पवेशो इयत्ता नववी] :

published by Maharashtra State Board of Secondary and Higher Secondary Education, Pune.

Prose : Lesson Nos. 1, 2, 3, 4, 6, 8, 9, 11, 12, 13, 14, 16, 17,

Poetry : Lesson Nos. 5, 7, 10, 14, 15.

STANDARD-IX

(Pali composite with Second Language)

Prose

About 230 lines.

Poetry

About 60 lines out of which 30 lines should be for recitation.

The students should be encouraged to make proper use in essays or talk in mother tongue of portion learnt for recitation.

Grammar

The portion of Grammar prescribed for standard VIII should be revised according to the need as the knowledge of that grammar has been presupposed for this syllabus.

a) Declention of the following Nouns and Pronouns :

- Nouns : 1) Masculine Gender - भिक्षु, बुद्ध
2) Feminine Gender - मातु
3) Common Gender - पिया, कन्ता

- Pronouns : a) सव्व, एस, इम
b) Conjugation, विट्थयर्थ
c) Present Participles, Potential.

4. Text : पालि पदेसो [इयत्ता नववी]

Published by Maharashtra State Board of Secondary and Higher Secondary Education, Pune.

Prose : Lesson Nos. 18, 19, 21, 22, 24, 26, 27,
28, 29, 31, 32, 33, 36, 37.

Poetry : Lesson Nos. 30, 34.

STANDARD-X

(Pali composite with Second language)

1. Prose

About 240 lines

2. Poetry

About 60 lines out of which 30 lines should be for recitation.

3. Grammar

The knowledge of grammar from syllabus for preceding standards is presupposed.

a) Future Tense.

b) Actives & Passive Voice.

c) संख्यावाचक विशेषणे from एको to विसति and कर्मवाचक विशेषणे.

d) The pryo-gale forms of verbs and their usage.

e) Comparative and Superlative Degrees of Adjectives.

f) स्वरसंघि.

g) समास : द्वंद्व, तप्पुरिस, बहुव्वीहि.

4. Text पाली-परिचय [इयत्ता दहावी]

published by Maharashtra State Board, of Secondary and Higher Secondary Education Pune.

Prose : Lesson Nos. : 1, 2, 3, 4, 6, 7, 8, 10, 11,

Poetry : Poem Nos. : 5, 9, 13,

2.19 Ardhamagadhi

STANDARD-VIII

Use

About 300 lines.

Poetry

About 100 lines out of which 40 should be prescribed for recitation.

Grammar

a) Acquaintance with Ardhamagadhi (Prakrit) Alphabet.

b) Changes that take place in Ardhamagadhi (Prakrit) in

ऋ, लृ and विसर्ग संधी vowels in Sanskrit.

c) Changes that take places in Ardhamagadhi (Prakrit) of the

असंयुक्त and संयुक्त व्यंजन, in Sanskrit at आद्य, मध्य and अन्त्य places.

d) Declension of the following Nouns & Pronouns :

Nouns : (1) Masculine Gender : देव, मुणि and साहु.

(2) Feminine Gender : माला, भूमि, घेणु, नई and बहु.

(3) Nuter Gender : वण, बहि and महु.

Pronouns : (1) Declension of अह्, तुम्ह.

Declensions of the following roots - Present and Past tenses imperative mood.

अकारान्त - १) गच्छ आकारान्त - १) गा

एकारान्त - १) ने ओकारान्त - १) हो.

e) Past passive participles हेत्वर्थक अव्यय and पूर्वकालवाचक घातुसाधित अव्यय.

भागध्री - प्रवेश (इयत्ता नववी) First Edition 1975,

Published by Maharashtra State Board of Secondary and Higher Secondary Education, Pune.

Lessons 1 to 19 and 37 th.

STANDARD-IX

Use

About 325 lines.

2. Poetry

About 100 lines out of which about 50 should be for recitation.

Students should be encouraged to make proper use in essays or talk in mother-tongue, of the portion learnt for recitation.

3. Grammar

The portion of Grammar prescribed for Standard VIII should be revised according to the need, as the knowledge of that grammar has been presupposed for the syllabus.

(a) Declensions of the following nouns and pronouns :

Nouns : (1) Masculine Gender - राय, पिउ, अरिहन्त.

(2) Feminine Gender - माऊ.

(3) Common Gender - अप्पा, अत्ता, कत्ता.

Pronouns :

(a) सव्व, ज, क, त, एस, इम.

(b) Conjugation, विध्यर्थ

(c) Changes of Conjunct Consonants in Sanskrit.

(d) Present Participles; Potential Passive Participles.

(e) उपसर्ग.

4. Text

अर्धमागधी प्रवेश (इयत्ता नववी) First Edition 1975,

published by Maharashtra State Board of Secondary and Higher Secondary Education, Pune.

Lesson Nos. - 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 33, 35, 36.

STANDARD-X

1. Prose

About 375 lines.

2. Poetry

About 140 lines out of which 60 lines should be for recitation.

Students should be encouraged to make proper use in essays or talk in mother-tongue of the portion learnt for recitation.

3. Grammar

The knowledge of grammar from syllabus for preceding Standards is presupposed.

- (a) Future Tense.
- (b) Active and passive voices.
- (c) Sankhyawachak Adjectives from एग to वीस and Karmawachak adjectives and Avruttiwachaks derived therefrom.
- (d) The prayojak forms of verbs and their usage.
- (e) Comparative and Superlative Degrees of Adjectives,
- (f) उपसर्ग.
- g) समास - दंद, अव्वईभाव, तत्पुरिस, बहुव्रीहि.

Text

अर्धमागधी परिचय [इयत्ता दहावी] First Edition 1974,

Published by Maharashtra State Board of Secondary and Higher Secondary Education, Pune,

Prose ; Lessons - 1 to 11.

Poetry : Poems - 21 to 22

2.20 Ardhamagadhi

(Composite with Hindi or Marathi)

STANDARD-VIII

Prose

About 225 lines.

Poetry

About 60 lines out of which 30 lines should be prescribed for recitation.

Grammar

- a) Acquaintance with Ardhamagadhi (Prakrit) Alphabet.
- b) Changes that take place in Ardhamagadhi (Prakrit) in ऋ, लृ and विसर्ग संघि vowels in Sanskrit.
- c) Changes that take place in Ardhamagadhi (Prakrit) of the असंयुक्त and संयुक्त व्यंजन in Sanskrit at अद्य, मध्य and अन्त्य places.
- d) Declensions of the following nouns and pronouns.
Nouns : 1) Masculine Gender - देव, मुनि and साहु.
2) Feminine Gender - माला, भूमि, जेणु, and बहु.
3) Neuter Gender - वण, दहि and महु

Pronouns : 1) Declention of अम्ह, तुम्ह.

e) Declentions of the following roots- Present and Past tenses and imperative mo.

अकारान्त - [१] गच्छ :

अकारान्त - [१] गा

एकारान्त - [१] ने

ओकारान्त - [१] हो.

f) Past passive participles हेत्वर्थक, अव्यये, पूर्वकालवाचक घातुसाधित अव्यय.

4. Text : अर्धमागधी - प्रवेश [इयत्ता नववी] First Edition 1975,

published by M. S. Board of Secondary and Higher Secondary Education, Pune.

-Lessons 1 to 19 and 37th.

STANDARD-IX

1. Prose

About 230 lines.

2. Poetry

About 60 lines out of which 30 lines shall be for recitation.

The students should be encouraged make proper use in essays or talk in mother tongue, of portion learnt for recitation.

3. Grammar

The portion of Grammar prescribed for Standard VIII should be revised according to the need, as the knowledge of that grammar has been presupposed for this syllabus.

A) Declentions of the following nouns and pronouns :

Nouns - 1) Masculine Gender - राय, पिड, अरिहन्त.

2) Feminine Gender - माउ.

3) Common Gender - अग्ना, अत्ता, अरिहन्त.

Pronouns - सव्व, ज, क, त, एस, इम.

B) Conjugation, विध्यर्थ.

C) Changes of conjunct consonants in Sanskrit.

D) Present - Participles, Potential Passive Participles.

E) उपसर्ग s

4. **Text** - अर्घमागधी - प्रवेश (इयत्ता नववी) First Edition 1975,
published by M. S. Board of Secondary and Higher Secondary
Education, Pune.
Lessons - 20, 21, 22, 23, 24, 26, 27, 28, 29,
30, 31, 32, 33, 35, 36.

STANDARD - X

Prose

About 240 lines.

Poetry

About 60 lines out of which 30 lines should be for recitation.

Grammar

The knowledge of grammar from syllabus for preceeding standards in presupposed.

- A) Future Tense.
B) Active and passive voices.
C) Sankhyawachak Adjectives from एग to बीस and Kramawachak
adjectives and Avruttiwachakas derived therefrom.
D) Comparative and Superlative Degrees of Adjectives.
E) उपसर्ग s
F) समास - द्वंद्व, अव्यईभाव, तत्पूरिस, बहुव्रीहि.

Text - अर्घमागधी परिचय [इयत्ता दहावी]

First Edition 1974, published by Maharashtra State Board of Secondary
and Higher Secondary Education, Pune.

Prose - Lesson 1 to 11

Poetry - Poem 21 and 22.

Persian/Arabic/Avesta/Pahlavi

Second Language/Third Language

Objectives :

1. To enable pupils to have a fair acquaintance with the structure of Persian/Arabic/Avesta/Pahlavi language and elements of its grammar.
2. To create in them an awareness of the close relationship between Persian/Arabic/Avesta/Pahlavi on the one hand and the mother-tongue and regional language, and the national language on the other.
3. To introduce pupils to the rich vocabulary in Persian/Arabic/Avesta/Pahlavi.
4. To enable them to enrich the vocabulary and expression of their mother tongue with the help of the knowledge of Persian/Arabic/Avesta/Pahlavi.
5. To train them in the fluent reading and recitation of Persian/Arabic/Avesta/Pahlavi.
6. To encourage pupils to learn by heart memorable verses/quotations in Persian / Arabic/Avesta/Pahlavi for pleasure and enlightenment.
7. To enable them to understand simple passages from Persian / Arabic / Avesta Pahlavi and appreciate their beauty.
8. To make them use dictionaries.
9. To arouse in them active interest in Persian/Arabic/Avesta/Pahlavi literature, so that they may get an idea of the great heritage of ancient mediaeval india and its traditions, wisdom and culture preserved in it.

2.21 Persian

(Second Language)

STANDARD-VIII

1. Prose

30 pages (classical and modern) short stories etc.

2. Poetry

50 verses (classical and modern poems.)

3. Composition

(a) Alphabet and joining of letters.

- (b) Sentence making on familiar object like a book, a pen, a class room, etc.
- (c) Story telling in 7 to 10 sentences.
- (d) Vocabulary in the language and the language of medium.

4. Grammar

Parts of speech,

Kinds of nouns.

Gender.

Number (singular and plural).

Pronouns.

Numerals.

Conjugations (Simple present, past and future).

STANDARD-IX

1. Prose

40 pages (classical and modern) stories, travels, biographies etc.

2. Poetry

70 verses (classical and modern poems.)

3. Composition

(a) Written work in the form of sentences.

(b) Translation from the language into the medium of instruction and vice-versa.

(c) Story writing in about 10 to 15 sentences.

(d) Description of a familiar object in about 10 sentences.

4. Grammar

(a) Revision of the portion done in Std. VIII.

(b) Adjectives (Sifat. Muzaf, Muzaf-e-laih).

(c) Adverbs.

(d) Conjugations.

(e) Aqsam-e-Mazi Hal and Mustagabil.

(f) Infinitives and Imperatives used in the texts.

(g) Conjugations. (All the forms and varieties).

STANDARD-X

1. Prose

50 pages (classical and modern) literary biographical historical, descriptive etc.

Poetry

120 verses (classical and modern) All kinds of poetry.

2. Composition

- (a) Discriptive and narrative paragraphs about the objects around.
- (b) 10 simple essays to be written in about 15 lines each during the year.
- (c) Simple letter - writing to relatives and friends.

3. Grammar

- (a) Revision of the portion done in Stds. VIII & IX.
- (b) Marruf wa Majhool.
- (c) Ism-e-fail wa Ism-e-Mafool.
- (d) Figures of the speech : Tashbih, Tazzadi.
- (e) Tajnes-e-Naqis.
- (f) Tajnes-e-Taam.
- (g) Tajnes-e-Zaid.
- (h) Tajnes-e-Muzil.
- (i) Tanjnes-e-Murakab.
- (j) Mubalagah.

2.22 Arabic

(Second or Third Languages)

STANDARD - VIII

1. Prose

30 pages (classical and modern) stories, travels biographies etc.

Poetry

50 verses (classical and modern) poems.

2. Composition

- (a) Alphabet and joining of letters.
- (b) Sentence making on familiar object like a book, a pen, a class-room etc.
- (c) Story telling in 7 to 10 sentences.
- (d) Vocabulary in the language and the language of medium.

3. Grammar

Kalimah, Ism, Ma rifah wa Nakirah.

Tazjir, wa Ta'nis, Wahid-Tasniyah, Jama, Sifat.

STANDARD-IX

1. Prose

40 pages (Classical and Modern) stories, travels, biographies etc,

Poetry

70 verses (Classical and Modern) poems.

2. Composition

- a) Written work in the form of sentences.
- b) Translation from the language into the language of medium of instruction and voice-versa.
- c) Story writing in about 10 to 15 sentences.
- d) Description of a familiar object in about 10 sentences.

3. Grammar

Revision of the portion done in Std. VIII.

Fili-Madi, Mudari, Amr, Mahy, Conjugation of Madi and Mudari,

Damair-i-Munfasilah,-Damar-i-Muttasilah, Asma-ul-Isharah, Numerals.

STANDARD-X

1. Prose

50 pages (Classical and Modern) Literary, biographical, historical, descriptive.

Poetry : 120 verses (Classical and Modern) All kinds of poetry.

2. Composition

- a) Discription and narrative paragraphs about the objects around.

- b) 10 simple essays to be written in about 15 lines each during the year.
- c) Simple letter writing to relatives and friends.

3. Grammar

Revision of the portion done in Stds. VIII & IX.

Maroof wa Majhool, Munsarif wa Ghair, Munsarif Mundada, Ismul

Ismul - Maf ' ul

Salasi - Mujarrad,

Salasi- Muzid Fih

Af ' alu - Mad'h wa Zamm.

Af ' alut - Ta'ajjub.

2.23 Avesta

STANDARD - VIII

1. Alphabet with transcription.

2. Grammar

Sandhi - Guna and Vrddhi.

Roots and Formation of Nouns and Adjectives.

Declensions - General Case-Terminations.

Declensions of nouns and adjectives, vowel and consonantal bases.

Pronouns - Degree of Comparision.

3. Numerals

Cardinals and Ordinals.

4. Vocabulary

Roots, Nouns, Adjectives with transcriptions and meanings.

5. Texts

Reading, writing and Transcription of easy Avesta Texts about 20 pages.

STANDARD-IX

1. Revision of the Course for Std. VIII.

2. Grammar

Verbs-ten classes of verbs-Conjugational and Non-conjugational tenses and mood

- Derivative verbs, participles.
Prepositions, Prefixes and Suffixes.
3. **Composition**
Easy Avesta English and English Avesta sentences (about 50).
 4. **Text :**
Hevan Gāh – Transcription, Translation, Grammar, and General Explanation (about 10 pages).

STANDARD-X

1. Revision of the course for Stds. VIII & IX.
2. **Comsposition**
Avesta-English and English-Avesta sentences (about 50).
3. **Texts :**
Khurshed Niyayish and Mah Bakhtar Niyayish,
transcription, translation, Grammar and general explanation,
Prose and Poetry, (about 25 pages).

2.24 Pahlavi

STANDARD-VIII

1. Alphabet with transcription, joining of letters.
2. **Grammar** : Nouns, Pronouns, Adjectives, Prepositions, Verbs, Present and Preterite.
3. **Composition** : Easy sentences, Pahlavi-English and English-Pahlavi, mostly Iranian words.
4. Preliminary : Idea of Ideograms and their Iranian equivalents.
5. **Texts** : for reading, writing and transcription about 10 pages.

STANDARD-IX

1. Revision of the course for Std. VIII.
2. Ideograms with Iranian Equivalents.
3. Prefixes and suffixes
4. Numerals - Cardinals and Ordinals.
5. **Composition** : Easy sentences. Exercises (about 50), Reading and writing about 10 pages.

STANDARD - X

1. Revision of the course for Std. VIII & IX.
2. Composition : Pahlavi - English and English - Pahlavi sentences with transcription about 50.
3. Text : Andrarz i Aturpat i Maharaspand, Pahlavi Texts, edited by J. M. Jamaspassee I to 115 with transcription, translation, grammar and general explanation about 20 pages.

Modern Foreign Languages

German/French/Russian/Hebrew

(Basic Course)

Objectives :

To enable the students-

- 1) to acquire the four skills of listening, speaking reading and writing.
- 2) to understand spoken German/French/Russian/Hebrew within the structures and vocabulary prescribed.
- 3) to speak using freely the vocabulary prescribed.
- 4) to understand written German/French/Russian/Hebrew within the prescribed vocabulary.
- 5) to write in simple and correct German/French/Russian/Hebrew answers to questions from the prescribed text-book or on topics within the range of the experience.
- 6) to write a short composition based on a simple subject or on outlines given.
- 7) to acquaint with the language so that they can learn it further and put it to practical use.
- 8) to write, read and translate easy German/French/Russian/Hebrew into English, Marathi, etc. with the help of a dictionary and understand basic structure of the language and its peculiarities.
- 9) to continue the study of the language more effectively at the higher level.

(81)

2.25 German

(Basic)

STANDARD - VIII

Lessons 1 to 8 + Genitive

Poetry

- Ein kleines lied
 - Marie von Elsner - Eschenbach,
- Du bist wie eine Blume
 - Heinrich Heine
- Lovelei
 - Heinrich Heine
- Mailied
 - Goethe

STANDARD-IX

Lessons 9 to 16

STANDARD-X

Lessons 17 to 21 (omit in lessons 19 text and Gerichbta"lle.)

2.26 French

(Basic)

STANDARD-VIII

Text

Cours de langue et de civilisation francaises tome I G. Mauger Hachette

Portion Prescribed

Grammar

All the Grammar and the Structures in Lessons 1 to 19

Prose

Study of the Prose Texts of Lessons 1 to 19

Supplementary Reading

Dictees et Dialogues contained between Lessons 1 to 19

STANDARD — IX

Texte

Cours de langue et de civilisation francaises Tome I G. Mauger Hachette

Portion Prescribed

Grammar

All the Grammar and the Structures in Lessons 20 to 43

Prose

Study of the Prose Texts of Lessons 20 to 43

Supplementary Reading

Dictees et Dialogues contained between Lessons 20 to 43

STANDARD-X

Texte

Cours de langue et de civilisation francaises Tome I G. Mauger Hachette

Portion Prescribed

Grammar

All the Grammar and the Structures in Lessons 44 to 63

Prose

Study of the Prose Texts of Lessons 44 to 63

Supplementary Reading

Dictees et Dialogues contained between Lessons 44 to 63

2.27 Russian

(**Basic**)

STANDARD - VIII

- 1) Introduction to Russian Sound System.
- 2) Use of nouns in Singular and Plural both in nominative, prepositional case accusative case.
- 3) Use of pronouns in nominative case. The prepositional case of the personal pronouns.

- 4) Use of adjectives in nominative case.
- 5) Use of adverbs.
- 6) Use of Imperfective verbs in Present and Past tense.
Use of Reflexive verbs.
- 7) Simple impersonal sentences and other constructions used in conversation.

Books Prescribed :

1. Russian by V. N. Wagner & Y. G. Ovsienko. (lessons 1 to 19)
2. Book for practice exercises - " Russian in Exercises " by S. Khavronina,
A. Shirochenskaya.

STANDARD - IX

1. Nouns

Use of nouns (in both singular & plural) in Dative : Genitive. Instrumental cases.

2. Pronouns

Declension of personal, possessive, demonstrative interrogative pronouns in the dative. Genitive and Instrumental cases.

3. Adjectives

Declension of adjectives in dative, genitive and instrumental cases. Declension of adjectives in the plural. Case endings. Short forms of adjectives.

4. Verbs

Aspects of the verbs ; Verbs of definite and indefinite motion.

5. Numerals

Cardinal numbers from 200 to 1000

Book Prescribed ;

1. ' Russian ' by V. N. Wagner and Y. G. Ovisenko (Lessons 20 to 36)
2. ' Russian in Exercises ' by S. Khavronima and A Shirochenskaya, New edition.

STANDARD - X

- 1) Revision of grammar covered during the first year.
- 2) Comparative and Superlative degree of adjectives.
- 3) Various verbs of motion with or without prefixes.
- 4) Ordinal and collective Numerals and their declension.
- 5) The use of Impersonal sentences. Use the conditional subjective mood.

- 6) Simple and compound sentences. Use of ' Kotoryi ' in sentences.
- 7) Direct and indirect speech.
- 8) Practiciple. Use of short participle.
- 9) Active and Passive.
- 10) Use of verbal adverbs.

Book Prescribed :

1. ' Russian ' by V. N. Wagner and Y. G. Ovsienko (lessons 37 to 43, 45 and only grammar portion from lessons 44, 46, 47 and 48).
2. ' Russian in Exercises ' : by S. Khavronina and S. Shirochenskaya.

2.28 Hebrew

(Basic)

STANDARD - VIII

The Alphabet : Printed and running hand.

A) Text : Eleph Millim Aleph, Lessons 1 to 12

B) Grammar : Pronouns :

Personal : 'ani, 'etsel mi, et mi, 'al mi, shel mi, 'eyzeh, 'eyzo

Demonstrative : zeh, zo't, 'elleh

Adverbs : Time and Place : 'akshaw, kvar, matay, l^o 'an, me'ayn, po, 'od.

Other adverbs : 'aval, raq, kak, lamma, b^ediyyuk.

Prepositions :

b^e, l^o, kmo, 'al yed, 'el, 'im, 'ahare.

l^o and shel with suffixes.

Nouns : Number and Gender

The noun with suffixes

Numerals and Ordinals

Construct chain of fem. sg. nouns, **tora, torat Kol** in its various forms : Every, all, the whole, everything. The object marker : 'et.

Verb : The Present Tense of Qal

The Present Tense of Piel

The Imperative and the Infinitive

Auxiliary Verbs **rotseh**, **tsarik** and the phrase 'I don't have' :
yesh li, **'eyn li**.

Conjunctions

she (that), **'im** (if), **'o** (or)

Negative Sentences :

'ani lo' **'okel** and **'eyn 'ani 'okel**.

2) Composition :

Answers to questions based on the Text.

Translation of seen and unseen easy passages.

If unseen passage has new words their respective meanings are to be given in brackets.

STANDARD - IX

a) **Text** :

Eleph Millim Aleph, Lessons 13 to 25

b) **Grammar** :

Noun ; Dual form of the Noun, masc. and fem.

Noun with suffixes

Construct chain of nouns

'eyn and **kol** with suffixes.

Adjective : Declension of adjectives

Comparatives and superlatives with **yoter** and **b^e yoter**.

Names of colours.

Adverbs : Place and Time : **Sham**, **ka'an**, **l^e 'an**, **l^e sham**, **missaviv**, **hayyom**,

'etmol, **'az**, **hal^e 'ah**, **l^e merahoq**, **l^e 'ahor**, **q'odem**, **'ahar kak**,
tamid, **'od**.

Other adverbs : **me'ayn**, **raq**, **qtsat**, **me'od**, **yoter**, **pit'om**,

'eyk, **kammah**, **kim^e 'at**, **b^e waday**.

Prepositions : **'et**, **liphne**, **bishvil**, **'ad**, **l^e**, **shel** with Suffixes, **min**, and its various forms like **mi-** and **me**.

Verbs : Present, Past and Future of all Qal forms.

The Infinitive Construct form with l^e e. g. **liktob, l^edabbar.**

The Imperative : Masc. and Fem.

The Negative Imperative with 'al + Future Auxiliary Verbs **rotseh,**
tsarik and **yakol** and the idiomatic '**ani ragil** + Infinitive (I am used
to . . .)

The verbs **hitrahats, hitlabesh, hitwakeah, hitra'ot, hitbayyesh,**
hitgalleah, histapper (with metathesis).

Pronouns : The Reflexive 'atmo. (myself, himself etc.)

The indefinite **mashehu** and **mishehu.**

Inflection of relative pronoun **she** e. g. **she matsati bo.**
(on which I found).

Subordinate Clauses : Nominal clauses with **she** (that) Causal clauses with
ki Temporal clauses with **ka'asher** (as) **liphne she,** (before).

C) **Composition :**

Answers to questions based on the Text.

Translation of seen and unseen easy passages.

If unseen passage has new words their respective meanings are to be given in
brackets.

STANDARD-X

A) **Text :**

Eleph Millim Beth. Lessons 26-38 (The numbering of the Lessons is continuous
with Eleph Millim Aleph).

B) **Grammar :**

Three more forms of the Verb e. g., the Intensive Active (Piel), the Reflexive -

Passive (**Niphal**) and the Causative-Active (Hiphil). A revision of the Grammar
covered previously is to be done along with the text.

C) **Composition :**

Answers to questions based on the Text.

Translation of seen and unseen easy passages.

If unseen passage has new words their respective meanings are to be given in
brackets.

3.1 English (Third Language)

Introductory Note

The syllabus in English (Second or Third Language) for Standards VIII, IX and X will have to cater to the varying needs of pupils, who, broadly speaking, may be divided into two groups :

1. Those who may terminate their studies after S. S. C. and
2. Those who may prosecute higher studies.

Pupils belonging to the first category will need a working knowledge of English which would enable them to understand spoken and written English, depending upon the vocation chosen by them. They will also need ability for expression strictly, limited to the range of their experience. In the second category, pupils would require a relatively greater degree of comprehension and reading ability, which incidentally would also confer upon them a comparatively, greater facility of expression in both spoken and written English.

In secondary schools, our attempt should, therefore, be to lay a sound foundation of linguistic skills in English, which should enable the pupil even after leaving secondary school to continue the process of developing additional linguistic skills according to his need. Our task will be to provide adequate learning experience to the pupil so as to enable him to develop gradually, in the course of three years a broad based understanding of the common and essential usages vocabulary of the English language.

The syllabus for standards VIII, IX and X will be a natural continuation of the syllabus for standards V, VI and VII. The following general objectives have been kept in view while framing the syllabus with the due emphasis on the structural approach.

Objectives :

To enable the pupils :

To acquire the four skills of listening, speaking, reading and writing ; viz.

- a) to understand spoken English within the structures and vocabulary prescribed ;
- b) to speak using freely the vocabulary prescribed ;
- c) to understand written English within the prescribed vocabulary including that which the pupil learnt in the previous classes ;
- d) to write in simple and correct English answers to questions from the prescribed text book or on topics within the range of their experience ;

To write a short composition based on the pictures or outlines given ;

3. to answer correctly in the mother tongue questions on an unseen English passage written within the restricted vocabulary and structures;

Note :

In the teaching-learning process of the objectives mentioned above can be achieved by using different aids of which the text book is a very important one. It is also necessary to see that the right type of method is adopted in teaching for the fulfilment of these objectives exploiting the class-room situation. Several of these objectives can be tested by means of the written examination, though objectives like speaking ability, taking part in a discussion; etc. will have to be tested by the teacher in the class.

The detailed syllabus given below is a continuation of the syllabus now in use for Standards V, VI and VII and follows the same lines, so that the teaching of English becomes a continuous and expanding process. Frequent reference is made to teaching points in the syllabus for the previous classes because much of the new work consists in the consolidation and expansion of the old.

STANDARD-VIII

1. Prose

60 pages (exclusive of notes and exercises, about 18 lessons).

2. Poetry

80 lines (about 5 poems).

3. Vocabulary

400 new words.

5. Composition

No. of composition exercises expected - 15

The composition exercises will include comprehension, letter-writing, paragraph-writing, story-writing and essay in the form of guided composition.

5. Teaching items

1. Passive voice of future tense (with and without 'by')

The work will be submitted tomorrow.

The work will be done by Gopal.

2. What's it like ?

3. What does he look like ?

4. -ing forms of verbs as objects of prepositions

He is fond of swimming.

5. **Want + (pro) noun + to + verb**
I want you to do this.
6. **How-questions.**
How did you get there ?
7. **How/when/where to – infinitive (forming a noun phrase)**
I don't know how/when/where to find him.
8. **Get + adjective**
get dirty, get wet
9. **Adjectival clause beginning with 'when' and 'where'**
This is the school where I teach.
This is the time when he goes out for a walk.
10. **Let's – —**
Let's go home.
11. **So. — — that (adverb clause of result)**
He was so afraid that he didn't speak a word.
12. **Reflexive pronouns**
objective of preposition
She brought a saree for herself.
13. **Must-need not**
Must I do it now ? No, you needn't,
14. **Neither and either (as pronouns)**
Neither of them was happy.
You can buy either. Both are interesting.
15. **Adjectival clause (with preposition at the end)**
The man you were talking to was my teacher.
16. **Adverbial clause of time with 'as'**
As I was leaving the house my friend came.
17. **Should (for obligation)**
You should post the letters immediately.
18. **Must + have + past participle**
He must have forgotten to post the letters.
19. **Adjectival clause with in/at/on with 'which'**
The room in which I live is not very big.

20. Adverbial clause with though/although
Though/Although I ran fast, I missed the bus.
21. Was able to ; couldn't
He was able to learn English in three months.
He couldn't pass the examination.
22. Adverbial clause of manner
Do as I tell you.
23. Adverbial clause with 'where'
I will go where you go.
24. Passive voice
- i) Present perfect tense
The work has been completed.
 - ii) Past perfect tense
The house had been painted.
25. Reported speech – statements
- The following books are recommended for use by the teacher to help him to teach the structural items in the class.
- 1. Living English Structure (for schools)
by Stannard Allen.
 - 2. A Practical English Grammar by
Thomson and Martinet
 - 3. A Guide to Patterns and usage in English by A. S. Hornby.

CONDENSED COURSE

A Condensed Course in English for pupils coming to Std. VIII without any previous knowledge of English.

- 1) English will now be one of the compulsory subjects for the S. S. C. Examination at the end of ten years' schooling. Ordinarily, the course will be covered in six years. However, in the conditions obtaining in Western Maharashtra at present a large number of pupils are likely to come to Std. VIII without having studied English at all. These pupils will be required to complete the course of years within a period of 3 years and take their examination in this subject along with those who have studied the subject for six years. Hence arises the need for the re-distribution of the syllabus, i. e. the structures and vocabulary

prescribed for Standards V to IX, over two years. i. e. Stds. VIII and IX. It is expected that at the end of Std. IX both the streams could be brought to the same level of attainment.

- 2) It is assumed that in order to enable the pupils to achieve this level at the beginning of Standard X, additional time of six periods a week will be available in Stds. VIII and IX.
- 3) In addition to these periods, part of the vacations, i. e. two weeks at the end of the first term in Std. VIII, four weeks at the end of Std. VIII, another two weeks at the end of the first term of IX and four weeks at the end of Std. IX, will also be made available.

Suggested : syllabus for the Condensed Course

Structures : The structures prepared by the NCERT for the General Series. (Appendix ' 5 ').

Vocabulary 1800 words (Appendix ' 6 ')

Plan of works

- 1) The course of the first year (Std. V) should be covered during the first term of Std. VIII.
- 2) The course of the second and the third years (Stds. VI & VII) should be covered during the second term of Stds. VIII and if necessary, in the summer vacation.
- 3) The fourth year course (for Std. VIII) should be covered during the summer vacation, the first term and the Diwali vacation of Std. IX.
- 4) The fifth year course (for Std. IX) and whatever is left of the fourth year course should be covered during the second term of Std. IX and in the following summer vacation.

STANDARD - IX

Prose

60 pages (exclusive of notes and exercises, about 18 lessons).

Poetry

100 lines (about 6 poems).

Vocabulary

400 new words.

Composition

No. of composition exercises expected - 15.

The composition exercises will include comprehension, letter-writing, paragraph-writing, story-writing and essay in the form of guided composition.

5. Teaching items

1. **go + ing forms in set phrases**
She went shopping.
2. **Adverbial clause of time with when/while**
I was working while you were playing.
3. **Adverbial clause of time with when/after/before (present perfect)**
I shall go out when I have finished my work.
4. **Adverbial clause of time with 'when/after/before, (past perfect)**
He went out after he had finished his work.
5. **Adverbial clause of reason with since/as**
You must speak to his brother since he is not here.
6. **Adverbial clause of degree**
He can run faster than his brother can.
7. **Reporting verbal questions**
He asked if/whether he was coming.
8. **Reporting commands (positive and negative)**
The teacher told him to go out.
The teacher asked him not to make a noise.
9. **Be afraid/sure/certain that clause**
10. **'Used to' for habitual past.**
11. **Past participle forming adjectival phrase**
e. g. The man saved by Gopal is here.
12. **Passive voice with indirect object**
e. g. He was asked several questions.
13. **Noun clause as subject**
e. g. What he said was true.
14. **Noun clause as complement**
e. g. This is what made him rich.
15. **Exclamations with 'what' and how**
16. **Anomalous finite + passive construction**
e. g. may/can/must be done.
17. **Not only . . . but also**
18. **Emphatic pronouns . . . self**
e. g. The king himself led the army
19. **Adverbial clause with 'so that'**
20. **Prefer to**

21. Adverbial clause with ' unless '
22. So do I, Neither do I.
23. I think/hope so.
24. Ought to/should/could/would/needn't have + past participle.
25. Hardly when
26. Have/get/object/past participle
e. g. I must have/get my watch repaired.

The following books are recommended for use by the teacher to help him teach the structural items in the class.

1. Living English Structure (for schools) by Stannard Allen.
2. A Practical English Grammar by Thomason and Martinet.
3. A Guide to Patterns and usage in English by A. S. Hornby.

Condensed Course

1. The fourth year course Condensed course should be covered with the help of the text-book through additional periods per week, in the summer vacation, the first term and the Diwali vacation of Std. IX.
2. The fifth year course (for Std. IX) and whatever is left of the fourth year course should be covered during the second term of Std. IX and the following summer vacation.

STANDARD - X

Prose

60 pages (exclusive of notes and exercises, about 16 lessons).

Poetry

125 lines (about 7 poems).

Vocabulary

500 new words.

Composition

No. of composition exercises will include comprehension, letter-writing, paragraph-writing, story-writing and essay in the form of guides composition.

Teaching items

1. Adverbial clause of manner
He can swim as well as his sister can

- She can paint as beautifully as he can.
2. Adjectival clause with ' whose '
This is the boy whose book was stolen.
 3. Noun clause as object of verbs in principal clause with what/where/when/whom
We know when the train leaves.
He told us what he was doing.
He wanted to know why he was late.
 4. Reporting ' why ' questions
The teacher asked him why he was late.
 5. Reporting exclamations
He exclaimed that the picture was very beautiful.
 6. Present Progressive Tense (for future)
 7. Either
e. g. He didn't know it either.
 8. Some/any/none/much/many of
 9. Unfulfilled condition
e. g. If you had helped me, I would have succeeded.
 10. a = every
e. g. Twice/three times a day.
 11. Such + adjective
e. g. Such small mangoes.
 12. Such as
e. g. Have you ever seen such a long pencil as this ?
 13. Subject + Verb + ' ing ' form of verb
e. g. He came running.
 14. Various uses of ' about '
 - i) He came here about three years ago.
 - ii) He will be there in about two hours at about four o'clock.
 15. Simple Present Tense (for future)
e. g. I go to Pune tomorrow.
 16. After/before/while/on + ' ing ' form of verb
e. g. I found it while walking along the road.

17. By/through + 'ing' form of verb
e. g. You can pass the examination by working hard.
18. Adjective + 'ing' form of verb
e. g. I was busy doing my work.
19. Might (for remote possibility).
20. For (meaning ' because ').
21. It is/was + that clause
22. ' To ' infinitive as noun substitute
e. g. To work is to play.
23. Even if . . .

The following books are recommended for use by the teacher to help him teach the structural items in the class.

1. Living English Structure (for schools) by Stannard Allen.
2. A Practical English Grammar by Thomson and Martinet.
3. A guide to Patterns and usage in English by A. S. Hornby.

Modern Indian Languages

Objectives :

The following objectives are applicable to all Second languages for Std, VIII to X except English.

To enable the pupils to -

1. Develop listening, comprehension; sharing the ideas of others.
2. Develop skill in silent reading with comprehension
3. Acquire a fair knowledge of the structure of the language and the elements of grammar.
4. Enrich and enlarge their own vocabulary.
5. Acquire skill in speaking correct and simple language.
6. Acquire skill in writing correct and simple language in a legible and good hand.
7. Answer correctly in mother tongue questions on unseen prose passage in the language concerned within the range of the vocabulary.

Note : In the teaching-learning process the objectives mentioned above can be achieved by using different aids of which the text book is a very important one. It is also necessary to see that the right type of method is adopted in teaching for the fulfilment of these objectives exploiting the class-room situation. Several of these objectives can be tested by means of the written examination though objectives like speaking ability, taking part in a discussion, etc. will have to be tested by the teacher in the class.

3.2 Hindi

Syllabus for Standards VIII to X will be the same as prescribed under Hindi-Second language.

4. Mathematics

Objectives

The following objectives are applicable to syllabus for Standards VIII to X.

To help the pupils to -

1. acquire knowledge of signs, symbols terms, concepts, principles, postulates, and theorems in Mathematics;
2. understand term, concept, definitions, properties of figures, quantitative relationships and their applications;
3. develop ability to apply mathematical knowledge to the solution of problems in life;
4. acquire skills in computation, drawing and reading graphs, drawing figures and using mathematical tables;
5. develop logical thinking and problem solving ability;
6. take interest in solving mathematical problems and in reading literature of Mathematics;
7. form habit of expressing ideas briefly, precisely and concisely.
8. appreciate the role of Mathematics in scientific and technological developmen

STANDARD - VIII

Introductory Note :

While preparing this course in Mathematics for the Standard VIII the following points have been kept in view :

Any student completing successfully the compulsory course of Mathematics for 10 years, should be competent to join even the Science stream, if he desires to choose this stream for his higher studies. The course has, therefore, been so designed as to connect the Mathematics course at the seventh class level at one end and the pre-university or higher secondary course at the other end.

Care has been taken to maintain realistic view in effecting a balance between "what ought to be Mathematics course at the VIII standard level " and " what can be a reasonably workable course in Mathematics at the VIII Std. level today."

While preparing the syllabus, therefore, the mathematical background of our average student at the end of seven years, primary course as well as the level of mathematical competence on the part of our teachers of Standard VIII has been taken into consideration. In the case of students coming to Std. VIII only the average computational skill and knowledge of the first four fundamental operations in the Arithmetic have been assumed.

Part I : Algebra

Sets

- (i) Concept and language of sets through common examples,
- (ii) Subset, empty set.
- (iii) Union and intersection of sets, disjoint sets, Venn diagrams.
- (iv) Meaning of finite and infinite sets, Least and greatest elements of a set of numbers.
- (v) One to one correspondence.

The concepts involved should be explained through examples and diagrams.

Numbers and Operations :

Binary operations, addition, subtraction, multiplication and division.

- (i) Extension of number system. Need of extension of natural number system to the set of rational numbers.
- (ii) Number line.
Representation of rational numbers on number line. Meaning of greater than with the help of number line.
- (iii) Addition, Multiplication and Order.
Properties (without names) of addition, multiplication and order through examples. Expression of the properties with variables. Distributive property of multiplication over addition.

3. Prime and Composite Numbers

- (i) Concept of prime and composite numbers.
- (ii) Factorization of numbers.
- (iii) Greatest common divisor, common divisors.
- (iv) Common multiples, least common multiple.
- (v) Divisibility test by 2, 3, 5, 9. (Rationale of divisibility not expected fr students.)

4. Exponents

Laws of exponents, where the exponents are integers.

5. Equations and inequations.

True and false sentences. Equations and inequations, solutions set of truth (Solution set) of Simple equations and Simple inequations involving integers,

6. Expansions :

Addition and subtration of monomials and polynomial Multiplication of li and quadratic expressions. Division of polynomial in one variable by a linear express

- i) $(x + a) (x + b)$
- ii) $(x + a) (x + b) (x + c)$
- iii) $(a + b)^2 (a - b)^2$
- iv) $(a + b)^3 (a - b)^3$

7. Factorization :

- i) Factorization by grouping
- ii) Factorization by formulae of the type $(x + a) (x - b)$
- iii) Simplications : Simplification of expressions involving fractions with nume denominators.
- iv) Simple word problems based on simple equations,

Paper II : Geometry**1. Physical Space :**

- i) Physical point, line, plane, ray, segment, curve.
- ii) Plane figures Triangle, rectangle, square, parallelogram, circle, disc.

iii) Solids : Regular solids, viz. cube, sphere, cylinder, cone, pyramid, prism, tetrahedron, parallelepiped,

Euler's formula : $F + V = E + 2$,

Properties of Incidence in a Plane (Activity approach)

- i) Any two different points determine exactly one line.
- ii) The line determined by two points in a given plane lies in the plane.
- iii) Intersection of lines.
 - a) Two different lines in a plane may be intersecting or nonintersecting.
 - b) Parallel lines in a plane are those which are nonintersecting.
 - c) If two lines intersect, they intersect exactly in one point.
- iv) Collinear and non-collinear points

The properties are to be intuitively developed.

Experimental approach like paper folding techniques is to be usefully employed to develop the concepts.

- v) Plane separation, half planes.

Betweenness in terms of distances.

Angle :

- i) Angle as two non-collinear rays having common end point.
- ii) Measure of an angle, right angle ; acute angle and obtuse angle.
- iii) Adjacent angles, linear pair,
- iv) Vertical angles.
- v) Supplementary angles and complementary angles and numerical problems.

Congruence (Activity approach only)

- i) General concept of congruence :

Two figures are congruent if it is possible to put them in coincidence.
- ii) Congruent segments : Experimental appreciation of establishing congruency of segments, if their lengths are equal.
- iii) Congruent angles : Two angles are congruent if they have the same measure.
- iv) Congruence properties of angles :

Vertical angles, angles formed when two parallel lines are cut by a transversal.
Development through numerical problems.

v) Congruence as Equivalence :

Properties of reflexivity, symmetry and transitivity of the congruence angles and other congruent figures without mentioning these terms.

6. Congruence of Triangles

- i) Four basic properties of congruence of triangles.
- ii) Application of triangles - congruence properties to simple problems.

7. Construction

- i) To divide a given segment into congruent parts,
- ii) Constructions based on congruency of triangles.

Following constructions with the help of ruler and set square only.

- i) To draw a line parallel to a given line through a given point outside it,
- ii) To draw a line perpendicular to a given line from a point outside it.

8. Symmetry

By activity approach (not to be evaluated in the written examination)

- i) Symmetrical and non-symmetrical plane figure.
 - ii) Axis and plane of symmetry.
- 9.
- i) Practical geometry of reflection of figures in a line and translation.
 - ii) A segment is reflected into a congruent segment,
 - iii) A figure and its reflection together form a symmetric figure.
 - iv) The line of reflection bisects the line segment joining any point and its reflection at right angles.
 - v) Any angle reflects - to a congruent angle,

STANDARD - IX**Algebra****Introductory Note :**

The course in Algebra for IX and X standards is essentially a continuation of the course in Algebra for VIII Std. It is, therefore, necessary that language of sets will run through all the course.

In standard VIII pupils have learnt the properties of various number systems in a heuristic manner. The purpose of the Algebra Course for IX and X standards is to make students realise that these properties require to be proved. However, it is not the object of this course to propound a deductive approach to Algebra. It is sufficient

students are made to appreciate that, as in Geometry, certain Algebraic properties can be proved if certain other properties are considered as basic. For instance many properties can be demonstrated if distributive property of multiplication over addition is assumed. However, it should be remembered that not all Mathematical activity consists of proofs. There are other Mathematical faculties, attainment of which should be considered more important than the capacity to reproduce proofs which are often learnt by rote. It is necessary that our students develop Mathematical intuition, capacity to apply knowledge to concrete situations, capacity to draw generalizations from known experiences and capacity to decipher relevant analogies, symmetries, if such exist, in apparently diverse situations. Teaching should reflect this spirit which aims at developing an inquiring mind in the students.

We wish to stress that although this is a course in Algebra the exposition should contain various numerical situations and situations from real life to which knowledge of Algebra can be applied. A topic on linear equations, if dealt in isolation, ceases to be interesting if its applications are not considered. We wish to point out that it is equally important that students learn how to convert a concrete situation into the languages of equations and inequations. We wish to say that graphs should be given prominent importance and these should be profusely used through out the course.

Topics in commercial arithmetic have been separately grouped so as to emphasise importance of applications of Mathematics to the solution of practical problems that arise in life.

Paper I : Algebra

Divisibility in Integers :

- i) Even and odd numbers, their sums and products using letters.
- ii) Division algorithm.

Real Numbers and their properties :

Real numbers have the same properties with respect to addition and multiplication as rationals. Revision of properties of rationals and their restatement in terms of reals. Order and Absolute value.

Radicals :

- i) Radicals, quadratic radicals and binomial expressions.
- ii) Rationalization.
- iii) Computation of square roots upto three significant figures only by division method.

Exponents ;

- i) Laws of exponents when the exponents are integers and positive fractions,
- ii) Problems on exponents.

5. Factorization :

Division of a polynomial expression in one variable by linear and quadratic expressions, familiarity with

$N = Q \times D + R$ formula

- i) $a^2 + b^2 = (a \pm b)^2 \pm 2ab$
- ii) $(a + b)^2 = (a - b)^2 + 4ab$
- iii) $a^3 \pm b^3 = (a \pm b)^3 + 3ab(a \pm b)$
- iv) Factorization of trinomial expressions.

6. Rational Expressions :

Rational expressions in linear and quadratic polynomials. Additions and subtractions. Multiplication and division.

7. Equation : (Solution set)

- i) Solution of linear equations with rational coefficients and quadratic equations.
- ii) Word problems involving simple quadratic equations and simultaneous with integral coefficients, simple examples.

8. Commercial Arithmetic :

- i) Profit and loss, simple and compound interest with simple and direct applications.
- ii) Collection and classification of data, tabulation, histogram, frequency polygon plotting and reading.

STANDARD - IX

Geometry**Introductory Note :**

Before formal course of Geometry is started, it will be desirable to spend a few periods in recalling what students have already learnt about space, points, lines and planes which may now be enunciated as properties taken for granted on the basis of which future development of Geometry depends. The following postulate may be discussed in detail so as to fix their meaning and importance on the minds of the students.

We feel that teaching and learning of Geometry will suffer if we continue to believe that students develop insight into Geometry if they are made to learn by rote proofs of theorems and are able to reproduce these in the examination. This is not to say that being able to prove a theorem and being able to write its proof, is not an important aspect of developing mathematical ability. It is for this reason and to develop amongst students capacity to write precisely and correctly we have indicated some easy theorems whose proofs students are expected to give, but we have to remember

Mathematics is a kind of language and as in the learning process of any language there has to be a time lag between developing the capacity to understand and speak this language on the one hand and being able to write this language on the other. We must always bear this fact in mind. A course in Geometry is the first course in which students are exposed to deductive language of proof or to a language of reason. Since this language must flow from sources which have roots in reason it is our faith that if students develop understanding of Geometry and are able to think logically in this subject, then they would develop the capacity to write out proofs for themselves in due course of time. In the beginning it would be advisable to encourage students from participating in writing activity such as taking notes or writing down whatever is written by the teacher in the class on the blackboard mechanically. The teacher should concentrate on the meaning of theorems. It is not incumbent that the proofs of any theorem must be given immediately after it is introduced to the students. After stating the theorem and understanding its importance it may sometime be advisable to ask students to apply the same to solve a few problems. The proof of the theorem can then be drawn out from students by drawing out from their relevant responses. Sometimes it may be advisable to discuss about a certain group of theorems. This will develop more insight into the subject. In the beginning more emphasis has to be placed on oral activity, developing a certain vocabulary and scientific thought weapons having acquired these attempts should be made to develop the habit of writing this language.

There are two main objectives in teaching a course in Geometry. One is to develop students geometrical insight and intuition so that mutual relationship between its structures are perceived. The other is to develop capacity to think logically and appreciate the fact that Geometry is a deductive structure. Both these objectives in fact supplementary and one cannot be put in background in preference to the other. Unfortunately we fear that our present methods of teaching lay wrong emphasis on the second aspect.

To develop intuition it would be necessary to appeal to concepts of translation, reflection, symmetry and reflection. In fact, even before a certain proposition is stated formally in the class the truth contained in the proposition can be drawn out from students by appealing these concepts by studying diagrams or instance, consider a parallelogram. From considerations of measure of an angle and measure of length preserving properties of translation reflection, symmetry, rotation etc. students can be able to infer say its following properties :

Opposite sides of a parallelogram are congruent.

Its opposite angles are congruent.

Having drawn out such inferences from students we can then discuss their formal proof on the basis of theorems on congruence. Such a procedure, we feel, will develop intuition and deductive insight into the subject.

To understand the meaning and proofs of theorems in space, it will be found advantageous to prepare suitable models. Students can be made to participate in the construction of such models. Simply drawing figures on the blackboard does not give much help to develop imagination.

It is well known that a proposition in Geometry may be proved in alternative ways. It is wrong, therefore, to insist on a standard proof. In fact a student must be encouraged to think alternatively and even if the route taken by him to reach the final stage of the proof is longer, it should deserve more credit than when he reproduces verbatim the proof given in a book or by the teacher.

Paper II : Geometry

(Proofs of starred theorems are expected from students)

1. Congruence

- * i) The vertical angles formed by two intersecting lines are congruent.
- ii) S. A. S., A. S. A., S. S. S., A. A. A., properties of congruence of triangles and congruence of right angled triangles.
- iii) Exterior angle theorem.
- iv) If two sides of a triangle are congruent, angles opposite to these sides are congruent and its converse.
- * v) If two sides of a triangle are not congruent the angle opposite to the greater side is the greater of the two angles and its converse.
- vi) In a right angled triangle the hypotenuse is the greatest side.
- * vii) The sum of the lengths of any two sides of a triangle is greater than the third side.

2. Perpendicular lines in a plane

- * i) Given a line and a point in that plane a perpendicular bisector of that line in that plane is the set of points equidistant from the endpoints of that line segment and its converse.
- * ii) All segments drawn from a point outside a given line to the given line one which is perpendicular to the given line is the shortest and its converse.

3. Parallel lines in a plane

- i) If two coplanar lines are perpendicular to the same line in their common plane they are parallel to each other.

- * ii) Congruence of alternate angles, corresponding angles and converse,
- * iii) If a transversal cuts two parallel lines interior angles on the same side of the transversal are supplementary and converse.
- * iv) The sum of measures of the angles of a triangle is 180 and that of a quadrilateral is 360.
- v) 30-60-90- theorem and its converse.

4. Quadrilaterals, parallelogram, rhombus, rectangle and a square.

- * i) Diagonals of a parallelogram divide the parallelogram into congruent triangles.
- * ii) Diagonals of a parallelogram bisect each other and its converse.
- iii) Opposite sides and angles of a parallelogram are congruent and its converse.
- * iv) The distance between two parallel lines is everywhere the same.
- v) If two pairs of opposite sides of a quadrilateral are congruent the quadrilateral is parallelogram.
- vi) The diagonals of a rhombus and a square intersect at right angles.
- vii) Segment joining the midpoints of the two sides of a triangle is parallel to the third and half its length.
- viii) If three parallel lines make congruent intercept on a transversal they the make congruent intercept on any other transversal.

5. Area of a triangle, parallelogram, trapezoid and a regular polygon, simple riders and applications.

STANDARD - X

Algebra

Introductory Note :

The course in Algebra for Standards IX & X is essentially a continuation of the course in Algebra for Std. VIII. It is, therefore, necessary that the language of sets will run through all the course.

In Standard VIII pupils have learnt the properties of various number system in a heuristic manner, The purpose of the Algebra course for IX & X Standards

is to make students realise that these properties require to be propounded a deductive approach to Algebra. It is sufficient if students are made to appreciate that, as in Geometry, certain Algebraic properties can be proved if certain other properties are considered as basic. For instance many properties can be demonstrated if distributive property of multiplication over additions is assumed. However it should be remembered that not all mathematical activity consist in proofs. There are other mathematical faculties, attainment of which should be considered more important than the capacity to reproduce proofs which are often learnt by rote, It is necessary that our students develop mathematical intuition, capacity to apply knowledge to concrete situations, capacity to draw generalizations from known experiences and capacity to decide relevant analogies, symmetries if such exist, in apparently diverse situations. Teaching should reflect this spirit which aims at developing an enquiring mind in the students.

We wish to stress that although this is a course in Algebra the exposition should contain various numerical situations and situations from real life to which knowledge of Algebra can be applied. A topic on linear equations, if dealt in isolation, cease to be interesting if its applications are not considered. We wish to point out that it is equally important that students learn how to convert a concrete situation into the languages of equations and inequations. We wish to say that graphs should be given dominant importance and these should be profusely used through out the course.

Topics in commercial arithmetic have been separately grouped so as to emphasise importance of applications of Mathematics to the solution of practical problems that arise in life.

Paper I : Algebra

1. Equations :

Truth sets (solution set) of $ax + b = 0$, $ax^2 + bx + c = 0$

(The quadratic on the left should be factorable and a, b, c are integers).

Quadratic equations and simple problems on linear and quadratic equations.

2. Polynomials :

Method of synthetic division. Factorisation of monic polynomial involving no more than one quadratic factor.

G. C. D. and L. C. M. of two or three polynomials by factorization : where the polynomials will involve factorization of quadratic polynomials, although the polynomials may be of higher degree.

Rational Expressions :

Algebra of expressions involving integral coefficients. Simplification, Harder, simple equations of the following types.

$$i) \frac{1}{x-7} + \frac{1}{x-3} = \frac{1}{x-6} + \frac{1}{x-4}$$

$$ii) \frac{x-8}{x-7} + \frac{x-4}{x-3} = \frac{x-7}{x-6} + \frac{x-5}{x-4}$$

Graphs of :

a) $y = x$

b) $y = -x$

c) $y = x + h$

d) $y = mx$

e) $y = mx + h$

f) $ax + by + c = 0$ (a, b, c, are integers)

Interpretation of the constants involved. Slope and intercepts. Lines parallel to the axes, Conditions of the point of intersection.

Equations in two variables. Solution of simultaneous equations by algebraic and graphical methods. Simple word problems.

Exponents : (Integral and rational exponents only)

Laws of exponents (Statement and applications).

Ratio and proportion :

Laws of proportion-

a) Invertendo, Alternendo, Componendo and Dividendo.

b) Direct and inverse variation.

Graph of $y = \frac{h}{x}$ (Reading of the graph)

Commercial Arithmetic :

Problems on percentage, partnership and shares, mean, mode and median from raw scores and from tabulated data.

STANDARD-X

Geometry**Introductory Note :**

Before formal course of Geometry is started, it will be desirable to spend a few periods in recalling what students have already learnt about space, points, lines and plane which may now be enunciated as properties taken for granted on the basis of which future development of Geometry depends. The following postulate may be discussed in detail so as to fix their meaning and importance on the minds of the students.

We feel that teaching and learning of Geometry will suffer if we continue to believe that students develop insight into Geometry if they are made to learn by rote proofs of theorems and are able to reproduce these in the examination. This is not to say that being able to prove a theorem and being able to write its proof, is not an important aspect of developing mathematical ability. It is for this reason and to develop amongst students capacity to write precisely and correctly we have indicated easy theorems whose proofs students are expected to give, but we have to remember that Mathematics is a kind of language and as in the learning process of any other language there has to be a time lag between developing the capacity to understand and speak this language on the one hand and being able to write this language on the other. We must always bear this fact in mind. A course in Geometry is the first course in which students are exposed to deductive language of proof or to a language of reason. Since this language must flow from sources which have roots in reason it is our faith that if students develop understanding of Geometry and are able to think rationally in this subject, then they would develop the capacity to write proofs for themselves in due course of time. In the beginning it would be advisable to discourage students from participating in writing activity such as taking notes or writing down whatever is written by the teacher in the class on the blackboard mechanically. The teacher should concentrate on the meaning of theorems. It is not incumbent that the proofs of any theorem must be given immediately after it is introduced to the students. After stating the theorem and understanding its importance it may sometime be advisable to ask students to apply the same to solve a few problems. The proof of the theorem can then be drawn out from students by drawing out from them relevant responses. Sometimes it may be advisable to discuss about a certain group of theorems. This will develop more insight into the subject. In the beginning more emphasis has to be placed on oral activity, developing a certain vocabulary and efficient thought weapons having acquired these attempts should be made to develop the habit of writing this language.

There are two main objectives in teaching a course in Geometry. One is to develop in students geometrical insight and intuition so that mutual relationship between its sub-structures are perceived. The other is to develop capacity to think logically and to appreciate the fact that Geometry is a deductive structure. Both these objectives

re in fact supplementary and one cannot be put in background in preference to the other. Unfortunately we fear that our present methods of teaching lay wrong emphasis on the second aspect.

To develop intuition it would be necessary to appeal to concepts of translation, rotation, symmetry and reflection. In fact, even before a certain proposition is stated formally in the class the truth contained in the proposition can be drawn out from students by appealing these concepts by studying diagrams for instance, consider a parallelogram. From considerations of measure of an angle and measure of length preserving properties of translation reflection, symmetry, rotation etc. students can be made to infer say its following properties :

Opposite sides of a parallelogram are congruent.

Its opposite angles are congruent.

Having drawn out such inferences from students we can then discuss their formal proof on the basis of theorems on congruence. Such a procedure, we feel, will develop both intuition and deductive insight into the subject.

To understand the meaning and proofs of theorems in space, it will be found advantageous to prepare suitable models. Students can be made to participate in the construction of such models. Simply drawing figures on the black-board does not give much help to develop imagination.

It is well known that a proposition in Geometry may be proved in alternative ways. It is wrong, therefore, to insist on a standard proof. In fact a student must be encouraged to think alternatively and even if the route taken by him to reach the final stage of the proof is longer, it should deserve more credit than when he just reproduces verbatim the proof given in a book or by teacher.

Paper II - Geometry

(Proofs of starred theorems are expected from the students)

Theorem of pythagoras and its converse.

Geometry of a circle,

- * i) The line perpendicular to the radius of a circle at the outer end of the radius is tangent to the circle.
converse : Proof not expected.
- * ii) The perpendicular from the centre of a circle to a chord bisects the chord and its converse. Congruent circles, Two circles touching each other.
- iii) Arc or circle, central angles, measure of an arc. Intercepted arcs.
- iv) The measure of an inscribed angle is half the measure of its intercepted arc.
Angles inscribed in a semicircle are right angles and angles inscribed in the same are congruent.
- v) Opposite angles of a cyclic quadrilateral are supplementary (and its converse without proof).
- vi) Given an angle with its vertex on a circle, if one side of the angle touches the circle and the other intersects the circle in two points then the measure of the angle is half the measure of the intercepted arc.
- vii) In the same circle or in congruent circles if the two chords are congruent then the corresponding minor arcs are congruent.
- iii) Area of a circle and sector, circumference of circle.

3. Similarity of triangles :

- * i) Areas of any two triangles are proportional to the corresponding product of the base and height.
- * ii) The ratio of areas of any two triangles having the same height is equal to the products of the ratios of the lengths of their bases and of the ratio of their corresponding bases.
- iii) The ratio of the areas of any two triangles is equal to the product of the lengths of their bases and of the lengths of the perpendiculars from the vertices on the bases.
- iv) The ratio of areas of any two triangles having the same base is proportional to their corresponding heights.
- v) The ratio of intercepts made by three parallel lines on one transversal is equal to the ratio of the intercepts made by them on other transversals.
- vi) Statements of the following without proofs.
 - a) A A A similarity b) S A S similarity c) S S S similarity.
- * vii) In any triangle the altitude to the hypotenuse separates the triangle into two triangles which are similar to each other and to the original triangle.
- * proof of pythagoras triangle based on similar triangles.
- viii) Areas of two similar triangles are proportional to the squares of the lengths of their corresponding sides.
- ix) The square of the length of the tangent segment to a circle from a point outside a circle is the product of the lengths of the segment made by a secant to a circle.
- x) The product of the lengths of segments of a chord of a circle made by another intersecting chord is equal to the products of the lengths of the segments made by the first on the second.

4. Cylinder and cone, mensuration.

5. Trigonometry :

- i) Three trigonometrical ratios of an acute angle (sine, cosine and tangent).
- ii) The identity $\sin^2 A + \cos^2 A = 1$.
- iii) Trigonometrical ratios of angles of measure 30, 45, 60.
- iv) Heights and distances. Solving simple practical problems.

6. Elementary construction :

- i) Constructing a given triangle and a quadrilateral.
- ii) Circumscribing a circle about a given triangle.
- iii) Inscribing a circle in a given triangle.
- iv) To construct two tangents to a circle from a point outside it.

Arithmetic for Blind**Note :**

The blind candidates appearing at the Secondary School Certificate Examination may offer Arithmetic instead of compulsory Mathematics (Algebra and Geometry). The syllabus of Arithmetic for Blind is as follows :

- 1) Revision of the work done in Standard VI.
- 2) Principle of proportion-application to simple problems on time, transport and speed and on work and wages.
- 3) Simple problems on proportional parts and partnership.
- 4) Square root by factorization and Division method and the idea of approximation.
- 5) Area of a circle, use of the Formula $A = \pi R^2$
- 6) Metric measures of volume; volumes of rectangular solids and right cylinders, triangular prisms.
- 7) Compound interest (period not exceeding 3 years).
(Calculation of Interest and Amount only)
- 8) Application of Arithmetic to everyday life.
 - a) Maintenance of house-hold accounts, preparation of cash accounts of school activities.
 - b) Calculation of S. T. and Railway fares by reference to Time-tables.
- 9) Multiplication and Division of directed numbers and simple Algebraic expressions.
(The divisor should not consist of more than two terms)
- 10) Simplification of brackets involving the four fundamental operations, Evaluation of simple Algebraic expressions by substituting values for the variables.
- 11) Expansion of $(a+b)^2$, $(a-b)^2$ and $(a+b)(a-b)$ and simple problems based on them.

SCIENCE

Physics

Objectives :

These objectives are applicable to syllabus in Physics for Standards VIII, IX and X.

To enable the pupils to :

1. acquire knowledge of concepts, principles, processes etc. in Physics ;
2. understand basic concepts, processes and principles in Physics ;
3. develop ability to apply principles of Physics to the solution of day-to-day problem
4. nurture the spirit of enquiry and experimentation with a view to developing scientific attitude ;
5. develop skill in handling apparatus, performing simple experiments and drawing figures.
6. take interest in the study of science ;
7. cultivate the habit of enquiry and experimentation ;
8. appreciate the role of Physics in technological and cultural development.

STANDARD-VIII

1. Introduction to Physics

- 1.1 What is physics. Ideas about matter in general, its physical properties and phenomena, physical experiment and its study with a mention of different factors and their control.
- 1.2 General ideas about physical measurement. Principles of measurement, system of measurement - M.K.S. & C.G.S., Derived quantities-area, volume, speed and density.

2. Measurements of physical quantities

- 2.1 Measurement of length, area, volume (small and large). Introduction of vernier calliper and screw-guage.
- 2.2 Capacity of vessels and volume of irregular bodies. Idea of internal volume of a vessel and its capacity to hold liquids. Measuring cans, graduation of measuring cylinder, its least count and its use. Volume of irregular solid bodies by displacement method. Idea of overflow vessel. Its use to find the volume of irregular solid.

- 2.3 Measurement of time - Use of any repetitive phenomenon for measurement of time. Use of simple pendulum.

Mass, Weight and Density

- 3.1 Concept of mass-mass as something common to all, matter like wood, bread planets, stars and atomic nuclei.

Gravity pulls on substances. Weight as a pull of gravity. It changes from place to place. Spring balance measures weight. Equi-arm balance compares masses. Spring balance can register change in the pull on a mass as different places and altitudes.

- 3.2 Density and its application-concept of density in terms of mass and volume. Use of density for calculating mass and volume.

Structure of matter

- 4.1 Different features of molecules. Size of Molecules and atoms. Nature of interaction between them. Constant random motion of molecules. Idea of state of a substance with respect of molecular particle model.

- 4.2 Expansion of substances. Expansion of solids, liquids and gases. Their explanation on particle model.

- 4.3 Bimetallic strip. Use of bimetallic strip for automation in some thermal appliances such as an electric iron.

- 4.4 States of matter. Idea about agitation of particles on heating or by friction.

- 4.5 Thermometers - Use of 'expansion of substances'. Phenomenon for measurement of temprature (construction of liquid-in-glass thermometer), Celcius scale. Temperature below freezing point, clinical thermometer.

Light

- 5.1 Sources of light. Light is a form of energy. Propogation of light. Point source and ray of light.

- 5.2 Formation of shadows. Individual experience about the umbra, penumbra and annular rings, Idea about intensity of light.

- 5.3 Speed of light. Study of situation involving idea about the tremendous speed of light such as lightning and thunder. Importance of the speed of light.

- 5.4 Reflection of light. Laws of reflection. Reflection from rough and smooth surface. Diffused reflection and scattering of light.

- 5.5 Image due to reflection in plane mirror, concept of a point image due to a point object by reflection, Virtual images, Multiple reflection from plane mirror.

Magnetism

- 6.1 Magnet and its properties :

i) Magnetism - a form of energy,

- ii) Property of attracting magnetic substances.
Maximum and minimum attraction along the magnet.
- iii) N-S directional property.
- iv) Attraction and repulsion properties of the magnetic pole.

6.2 Method of Magnetisation :

- i) Magnetic and non-magnetic substances.
- ii) Magnetisation by rubbing, induction and electric currents.
- iii) Temporary and permanent magnetism.
- iv) Difference between steel and soft iron.

6.3 Uses of a magnet :

- i) Separation of magnetic substance from non-magnetic substances.
- ii) Lifting heavy iron girders and heavy machinery by electromagnets.

Not be evaluated :

- i) Life of two Indian physicist-
 - i) Sir C. V. Raman.
 - ii) Dr. Homi Bhabha.
- ii) Useful mathematical tables giving physical data.

Experiments :

1. To verify the laws of reflection.
2. Experiment of shadows using point and expanded sources.
3. To locate the position of the image of a pin due to plane mirror (by using large pin behind the plane mirror).
4. To observe and compare the expansion of a liquid and a gas using a test-tube comparison (only for demonstration)
5. Use of second's pendulum to have practice for harmonic (Rhythmic) activity for counting time.
6. To find out the area of an irregular surface using mm² and cm² graph.
7. To separate magnetic materials from non-magnetic. (by taking the mixture and using barmagnet).
8. Use of thermometer for finding temperature of hot and cold water.

(Note : The order of these experiments may be as per convenience of teaching and availability of material).

STANDARD-IX

Physical Measurement

Use of vernier calliper and screw-gauge. Errors in Physical Measurement- Difference between mistakes and errors, causes of mistakes-carelessness in counting and calculations. causes of errors.

Reduction of Errors - (1) by choosing as large a magnitude of the physical quantity as possible. (2) by choosing an instrument of least count, at least 1/100 of the quantity to be measured, (3) by taking a large number of measurements (best estimate).

Reflection and refraction of light

Rotation of plane mirror and a statement of relationship between the reflected rays and angle of rotation.

Special mirrors - concave and convex mirrors as parts of a sphere, principal axes. pole, radius and centre of curvature. Principal focus and focal length

$$= \frac{R}{2}.$$

Formation of real and virtual images - graphical determination of images in a concave mirror for the following positions of the object, (i) beyond centre of curvature C, (ii) at C, (iii) between C and f, (iv) at f, (v) between 'f' and the pole.

Relation between u, v and f, sign conventions for spherical mirrors and lenses,

$$\frac{1}{u} + \frac{1}{v} = \frac{1}{f} \quad (\text{without derivation}) \text{ and 'm' is equal to } \frac{v}{u}$$

where 'm' is the linear magnification, the symbols u, v, m, f include both magnitude and direction. Use of these formulae for (a) solving simple numerical problems, (b) determination of the focal length of a concave mirror by f, u, v, method using a candle.

Applications - Reflectors, shaving mirrors, solar cookers, side view mirrors in cars and buses, in optical instruments.

Law of refraction and refractive index, verification of the laws of refraction. Methods of determination of refractive indices of glass water.

Critical angle and total internal reflection.

Refraction through prism and lens, prism-its description, deviation produced by a prism, minimum deviation.

Types of lenses, definitions of optical or optic centre, principal axis, principal focus, focal length, path of three important rays through a lens, Graphical construction of images due to a convex lens when an object is placed -

- i) between f and $2f$
- ii) at $2f$
- iii) between $2f$ and f
- iv) at f
- v) between f and the lens (for a concave lens, between infinity and lens)

2.9 Use of the lens formula (Relation between u , v and f for a lens, without derivation)

$$\frac{1}{v} - \frac{1}{u} = \frac{1}{f} \quad \text{and} \quad \frac{v}{u} = \text{magnification.}$$

Method of finding the focal length of convex lens by $u-v$ method (using candle).

3. Heat and Temperature

- 3.1 Thermal energy and heat – Transfer of Energy from a hot to a cold body.
- 3.2 Concept of temperature – Difference between heat and temperature.
- 3.3 Heat capacity and specific heat capacity – Units of heat–MKS system – K cal C. G. S. system–calorie concept of specific, heat capacity, the relation $W = MC$ where $W = C$ when $M = 1$. Then W is equal to Sp. heat capacity. Water equivalent of a calorimeter. The principle, Heat gained and the conditions under which the principle is true. Simple numerical problems on specific heat.

4. Static Electricity

- 4.1 Electricity by friction.
- 4.2 Detection of charges – by (i) pith ball (ii) Gold leaf electroscope.
- 4.3 Atomic structure – Nucleus, Electrons and Protons. Number of electrons and protons in an atom.
- 4.4 Electron movement – Basis of frictional electricity.
- 4.5 Conductors and Insulators – Good and Partial.
- 4.6 Charge on the outer surface of the conductor. Distribution of surface charge density.
- 4.7 Electrostatic Induction :
When induction takes place –
 - i) Two kinds of charges are always separated.
 - ii) Opposite bound charge is induced at the near end of the conductor and similar free charge at its far end.
 - iii) The bound and free charges in the conductor are equal in quantity.

- iv) The induced opposite charges are temporarily separated and they neutralize each other when the inducing charge is removed.
- v) The magnitude of the induced charge depends on the quantity of the inducing charges and its proximity to the body.
- vi) Induced charge is equal to the inducing charge.

8 Charging a conductor-

- 1) By friction, 2) By conduction 3) By induction.

Current Electricity

A) Sources of electricity -

Conversion of Chemical energy into Electrical energy in primary, secondary and dry cells.

Construction and working of the following cells without chemical equations.

- 1) Voltaic Cell 2) Daniel Cell 3) Leclanche Cell 4) Dry Cell
- 5) Secondary Cell.

B) Conversion of Mechanical energy into Electrical energy is obtained from -

- i) Water fall (Gravitational Energy)
- ii) Burning of coal, oil etc, (Chemical Energy)

C) Nuclear Fuel (Nuclear energy)

D) From light energy as in solar battery, only brief reference in describing sources (B) and (C) are expected.

Sound

Sound as form of energy, sources of sound, propagation of sound energy, Reflection of sound, Echo, Frequency, Amplitude, Wave length, Experiment demonstrating sound needs medium.

Magnetism

Fictitious poles in a magnet -

- i) Assumption of fictitious poles in magnet.
- ii) Location of fictitious poles.
- iii) Magnetic axis of Magnetic meridian.
- iv) Idea of Earth as a Magnet.

Mention of uses of Magnet - loudspeaker, Telephone, Telegraph, Electric bell, Mariner's Compass, Magnetic Mines in warfare.

Experiments :

- 1) Reduction of error by choosing as large of magnitude of physical quantity as possible.

- 2) Reduction of error by choosing in ins.
- 3) To find the focal length of a concave mirror of light.
- 4) To determine the refractive index of the material of glass by apparent depth method.
- 5) To find the focal length of a convex lens by u-v method using source light.

STANDARD-X

1. Mechanics

1.1 Concept of vectors and scalars.

1.2 Motion—Motion in a straight line.

Displacement, speed and velocity—Displacement, vector quantity. Average speed and average velocity.

Distinction between speed and velocity. Uniform and variable speed and velocity.

1.3 Acceleration – The concept of acceleration. Meaning of uniform acceleration qualitative treatment of the relation.

$v = u + at$, $s = ut + \frac{1}{2} at^2$ and $v^2 = u^2 + 2as$. Sign convention for vertical, horizontal and positive motion in a straight line.

1.4 First law of motion – Aristotle's concept of constant motion, The first law of motion (statement). The concept of inertia.

1.5 Second law of motion – Momentum – a vector quantity. Unit of momentum, Law of conservation of momentum (Statement only).

Definition of force. Units of force. Newton (M.K.S.) and Dyne (C.G.S.) Effect of force on velocity of a body. Existence of force when a body is moving with constant velocity or when it is changing its velocity. The second law of motion $f = ma$ (Statement only, mathematical derivation not expected.)

1.6 Acceleration due to gravity – Change of 'g' from place to place. Relation between weight, mass and gravity. Units of weight according to Newton and Dyne, Constancy of mass. Simple numerical problems on motion under constant gravitational acceleration.

1.7 Types of force (1)Gravitational force (2)Electromagnetic force (3) Nuclear force. Comparison of the strength of these forces (qualitative only).

1.8 Third law of motion – The third law of motion (Statement). Illustrations from life. Some applications of III Law.

- 1.9 Work : $W = f \cdot s$. Positive and negative work. Units of work (Joule and erg).
- 1.10 Energy – Potential and kinetic energy. Units of energy Joule and erg. Law of conservation of energy. Energy interconvertible.
- 1.11 Power – Definition of power, $P = \frac{W}{t}$, $W = Pt$
- $P = F \times V$ (Where $F =$ force and $V =$ velocity)
- Units of power : Watt, Kilowatt. 746 watts = 1 horse power (no derivation).

2. Pressure and its effects

- 2.1 Pressure : Definition of pressure,

$$P = \frac{\text{Magnitude of force}}{\text{area}}, \quad \text{Pressure : A Scalar Quantity Units of pressure,}$$

$$\text{Newtons /m}^2 : \text{dynes /cm}^2$$

- 2.2 Pressure inside a Liquid – liquid pressure due to force. Relation between liquid pressure, depth and density. Liquid seeks its own level. Density of liquid by U-tube and Hare's apparatus.
- 2.3 Atmospheric Pressure – Concept of atmospheric pressure. Its measurement by mercury Barometer.
- Only statement of the following –
- $$\begin{aligned} \text{Atm, pr.} &= 101324 \text{ Newtons/m}^2 \\ &= 76 \text{ cm of Hg} \\ &= 10.33 \text{ metres of water.} \end{aligned}$$
- 2.4 Principle of Archimedes – Statement of the principle. Concept of upthrust of liquid. Application of Archimedes principle to find densities of solids and liquid, Law of floatation.

Heat

Change of state – Concepts of liquification, solidification, condensation and sublimation with reference to molecular model. Concept of latent heat. Latent heat of fusion. Evaporation and boiling with reference to molecular model. Latent heat of vaporisation – Change of volume during change of state from – (i) solid to liquid (ii) liquid to gas (iii) solid to gas. Anomalous behaviour of water and its effects. Effect of pressure on melting and boiling points. Freezing mixture and its uses.

Light

1. Telescopes and Microscopes – Least distance of distinct vision. Power of a lens. Diopter. Construction and working of – (i) Simple microscope.

(ii) Compound microscope (iii) Astronomical Telescope. Persistence of vision. Short and long sight and their corrections. Uses of persistence of vision in cinema and television.

4.2 Dispersion of light : Refractive index and colour – dispersion of white light through prism. Spectrum of white light.

5. Current Electricity

5.1 Potential difference : Meaning of potential difference. Unit of potential difference in the terminals of source of electricity.

5.2 Modes of Electric Current flow – Potential difference and flow of current. Flow of current in (i) a good conductor, (ii) an electrolyte.

5.3 Coulomb, Volt, Ampere – definition of coulomb, volt and ampere.

5.4 Magnetic effect of electric current : Oersted's experiments, Magnetic field and magnitude of current I , distance and directions of I and V (Magnetic field due to a straight conductor) R. H. Thumb rule. Simple applications of magnetic effect (Qualitative only).

5.5 Concept of Resistance : Motion of electrons and Kinetic Energy, Obstruction by collision and loss of K. E. Conversion of lost energy into heat energy.

5.6 Ohm's Law

i) Statement of Ohm's Law.

ii) Experimental deduction of Ohm's Law (Voltmeter ammeter method). Factors on which the resistance of a conductor depends. (specific resistance).

5.7 Heating effect of an electric current – Experiment to illustrate heating effect

$$Q = VIT \text{ Joules} = \frac{VIT}{4.18} \text{ Cals}$$

$$Q = I^2 RT \text{ Joules} = \frac{I^2 RT}{4.18} \text{ Cals}$$

Simple application in electric bulb, electric iron, fuse safety precautions.

Experiments :

1. To find the density of a liquid by Hare's apparatus.
2. To deduce experimentally the Principle of Archimedes.
3. To find the density of a given solid (soluble, insoluble, light and heavy) by Archimedes Principle.
4. To find the density of a liquid by Archimedes Principle.
5. To deduce experimentally Ohm's Law.

Chemistry

Objectives :

These objectives are applicable to syllabus in Chemistry of Standards VIII, IX & X. To enable the pupils to -

1. acquire knowledge of concepts, principles, processes etc. in Chemistry;
2. understand structure and composition of various substances;
3. understand nature and effects of chemical changes and reactions;
4. nurture spirit of enquiry and experimentation with a view to developing scientific attitude;
5. develop skills in using chemicals economically, performing experiments carefully and taking note of observations systematically;
6. develop analytical thinking and ability to apply it to the problems of material world;
7. take interest in the study of chemical properties of elements, mixtures and compounds as also in experimentation;
8. appreciate the role Chemistry played in technological developments, so far as they touch their everyday life.

STANDARD-VIII

1. Chemistry in everyday life

- 1.1 History of Chemistry.
- 1.2 Importance of Chemistry in everyday life.
- 1.3 Purpose of studying Chemistry.
- 1.4 Chemistry in food, clothing, medicine, energy production and plastics.

2. Some familiar substances

- 2.1 Water-sources, purification and decomposition.
- 2.2 Air-matter, mixture, chemical material and composition.
- 2.3 Characteristics of some common elements : carbon, sulphur, phosphorus, copper, silver, gold, tin, lead, (only properties, chemical equations not expected).
- 2.4 Characteristics of some common chemicals - (simple tests) Sodium Carbonate, Sodium Chloride, Potassium Nitrate, Calcium Carbonate, Copper Sulphate, Ammonium Chloride (only properties).
- 2.5 Characteristics of acids and alkali, Hydrochloric acid, Sulphuric acid, Nitric acid, Sodium Hydroxide, Potassium Hydroxide, Calcium Hydroxide.

2.6 Acids, Bases and Salts. Neutralization (equal strength and equal vol concept not to be explained).

3. Pure and impure substances

3.1 Methods of purification, solution, solvent, filtration, decantation, sublimation, crystallization, distillation.

3.2 Classification of substances-elements, mixtures and compounds.

4. Composition of matter

Atoms and Molecules (Definition, symbols with examples).

5. Changes in Matter

Physical and chemical changes.

6. Non-metals : Occurrence, preparation-properties and uses of the following -

6.1 Hydrogen

6.2 Oxygen.

List of Laboratory Experiments :

- To find out percentage of Oxygen in air by Bell-Jar Experiment.
- To neutralise the given acid (HCl , H_2SO_4) with the given alkali (KOH , NaOH) using Methyl Orange and Phenolphthalein as indicators. (for demonstration)
- To prepare and study the crystals of :
 - Alum, 2. Copper sulphate, 3. Ferrrous sulphate,
 - Sodium thiosulphate, 5. Sodium chloride.
- To separate sand and common salt from a given mixture.
- To study the action of diluted acids (HCl or H_2SO_4) on carbonates and to test the gas with lime water.
- Separation of iodine and sodium chloride by sublimation.
- Separation of crude oil by fractional distillation. (only demonstration).

STANDARD - IX

1. Non-metals : Occurrence, preparation, properties and uses of the following -

1.1 Nitrogen, ammonia, fixation of nitrogen.

1.2 Halogens - chlorine - preparation, properties and uses.
bromine and iodine - only properties and uses.

1.3 Oxides-oxidation and reduction.

Suggested practical experiences :

1. Physical properties of chlorine, bromine and iodine such as physical state, soluble or insoluble in water, and organic solvents. Such as CHCl_3 , CCl_4 , $\text{CH}_3\text{-CO-CH}_3$, C_6H_6 & CS_2
2. Decolourising action of chlorine.
3. Reaction of halides such as KI , NH_4Cl , KBr with conc. Sulphuric acid.
Displacement of Br and I from KBr and KI by Cl_2 gas.
Preparation of ammonia and its properties.
Preparation and reaction of NH_3 on acids).
4. Preparation of ammonia and its properties.
5. Preparation of ammonia and reaction of NH_3 on acids.
(solubility, Fountain exp. ...)

Metals and Metallurgy

- 2.1 Occurrence-extraction (details of extraction process and uses) (diagrams not expected)
- Properties and uses of the following metals :
- Sodium, aluminium, zinc, iron, mercury, magnesium.

Suggested practical experiences :

1. Burning of sodium in chlorine.
 2. Reaction of zinc, iron with copper sulphate.
 3. Displacement of Cu from CuSO_4 by Fe and Cu from CuO by Mg.
 4. Electrolysis of lead bromide.
- 2.2 Preparation only by two methods, properties and uses of the following compounds :

Sodium hydroxide, Common alum, Zinc Oxide, Zinc Sulphate, Iron Sulphate, Magnesium Sulphate, Magnesium Carbonate, Copper Sulphate, Silver Nitrate, Mercury Chloride (ic), Mercury Chloride (ous) (details of preparation and diagrams not expected. Equations essential).

Gaseous State

- 3.1 Pressure, volume and temperature relationship.
- 3.2 Diffusion of gases,
- 3.3 Boyle's law, Charle's law and statement of general gas law.

Suggested practical experiences :

1. Dependence of volume on pressure of gases.
2. Dependence of volume on temperature of gases.

4. Structure of Atom

- 4.1 Elementary particles, electron, proton, neutron, atomic number, isotopes.
 - 4.2 Nucleus, planetary electrons, Distribution of electrons in different shells, electronic structure of first nineteen chemical elements, valency electrons.
5. Chemical Bonding, Formation of simple molecules such as –
NaCl, MgO, H₂O, HCl

Suggested practical experience :

- Observation of properties of covalent and ionic compounds.
6. Definition of Atomic and Molecular weight, Formulae and Chemical equations.

7. Combustion and fuels

- 7.1 Combustion, a process of oxidation,
- 7.2 Materials used as fuels.

List of Laboratory experiments :

1. Action of heat on substances-Copper Sulphate and Alum.
2. Action of dil. acids on substances-CaCO₃ and Zn.
3. Action of litmus on Acid salts and Basic salts,
4. Preparation of copper sulphate from CuO.
5. Preparation of Ferrous Sulphate from Iron.
6. To study chemical properties of aluminium, Reaction of Al with acids and bases.

STANDARD-X

1. Classification of Elements

- 1.1 Mendeleef's Work (Brief History)
- 1.2 Modern basis of classification
- 1.3 Long form of periodic table with reference to third row elements and VII A group.

2. Solutions and Ionization

- 2.1 Electrolytic dissociation, electrolytes and non electrolytes,
- 2.2 Theory of ionization (Arrhenius), degree of ionization.
- 2.3 Acids and bases and their dissociation in aqueous. Solutions, strong and weak acids and bases.

Suggested practical experiences :

1. Evidence for the mobility of ions-Copper Chromate expt.

2. Electrolysis of solution of copper sulphate.
3. Ionic reactions leading to precipitation and neutralization.

Factors affecting the rate of chemical reaction

- (i) Temperature (ii) Concentration (iii) Size of particles (iv) Catalyst.

Suggested practical experience

Action of water and acids on different metals.

Radioactivity

- 4.1 Introduction - Radioactive and non-radioactive substances
- 4.2 Historical account (Brief notes only)
- 4.3 Nature of different radiations
- 4.4 Decay process
- 4.5 Artificial radioactivity.
- 4.6 Application of radio isotopes in medicine, agriculture and industry.
- 4.7 Introduction of Nuclear energy, fission and fusion.

Metals and their compounds, occurrence, preparation (details and diagrams not expected.) Properties and uses of the following - (Principles of reactions by equations),

- 5.1 Copper, copper sulphate, copper oxide.
- 5.2 Silver, silver nitrate.
- 5.3 Lead, litharge, lead nitrate.

Phosphorus and Sulphur

- 6.1 Occurrence, extraction (details of manufacture to be deleted) properties and uses of phosphorus and sulphur.

Suggested practical experiences :

1. Effect of heat on sulphur.
2. Allotropic modifications of Sulphur.
3. Reaction of hydrogen sulphide on some metallic salt solutions.
- 6.2 Preparation, properties and uses of - (Preparation giving equations only)
 P_2O_5 , SO_2 , SO_3 , H_2SO_4 , H_2S .

Carbon

Position of Carbon in the periodic table. Tetravalency of carbon in carbon compounds.

8. Chemistry of carbon compounds, Organic Chemistry.

8.1 Introduction

8.2 Classification of organic compounds according to functional groups, Hydrocarbons, alcohols, carboxylic acids, amines (any two examples.)

8.3 Hydrocarbon

Properties and uses of -

- a) Saturated-methane
- b) Unsaturated - ethylene,
- c) Aromatic - benzene.

Suggested practical experience :

Testing of functional groups of alcohol and Carboxylic acids.

9. Chemistry in Industry (No details, No structure).

9.1 Glass

9.2 Match industry

9.3 Soap and detergents.

List of laboratory experiments :

1. Volumetric analysis-

Titration involving acids, alkalis by using Methylorange and Phenolphthalein as indicators.

2. Preparation of SO_2 , NH_3 , H_2S and HCl and to study their properties.

3. Test for Chlorides, Bromides, Iodides and Carbonates.

4. Differentiate between electrolytes and non-electrolytes.

or electrolysis of copper sulphate solution or effect of temperature and pressure on the reaction .

5. Charcoal test for metals Pb, Zn and Cu. }

6. Flame test for Ca, Sr, Na and K

or alternative experiments.

Biology

Objectives :

To enable the pupil to-

- 1) develop awareness of the nature of the environment in which he lives;
- 2) develop the inquisitiveness and thereby acquire knowledge of concept, principle, processes, in Biology;

- 3) take interest in collection and study of the living objects ;
- 4) develop skills in observation and experimentation,
- 5) understand the unity and diversity in structure, organs, existence and development of living organisms.
- 6) cultivate habit of thinking scientifically for the enrichment of human life and society.

STANDARD-VIII

Part I : Our living world

1) Introduction of Biology.

Characteristics of Living-organisms.

Differences between the living and non-living.

Forms of Life-

a) Microbes (b) Plants (c) Animals-

Differences in these living organisms.

Application of Biology in Human Welfare with reference to :

Medicine

- i) Nutrition,
- ii) Preventive measure and
- iii) Introduction to drugs.

Industry types and usefulness in relation to-

- i) Fermentation
- ii) Dairy
- iii) Tanning

Agriculture.

Agriculture is important to all.

Farming affects our lives.

Different types of farmings.

Methods of studying living organisms :

General observations.

Microscopic (ii) Megascopic

Shape, size, colour, symmetry etc.

c) External features – various parts of plants and animals viz :

Plants	Microscopic	Megascopic
	Spirogyra	Vinca
	Mucor	Goldmohur
	Bacteria	Datura
Animals	Amoeba	Earthworm
	Hydra	Cockroach
		Frog
		Bird

4. Interaction of living individuals with environment.

a) Only external body adaptations to different habitats, viz.

i) Aquatic (ii) Terrestrial (lii) Aerial.

b) Adaptation with reference to food habits and locomotion.

c) Interrelationship between plants, animals and environment; viz. broad outline of ecosystem.

5. Study of cell

a) Cell as a basic unit of living organism—a brief account of cell discovery.

b) Plant cell structure as seen under light microscope.

c) Animal cell structure as seen under light microscope.

d) Differences between plant and animal cells:

6. Life processes of living organisms :

a) Mention of various processes of life such as nutrition, respiration, circulation, excretion, reproduction, growth and movement.

b) Brief account of the following processes :

i) Nutrition in animals.

ii) Photosynthesis in plants.

iii) Respiration in plants and animals.

iv) Growth and movement in plants and animals.

Part - II : Botany

A) Parts of flowering plant

(Morphological and functional approach)

- (a) Roots - (i) Types of root system -
(1) Tap (2) Adventitious.
(ii) Basic and supplementary function ; Storage of food.
- (b) Stem - (i) External characters.
(ii) Functions : Basic and supplementary storage.
(iii) Kind of stem : Underground.
- (c) Leaf ; Parts of a typical leaf-
(i) Petiole, Lamina, Stipules and their functions.
(ii) Kinds of leaves - simple and compound.
- (d) Flower - (i) Part of a flowers.
(ii) Types of pollination.
(iii) Agents of pollination viz.
wind and insects. (one example each).

(B) Classification

- (1) Need of classification.
- (2) Classification with three major characters of the following alongwith one example each:-
i) Algae (ii) Fungi (iii) Bryophyta (iv) Pteridophyta
v) Gymnosperms and vi) Angiosperms.

Part - III : Zoology

(A) Classification of Animals into two major groups :

- (i) Invertebrates and
(ii) Vertebrates with their major characters,
Invertebrates- Amoeba, Sponge, Hydra, Tapeworm, Ascaris, Earthworm
Cockroach, Pila and Starfish.

Vertebrates - Fish, Frog, Cylotes, Pigeon and Rat.

- (B) Animals in relation to man
- (a) Useful animals –
 - (i) Earthworm (ii) Honey bee (iii) Hen (iv) Cow (v) Bullock.
 - (b) Harmful animals –
 - (i) Locust (ii) Mosquito (iii) Ascaris (iv) Rat.

9. Human Biology

- (1) Characteristics of man.
- (2) General survey of human body.
- (3) Human digestive system.
- (4) Food, digestion and absorption.

Practical Course

(Total periods : 10)

- 1. Use of Microscope :
 - Observation of following organisms under microscope, Spirogyra, Mucor, Aspergillus, Amoeba, Hydra.
- 2. Study of external features of any one of the following:
 - (a) Plants – Cotton, Cajanus (कूर) Datura, Sunflower Vinca, (मदाफूली) or any other plant of similar type locally available.
 - (b) Animals – (i) Cockroach or Earthworm, (ii) Frog.
- 3. Observation of adaptive characters of-
 - (i) Fish, (ii) Bird, (iii) Dog.
- 4. Observation of Cell structure under light microscope –
 - (i) Onion cells, (ii) Isolated epithelial cell. Demonstration of above permanent slides and drawing their labelled sketches,
- 5. (a) Photosynthesis – Demonstration by simple experiment.
 - (b) Loss of water by plants through leaves.
 - (c) Observation of germinating seeds for growth.
 - (d) Demonstration of respiration in plants by simple fountain experiment.
- 6. (a) Observation of types of roots –
 - (i) Tap roots and Adventitious roots.
 - (ii) Specialised function of the roots to be shown with the help of

following specimens :

Carrot/Radish/Beet

(b) Observation of-

(i) Parts of Banyan twig,

(ii) Special functions of stem to be demonstrated with the help of Potato/Ginger.

(c) (i) Leaf-observation of various parts of leaf with the help of suitable specimens, viz. Beet-le-vine/Hibiscus.

(ii) Types of leaves - Banyan and Rose / Hibiscus and Tamarind or any other simple and compound leaf.

(iii) Flowers - observation of - parts of a typical flower - viz. Hibiscus/Cassia sp./Datura/Ipomoea.

7. Classification

(a) Classification of Plants.

Observation of —

(i) Slides of Spirogyra and Mucor,

(ii) Moss, Fern, Cycas, Sunflower and Maize.

(b) Classification of Animals ;

Observation of the following animals ;

Invertebrates - Amoeba, Sponge, Hydra, Tapeworm, Ascaris, Earthworm, Cockroach, Pila and Starfish.

Vertebrates - Fish, Frog, Calotes, Pigeon and Rat.

STANDARD - IX

Part - I : Living World

Brief concept of Microbial world -

(i) Viruses, (ii) Bacteria. (iii) Fungi.

Application of Biology to Agriculture

(a) Modern methods of Agriculture :

(i) What farmers do ?

(i) Seed Testing

- iii) Preparing and manuring Soil.
 - iv) Disinfecting seeds.
 - (b) Fertilizers - Chemical and Natural.
 - (c) Crop protection -
 - i) Controlling weed growth,
 - ii) Harmful insects,
 - iii) Crop diseases.
3. Behavioral Aspects in Plants and Animals :
- (a) Plants -
 - i) Insectivorous plants.
 - ii) Movements in *Mimosa pudica*.
 - (b) Animals -
 - (i) Communication - The basis for interorganismic co-ordination.
Types of Signals - Acoustic, Visual, Chemical and Tactile.
 - (ii) Social life in honey bees.
4. Broad outline of cell - division (Mitosis).

Part - II : Botany

5. Classification of plants :
- i) Concept of Cryptogams and Phanerogams.
 - ii) Subdivision of Cryptogams and Phanerogams.
 - iii) Major characteristic features and two examples of each group.
6. Tissues in Plants (in brief), Structure and functions of the following -
- (a) Simple tissues -
 - i) Parenchyma
 - ii) Collenchyma
 - iii) Sclerenchyma.
 - (b) Complex tissues -
 - i) Xylem
 - ii) Phloem.
7. Water uptake in plants -
- (a) Osmosis (b) Ascent of sap (c) Exit of water.

3. Photosynthesis :

- i) Light as a energy source.
- ii) Chloroplast as energy converters.
- iii) Intake of Carbon dioxide.
- iv) Production of sugars.
- v) Role of water.

Part - III : Zoology

1. Classification of animals ; Outline classification of Invertebrates :

Diagnostic characters of the following –

Phyla with examples mentioned against them.

- i) Phylum - Protozoa - e. g. Amoeba
- ii) Phylum - Aschelhelminthes - e. g. Ascaris.
- iii) Phylum - Annelida - e. g. Pheretima
- iv) Phylum - Arthropoda - e. g. Crab or Cockroach
- v) Phylum - Echinodermata - e. g. Starfish.

2. Brief account of structure and life history of Amoeba with reference to the following life processes –

- (i) Locomotion, (ii) Nutrition, (iii) Reproduction.

Part - IV : Human Biology

Structure and function of skin of man.

Blood vascular system of man -

- i) Flood - its composition and functions.
- ii) Structure and functions of heart
- iii) Blood vessels - Arteries, Blood capillaries and Veins.

Respiration in Man

Brief account of respiratory system of man.

Pollution and preventive measures of the following –

- a) Air (b) Water (c) Food.

Practical course (Total Periods 16)

Part I : General Topics

1. a) Observation of the following under microscope. –
(i) Mucor, (ii) Yeast, (iii) Bacteria from curd.
b) Demonstration of root – nodules of any leguminous plant.
2. a) Demonstration of various fertilizers, insecticides and fungicides.
b) Demonstration of pot-cultures using artificial fertilizers.
3. a) Observation of insectivorous plants – viz.
Drosera. Nepenthes and Utricularia.
b) Observation of movements in Mimosa pudica or Bioplytum.
4. a) Observation of Queen, Drones and workers of honey-bees.
b) Observation of honey-comb.

Part II : Botany

5. A) Observation of Cryptogams :
 - a) Thallophyta –
 - i) Algae Spirogyra or Oedogonium
 - ii) Fungi (Mucor)
 - iii) Bacteria-Bacillus.
 - b) Bryophyta – Riccia or Moss
 - c) Pteridophyta – Fern,
- B) Observation of Phanerogams –
 - a) Gymnosperms :
Cycas or Thuja,
 - b) Angiosperms :
 - i) Dicotyledons – Vinca or Ipomoea.
 - ii) Monocotyledons –Onion or Tuberose.
6. Observation of the following permanent slides :
 - a) Paraenchyma (b) Collenchyma (c) Sclerenchyma d) Xylem
(e) Phloem.
7. Observation of the following :
 - a) Stomata, (b) Potato Osmoscope, (c) Ascent of sap using a dye,

- d) T. S. of root - showing root hair,
- e) Absorption zones of root in a seedling.

Demonstration of oxygen evolution during photosynthesis in Hydrilla.

Part III : Zoology

Classification of Animals

Draw labelled sketches of the animals shown against each phylum as mentioned in Unit No. 9 of the theory portion.

Part IV : Human Biology

- a) Demonstration of permanent Slide of V. S. of skin of mammal or man under microscope.
- b) Demonstration of circulation of blood in the web of Frog.
- c) Study of the structure of heart of man with the help of chart and model.
- d) Demonstration of permanent slides of T. S, of artery, T. S. of vein.

STANDARD - X

Ecology :

- (i) a) Meaning of Ecosystem
 - b) Symbiosis
 - c) Parasitism.
- (ii) Conservation of Natural resources -
 - a) Conservation of wild life (flora and fauna).
 - b) Preservation of rare species.
 - c) Conservation of Aquatic life.
 - d) Conservation of Forests.
- (iii) Bio-geo-chemical cycles -
 - a) Nitrogen cycle (b) Carbon cycle
 - c) Fossil fuel; coal and oil.

Cell Biology :

- (A) Structure of cell as seen under electron Microscope with reference to structure and functions of the following organelles :
 - i) Plasma membrane
 - ii) Endoplasmic reticulum

- iii) Chloroplast
- iv) Mitochondrion
- v) Nucleus.

(B) Brief account of chromosomes ;

- 1) Structure
- 2) Chromosome number
- 3) DNA
- 4) Idea of gene.

Part - II : Botany

- 3. Life history of a flowering plant as illustrated by *Datura*.
- 4. Life history of typical *Thallophytes* as illustrated by *Spirogyra* and *Mucor*.
- 5. Growth in Plants-
 - (i) Definition of growth (ii) Measurement of growth (iii) Types of growth
 - (iv) Factors affecting growth such as water, temperature and Auxins (in brief)
- 6. Germination-
 - i) Types of germination.
 - ii) Factors affecting germination.
 - iii) Viability of seeds.
 - iv) Dormancy of seeds.
- 7. Respiration in Plants-
 - i) Anaerobic and Aerobic types of respiration.
 - ii) Measurement of respiration.
 - iii) Significance of respiration.

Part - III : Zoology

- 8. Classification of Animals-

Vertebrates - Major characteristics of the following classes with examples mentioned against them -

 - i) Class Pisces - Labeo
 - ii) Class Amphibia - Frog
 - iii) Class Reptilia - Calotes or Snake

- iv) Class Aves - Pigeon
- v) Class Mammalia – Rabbit.

9, Type study of vertebrate

- i) Frog with reference to Habit, Habitat, External features and viscera,
- ii) Brief account of life cycle of Frog.

Part IV : Human Biology

10. Nervous system and sense organs.

- i) Structure of brain and functions of its different parts.
- ii) Structure and working of eye and ear.

11. Diseases and Hygiene

(a) Leprosy - Causes and spread of Leprosy.

Its control and treatment. Need for change in outlook.

(b) Cancer–

(i) Early symptoms of cancer.

(ii) Need for medical check up.

(c) Common diseases : Malaria and Cholera – Symptoms and prevention.

(d) Personal hygiene in relation to the prevention of scabies and lice.

Practical Course :

1. (a) Morphology of Datura.
- (b) Microscopic study of Spirogyra and Mucor.
2. Demonstration and Measurement of growth with the help of Arc indicator/Foot rule.
3. (a) Study of germination of seeds - Bean and Maize.
- (b) Demonstration of heat evolved during germination.
4. To find out rate of respiration by Ganong's Respiroscope using starchy and fatty seeds.
5. Classification of Animals. Study and Drawing labelled sketches of the animals shown against each class as mentioned in Unit No. 8 of the theory portion.

6. (a) **Demonstration of the Viscera of Frog.**
(b) **Identification of different organs of the viscera of frog.**
7. **Study of the different parts of Brain of man with the help of model.**
8. **Study of the structure of human eye and ear with the help of models.**



6. Social Sciences History

Objectives :

The following objectives are applicable to syllabi for Stds. VIII to X.

To enable the pupils to –

- 1) understand the social, economic, cultural and political background of our country
- 2) interpret the past for better understanding of the present.
- 3) foster the spirit of healthy nationalism, Secularism and Democratic Socialism
- 4) study the history of India in the world context with a view to develop feeling of universal brotherhood and international harmony.
- 5) develop objective attitude towards the study of history.
- 6) foster the spirit of patriotism and emotional integration,
- 7) study the impact of social, economic and political trends on the progress of mankind.

STANDARD - VIII

- i. Rise of Ancient Indian Religions.
- ii. Rise of Christianity.
- iii. Rise of Islam.
- iv. Religious reformation in India
- v. Age of discoveries, Renaissance and Reformation.
- vi. Advent of Europeans in India.
- vii. Establishment of British rule in India.
- viii. Economic impact of British rule in India.
- ix. Uprisings against the East India Company's rule upto 1857.
- x. Queen's proclamation and administrative reforms upto 1870.
- xi. Socio-religious cultural and political awakening in India.
The role played by Rajaram Mohan Roy and Brahmosamaj.
Mahatma Jyotiba Phule and Satyashodhak samaj.
Nyayamurti Ranade and Prarthana Samaj.
Swami Vivekanand and Ramkrishna Mission.
Dayanand Sarasvati and Arya Samaj.
- xii. National awakening upto 1885.

STANDARD-IX

It would be mainly a study of Indian National Movement from 1885 to 1920. Western Economic development Revolutions, Nationalist & Democratic Movements & Socialist Movements are to be studied here specifically to focus its impact on the Indian National Movement.

1. Western Economic developments and Revolutions

American Revolution

French Revolution

Industrial Revolution

Russian Revolution

2. Nationalist & Democratic Movements in the West.

Rise of Democracy in England -

(a) unifications of Italy (b) unifications of Germany - a brief Survey.

3. Indian National Movement from 1885 - 1920,

foundation of Indian National Congress.

Nature of National struggle upto 1907.

Extremist and moderates - ideological conflict Partition of Bengal and its impact
Boycott and Swadeshi Movement.

Home Rule Movement.

Socialist thinkers - Marx and Engels.

4. Socialist Movement - its rise and growth

STANDARD-X

It is mainly the study of Indian National Movement from 1920-1947 and the post independence developments, the political developments, in contemporary world are to be treated in Indian context.

1. India & the 1st world war - a brief survey

**2. The rise of Fascism & Nazism,
India & the IIInd World war.**

3. Indian National Movement 1920-1942.

Jalianwala bag Massacre - Beginning of Mahatma Gandhi era.

Non co-operation Movement-Simon Commission -

Armed Revolutionaries -

Sampurana Swatantryacha Tharava (Total Independence)

Civil Disobedience Movement.

Round Table conferences.

Poona pact

Act of 1935

Quit India Movement 1942.

Indian National Movement – The final phase 1942–50.

Indian National Army

Rebellion in the Navy and Air Force.

Declaration of Independence and the partition.

India becomes a Republic

Merger of Princely states

Economic achievements through planned economy

India's foreign policy.

Geography

Objectives :

To enable the pupils to –

know and understand the inter-relationship between the geographical environment and human life at

- a) Local,
- b) National and
- c) World level.

apply the knowledge to the relevant situations in Geography.

acquire the necessary skill useful to study Geography.

take interest in visiting the places of geographical interest.

broaden their outlook towards the world and human life.

STANDARD-VIII

Astronomical Geography (Space)

Solar system-Earth as a planet ; Its shape and size, Latitudes and Longitudes.

Physical Geography

Distribution of land and water.

Lithosphere – Earth's crust – Rocks and Minerals.

Landforms – (i) Due to earth's movements (folding and faulting) and earthquakes and volcanoes.

(ii) Due to denudation.

3. **India** – i) Position of India and its significance.
 - ii) **Relief of India** – Major landforms and relief zones, importance of Himalayas.
 - iii) **Geology** – Rocks, minerals and soils.
 - iv) **Rivers and coastlines of India.**
4. **World** – i) World major landforms, Mountains, Plateaus and Plains.
 - ii) **Rivers of the world.**
 - iii) **Distribution of deserts and snowfields.**
5. **Skill (Use of Techniques)** –
 - i) **Drawing of 3 dimensional blocks to represent land forms,**
 - ii) **Hachures and relief maps.**
 - iii) **Collection of rocks and minerals and**
 - iv) **Use of scales, directions and symbols in maps.**

STANDARD-IX

1. **Astronomical Geography**

Earth's rotation of revolution, their results, days and nights and seasons.

2. **Physical Geography**

Atmosphere : Elements of climate : Temperature, pressure, winds and rainfall.
Theoretical distribution.

3. **India**

Climate of India. Seasons of India–Mansoons.

Distribution of temperature and rainfall in India.

Droughts and Floods in India – Irrigation : Agriculture.

Natural Vegetation – Major crops zones.

4. **World**

Climatic Zones-concept of natural regions, climatic vegetational and animal characteristics of major natural regions.

5. **Skill(Use of Techniques),**

- i) **Recording of weather elements.**

- ii) Technique of superimposition and comparison of maps.
- iii) Climatic graphs.

STANDARD-X

Astronomical Geography

Phase of the moon, Eclipses, Tides.

Physical Geography

Oceans and seas, waves and tides, major currents, submarine relief and islands.

India

- i) Industries and recent economic development of India.
- ii) Ports of harbours : waterways, railways roadways, and airways in India.
- iii) Trade, commerce and population in India.
- iv) Villages and towns in India.

World

- i) Major natural regions : (Tropical, temperate & cold lands) with reference to environmental conditions, products and economic activities.
- ii) World - communication : ocean routes, air routes, railways and roads.
- iii) International trade
- iv) Population of the world and conservation of resources.

Skill (use of Techniques)

- i) Political maps.
- ii) Line graph and bars to represent population and economic data.
- iii) Field visits.

Civics and Indian Administration

Objectives ;

enable the pupils to -

- know the interrelation between the individual and his social environment ;
- understand the nature of the social institutions ;
- understand the values of democracy and secular social order accepted by India.
- know the problems in the way of creating a social order free from casteism, communalism, provincialism and linguism.
- understand the principles of Justice, Equality, Liberty and Fraternity embodied in the Indian Constitution ;
- understand the rights and duties which they have as citizens of a democratic state ;

7. understand that they are the citizens of the world;
8. develop the habits conducive to democratic way of living;
9. develop attitudes for co-operation, community living and social service.

STANDARD - VIII

1. Civics

- i) Its meaning, scope and importance.
- ii) Man and Society - Concepts of State, Government and Nation.

2. Social Institutions

Family, classes and evils of caste system.

3. Local Self Government

- i) Meaning and functions of Local Self Government.
- ii) Local Self Government in urban and rural areas - Corporation, Municipalities- Panchayati Raj Institutions with community development with special reference to Maharashtra.

4. Strengthening our Democracy

- i) Definition of Democracy.
- ii) Factors responsible for successful democracy with special reference to Indian democracy.

5. Defence System

- i) Description of the organisation and functions of the three wings of defence services-
 - (i) Army (ii) Navy (iii) Air force.
- ii) Auxillary Defence of organisations -
 - (i) Territorial Army (ii) Border Security Force (iii) National Cadet Corps (iv) Home guards and (v) Civil Defence Organisations.

STANDARD - IX

1. Our Constitution and its Ideals

- i) Preamble - Democracy, Socialism and Secularism International Co-operation.
- ii) Different forms of the Government -
 - a) Unitary and Federal.
 - b) Presidential and Parliamentary.

2. Social and Economic Reconstruction

- i) Poverty, Population, Unemployment and illiteracy problems & solutions.

i) Planning, Concept of planning and its importance.

aw

Meaning and importance, law and social change, process of making law in a parliamentary democracy.

Role of Citizens in a democracy

i) Citizenship - its meaning. How is citizenship acquired and lost ?

Reference to Act 1955.

ii) Rights - its meaning and type, Human Rights Charter, Fundamental Rights and Duties embodied in the Indian Constitution. Rights and Duties relationship.

STANDARD X

Central Government - The Union Government - Three branches

i) Parliament - The Lok Sabha and the Rajya Sabha, structure, functions and powers.

ii) The President - Powers, Vice-President, The Council of Ministers, Its powers and functions, Role of the Prime Minister.

iii) The Judiciary - The Supreme Court - Composition and Jurisdiction ;

Interrelations among the different branches of the Union Government.

State Governments with special reference to Maharashtra

i) The legislature - Vidhan Sabha and Vidhan Parishad, Its structure and functions, Powers of the legislature.

ii) Governor - Powers and position, Powers and functions of the Council of Ministers, Role of the Chief Minister.

iii) The High Court - Powers and Jurisdiction,

The United Nations and International understanding

i) Objects of the United Nations, six organs and their functions, India in the United Nations, UNESCO.

ii) Promotion of International understanding - Interdependence Relation, between nations, Towards world citizenship.

7. ART

STANDARD - VIII

7. 1 Drawing and painting

This Syllabus in Fine Art for standard VIII has been designed to serve the purpose of teaching Art as a compulsory subject in general education. It should also serve as a basis for those who may opt for this subject in Standards IX and X.

Objectives

1. To enable the pupil to -
provide opportunities and experiences for development of creative and aesthetic thought & expression.
2. provide gradual transition of pre-adolescent art training into Art Education according to his/her interest.
3. provide a sort of relationship between Art and Life.
4. develop fundamentals and techniques which will provide means required for aesthetic expression through form and colour.
5. develop the scope for inspiring vocational interest.
6. help in the development of a well-integrated personality of the student.

Media and Materials

- (a) Charcoal, pencil, crayon, dry-brush, pen-ink, materials required for collage.
- (b) Tempera, water-colour and crayon colours.
- (c) **Modelling** : Paper-cloth, card-sheet, card-board, soap, wax, soft wood, sand, wire etc. and other interesting and useful local materials.
- (d) **Surface** : Drawing paper cartridge, handmade drawing papers, card-sheet white and coloured. (1/4 imperial size).

STANDARD - VIII

1. Still-life

- (a) Drawing and Painting from the group of objects-good and attractive in form and colour, to be finished in pencil and colours.
- (b) Drawing and Painting from natural specimens such as spray of leaves, buds of flowers, vegetables, fruits, feathers, butterflies, stuffed-birds, shells etc. to be finished in pencil and colour media.
- (c) Free Hand-Drawing-Study (by reduction or enlargement) from some traditional ornamental patterns, panel to be finished in pencil and colour.
- (d) Blending and mixing of colours.

Design

- a) Organisation of geometrical and natural forms in any given or created shape to be finished in colours. (Geometrical constructions should be taught).
- b) Print-making, stencilling, cutting, engraving on soft wood. Print of potato and other vegetables and soft surfaced materials. Impressions of natural forms, surfaces, textures should be taught.
- c) Three dimensional work (College) to be given for practice through paper, card-board, cloth, clay, plasticine and any other waste but locally available media.
- d) Colour experiments -
 - (a) Monochromatic schemes.
 - (b) Primary and Secondary colours.
 - (c) Blending and handling of colours for creating schemes, textures and effects.

Composition

- a) To depict and express through colours the ideas, impressions and feelings of the incidents from History, Mythology, Daily Life etc.
- b) Understanding of form-Drawing from animate and inanimate objects.
- c) Colours-the same as laid down under Design.
- d) Practice sketching indoor/outdoor.

Appreciation & History of Art

- a) (i) Fundamentals of Art, Line, Form, Tone, Colour, Texture.
(ii) History of Art.

Broad outline of history of Art, right from the pre-historic period to the end of modern period. This portion should be taught with reference to the cultural aspects, giving more stress on the development of visual arts of the period.

Suggestions for the Guidance of Art Teachers

Still Life

To draw and paint the group of objects arranged and placed before the students.

The group of objects may include man-made as well as natural objects, arranged separately or collectively: The objects used should be of attractive form and colour. The subject can be studied in the following ways:

- 1) To draw and paint the group of objects selected and arranged by the teachers.

2) The teacher may supply some objects and ask the students to arrange them in a group in different ways. The best of these arrangements may then be selected and got drawn by the students.

3) The teacher should show some objects to the students for sometime and afterwards keep them aside. Each student should then be asked to arrange the group creatively and draw the same.

4) Taking into consideration the work done of the three types stated above, the students should be asked to compose an independent picture depicting the effects feelings, etc. thereof on their minds.

5) The students should be asked to organise the forms of objects studied in a given space maintaining their outer form and ignoring their solidity, and even changing their proportion and colour as desired or convenient for the organisation.

6) The teacher should aim at providing the students with more and more opportunities to observe carefully the forms, proportion, solidity and colour of objects to render these as realistically as possible and to express themselves creatively in an abstract manner.

7) The divisions of light and shade seen in the group of objects, the parts occupied by the various tints and shades of colour and the form assumed by the negative space in the arrangement should be selected and used for the preparation of various forms of free hand drawing and design resourcefully.

8) **Free hand Drawing** : Drawing of natural objects such as flowers, leaves, fruits, birds and animals, human beings. To draw the forms of man-made objects in a decorative or conventional way creatively by means of flowing, rhythmic lines: to reduce or enlarge and traditional or decorative ornament (specimen) as truthfully and proportionately as possible.

2. Design

The main aim in the study of this subject is to decorate shapes of objects of daily use those of, decorative or show-pieces made of wood, metal, plastics, leather etc. and cloth and clothes by using various forms and colours. Designing for advertisement is also included in it.

The subject can be dealt with in the following two ways :

- A.
- (1) Different kinds of paints-water-colours, pastel crayons, colour-pencils etc.
 - (2) Coloured paper-Glazed, marble, tinted, gielletin, etc.
 - (3) Cloth of different texture, colours and types (use pieces).
 - (4) Other articles-sand, earth, saw-dust, coal, string, gum, wax, beads, shells, hair or fur, razor-blades, ply-wood. (collage method two dimensional design).
 - (5) Clay, Plaster of Paris. Plasticine, soap, wax, soft-wood, matches, chalk, limestone, soft variety of stone, wire, iron stripes etc. (for three dimensional shapes)

Geometrical forms, Natural forms and alphabets also can be used for this purpose.

B. The work by students can be got executed in the following manner :

- 1) To provide the students with one shape and the students be asked to find out different objects of the same shape and decorate them with suitable design.
- 2) To name any article and the students to draw its shape by imagination and decorate it.
- 3) To organise attractively a given space by using one or many of the means given in item (4) above.
- 4) To prepare a creative and attractive 3-dimensional design by using the medium (given in item (5) above) given to the student or chosen by himself.
- 5) In all these various kinds of designs, skillful use should be made of colours and other coloured means, in the form of articles.
- 6) The design created by applying colour to a flat surface and by pasting other things (mediums) except colour on it is termed as the collage method.
- 7) To use alphabets for preparing design as and when found suitable and necessary to try to bring in variety in organising letters; to use numerical; figures to create design as a supplementary means.
- 8) Graphic printing:
 - (a) To incise forms on rubber, erasers, potato, carrot etc. and print it for creating designs.
 - (b) To take and utilise the impression got by pressing cloth of different textures surface of wood, Rexin etc.
 - (c) Objects that are easily available such as buttons, flowers, leaves, roots, karnaphool (a vegetable flower like fruit,) etc. should be used for printing and getting impressions.
 - (d) To prepare designs with the help of stencils.

3. Composition

This subject aims at expression of the individual ideas through pictorial representation of incidents. This expression can be done in the following ways and mediums. (The subject is related to the subject of design and question on any one of the two designs and composition may be asked in the S.S.C. Examination.)

Medium of expression :

- (1) Line : by means of pencil, pen, brush, dry brush, pen and ink.
- (2) Colour : Monochrome (with different tints but shades of one colour), Line and wash in colours.
- (3) Other means : Collage method.

(4) Three dimensional medium.

Kinds :

- (1) To depict an incident actually seen.
- (2) To depict an incident from memory.
- (3) To depict an incident by imagination.
- (4) To create a composition out of form obtained accidentally.

Note : Creative use of local suitable mediums, apart from those mentioned in syllabus should receive encouragement.

4. Art Appreciation

Introduction :

Good taste can be developed through exercises based upon the fundamentals such as Line, Form, Tone, Colour, Texture and Composition. To acquire a sense for art-appreciation, taste and skill must blend harmoniously.

Aim	Theory	Method
1) Taste	Thinking	Choice
2) Skill	Doing	Exercise

For training the mind, broad study of the fundamentals is necessary and for training the hand exercises based upon the fundamentals must be given in the Art Class. Activities, Fundamentals and Out-comes. (to be covered broadly.)

Activities	Fundamentals	Outcomes
Drawing	Line	Appreciation
Painting	Form	Observations
Design	Tone	-----
Crafts	Colour	Creative-Expression
-----	Texture	-----
Modelling	Composition	Skill

The following synopses are given for use in teaching the fundamentals and planning the courses of study in Art to lead them to Art Appreciation.

Topics	Application
	1. Line
Line	Drawing from well-shaped objects, Drawing from Nature,
Straight and curved	Design

2. Form

Proportion

Design

Shape

Foreshortening

Nature and Object Drawing.

3. Tone

Exercises in tone

Balance

4. Colour

Recognising the colour,

Mixing and matching,

Good and Bad colour-schemes,

Harmony and Contrast.

5. Texture

Exercises in producing textures.

6. Composition-Design

i) Designs : Formal and Informal

ii) Analysing Designs.

Principles of Design

Type

Formal

Informal

Linear

All-over.

of line

of Form-

a) Position

b) Shape

c) Size

- | | |
|--------------|---|
| 3. Radiation | d) of Tone and colour-
Form Centre, base point, axis |
| 4. Measure | In straight and curved lines.
In shapes or size.
In area
In Tone and colour. |
| 5. Balance | Formal
Informal (Occutt)
of line tone and colour |
| 6. Rhythm | Minor and Major graceful movement, |

History of Art

Broad outline of History of Art, right from the prehistory period to the early modern period. This portion should be covered in story form and with special reference to the cultural aspects, giving stress on the development of visual arts of the period (Pre-historic, Ancient, Medieval, Renaissance and Modern).

7.2 Indian Music

Objectives :

To enable the pupils to –

- 1) stimulate interest and to cultivate the taste for music.
- 2) create an ability to appreciate and enjoy music as one of the best means of entertainment.
- 3) entertain themselves and the community.
- 4) impress on the students the importance of rhythm through music.
- 5) enrich the spirit of unity, loyalty and co-operation etc. through songs, patriotic songs and devotional songs.
- 6) create opportunities for the students to listen to good music for the development of their knowledge of and taste for music.
- 7) encourage the students having musical skills by giving special attention.

STANDARD-VIII

1. Definitions of the following technical terms :

Sangeet, Sudha Swar, Vikrit Swar, Komal swar, Teevra Swar, Saptak :

Mandar, Madhya, Tar, That, Rag, Aroh, Avaroh, Pakad, Alankar, Vadi,

Samwadi, Anuvadi, Vivadi.

Rag Jati : Odava, Sampoorna, Shadava.

Laya, Matra, Tal, Sama, Tali, Kal or Khali.

2. Description of the following Ragas :

1) Tilak Kamod, 2) Tilang, 3) Bhoop, 4) Durga, 5) Bahar.

3. One song in each of the above mentioned Ragas.

4. One Group Song (समूहगीत), One Devotional Song (भक्तिगीत : भजन-अभंग) and National Anthem.

5. Following Talas are to be studied with their Matras, Talis, Khalis, Khandas and Theka-bols :

1) Trital

2) Ektal (Drut)

3) Zaptal

4) Dadra

5) Kerva.

6. Information about the types of instruments and general information about

1) Tambora.

2) Tabla.

7. Information about the special features of the following varieties of songs :

1) Dhruvad

2) Chhota Khyal.

3) Bhajan,

4) Lakshangeet.

5) Swaramalika.

6) Tarana.

8. Introduction of the following Musicians, (with special reference to their contribution to Music).

1) Swami Haridas

2) Tansen.

3) Late Pandit Vishnu Digambar Paluskar.

4) Late Pandit Balkrishna Buwa Ichalkaranjkar.

5) Late Pandit Vishnu Narayan Bhatkhande.

Note:

A candidate who is not able to sing may be allowed to give his practical test by playing on any of the following instruments :

Violin, Sitar, Dilruba etc.

7.3 European Music

STANDARD - VIII

Theory

- I. The requirements in this Standard are Rudimentary and include Notation-Res: Values - Time Scales-Intervals-Triade Dominant Sevenths and terms.
 - (a) **Notation** - The Staff with Treble and Bass Clefs. Names and position of Notes - Ledger lines above on below the Staff, the sharp-flat-natural.
 - (b) **Keys and Scales** : Diatonic Major Scales and their key signatures.
 - (c) **Transposition** : Transposition of a Melody in the same Clef, Octave Higher or Lower or from Treble to bass or Vice-versa.
- II. (a) **Time** : Simple Time-signatures and the arrangement of Notes and rest within them-shapes and Relative lengths of Notes Rests-Dots-Ties-The Paus: Time Signatures, accent and syncopation.
 - (b) **Terms** : Marks and words relating to tone and speed (English or Italian) Metronome Indication.
- III. (a) **Interval** : Within the octave derived from Major and Minor Scales and their inversions.
 - (b) **Harmony** : Simple exercises on Triads and their Inversions. The Dominant Sevenths and their inversions and Resolutions.
- IV. **Musical History** : Short Life of Bach.

Practical

(Sight Reading and Aural Tests)

- I. **Sight Reading Test** : (Piano or Violin)

A test of an Elementary Character (Grade I or II) in a Major Key. The key signature not exceeding one sharp or flat in 2/4 or 3/4 time.

- II. **Aural Training**

Following Five tests should be studied :

- (a) A simple rhythm of 4 bars in 2/4 or 3/4 times should be played as : melody to the candidate. Note Values expected Minimum and Crotche (Dotted or Undotted). Candidates will be expected to write the rhythm on a monotone.
- (b) Candidates will be required to produce in notation prefixing the correct key and time-signatures.

A short melodic phrase of not more than 4 bars, beginning on the first beat of a bar. The keys will be in C. G. or F. Majors and melody notes will be on the 1st 3rd and 5th degree (Doh-Me-Soh).

- (c) Candidates will be required to name the intervals played melodically (within the Octave) Intervals will be major and Minor 3rds. and 6ths, and perfect 4th, 5th and 8th.
- (d) Candidates will be required to describe or name the perfect or imperfect or plagal - cadences in Major Keys only.
- (e) Candidates will be required to recognise Major or Minor triads in Root Position only.

Text-Books

Official Text Books from Trinity College of Music, London for Grades I to IV and V.

74 Technical Drawing

STANDARD - VIII

- 1) Knowledge and uses of Drawing Equipment such as T Square, Drawing board, Sets square etc.
- 2) Geometrical Constructions ;

Bisecting of lines, angle in equal parts, Draw a perpendicular line on a given line from a given point on the line. To draw parallel lines. To draw a tangent from a given point to a given circle. To draw a normal to a tangent from the tangent point To find a centre of the circle from three given points (2 sheets).

To inscribe and prescribe a circle in and out of a triangle. To construct a regular polygon. To draw a tangent touching two equal circles (1 sheet).

Lettering in 4 x 7 and 5 x 4 and Italic printing.

- 4) Scales - plain scale, diagonal scale (1 sheet).
- 5) Construction of ellipse by four methods of parabola (1 sheet).
- 6) Orthographic projections of points and lines in simple position either in first or third quadrant (1 sheet).
- 7) Sketching of nuts and bolts, Whit-worth and square threads, rivets,(1 sheet).

Note : The Subject of ' Technical Drawing ' can be taken only by pupils from the technical schools in lieu of Art in Std. VIII.

8. WORK-EXPERIENCE

Objectives :

To enable the pupils to –

1. remove the dichotomy between ‘ cultural ’ and ‘ vocational ’ education as to remove social distinctions based on types of educational opportunity.
2. reduce the existing emphasis of book-learning and to relate the academic knowledge to socially oriented productive work.
3. take off boredom of unrelieved mechanical or academic work and the stress it causes by giving suitable rest-spans to brain-cells and muscles.
4. familiarize the pupils with the tools, processes and materials of modern technology and to impart skills in using them for productive activities.
5. develop among pupils an awareness of the direct relationship between modern production and the disciplines of Mathematics and Science.
6. enable pupils to develop the habits of work - planning, work-study, persistence, enterprise and innovation which are basic for the maintenance of efficiency and progress in all walks of life.
7. provide opportunities for the pupils to discover their aptitudes and interests through a wide variety of jobs, scientifically planned and executed, so that they may be guided towards a realistic choice of studies and occupational exploration on the completion of the secondary stage.

STANDARD-VIII

Any two courses, one from each of the following two course-clusters ‘A’ and ‘B’ can be taken in Std. VIII. The 90 periods which will be available for these courses should be equally distributed over the two selected courses in any convenient manner. Preferably one course may be completed in each term.

Cluster A

1. Maintenance and repairs of electrical gadgets.
2. Maintenance and repairs of stoves.
3. Book-binding.

Cluster B

1. Kitchen gardening.
2. Pot-culture.
3. Simple farm operations.

Schools may introduce any one of the following areas in Std. VIII as a substitute for the areas specified in cluster ‘A’ above, provided they have adequate equipment and teaching personnel to teach the course. These schools may approach Maharashtra State Board of Secondary and Higher Secondary Education for obtaining the necessary permission to introduce it.

Additional Areas of Work-experience under Cluster ‘A’

4. Food preservations.
5. Doll-making,
6. Puppet-making,

7. Wood-work,
8. Fret-work,
9. Tailoring,
10. Maintenance and repairs of Bicycles.

The schools which are already having work-experience programmes of their own such subjects as are not covered above may apply for necessary sanction for the work-experience course for Std. VIII to the Maharashtra State Board of Secondary & Higher Secondary Education.

CLUSTER A

Course 1 : Maintenance and Repairs of Electrical Gadgets

- Content :
- a) Basic principles of electricity.
 - b) Information about the tools used in maintenance and repairs of Electrical gadget work.
 - c) Information on safety precautions while working with the tools and electric supply.
 - d) Information on treatment of electric shock.
 - e) Individual work on the following jobs –
 - (1) Wiring up a lamp and fluorescent tube controlled by a single pole switch.
 - (2) Connecting two lamps : (i) in series, and (ii) in parallel, controlled from one place with the use of one switch, to note their effects.
 - (3) Preparing a test-board with provisions of a two-way switch, two-pin plug-socket, a fuse-bridge and a lamp with lamp-holder.
 - (4) Testing a bell, a buzzer for their working and removing mechanical and/or electrical faults in them. The pupil should be able to rewind the magnetizing coil, if necessary.
 - (5) Testing household electrical apparatus like electric-irons, electrical hot-plate, kettles, immersion-heaters, gas-lighters, etc. for their correct working and replacing the part wherever necessary. Wherever the correction is possible with the existing parts with re-arrangement, it should be carried out,
 - (6) Use of three-pin plugs and sockets for single phase power-supply in household apparatus wherever earthing is necessary.
 - (7) Reading energy-meters in the household and estimating costs involved in the working of a certain set of apparatus,

Course 2 : Maintenance and Repairs of Stoves

Content : (a) Basic principles of the working of stoves.

(b) Information about different types of household stoves.

(c) Information about different tools used for maintenance and repair work of stoves.

(d) Information about safety precautions while repairing stoves.

(e) First aid treatment of burns.

(f) Individual work on the following jobs :

(1) Dismantling various parts of a pressure-stove, cleaning them and reassembling them.

(2) Trouble-shooting of the pressure-stove involving -

(a) change of washers in cups and air-pump.

(b) cleaning and changing the nipples,

(c) cleaning and changing the burner, and

(d) sealing the leakage of the tank by soldering and testing for its performance.

(3) Trouble-shooting of the gas-stove involving -

(a) cleaning the burner,

(b) cleaning the nozzle with pin, and

(c) checking the line for leak and replacing the same.

(4) Replacing and dressing of wicks in a wick-stove, checking for leakage of tank and making it leakproof.

(5) Trouble-shooting of the electric-stove involving -

(a) making it leakproof by insulating the body from elements and also by providing proper earthing and

(b) changing over of the element.

(6) Trouble-shooting of the blow-lamp similar to pressure-stove,

(g) General precautions to be taken while using all types of stoves.

Course 3 : Book-binding

Unit 1 : Historical perspective :

To acquaint the pupils with the history of ancient and modern methods of preserving knowledge, "Book being the main instrument of acquiring knowledge". For example : Stone-plates, Copper-plates, Tad-leaves, Bhurja-leaves, invention of paper, early stages of paper, attractive books of excellent binding from refined papers.

Different methods of preparing paper and countries manufacturing the same. Different forms of books and their uses. Importance of printing industry.

Unit 2 : Equipment and material necessary for book-binding, their selection, method of handling and economical use of the same.

Unit 3 : Tools used in book-binding, their selection and using them with precision.

Unit 4 : Special features of Adhesives. Preparation of paste and glue and their proper use.

Unit 5 : Careful folding of paper.

Unit 6 : Compiling of the forms; their cutting; section stitching and different methods of the same.

Unit 7 : Pasting of end-sheets and card-board sheets and pressing the same; putting up cover and its trimming.

Unit 8 : Book-binding of an old book.

Careful unstitching of the pages of the old-book and re-stitching of the same; glueing the back with binding cloth and trimming after drying. Binding of the answer-books; stitching of an exercise-book and covering the same with a cardboard cover; stitching of class-work note-books.

Suggestions to teachers :

1. It should be borne in mind that the binding of books is as important as their contents in the cases of books to be preserved.
2. Pupils should be made conversant with the poisonous effects of copper sulphate.
3. The tools should be kept in the tool-box soon after the work is over. Saws, pair of scissor and penknife should never be kept uncovered. This should always be brought to the notice of pupils.
4. Binding of a book becomes hardened and does not get easily detached from card-board covers when binding is done with the cloth.
5. Suitable end-sheets should be selected with a view to prevent the covers from bending as a result of the use of paste and glue.
6. Suitable dimensions of the paper used should be written serially on the black-board.
7. Only necessary equipment and tools should be taken out from the box and used. Neatness and cleanliness should be observed.
8. Sketches should be drawn accurately. Procedure should be discussed. Habits of diagram-reading should be developed among the pupils.
9. The teacher should himself first try to solve the difficulties experienced and then give suitable guidance to the pupils.
10. Habits of using the waste material such as pieces of card-board or paper economically and systematically, should be developed among the pupils.

CLUSTER B

Course 1 : Kitchen Gardening

1. Land-survey : Survey from the point of types of soil, boundaries; shade, sunlight, directions, surrounding buildings, water and drainage.
2. Planning of the garden : Ridges and beds. Types of beds-beds with ridges and furrows, raised beds, flat beds, types necessary for different types of vegetables with reasons,
3. Types of vegetables : Leafy and other vegetables-roots and tubers stems vegetables grown by direct sowing in the beds and those grown after transplanting seedlings.
4. Seasonal Vegetables : Vegetables grown in the rainy, winter and summer seasons and vegetables grown all the year round. Preparing calendar for vegetables cultivation showing sowing and harvesting time of different vegetables.
5. Types of vegetables : Period for full growth : Planning cultivation of the different vegetables taking into consideration the period for their full growth.
6. Operations : Weeding watering, sowing manuring, application of fertilizers etc.
7. Manures : Information about the organic and inorganic manures and fertilizer; preparation and use of compost manure.
8. Fungicides & Pesticides : Varieties and use, diseases and pests on vegetable crops, their prevention and cure.
9. Diary of kitchen-gardening : Watering, sowing, germination, flowering, fungicides and pesticides, manures, fertilizers, total expenditure and income etc.

Course 2 : Pot-culture

Unit 1 : Definition-its use and necessity.

Unit 2 : Selection of site and principles involved.

Unit 3 ; (a) Importance of a medium in plant-cultivation. Kinds and use of the different media.

(b) Different methods of pot-culture, selection of pots and methods of filling them.

Unit 4 : Essential food elements for plant growth (viz. air, heat, water and food) their requisite properties proportions, their properties and effects.

Unit 5 : Food constituents essential for plants, their types and properties, their use and effects on the growth of plants.

it 6 : Seasonal cultivation of plants.

Different flowering plants (e. g. Krotan) fruit plant (e. g. Fig. Lemon etc.)
green vegetables —

- (a) Rainy season ; June to September.
- (b) Winter season : October to January,
- (c) Summer season ; February to May,

t 7 : Organic and Inorganic fertilizers and their uses.

t 8 : Plant Pests-Diseases and insects, their identification, and pesticides-insecti-
cides.

t 9 : Diary ; Record of the work done and accounts.

Each pupil undertaking studies of pot-culture is expected to cultivate at least one
table and one flowering plant and to use ' Pot-Culture ' for class-room decoration
production.

Each pupil is also expected to keep the accounts of production and total expenditure.

use 3 : Simple Farm Operations

The topics in this syllabus will mainly deal with the general agricultural principles
The planning and study of the subject will be done on the project basis ; which
means that a particular ' Work Project ' will be selected and concerned agricultural
branches along with their principles will be applied to them for study both in theory
and practicals. The subject will be divided into sub-topics :

- (1) Theory which will be dealt with in class-room teaching on which practical
work will be organised.
- (2) Practical work which means actual work in fields, trips
the important places of agriculture work and recording the observations.

The Study project will be organised as follows :

One or two crops in a season will be selected suited to the climate and soil in the
This selection may be done either in ' Kharif ' (June to October) or in ' Rabi '
ober to February) season.

Theory	Practicals
A) 1. Economic importance of agri- culture in the area ;and general practices along with cropping patterns followed in the locality.	1. Visit to certain farms of cultivators and observing the patterns of the crop planning etc.
2. Selection of particular crop— one food crop and one vege- table crop. Why to select particular crops ?	2. —do—

- | | |
|--|---|
| 3. Selection of field, types of soil, the topography of the selected site. | 3. Visit to the plot selected and observation of the soil, its depth, color etc. |
| 4. Initial preparation like bund-repairing, fencing etc. Why to do the work ? | 4. Participation in the bunding, fencing etc. |
| (B) 5. Tillage operations - types of tillage work, why to do the tillage work ? What is tillage ? Its importance in crop cultivation. | 5. Actual working with the implements used for working in the field; observing the effect of tillage operations on the soil. |
| 6. What are optimum soil conditions for sowing or planting crops? Study of soil ingredients. Effects of heat, water and air on germination of seeds that are acquired by tillage operations. | 6. Observing soil, its porosity; wetting of the soil by handling or taking a pit in the soil. |
| 7. Mixing of O. M. like compost FYM. Importance of organic matter in the soil. | 7. Spreading of the manure and mixing it with the soil. |
| 8. In some crops we need to raise seedling first and then transplant. | 8. Preparation of seed-beds of different types and sowing them with seeds of vegetables etc. |
| (C) 9. What is good seed ? How to select it ? Study the morphological characters of seed, like size, colour, lustre etc. What is purity of seed ? | 9. Actual selection of seeds. Handling the seeds and observing the seeds for their trueness both morphologically and genetically. |
| 10. Propagation of seeds - (a) sowing, (b) dibbling, or - (c) transplanting. | 10. Doing the work of sowing etc. |
| 11. Different methods of plant propagation like seeds, vegetative parts of the plant; simple grafting etc. | 11. Actual sowing with hands or seed-drill. Making cut grafts. Study of equipment required for grafting etc. like knife, secateurs. |
| 12. Sowing distance or distance between two plants or plant clusters. Importance of spacing in the crop lines. | 12. Measuring the distance in crop lines, Observation of growth. Number of tillers. |

- | | |
|---|--|
| 13. Interculturing operations. Why to do interculturing? Importance and its effect on the crop growth. | 13. Weeding, hoeing. |
| 14. Top -dressing with fertilizers. Types of fertilizers. | 14. Methods of giving fertilizers, ring-methods, band - method, broadcasting etc. |
| 15. Identifying pests and diseases by symptoms. | 15. Collection of the samples of diseased parts and insects and preserving them. |
| 16. Plant protection measures, insect-pests, diseases etc. | 16. Spraying, dusting etc. with insecticides and fungicides. |
| 17. Maturity of the crop. How to recognise ? | 17. Harvesting the crop-cutting, bundling, threshing, storing and disposing the produce. |
| 18. Economics of the cultivation. | 18. Writing out the accounts of the cultivation. |
| 19. Different varieties of the crop in the locality and outside. | 19. Visit to the different parts of the locality and observation of the crop. |
| 20. Importance of improved crop varieties, Availability of the seeds (Panchayat Samiti, -Z. P. or Agri. Deptt.) | 20. Writing letters to the concerned parties for seeds etc. |

If the school has no land, the project may be taken on a cultivator's land, which not be more than 500 meters distant from the school.

The teacher should keep contact with the cultivator, get working schedules of plot try to arrange a working calendar for the project.

For the project any one crop from the following list of food crops and any one from the vegetable or the pulse crops may be selected in any season.

List of Crops in Kharif Season

Food Crops (Compulsory)	Vegetable or Crops	Pulse Crops
Paddy	1. Chillies	1. Cow-peas
Jawar	2. Brinjal	2. Black Gram
Pear millet	3. Tomato	3. Mug

- | | |
|-----------------|-------------------------|
| 4. Hill millets | 4. Leafy vegetables |
| 5. Maize. | 5. Beans |
| | 6. Okra or cluster bean |

List of Crops in Rabi season

- | | | |
|-----------|----------------------|------------|
| 1. Wheat | 1. Cabbage | 1. Gram |
| 2. Jawar | 2. Cauliflower | 2. Lentils |
| 3. Maize. | 3. Bottle gourd | 3. Peas. |
| | 4. Leafy vegetables. | |

Additional Areas of Work-experience Syllabus

Fruit Preservation

- | | |
|--|-------------------------|
| 1. Preservation of fruite-juices and Beverages | 4. Fruit Jam |
| 2. Drying of fruites | 5. Use of Refrigeration |
| 3. Salting | 6. Canning |
| | 7. Fermentation. |

Pupils should select a job from each item for practical work. They should make the products prepared by them.

Doll-making

- | | |
|-------------|----------------------|
| 1. Hare | 5. A Marwari Woman |
| 2. Dog | 6. A Maratha Woman |
| 3. Elephant | 7. A Punjabi Woman |
| 4. Squirrel | 8. A Manipuri Woman. |

Puppet-making

- | | |
|-------------------------------------|--------------------------------------|
| 1. Hand-made Puppet (Variety No. 1) | 6. Dress and decoration of a puppet. |
| 2. Hand-made Puppet (Variety No. 2) | |
| 3. Puppet (with the use of a stick) | 7. Birds and animals |
| 4. Puppet (with the use of strings) | 8. Stage |
| 5. Head of a puppet | 9. Accessories of the stage. |

Wood-work

- | | |
|--------------------------|---|
| Small board and a duster | 6. Book-rack |
| Wooden seat (small) षट | 7. Corner shelf |
| Tray | 8. Wooden toy |
| Wanger | 9. Wooden paper-weight of the shape of a book |
| Pol-Pat and Latne | |
| पोळपाट, लाटणे) | 10. Drawing Board (120×90 cms.) |
- Students should select and prepare any four articles out of the articles mentioned above.

Fret-work

- Geometrical instruments (cutting a triangle, circle and quadrilateral)
- Cutting a design
- Cutting a board for a picture
- Preparing toys.
- Preparing of Scientific Instruments
- Preparing Models.

Tailoring

- Front-line frock
 - Waist suit
 - Coat with frills
 - Blouse
 - Blouse / shirt and salwar
 - Woolen Shirt
 - Cotton Shirt
 - Half pant
- Students should select and prepare any four articles from the above.

Maintenance and repairs of a Bicycle

- Producing spare-parts and information about them.
- Painting and cleaning
- Locating and removing a puncture.
- Locating and removing the defects of a wheel.
- Replacing a forward fork
- Replacing a seat.

Foundational Course (Technical)

STANDARD VIII.

Pupils in Technical Streams shall offer the Foundational Course (Technical Textile Technology) in lieu of work Experience,

3 Periods per week for 32 weeks of the year.

1. Workshop Practice

(A) Wood Work (Theory—12, Pract, 36 periods)

Syllabus :

a) Theory

Acquintance of hand tools and material.

- i) Measuring and Marking tools : Carpenter's Rule, try-square, bevel marking gauge, mortise gauge, scribe.
- ii) Cutting Tools : Handsaws (Tenon saws) farrier chisels pairing mortise chisels, gauges jack plane, smoothing plane try plane.
- iii) Miscellaneous tools - Mallet screw drivers, pincers. Claw Hammer
- iv) Joinery: Names and uses of – Butt joints, mitre Joints, half lap dovetail joints, bridle Joints, mortise and tenon joints.
- v) Introduction to usual timber : teak and dealwood. Timber seasoning defects.
- vi) Care and Maintenance of tools.

b) Practicals:

Two joints and two utility articles involving the applications of the

(B) Smithy and Foundry Practicals (Theory:6 and Practical 18 periods)

a) Theory

Acquaintance of Smithy tools.

- i) Hand hammers, sledge hammers, set hammers, flatteners, tongs, anvil
- ii) Acquaintance of Moulding tools :
Square trowels, heart shaped trowels, cleaners, flat rammers, pegging vent wire, hand below.
- iii) Moulding sands, green and facing sand, parting sand, graphite powder

b) Practicals

- i) Making moulds of 4 simple patterns.
- ii) Demonstration in Simple Smithy operation.

4. **Electricity** (Theory 6 and Practical 18 periods)

a) **Theory**

Acquaintance of the following tools and material:

Electrocians screw drivers, cutting plier, snipe nose pliers, soldering iron, hand-drill, poker.

b) **Practicals**

- i) Four Wiring exercises.
- ii) Two Jointing exercises.
- iii) Energy meter reading.
- iv) Demonstration of domestics electrical appliances.

5. **Engineering Drawing** : (3 periods per week for 32 weeks)

Instrument and their uses, Geometrical constructions :

Divide a line into equal number of parts.

Tangents to given circles.

Regular polygon of given sides.

Inscribing a circle in regular polygon.

Circumscribing circles about polygons.

Drawing of plain scales and dimensioning technique.

Construction of ellipse (two methods)

Involute of a circle.

Idea of simple solids and introduction of orthographic projections. 3 views. and of cube square prisms, hex. Prism and cylinder. (3rd angle projection method).

Class work

Lettering (one sheet) Plane Geometrical Drawing :

(6 sheets), Solids (3 sheets) (All drawings on 1/4 imperial size)

Foundational course in Textile Technology : (3 periods per week)

Textile Technology

Textile Raw Material

A brief outline of the processes through which cotton passes. The conversion of cotton into yarn and yarn into cloth.

Various forms in which yarn is obtained by the manufacture.

Object of winding yarn. Processes of winding both warp and weft yarns.

Machines used.

Calculation : Yarns counting system.

Practicals :- Practice is winding.

Workshop Technology

Note :- Pupils in Technical streams studying in Std. VIII (Tech.) shall offer work in Workshop Technology or Foundation Course (Technical) in lieu of Work Experience.

(3 periods per week for the year)

STANDARD VIII

1. Workshop Practice

A. Wood Work (Theory 9, Pract. 21 periods)

(a) Theory

Acquaintance of hand tools and material.

(i) Measuring and Marking tool : Carpenter's Rule, Trysquare, plane, chisels, bevel square, marking gauge, scriber.

(ii) Cutting Tools : Handsaws (tenon saws) farmer chisels, pairing chisels, mortise chisels, gauges, jack plane, smoothing plane trying plane.

(iii) Miscellaneous tools : Mallet, screw drivers, pincers, Claw Hammer

(iv) Joinery : Names and uses of – Butt joints, Mitre joints, half lap joints, dovetail joints.

(v) Care and Maintenance of tools.

b) Practicals

Two joints and one utility article involving the applications of these joints.

B. Smithy and Foundry Practicals : (Theory : 6 and Practical 18 periods)

a) Theory

Acquaintance of Smithy tools.

i) Hand hammers, sledge hammers, set hammers, flatteners, tongs, anvil.

ii) Acquaintance of Moulding tools :

Square trowels, heart shaped trowels, cleaners, flat rammers, pegging rammers, vent wire, hand below,

iii) Moulding sands, green and facing sand, parting sand graphite powder.

b) Practicals

i) Making moulds of 4 simple patterns.

2. Electricity : (Theory 6 and Practical 18 period)

a) **Theory**

Acquaintance of the following tools and material : Electricians screw drivers, cutting plier, snip nose pliers, soldering iron, hand drill, poker.

b) **Theory**

Acquaintance of the following tools and material :

c) **Practicals**

- i) Four wiring exercises.
- ii) Two jointing exercises.
- iii) Energy meter reading.
- iv) Demonstration of domestic electrical appliances.

3. **Geometrical Drawing**

(3 periods per week for 32 weeks). Instruments and their uses.

Geometrical constructions :

Divide a line into equal number of parts,

Tangents to given circles.

Regular polygon of given sides.

Inscribing a circle in regular polygon.

Circumscribing circles about polygons.

Drawing of plain scales and dimensioning technique.

Construction of ellipse (Two methods)

Involute of a circle.

Idea of Simple solids and introduction of orthographic projections. 3 views of cube. square prisms, hex. prism and cylinder. (3rd angle projections method)

Class Work :

Lettering (one sheet), Plane Geometrical Drawing : (6 sheets),

solids (3 sheet) all drawing on 1/4 imperial size) (Total 10 sheets).

OR

Maintenance and Repairs of Electrical Gadgets

(3 periods per week for 32 weeks)

A - Theory

Basic theory of Electricity,

Information about the tools used in maintenance and repairs of Electrical Gadget work.

Information of electrical materials like various types of wires, switches, plug socket, plug pins, adapters, holders, ceiling roses etc.

Types of fuses wire, test lamp and its use.

Information on Safety precautions while working with the tools and electric supply

Treatment of electric shock.

To study the heating apparatus like : Electric stove, Electric Teaster, Electric iron Soling iron. possible faults in these apparatus and removal of faults,

B - Practicals

- 1) A lamp controlled by a single pole switch.
- 2) Two lamps in parallel controlled from one place.
- 3) Wiring of fluorescent tube.
- 4) Preparing a test – board.
- 5) Wiring of electric bell through a bell – push button .
- 6) To study a gas – lighter, possible faults. fault finding and repairs.
- 7) Importance of three pin plug sockets and methods of proper earthings.
- 8) Types of wire joints.

C- Geometrical Drawing

(3 periods per week for 32 weeks)

Instruments and their uses, Geometrical constructions :

Divide a line into equal number of parts.

Tangents to given circles.

Regular polygon of given sides.

Inscribing a circle in regular polygon.

Circumscribing circles about polygons.

Drawing of plain scales and dimensioning technique.

Construction of ellipse (Two methods)

Involute of a circle.

Idea of simple solids and introduction of orthographic projections. 3 views of cut square prism, hex. prism and cylinder (3rd angle projections method)

Class work

Lettering (one sheet), Plane geometrical Drawing : (6 sheets,)

solids (3 sheets), (All drawings 1/4 imperial size) (Total 10 sheets).

OR

Use of Common Tools ; (3 periods per week for 32 weeks)

A. Theory

To know the construction and uses of the following tools :-

Hack Saw, Cold Chisel, Hammer, File, Drills, Drill bits, Pipe die, Spanner, Set and Pipe-wrench, Screw Drivers, Anvil, Sledge Hammer, Set hammer, Flattener, Tongs, Jack plane, Tennon Saw and hand saw, Chisels (Firmer, bevel, mortise and gauge), Diamond cutter for glass, Rawl punch and plugs, Adhesives, Blow lamp (heater) and soldering iron, simple tools of bicycle repairs and servicing.

B. Practical

1. To prepare a paper-weight or such other job.
2. To solder utensils.
3. Elementary repairs in plumbing.
4. To study the construction of a water tap and fitting of a tap.
5. To prepare a photo-frame (wooden)
6. To cut a glass piece to size and fit it in a window pane.
7. To prepare a book rack or pen stand or such other job.
8. To prepare a wooden toy.
9. To fit a bracket in a cement plastered wall.
10. To prepare a door-stopper.

C. Geometrical Drawing (3 periods per week for 32 weeks)

Instruments and their uses, Geometrical constructions :

Divide a line into equal number of parts.

Tangents to given circles.

Regular polygon of given sides.

Inscribing a circle in regular polygon.

Circumscribing circles about polygons.

Drawing of plain scales and dimensioning technique.

Constructions of ellipse (Two methods)

Involute of a circle.

Idea of simple solids and introduction of orthographic projections. 3 views of cube, square prisms, hex. prism and cylinder. (3rd angle projections method).

Class works

Lettering (one sheet), Plane Geometrical Drawing: (6 sheets),

solids (3 sheets) (All drawing 1/4 imperial size)

(Total 10 sheets)

9. School Certificate Examination Subject I

9. Physical Education

Objectives

To attain all sided individual development and development of social qualities amongst pupils, through **Physical Activities** like Athletics, team games, social and cultural activities etc. and finally to prepare good citizens the following **objectives** have been set forth :

1. To build up a strong physique by developing specifically muscular, respiratory and digestive system.
2. To develop habits that will bring control over fundamental sport's skills and will support and supplement the functions of muscles and nerves through neuromuscular coordination.
3. To create interest for all rounded and vigorous physical activities so as to enhance innate capacities along with recreation.
4. To develop qualities such as team spirit, cooperation, obedience, leadership, dignity of labour etc.
5. To provide opportunities for participation in combative activities so as to satisfy the urge of pugnacity through condusive, disciplined, but healthy competitions.
6. To create and develop self-discipline and sportsman-spirit.
7. To develop qualities essential for social service and good citizenship.

STANDARD VIII

1. Developmental Exercises

- a. Exercise tables: Class exercise table and Mass P. T. table
- b. Dands and Baithaks and Surya Namaskaras.
 - i. Dands: (For boys only)-Sadha Dand, Seedhe Dand, Seena Kasi, Gardan Kasi.
 - ii. Baithakas, (For boys only)— Sadhi and Sarak, (For girls only)—sit-ups.
 - iii. Surya Namaskaras—with ten counts.
 १. पश्चिमतानासन
 २. अर्धमत्स्येन्द्रासन
 ३. उत्तानमंडुकासन
 ४. पदमासन

५. शलभासन

६. घनुरासन

* **Note** – As models, a table of physical training exercises and two tables (one in standing position and the other in sitting position) of Mass physical training rhythmic exercises are supplied at the end of this syllabus. Teachers are at liberty to teach similar self-designed tables. In general, every physical education period should begin with such a table.

2. Drills and Marching

Chhota Kadam, Lamba Kadam, Kadam Badal, Khulee Kater chal, Nikat Katar chal, Age/ peechhe chal, Do kadam dahine/Baen chal, Dahine/Baen Ghoom, Teen Teed me Teg chal, Dahine Dekh/Baen Dekh, Daeine Baen Samane Salami.

3. Rhythmics

(a) **Lazium** - Teaching of (i) Harkat Bharat Mata

(ii) Chakkar Aur Baithane Uthane ki Harkat and Revision and practice of the following exercises from Baroda lezium.

1. Char Awaj
2. Ek Jaghye
3. Adhi Lagao
4. Pavitra
5. Do rukh
6. Age Phalang
7. Pecchio Phalang

(b) **Folk Dence**—One

(c) Only for Girls : Zimma and Fugdi—four varieties of each.

4. Athletics

- (a) Runing— 100 m. and 400 m.
- (b) Jumping—Running Long Jump and High Jump.
- (c) Throwing—Shot put (3.63 K.G.)
- (d) Relays- 4× 50 metres-Technique.

5 **Games** : (a) Volley ball—fundamental skills and technique.

(b) Practice of Kabbadi and Khokho.

(c) Minor games—

1. Twenty one
2. Dacoit
3. Circle Rush
4. Wrestle Royal
5. Catch the Jail bird
6. Thief and police-man
7. Whip Tag Kabaddi

(d) Relays

1. Lateral Ball pass
2. Kangaroo
3. Frog Jump
4. Rope Skipping
5. Cavalier
6. Hands and Feet
7. Running and Bouncing
8. Round and Under

6. Malkhamb and Wrestling

(a) Malkhamb : 1. Katar Pakad

2. Koka Pakad
3. Mithi
4. Sadhi Tedi
5. Sadha Dasrang
6. Pyarmid (Pet ka Tol)

Malkhamb ke upari hisse par

(b) Wrestling : 1. Stance

2. Initial hold
3. Double thing pick-up
4. Cross buttocks throw
5. Flying mare throw

7. Civic Education—National ideals and good citizenship,

- (i) National Unity
- (ii) National Flag

(iii) National Anthem

(iv) Community singing of emotional and national integration songs.

MODEL EXERCISE TABLES

Developmental Exercises

(a) Class Physical Training Exercises—Model Table

ote : Begin each exercise from this table with a slow speed and then gradually increase its utmost speed.

1. Introductory :

Three skip jumps on the spot followed by upward jumping with knees raising high.

2. Arms :

Position : Attention

(i) Swing arms forward upward to shoulder level.

(ii) Swing arms downwards, sideways to shoulder level.

(iii) Swing arms upward circling sideways to shoulder level.

(iv) Hands down, position-attention.

3. Legs :

Position : crouch with one Leg i.e. (right) extended sideways (hands between knees)

(i) With a spring change position of legs and bending right leg to crouch position

(ii) Return to position.

Trunk :

Position : Prone support-Arms vertically straight and Body straight but inclined.

(i) Jump and place left foot forward with left knee coming between the arms.

(ii) Jump and take left foot backward to the starting position. Do the exercise with right leg between hands. Repeat the same alternately.

5. Trunk :

Position : Prone, lying arms bent at elbows and palms resting on the ground above the waist.

(i) Raise trunk well up

(ii) Position

6. Trunk :

Position : Back lying, arms straight and close to the body, palms on the ground.

(i) Raise legs high vertically upwards

(ii) Position.

7. Special : (Chakra Dand)

Position Attention

- (i) Take full knee-bent position placing hands on the ground between the knees and keeping the body weight on the toes.
- (ii) Stretch the left leg sideways, heel up and toe touching the ground.
- (iii) Circle the left leg forward without knee bending and passing it underneath both the hands and take it to right side (The arms are raised one after the other, first left and then right.)
- (iv) Support body on hands and throw the legs backward. Bring the bodyweight on hands and toes and take chin and chest close to the ground.
- (v) Straighten the arms, raise the chest upward, look upward while arching the body.
- (vi) Raise the hips upward and bring the head between the arms.
- (vii) With a jump come to position (i)
- (viii) Position : attention.

Do the exercise with the right leg stretched sideways and circled as in (iii). Repeat the same alternately.

8. Agility :

Position : Attention.

Running on spot lifting the knees alternately about the height of the waist. Arms should be bent at the elbows. In two counts.

II. Mass Physical Training Rhythmic Exercises-Model tables

Note : Do each exercise from these tables rhythmically and repeatedly.

A. Standing Exercises

Exercises No. 1

Position : Attention.

- (i) Hands forward raise the shoulder level, palms facing each other, fingers straight and close. left leg forward step, half-squat.
- (ii) Heels raise, knees straight, hands upward raise, arms touching ears, palm facing each other, fingers straight and close.
- (iii) Same as (i)
- (iv) Back to position-attention.
- (v) to (viii) same as (i) to (iv) by the right leg.

Exercise No. 2

Position : Attention.

- (i) Left leg sideward step, arms sideward bend, elbows press to the body, fingers, closed fists turned inward.
- (ii) Hands upward raise, palms facing each other, fingers straight and close, heels raise.
- (iii) Same as (i).
- (iv) Back to position-attention.
- (v) to (viii) same as (i) to (iv) by the right leg.

Exercise No. 3

Position : Attention.

- (i) Hands forward raise to shoulder level palms facing each other, fingers straight and close, left leg forward step, half-squat.
- (ii) Right leg forward step near the left leg, come to attention.
- (iii) One step more as (i) but with right leg stepping forward.
- (iv) Same as (ii) bringing left leg near the right leg.
- (v) to (viii) starting with the left leg but stepping back to position in the same movement.
- (vi) Left leg sideward step; hands sideward bend, elbows press to the body, fists facing inward.
- (vii) Join right leg with the left-attention. Arms forward, downward.
- (viii) Same as (viii)
- (ix) Same as (vii)
- (x) to (i) Back to position in the same way.

Exercise No. 4

Position : Attention.

- (i) Left leg sideward step, hands sideward raise to shoulder level, palms downward.
- (ii) On toes clap, over head, hands straight.
- (iii) Same as (i).
- (iv) Back to position- attention.
- (v) to (viii) same as (i) to (iv) by the right leg.

Exercise No. 5

Position : Attention.

- (i) Hands forward upward raise to shoulder level, palms facing each other, heels raised.

- (ii) Half-squat, hands bent at elbows, chest firm, elbows raise to shoulder level palms downward, middle fingers 1/2" distance from each other, knees pointing outside.
- (iii) Hands sideward raise to shoulder level, knees straight, same as (i).
- (iv) Back to position-attention.

Exercise No. 6

Position : Attention. Feet together (not angled).

- (i) Hands forward raise to shoulder level, half knee bend. (No gap between knees).
- (ii) Back to position.
- (iii) Hands sideward raise to shoulder level, half knee bend. (No gap between knees)
- (iv) Back to position.

Exercise No. 7

Position : Attention.

- (i) Hands forward raise to shoulder level, palms facing each other.
- (ii) Hands sideward raise to shoulder level, palms downward.
- (iii) Same as (i).
- (iv) Back to position.

Exercise No. 8

Position : Attention.

- (i) Feet apart with a jump, arms sideward bend, elbows touching the boots facing inward.
- (ii) Trunk bend forward, downward, touch ankles with hands, without knee bending.
- (iii) Same as (i).
- (iv) Back to position with a jump, bring arms forward, downward.

Exercise No. 9

Position : Attention.

- (i) On the spot turning to right side with a jump, feet astride, hands forward raise to shoulder level, palms facing each other.
- (ii) Hands upward raise, palms facing each other.
- (iii) Hands sideward in shoulder level, palms downward.
- (iv) Attention (with a jump).
- (v) to (viii) same as (i) to (iv) again turning to the right side.
- (viii) to (v) same at right side.
- (iv) to (i) same at right side coming to the front side.

Exercise No. 10

Position : Attention

- (i) On the spot turning to right side with jump, feet astride, hands forward raise to shoulder level, palms facing each other.
- (ii) Bend the trunk forward, arms flinging downward and fingers touching the ground.
- (iii) Return to the position (i).
- (iv) Jump up and come to attention position.
- (v) to (viii) same as (i) to (iv) at the right (i. e. back side)
- (viii) to (v) same at the right.
- (iv) to (i) same at the right (i. e. in the front side)

Exercise No. 11

Position : Attention

- (i) Facing right with a jump, lunge on the right leg, hands sideward bent, fists near the shoulders.
- (ii) Arms fling upwards, arms touch ears, legs straight, heels raise.
- (iii) Lunge on the right leg, hands sideward bend, same as in (i).
- (iv) Attention with a jump.
- (v) to (viii) same as (i) to (iv) jumping to the left side : (i. e. front side) and lunge on the right leg.
- (viii) to (v) Same movement again at the left, but lunge on the left leg.
- (iv) to (i) same at the right (i. e. in the front side), but lunge on the left leg.

Exercise No. 12

Position : Attention

- (i) Left leg sideward step, hands sideward, upward, wrists cross over head without bending at elbows.
- (ii) Back to position, hands sideward, downward.
- (iii) to (iv) same as (i) and (ii) stepping right leg at the right side.

Stepping Exercises :

Exercise 1

- (i) Cross legged sitting, hands straight, sideward slanting, beside the knees, fingers close and straight pointing to the ground but not touching it.
- (ii) Hands raise sideward over-head slowly without bending at elbows, palms touching each other, fingers extended upward.
- (iii) Elbows sideward bend, palms still touching each other and wrists touching the head.

- iii) Same as (i).
- iv) Back to position.

Exercise 2

Position : Same as in Exercise 1.

- i) Hands sideward, upward. elbows bend, palms touch the head.
- ii) Trunk bend forward. head downward towards the ground.
- iii) Same as (i).
- iv) Back to position.

Exercise 3

Position : As in Exercise 1. Chest firm (i. e. Elbows bent and in shoulder palms facing downward and in front of the chest).

- i) to (iii) Elbows backward press (chest expanding action).
- iv) Hands forward-sideward-backward press, palms downward, fingers close straight. And back to position.

Exercise 4

Position : Cross legged sitting, hands sideward slanting as in Exercise 1.

- i) to (iii) hands upward-downward swing upto shoulder level,
- (iv) hands sideward upward and clap over head.

Exercise 5

Position ; Same as in Exercise 4.

- i) and (ii) Hands upward-downward swing upto shoulder level.
- (iii) and (iv) Hands sideward, upward and clap over head (twice).

STANDARD—IX

1. Developmental Exercises

N. B.-The programme of Class Exercise table and Mass P. T. table for Standard VIII is arranged in continuity of the syllabus of Std. VIII.

While teaching and performing the table of exercises, points given in syllabus of Std. VIII should be noted. Taking into consideration the difference in the postures of boys and girls at this stages, teachers should not compel students to do exercises which will not be suitable for their health.

(A) Class Exercise Table and Mass P. T. Table as given at the end.

(B) i) Dands : (For Boys only)

- a) Bajrang Dand.
- b) Sher Dand.
- c) Guthan Dand.
- d) Saf Suf Ek.

Fundamental commands in this respect have already been taught previously.

- ii) Baithaks : (For Boys only)
 - a) Sapate Lagav Ek
 - b) Putaki Ek
 - c) Putaki Do.
- iii) Namaskar ; (For Girls only)
As given in Std. VIII.

C) Yogic exercises :

- i) Sarvangasana.
- ii) Matsyasana.
- iii) Uddiyana.
- iv) Vipareet Karani.
- v) Supta—Vajrasana.

Drill and Marching :

- a) Officer ko Patrika Dena Aur Inam Lena.
- b) Dhire Chal se Tej Chal men aa.
- c) Tej Chal se Dhire Chal men aa.
- d) Dahine our Baen Disha Badal.

Rhythmic Activities :

- a) Lezim :

Revision of activities done in Std VIII and teaching of the following activities—

- i) Ghum Jao—(six count exercise)
- ii) Chandravat—(Thirty four count exercise)
- iii) Chandravat Baithak.
- iv) Do Mal (Eight count exercise)
- v) Do Mal Baithak.
- vi) Morchal.
- vii) Morchal Age Ki.
- viii) Morchal Dahine Aur Baen.

Folk Dance :

The following folk dance is one of the many folk dances which can be adopted.
(This is a dance of the agriculturists in Maharashtra.)

Gudgha gudgha chikhlat, gudgha gudgha chikhlat, paya roville ho, paya roville.
Ek ek bhatache rop lavile ho, rop lavile...

- 1) बद्धपद्मासन
- 2) उतानकूर्मासन

(3) विपरित करणी

(4) सर्वांगसन

(5) शीर्षामन

(6) प्रयूरासन

* (Not obligatory for girls.)

(C) For Girls only :-

a) Fugadi :- Revision of types done in Std. VIII. Additional types - Kasav, Fugadi in fours.

(b) Zimma :- Revision of types done in Std. VIII, Additional Types - Chutki, Pankhi.

4. Athletics

(a) 100 m. and 800 m. Running (Proper technique to be taught).

(b) Hop, Step and Jump.

(c) Disc Throw-practice with technique.

(d) 4 × 100 m. Relay.

5. Major Games

Note : (1) Students are advised to revise the already learnt games like Kabaddi, Kho-kho and Volley Ball to develop the skills involved in them.

(2) Boys are advised to collect relevant additional information about Hockey and Football from other books.

(3) Girls also are advised to collect relevant additional information about Badminton and Net Ball from other books.

(4) Students should learn more about the standard rules of their respective games as well as the standard organisational set-up that governs state and national competitions in their respective games by studying the Rule-Books published by 'All India Federation' of the games concerned.

(For Boys only)

(i) Kho-kho, Kabaddi and Volley Ball practice.

(ii) Hockey, Foot Ball with lead-up games.

(For Girls only)

(i) Kho-kho, Kabaddi and Volley Ball practice.

(ii) Badminton, Net Ball with lead up games.

Minor Games

- | | |
|-----------------------|------------------------|
| (1) Captain Ball. | (4) Skin Tag. |
| (2) End Ball. | (5) Squat Tag. |
| (3) Keep the Ball up. | (6) Advancing Statues. |

Relays

- | | |
|---------------------------|---|
| (1) Leap Frog Relay. | (5) Chain Relay. |
| (2) Grasp and Pull Relay. | (6) Ball Passing versus Team Running Relay. |
| (3) Backward Relay. | (7) Pick-A-Back Relay. |
| (4) Teenangi Relay. | (8) Wheel Barrow Relay. |

Malkhamb and Wrestling

(A) Malkhamb :

- | | |
|--------------------|----------------------|
| (1) Nakikas Sadha. | (4) Bagali Pharara. |
| (2) Tabak Phad. | (5) Dasarang. |
| (3) Mayoor Pankhi. | (6) Pyramid (manore) |

(B) Wrestling :

- | | |
|------------------------|--------------------|
| (1) Elbow throw. | (4) Double Nelson. |
| (2) Under the arm-pit, | (5) Back Throw. |
| (3) Half Nelson. | |

Civic Education

(A) Fundamentals of our Constitution.

Salient features of the Constitution : Justice -social, economic and political.
Liberty of thought, expression, belief, faith and worship.
Equality of status of opportunity; and to promote among them all Fraternity
assuring the dignity of the individual and the unity of the Nation.

(B) National Anthem —Jana Gana Mana.

Its meaning and importance :
Technique of its singing.

(C) Good Habits :

- (i) Queue Habit-Taking one's turn or first come first.
- (ii) Dustbin Habit.
- (iii) Cleanliness.
- (iv) Correct Postures at Reading, Writing and Standing.
- (v) Self-help and co-operation and self-reliance.

(D) National songs :

To attain emotional and national integration at least two national songs should be taught :

- (1) Jaya Jawan-Jaya Kisan.
- (2) Hamare Jawan.
- (3) Hya Bharat Bandhur bhav Nitya Vasu De,
De Varachi Asa De.

Class Exercise Table

1. Introductory

Running in a circle and changing direction on signal.

2. Exercises for Arms

Position : Standing one foot forward, opposite hand on hip, free hand loosely closed

- i) Free hand circling backward.
- ii) Repeat eight times and change position, the other arm—circling backward. Repeat eight times.

3. Leg

Position : Hips firm.

- i) Swing left leg forward.
- ii) Swing left leg downward sideways.
- iii) Swing left leg downward forward.
- iv) Pposition.

4. Trunk

Position : One foot forward, trunk relaxed downward, hands clasped behind back

- i) Stretch trunk to forward position with upper dorsal drawing backward arm straightened in clasped position.
- ii) Return to position.
Repeat the same with next leg.

Note : Breathe in on bending backwards. Breathe out on relaxing downward

5. Abdominal

Position : Prone lying hands on head, take lying rest position.

- i) Raise trunk well up.
- ii) Position.

Trunk

Position : Prone support.

- i) Spring and bring feet forward, take crouch sitting position.
- ii) Jump and take feet back to the starting position.

Special (Dand)

Position : Prone support position ; hips raised with legs stretched backward, heels touching the ground.

- i) Lower the chest slowly down by bending the arms at the elbows bringing the chest close to the ground, the body becoming parallel to the ground and supported on hands and feet; move the body forward-upward by straightening the arms with head turned up and back well arched. (This is a continuous movement).
- ii) Position.

Agility (Skip Jump-low and high)

Position : Attention.

Take three skip jumps in the usual way and the fourth skip jump as high as possible. Arms should be hanging loosely to sides.

Mass P. T. Table

rcises for-

Arms and Shoulders

(Position : Feet astride. Left arm on hip; right arm along with the body.)

Circle right from backward, downward, forward, upward. Class holds the exercise at the original starting position, and adopts rest position. Change the arms and carry out the same exercise. Carry out the exercises with both arms circling backward. The arms should be brushing the ears while circling.

Trunk

(Position : Feet astride. Hands on hips. Bend trunk to the left and then to the right) Neck should be kept loose. Do not lean forward or backward. Knees should be straight.

Legs (Step jumping)

Position : Attention.

Start with skip jumps. After three skip jumps take one step jumping crouch with fingers support. While step jumping toe should point downward Arms should be alongside the body while jumping,

4. Arms and shoulders

(Position : Feet astride, arms crossed. Left wrist over right wrist.)

Swing arms forward and sideways shoulder high. Arms should swing forward and sideways shoulder high.

5. Trunk :

Position : Feet astride.

Bend trunk downward to reach as far as possible between legs and stretch hand through legs behind. Unroll trunk.

Arms and neck should be kept loose.

6. Hopping with legs swinging sideways

Position : Hands on hips.

Hop on left leg and swing the right leg to the right side.

Hop on right leg and swing the left leg to left side, when hopping legs should fully stretched. Hopping should be done on the toes.

7. Jumping with arms swinging

Position : Attention.

i) Jump feet astride with arms swinging sideways.

ii) Jump to the position.

iii) Jump feet astride with arms swinging sideways and upwards.

iv) Jump to position.

While swinging arms sideways, arms should swing to shoulder level. Knees should be straight while jumping with feet astride.

8. Head and Trunk turning

Position : Feet astride : Arms across.

i) Turn the trunk and head to the right and swing the right arm sideways.

ii) Return to position.

iii) Turn trunk and head to the left and swing the left arm sideways.

iv) Return to the position.

Arms should swing in level with shoulders.

9. Jumping feet astride and arms swinging

Position : Attention.

i) Jump with feet astride and swing arms sideways.

ii) Return to position with a jump.

- iii) Jump with feet astride and swing arms forward.
- iv) Return to position with a jump.

Arms and fingers must be fully stretched.

10. Arms swinging

Position : Feet astride. Arms along with the body.

- i) Swing arms forward.
- ii) Downward, mid-way and sideways. Repeat the movement.
Hands should be loosely closed.
Palms should be facing inward during the forward swing and facing downward during the sideway swing. Fingers should be together.

STANDARD - X

1. Developmental Exercises

While teaching and performing the tables of exercises and other activities which come under developmental exercises, points given in syllabi of classes VIII and IX should be noted here also.

Taking into consideration the difference between the postures of boys and girls at this stage, (i. e. growing age), appropriate and suitable exercises should be given to them. Physical Education teacher should not compel them to perform such activities which will be unsuitable and unwholesome from health point of view.

Exercises

Class Exercise Table and Mass P. T. Table as given at the end.

B) (I) Dands (For Boys only)

- i) Chakra Dand.
- ii) Mayoora Dand.
- iii) Namaskar Vaje.
- iv) Dand Jor.

(II) Baithakas : (For Boys only)

- i) Kudan Baithak.
- ii) Lahera Baithak.
- iii) Khadi Baithak.

C) Yogic Exercises

Practice of Asanas learnt in Standards VIII and IX.

- i) Mayurasana.
- ii) Sheershasan.
- iii) Kapalbhathi.

D) For Boys—Dips and Squat Thrust.

For Girls—Sit up, pull up and Squat thrust.

E) Namaskar : (For Girls only)—As taught in Std. VIII.

2. Drill and Marching

Note : It is highly essential to practise on and often the portion taught in Stds. VIII and IX. But to avoid the monotony it is worthwhile to include in practice the following new aspects. Here some salient points are explained to a certain extent. These points should be taken into consideration at the time of practice.

I) Route March—The following points should receive proper attention so as to make the route march more attractive and impressive.

- i) Students' uniform.
- ii) Formation of students.
- iii) Flag-bearer.
- iv) Band.
- v) Proper route.
- vi) Proper speed.

II) Ceremonial Parade.

3. Rhythmic Activities

A) Lezim :

Revision of the activities taught in Stds. VIII and IX and teaching of the following activities—

- i) Gaj-Bel—(eight count exercise).
- ii) Sher Dhaj—(Sixteen count exercise).
- iii) Dast-Pao—(Twenty six count exercise).
- iv) Gol-Chal Do—(Sixteen count exercise).
- v) Gol-Chal—(Four count exercise).
- vi) Chaumukhi Morchal.

(B) Folk Dance (For Boys and Girls)

Wedding of deity Bhairoba.

In this folk Dance the villagers are celebrating the wedding of their deity Bhairoba with Bhairavi. Suitable actions are to be performed connoting the meaning in the lines of the lyric : Aika Naval Zale . . . Mangal Zale.

(C) Only for Girls : Revision and practice of different varieties of Fugadi taught in Stds. VIII and IX and teaching of the following Fugadi activities :—

- (I) (i) Chaughinchi Fugadi.
- (ii) Kasav Fugadi.

(II) Revision and Practice of various varieties of Zimma taught in Stds. VIII and IX.

4. Athletic

- a) 100 m. and 1600 m. run.
- b) Jumping events :
 - i) High jump.
 - ii) Long jump.
 - iii) Hop-step and jump .
 - iv) Pole Vault.
- c) Throwing Events :
 - i) Shot put.
 - ii) Javelin throw.
- d) Relay races :
4×400 M. Relay races may be of 4×100 Metres.

5. Games

Revision of major games learnt in Stds. VIII and IX with a view to achieve better skills.

6. A) Malkhamb :

- i) Machhali.
- ii) Ek Hathi.
- iii) Kamani Udi. Ghoda.
- iv) Do Hathi
- v) Sui-Dora.
- vi) Kan Chitti.
- vii) Wel
- viii) Manore (Pyramid).

B) wrestling :

- i) Standing arm pull from outside.
- ii) Standing arm pull from inside.
- iii Cross Ankles.
- iv) Bridge.

7. Civic Education ;

- A) Practical projects as given below should be arranged in the school during the session under co-curricular activities to achieve the objects of civic education in particular and education in general.
 - i) Flag Salutation.
 - ii) Singing of National Anthem.
 - iii) Practical of first aid.
 - iv) Organisation of games and sports.

- v) Social Service, Scouts and Guides camp.
- vi) Social gathering and Annual day.
- vii) Anniversaries of Leaders and Great men.
- viii) Fire fighting.
- ix) Training of volunteer and leadership.
- x) National festivals and days.

B) Celebration of National Festivals, Days & Weeks,

Independence day, Republic day, Flag day, National Unity day, Human Rights day, U. N. O. day, Maharashtra day, Wild Beasts' Week, Vanamahotsava, Ganeshotsava; Shoradotsava, Social gathering etc.

Anniversaries of great men.

C) Community Singing

The following community songs should be taught to the students :

- i) Aram Haram Hai.
- ii) Eesh prarthana.
- iii) Bharat Maan Ki Vandana.
- iv) Rashtra Dhvaj Ka Abhivadan.
- v) Desh Hamara, Dharati Apani.
- vi) Kadam Kadam Badhaye Ja.

Class Exercise Table

1. Introductory

Running and Jumping over parallel lines.

2. Arms

Position : Standing left foot forward arms crossed in front.

- i) Swing arms forward to midway, sideway, upward.
- ii) Return to position.
- iii) Swing arms forward.
- iv) Return to position.
- v) Swing Arms forward upward.
- vi) Return to position.

3. Leg

Position: Attention.

- i) Kick with left foot forward to shoulder height touching the right hand, head extended in front.
- ii) Return to position.
- iii) Repeat the same with right foot.
- iv) Return to position.

Trunk

Position : Prone support,

- i) Jump and place feet with knees coming between arms.
- ii) Jump and take feet in the starting position.
- iii) Jump and take front support, astride position.
- iv) Jump and take prone support position.

Trunk

Position: Back lying, arms sideways.

- i) Raise both knees up, lower part of the legs parallel to the ground.
- ii) Lower sideways to the left (shoulders to be kept flat on ground throughout).
- iii) Return to position (i).
- iv) Position.

Repeat the same exercise. On count (vi) lower sideways to the right keeping shoulders flat on the ground throughout.

Abdomen

Position : Prone lying, arms upward bent closing to shoulders, chin touching the ground.

- i) Raise trunk and stretch arms sideways-straight in shoulder level, palms facing to the ground.
- ii) Lower trunk to position, and bring arms to upward bent position.

Special (Band)

Position: Prone support—hips raised with legs stretched backward; heels touching the ground.

- i) Lower the chest slowly down by bending the arms at the elbows bringing the chest close to the ground, the body becoming parallel to the ground and supported on hands and feet; move the body forward-upward by straightening the arms with head turned up and back well arched. (This is a continuous movement).
- ii) Return to position.

Agility (Hopping with toe tapping)

Position : Hips firm.

- i) With a hop take left forward, toe tapping the ground.
- ii) With a hop, position.
- iii) With a hop, take left leg sideward, toe tapping the ground.
- vi) With a hop, position.

Repeat the same exercise with right leg,

Mass P. T. Table

Exercise :

1. Position : Feet astride

- i) Both arms circling backside upward-forward-downward-five times.
- ii) Both arms circling frontside upward-backward-downward-five times.
While swinging the arms, knees should be straight.

2. Position : Feet astride

- i) Bending arms bringing fists in the armpits with elbows pushing backward
- ii) Stretching arms forward at shoulder level, Palms facing each other, fists together.
- iii) Return to position (i)
- iv) Return to position of attention with jump.

3. Position : Feet astride

- i) Bending arms at elbows, fists touching the sides of shoulders (not in fists) elbows held close to the trunk.
- ii) Raise both the arms sideward to shoulder level, palms facing to ground, fists together.
- iii) Return to position (i)
- iv) Return to position of attention with jump.

4. Position : Feet astride

- i) Stretch left hand forward to shoulder level. Kick with right foot forward touch left hand.
- ii) Return to position.
- iii) Stretch right hand forward to shoulder level. Kick with left foot forward touch right hand.
- iv) Return to position.

5. Position : Attention (not angled)

- i) Raise left hand sideways to shoulder level, palm facing to the ground, left foot parallel to the left hand.
- ii) Return to position.
- iii) Raise right hand sideways to shoulder level, palm facing to the ground. Raise right foot parallel to the right hand.
- iv) Return to position.

6. Position : Attention

- i) Stepping left leg forward and arms forward, palms facing each other.
- ii) Bending left leg in knee, stretch the right leg backwards,
- iii) Return to position (i)
- iv) Back to position.
Repeat this exercise stepping right leg forward.

Position : Feet astride

- i) Trunk bending forward, fling arms forward as far as possible and touch the ground with finger tips.
- ii) Fling arms backward as far as possible between the legs and touch the ground with finger tips.
- iii) Back to position of count (i).
- iv) Return to position.

Position : Attention

- i) Feet astride with jump, hands on hips.
- ii) Bending forward, touch left hand to right leg and fling right hand upward towards the sky.
- iii) Repeat the same exercise touching right hand to left leg and fling left hand upwards towards the sky.
- iv) Return to position with jump.

Position : Feet astride and hands on hips

- i) Bending trunk downward to take head back as far as possible between legs.
- ii) Back to position.
- iii) Bending trunk backward as far as possible.
- iv) Back to position.

Position : Attention (Feet together, not angled)

- i) Left leg forward and raise both the arms forward to shoulder level, palms facing each other.
- ii) Bring right leg near left. Bend arms in elbows. Fists touching the shoulders in front
- iii) Bring left leg back raising arms straight forward as in count (i).
- iv) Bringing right leg near left take attention position.

Position : Attention. (Feet together, not angled)

- i) Step left leg sideward, raise hands sideward to shoulder level, palms facing to ground.
- ii) Bring right leg near left, bending arms in elbows, fists touching sides of shoulders (not in front)
- iii) Step right leg sideward, raise arms sideward to shoulder level palm facing to ground.
- iv) Bring left leg near right and take attention position.

Position : Attention. (Feet together, not angled)

- i) Step right leg sideward, raising hands sideward to shoulder level, palms facing to the ground.

- ii) Bring left leg near right, bending arms in elbows, fists touching the side of shoulders (not in front).
- iii) Step left leg sideward raising hands sideward as in count (i).
- iv) Bring right leg near left and take attention position.

N. B. :- Both the above exercises i. e. Class Exercise Table and Mass P. Table are given as models. Physical Education teacher will prepare least two more exercises of each category on the above basis and teach them to the students.

10. SCHOOL CERTIFICATE EXAMINATION SUBJECT - II

10.1 Social Service

Objectives :

1. To provide opportunities to the pupils for a full and balanced development of their personality, bearing in mind the fact that such development is possible only in a social context.
2. To make the pupils aware of social problems, social action and the direction of social change.
3. To provide opportunities to the pupils for coming into contact with various sections of society.
4. To induce the pupils to take active interest in various social problems and to participate in efforts to resolve them in order that social consciousness may develop in their minds.
5. To create in the pupils a liking for community living and to provide them with opportunities for living, working and taking decisions in the spirit of co-operation.
6. To create in the pupils a liking for self-reliance, manual work and simple and hard life.

STANDARDS - VIII, IX and X.

Proper alternatives should be available in this syllabus in order to achieve objectives of Social Service. It is also necessary to select activities of Social Service keeping with the pupils' environment. Hence only an outline of the programme activities in this subject is suggested here.

1. Manual work (Any one of the following nine activities)

1. Sweeping : To sweep the class-room, the school building, the school compound, the village, the town.
2. Decoration : To decorate class-rooms and different parts of the village or town.
3. Cleanliness : To do all work involved in keeping the class-rooms, streets in the villages and towns, public places, drinking water supply and sanitary blocks clean.

4. Gardening: To do gardening work in the school garden and public gardens, to plant trees etc.
5. Civil Works: a) To make and mend roads, to dig soak-pits, to build movable sanitary blocks.
b) To repair the playground, to build school-rooms,
6. Debris Clearance : a) To remove debris of fallen / collapsed houses by means of four different methods including the use of shovels, crowbars and ghamelas.
b) To remove obstacles / road blocks on roads.
7. Preparation of simple implements for cleanliness : a) To prepare house-hold brooms for sinks and stick brooms for streets.
b) To prepare house-hold dust bins of a covered tin having wooden lever.
8. Domestic Sanitation; a) Durable grease-trap, Soak pits and Soak channels,
b) Stinkless urinals.
c) Trench latrines for children.
d) Smoke outlet chullahs.
e) Assisting in the removal of encroachments of village roads.
9. Parades : (पदकवायत)

Educational Activities : (Any one of the following seven activities.)

1. To conduct a literacy class, to organise programmes like story-telling, newspaper reading and discussions in the community, in the neighbourhood of the school.
2. To introduce a small-savings scheme among the school pupils or in the neighbouring community.
3. To help in conducting pre-primary classes.
4. To conduct self-study classes.
5. To organise programmes like story telling, newspaper reading and discussion in the community in the neighbourhood of the school after the students have learnt such items under "War and Civil Defence" as-
 - i) How the development of weapons affects the art of war based on the stories of Ramayana, Mahabharat and Modern and recent history.
 - ii) How the advancement both in technological and scientific field has led to increase the range and destructive capability of modern weapons making a modern war a total war.

iii) How the code of conduct in warfare and the morality in the act of war played a great part in the warfare of distant past and how because of total war they are disregarded. This could be illustrated by stories from Ramayana, Mahabharat, continental wars and modern wars.

iv) Stories of how Civil Defence helps a community both in peacetime and in war time.

6. To help the students to understand the need and importance of Road Safety Patrol and the rules of Road Safety.
7. To learn and teach the techniques of applied Science, the advantages and the proper use, and maintenance of Soak pits, Soak Channels, Urinals, Smokeless Chullahas, Brooms and Dustbins.

3. Health Activities : (Any one of the following seven activities.)

1. To organise a cleanliness campaign.
2. To conduct First - Aid Classes.
3. To instruct different sections of the community in topics like child care, health and public cleanliness, and to do practical work connected with these topics in the community.
4. To give information on topics like personal cleanliness, balanced diet etc.
5. To cooperate in topical health activities and to help in fighting epidemics.
6. First Aid is one of the most important subjects of training both theoretical and practical in Civil Defence.

Students will be taught very basic theoretical knowledge of First Aid and more emphasis will be laid on practical training. They in turn would be able not only to give this knowledge to the community but also would be able to do so practically in day to day life in school as well as at home and particularly on occasions like important fairs.

This knowledge will also create resourcefulness in the minds of the people and thereby even if normal F. A. / Ambulance facilities are not available improvised methods could be used for that.

7. To organize a shibir of the villagers in general safai and construction of soak-pits, urinals, children latrines, smokeless chullahas and adult latrines (if possible).

4. Entertainment Programmes : (Any one of the following six activities.)

1. To organise programmes of games, sports and entertainment.
2. To organise entertainment programmes like story-telling, play-acting, singing etc.

3. To organise programmes of community prayers, bhajan, kirtan, ballads, etc.
4. To organise programmes like excursions and hikes,
5. As mentioned in educational activities above, entertainment programme will include apart from story-telling the following :—
 - (i) Staging of demonstration in debris clearance, fire fighting, first aid and rescue.
 - (ii) To hold an exhibition of models of different types of weapons of war and other Civil Defence measures.
 - (iii) To arrange different types of competitions like Quiz Tests, Do's and Don'ts and practical activities (भेंडपा).
6. To organize a prayer programme in different groups of the village and to give talks about the life and constructive works done by the great men like Mahatma Gandhiji and others who rendered national services on spiritual and moral basis and to show the films of life and works of such great men.

Social Service (Any one of the following four activities)

1. To attend on the sick, to entertain them and to keep them company.
2. To give all kinds of help to the handicapped.
3. Civil Defence training cater for the training of handicapped persons also as regards their own protection and their share of assistance in protecting others.

This training will also enable students to attend on to the injured and sick and take care of them.
4. To give help in every sanitation items to the poor and helpless people and also to help them in erecting walls and varandahs in their own places.

To adopt a village where possible (Any one of the following two activities.)

1. Trained students will be able to organise a Civil Defence unit which would in all respects amount to a self-help unit for the community or a village as such. They would undertake all sorts of activities and in addition create mental robustness and confidence in the minds of the community even in time of emergencies—manmade, natural or created by war.
2. To adopt a small village or villages to have full coverage in the sanitation items.

Project (Compulsory for all.)

Shramsanskar Shibir :

The project will include the following activities —

- (a) A sociological survey of the community served by the school.
- (b) Sanitation of the surroundings.
- (c) Civil Defence training.

Note : The project of Shramanskar Shibir should be compulsory for all students. regards the programmes outlined under the first six headings, it should be that the pupils regularly participate in at least one of the activities under each head.

Equipment :

Every school has to provide the equipment necessary for introducing the subject of Social Service. It is not feasible to make a complete list of all the equipments needed for this subject. However, a list of the new items of equipments that will be required for some of the activities in this subject is given below :

Buckets, brooms, shovels, spades, ghamelas, water sprinkler, rope, hoe, drums for storing water etc.

In addition, the following equipment should also be made available :

1. First aid equipment.
2. Equipment necessary for attending on the sick.
3. Equipment necessary for maintaining cleanliness e. g. D. D. T., Pyenyle etc.
4. Musical instruments.
5. Equipment necessary for organising a camp.
6. Equipment necessary for a literacy class.
7. Equipment necessary for cleanliness drives etc.

Evaluation :

Once the syllabus Social Service is introduced in secondary schools, it will be necessary to devise tests for evaluating pupil's achievement. The following means should be used in the process of evaluation :

- (i) Pupil's diaries (ii) Group leader's diaries (iii) Teacher's reports.
To facilitate evaluation pupils should be divided into groups. Each group should consist of six to eight pupils.

10.2 Scouting/Guiding

Objectives :

The purpose of the Scout and Guide Movement is to develop good citizenship among boys and girls, adolescents and young people by-

- a) forming their character,
- b) training them in habits of observation, discipline and self reliance,
- c) inculcating loyalty and thoughtfulness for others,

- d) teaching them services useful to the public and skills useful to themselves,
- e) promoting their physical, mental, social and spiritual development.

General instructions :

- 1) The training in- Scouting for boys and Guiding for girls only will be given as per rules of the Bharat Scouts and Guides.
- 2. The teacher shall be a trained Scouter/Guider and shall be in charge of such number of Scouts/Guides as is permitted under the rules of the organisation.
- 3. The uniform for the Scouts/Guides shall be as per rules of the organisation.
- 4. Hikes and camps will have to be organised in vacations as required by the rules of the organisation over and above the instruction during the two periods per week allotted to the subject in the time table.
- 5. The training shall be imparted mainly through open air activities, games, projects, demonstrations, competitions etc. Scouts/Guides should learn by doing.

SCOUTING

STANDARD-VIII

- 1. History of the Scout/Guide Movement.
- 2. Tenderfoot Test :
 - (i) The Scout Promise, Law, Motto Sign, Salute, Left hand shaké and badge.
 - (ii) The composition and significance of the Bharat Scouts and Guides Flag and the National Flag and know the customary respect due to them, and be able to recognise the World Scout Flag.
 - iii) The National Anthem (learn and sing)
 - iv) The Prayer Song (learn and sing)
 - v) The Bharat Scouts and Guides Flag song (learn and sing)
 - vi) Know the following and be able to use them :
 - a) Whistle signals.
 - b) Hand signals.
 - c) Wood Draft signs.
 - Practise these out of doors.
 - vii) Whipping the ends of a rope.
 - viii) Reef knot, sheet bend, clove-hitch, Sheep shank, Bowline and Fisherman's knot and their uses ;

- ix) Hike a minimum distance of 6 k. m. s. and spend with his patrol at least day in the open.
- x) Replace an electric bulb or clean, trim and prepare a lantern for lighting.
- xi) Must have attended at least four Troop and four Patrol meetings.
- xii) Know the National Emblem, the National Bird, the National Animal and National Flower.
- xiii) Do simple drill—
Savdhan(alert), Vishram (Stand-at-ease). Dahina Mur(right turn) Baie Mur turn), Peeche Mur (about turn), Demonstrate the correct position of sit standing, walking and running.

Note: Scouts should be given opportunity so that they acquire the habit of doing at least one good turn every day.

3. Second Class Tests— Complete any 8 tests out of the 14 prescribed for Second class given below :

a) Health :

- i) Know the general rules of health, about cleanliness' clothing and fresh air, sleep and exercise.
- ii) Do B. P.'s six Scout exercises or Surya Namaskar.

b) First Aid :

- i) Have knowledge of a First-aid box,
- ii) Must be able to deal with cuts, scratches, burns and scalds, bleeding from the nose, stings, sprains, and know the precautions against heat-stroke and sun-stroke;
- iii) Must know the use of a triangular bandage as applied to the knee, hand and foot and large and small arm-sling.
- iv) Must know how to remove grit in the eye.
- v) Must know how to speak adult help an emergencies.
- vi) Must know how to make a bed,

c) Signalling :

Must know the Morse signs for alphabets and numerals in English or Indian language and must be able to send and receive a simple message; understand the use of the call-up sign and its answer and the erase sign.

OR

Be able to ride a bicycle and repeat correctly a verbal message of not than 20 words at a distance of $1\frac{1}{2}$ kms.

Know how to write a telegram in English or in Hindi, to send a money order, and record the receipt of a money order, send a registered letter/Parcel with an acknowledgement due and make and receive a telephone call. If a telephone is not available he should know the bus timings to the nearest towns.

d) **Observation :**

Must be able to follow a trail for 800 metres in 25 minutes or must describe satisfactorily the contents of one shop window out of two observed for one minute or know the Kim's game remembering 16 out of 24 well assorted articles after one minute's observation.

Note : It is desirable that the Scout shall be trained both in Kim's game and how to follow a trail.

e) **Pioneering :**

- i) Know the following knots and their uses.
Timber hitch, Rolling hitch and Round Turn and two half hitches.
- ii) Know Figure-of-eight, sheer and square lashings.

f) **Fire :**

- i) Must lay and light a wood fire in the open with not more than two match-sticks.
- ii) Must know how to extinguish fire and safety precautions in regard to fire.
- iii) Must know the bucket chain method of putting out fire.
- iv) Must know how to tackle a fire in dry grass.

g) **Compass :**

- i) Must demonstrate the practical use of a compass and know the sixteen points:
- ii) Must be able to find the North by at least one constellation in night time.

h) **Cooking :**

Must cook in the open over wood fire, two simple dishes enough for one person and make tea or coffee for one patrol.

i) **Safety Rules :**

- i) Must know, demonstrate and practise simple rules of safety at home, in the school, in the farm and on the road.
- ii) Must know the use, care and safety rules in respect of a hand axe and the knife and demonstrate the correct method of chopping wood.
- iii) Must know the maintenance and correct use of pressure stoves, wick-stoves and oil stoves.

j) **Drill :**

Must know drill commands and how to do them correctly: Sajjo.-(fall-i Ginti-kar (Number), Katar Khol (Open Ranks), Katar Band (Close Rank Tez Chal (Quick Merch), Dain, Bain Ghoom (Right and left on the March) and should be able to march 100 metres in step with his patrol.

k) **Shramdan :**

Must go with another Scout to a place at least 4 kilometres away and perform voluntary service (shramdan) for two hours and make a report to the scoutmaster.

OR

Must go to the nearest permanent camping centre or some institution campus and perform voluntary service (shramdan) for two hours and make report to the scoutmaster.

l) **Nature Study :**

Must have knowledge of six birds, six trees, six vegetables and six flowers and keep a log book about the same or cultivate two kinds of vegetables or flowers or plants and obtain produce.

m) **Knowledge of Neighbourhood :**

Must know the homes of the members of his patrol and the Scoutmaster's hospital, fire brigade, bus stand, police station and dispensary in his locality.

n) **Service :**

Must have served at least for three months as a Tenderfoot.

o) **Skills :**

Must replace a fuse and lamp shade or replace a tap washer, or repair puncture of a cycle tube, or bind a note-book.

Note :

For a village scout, the alternative tests given in the pamphlet, ' Tests (5 section)' may be taken up if the scoutmaster so desires .

NOTES :

(i) On the successful completion of the Second Class Tests a Scout shall be issued the Second Class Badge by the Local or the District Association, a case may be, on the recommendation of the Scoutmaster who acts as the examiner.

(ii) The Second Class Badge is a scroll with the words 'Be Prepared' or 'It shall be worn in the centre of the left arm, between the elbow and the shoulder.

GUIDING

STANDARD - VIII

1. History of the Scout/Guide Movement.
 2. Tenderfoot :
 - i) The Guide Promise, Law, Motto, Sign, Salute, left hand shake and badge,
 - ii) The composition and significance of the Bharat Scouts & Guides Flag and the National Flag and know the customary respect due to them and be able to recognise the World Guide Flag.
 - iii) The National Anthem (learn and sing),
 - iv) The prayer Song(learn and sing).
 - v) The Bharat Scouts & Guides Flag Song (learn and sing).
 - vi) Know the following and be able to use them :
 - a) Whistle signals,
 - b) Hand Signals.
 - c) Wood-Craft signs.
 - vii) Whipping the ends of a rope.
 - viii) Reef-knot, Sheet Bent, Clove-hitch, Sheep Shank, Bowline and Fisherman's knot and their uses.
 - ix) Replace an electric bulb or clean, trim and prepare a lantern for lighting.
 - x) Must have attended at least four Company and four Patrol Meetings :
 - xi) Know the National Emblem, the National Bird, the National Animal and the National Flower.
 - xii) Do simple drill-Savdhan (alert), Vishram (Stand at ease), Dahine Mur (Right Turn) Bain Mur (Left Turn), peeche Mur (About turn), Demonstrate the correct position of sitting, standing, walking and running,
- Note: Guides should be given opportunity so that they acquire the habit of doing at least one good turn every day.

Second Class Tests - complete any 8 tests out of the 14 prescribed for Second Class given below :

- a) Health :
 - i) Know the general rules of health about cleanliness, clothing and food, fresh air, sleep and exercise.
 - ii) Do B. P.'s six Scout exercises or Surya Namaskar.

b) First Aid :

- i) Have knowledge of a First-Aid box.
- ii) Must be able to deal with cuts, scratches, burns and scalds, bleeding from nose, stings, sprains, and know the precautions against heat-stroke.
- iii) Must know the use of a triangular bandage as applied to the knee, head, foot and large and small arm-sling.
- iv) Must know how to remove grit in the eye.
- v) Must know how to seek adult help in emergencies.
- vi) Must know how to make a bed.

c) Signalling :

Must know the more signs for alphabets and numerals in English or any Indian language and must be able to send and receive a simple message, must understand the use of the call-up sign and its answer and the erase signal, or be able to ride a bicycle and repeat correctly a verbal message of not less than 20 words at a distance of $1\frac{1}{2}$ kms.

Know how to write a telegram in English or in Hindi, to send a money order, record the receipt of money order, send a registered letter / parcel with acknowledgement due and make and receive a telephone call. If a telephone not available, she should know the bus timings to the nearest towns.

d) Observation :

Must be able to follow a trail for 800 metres in 25 minutes or must describe satisfactorily the content of one shop window out of two observed for one minute or know the Kim's game remembering 16 out of 24 well assorted articles after one minute's observation.

Note: It is desirable that the Guide shall be trained in Kim's game and how to follow a trail.

e) Pioneering :

- i) Know the following knots and their uses :-
Timber hitch, Rolling hitch and Round Turn and two half hitches
- ii) Know figure of eight, sheer and square lashings.

f) Fire :

- i) Must lay and light a wood fire in the open with not more than two sticks.
- ii) Must know how to extinguish fire and safety precautions in regard to fire.
- iii) Must know the bucket-chain method of putting out fire.
- iv) Must know how to tackle a fire in dry grass.

g) Cooking-Must cook in the open over wood fire, two simple dishes, enough for one person and make tea or coffee for one patrol.

h) Compass :

- i) Must demonstrate the practical use of a compass and know the sixteen points.
- ii) Must be able to find the North by at least one constellation in night time.

i) Safety Rules :

- i) Know, demonstrate and practise simple rules of safety at home, in the school on the farm and on the road;
- ii) Must know the use, care and safety rules in respect of a hand axe and the knife and demonstrate the correct method of chopping wood.
- iii) Must know the maintenance and correct use of pressure stoves, wick stoves and oil stoves.

j) Drill :

Must know drill commands and how to do them correctly, Saj - jao (fall - in) Ginti kar (Number), Katar Khol (Open ranks), Katar Band (Close ranks), Tez Chal (Quick March), Dain-Bain ghoom (Right and left wheel on the March), and should be able to march 100 metres in step with her patrol.

k) Shramdan :

Must go with another Guide to a place at least 4 kilometres away and perform voluntary service (shramdan) for two hours and make a report to the Guide Captain.

OR

Must go to the nearest permanent camping centre or some institutional campus and perform voluntary service (shramdan) for two hours and make a report to the Guide Captain.

l) Nature study : Must have knowledge of six trees, six flowers and keep a log book about the same; or cultivate two kinds of vegetables or flowers or plants and obtain produce.

m) Knowledge of neighbourhood :

Must know the homes of the members of her patrol and the Guide Captain, hospital, fire brigade, bus stand, Police station and dispensary in her locality.

n) Service : Must have served at least for three months as a Tenderfoot.

o) Skill : Must replace a fuse and lamp shade or replace a tap washer : or repair the puncture of a cycle tube, or bind a note book.

Notes : (i) On the successful completion of the Second Class test, the Guide shall be issued the second class badge by the Local or the District Association. as the case may be, on the recommendation of the Guide Captain who acts as the examiner.

- ii) The Second Class Badge is a scroll with the words ' **BE PREPARED** ' or '**TAYAR**' in yellow colour as in the desine. It shall be worn on the left sleeve of the uniform below the Tenderfoot Badge.

General Programme (For Scouts and Guides)

- 1) There will be a troop / Company meeting during the weekly periods allotted to the subject. It is compulsory to attend, at least 75% of these meetings.
- 2) There will be two camp of 3 days duration, one in each term of the year. These should be organised outside the town. Attendance at oth camps is compulsory. They may be organised during the long vacations.
- 3) There will be two patrol hikes during the two terms of the year, of these one must include one overnight stay. For girls these programe will be for eight hours duration,

Note :

Detailed instructions about the organisation and methods of Scout/Guide training, details of the syliabus and a scheme of testing will be found in the respective Hand Books for Scoutmaster and Guide Captain. Teachers are requested to follow them.

SCOUTING

STANDARD - IX

.. Complete the remaining 6 tests of second class as given previously.

2. First Class Tests.

Complete any 4 tests out of the 12 prescribed tests for First Class given below:

I. Swimming:

Swim 50 metres.

Know the safety rules of swimming and how to minimise and deal with muscle cramps:

OR

Pass one of the following proficiency badges:

Athlete, Gymnast, Hiker, Climber, Games Leader.

II. Camp Craft:

Demonstrate the following:

- i) Draw Hitoh, Fireman's chair knot, Man Harness knot and their uses and Diagonal lashing;
- ii) Pitching and striking a tent.

3) Signalling:

Send and receive a message in Morse at the speed of 15 signs a minute in English or in any Indian language; and understand the alphabetic check for numerals;

OR

Type two hundred words with not more than five mistakes in 15 minutes and show how to clean the machine and replace the ribbon.

4) Estimation :

With the help of improvised apparatus like Scout staff, estimate three distances, each not more than 500 meters, three heights each not more than 30 meters, three weights each not more than 2 kgs. and three numbers.

Note :- In each case the estimate must be within 25% margin of error.

5) First Aid :

- i) Know the position of the principal organs of the body.
- ii) Know the position of the main arteries; and be able to stop bleeding
- iii) Know how to recognise and apply first-aid to fractured arm, collar bone and lower leg.
- iv) Know the proper method of dealing with the following emergencies.
Road accident, fire, drowning, fainting and electric shock.
- v) Be able to throw a life-line with reasonable accuracy to distance of not less than 10 meters.
- vi) a) Know the general precautions for the prevention of any three of the following infectious diseases :-
Small-pox, measles, typhoid fever, cholera and dysentery.
b) Know precautions and care of ailments or diseases peculiar to the locality.
- vii) Know how to improvise and use a stretcher and demonstrate any three methods of carrying a patient.

6. Mapping :

Read and use a Survey of India Map : Draw a rough sketch map of a given area of not less than 15000 sq. metres by Triangulation method of a sketch map of a Road not less than one kilometer long by Road Traverse Method, and be able to find the north by day or Night without compass.

Note :- Where Survey of India map is not available, tourist map or road map may be used.

7) **Camping :**

- i) **Camp for at least three nights consecutively.**
- ii) **Know the use of the following :-
Knife, hand-axe, hand-saw chopper, hammer and wedges.**
- iii) **Be able to improvise either a shelter or a hut or a machan with available natural material for two persons to sleep in.**

8) **Recruit :**

Train a recruit to pass the Tenderfoot tests.

9) **Service :**

Tender social service for 8 hours as approved by the District Commissioner or his representative.

10) **Knowledge about Movement :**

- a) **Know the office bearers of the Local, District, State and National Associations, and also know the origin and growth of the Scout Movement in India.**
- b) **Have elementary knowledge of World Scouting.**

11) **Skills :**

Do any of the following :-

Carry out ordinary repairs to an electric gadget or a transistor or a radio.

OR

Repair a stove or a petromax lamp.

OR

Can a chair or weave a charpoy or make a basket or a mudha or a fan two feet square out of the available natural material.

OR

Replace the washer of a hand pump.

12) **Journey :**

- a) **Go on foot for a total distance of 15 kms alone or with another Scout or row a boat for a distance of 12 kms. or go on cycle for 30 kms and write a short report of the journey with special reference to any points to which he may be directed by the Examiner or the Scoutmaster and must submit the report within a week of the journey. This test should normally be the final one taken for First Class Badge.**

STANDARD—IX

Topic 1 : The National Pledge and the Soldier's Oath of Allegiance

The diversity of India's religious and social life and the emerging national unity since Independence. Close relation of National Defence and National Unity. National Integration and National solidarity. The National pledge as defined by the National Integration Council. Its far reaching implications. The meaning of oath of allegiance as administered to soldiers, sailors and airmen. The implications of the oath. The general responsibilities of citizens towards strengthening National Defence.

Topic 2 : Objectives of India's Defence Policy

Aim of National Defence. Defence of Nationhood. Objectives of National defence policy. To defend sovereignty and independence and the Territorial integrity of India. The implications of objectives.

The Indian Constitution. The guarantees of the four freedoms, democracy, secularism and social justice. Implications of these objectives and their national significance. The aim of National Defence is also to defend the Constitution.

Topic 3 : The Role of the Army in Peace and War

The army, Total strength of the Indian Army, Broad features of its organization, command and control. Peace time static formations and war formations. Commands corps, Divisions Brigades and Battalions, Areas and Sub Areas, Main branches of the Army.

Role of the Army in peace. To train for war. Importance of training in peace. Physical fitness and knowledge and handling weapons and equipment. The process of acclimatisation in special terrain. Training of soldiers and officers.

Role of the Army in peace. To assist the Civil Government in the maintenance of law and order and public well being. Internal threats to authority. Role of the Army in Communal disturbances, riots and strikes. Role of the Army in National Relief operations such as Floods, Fires and Earthquakes. The duties of the Technical arms of the Army. Role in patrolling sensitive Border Areas.

Role of the Army in War. To defend India at all costs. To prevent possibilities of border violation. To fight the enemy in case of armed aggression. To repulse the enemy attacks beyond the national borders. To cooperate with the Navy and the Air Force in the defence of India.

Topic 4 : The Role of the Navy in Peace and War

The Indian Navy. General Organisation of the Naval Forces. The Naval Headquarters. The Western Fleet and the Eastern Fleet, The various types of Naval Ships and their functions.

The Role of the Navy in Peace. To train for war. Importance of Training.

Physical fitness and knowledge and handling of ships and their armament. Technical nature of naval equipment. Specialised Branches of the Navy. Gunnery Signals and Navigation.

The Role of the Navy in Peace. Patrolling of the Coastal Areas. Observation and familiarisation with Trade routes and sea lanes, Liaison with neighbouring Navies in the Indian Ocean. Littoral Countries.

The Role of the Indian Navy in war. Patrolling of the Coastal area. To protect Indian Coastal areas against attacks by enemy ships. To prevent sea borne landings on any part of the coast, To protect merchant ships and convoys. To keep open the Sea Lanes.

Role of the Navy in War. To cooperate with the Army and Air Force in fighting against hostile attacks. The Fleet Air Arm. The Aircraft carrier and its role. The Copted Carrier and its functions, Anti Submarine operations.

Topic 5 : The Role of the Air Force in Peace and War

The Indian Air Force. General Organisation. Air Headquarters and the Air Commands Types of aircraft in the Force and their functions.

The Role of the IAF in Peace. To train for War. The nature of Air Force equipment and their armaments. Need for expert knowledge and practice for operating aircraft. The different Branches of the Air Force. The Flying Duties. Conversion Training. Signals and Navigation.

The Role of the Air Force in peace, Aerial reconnaissance and observation. Air violations of Indian Borders by hostile aircraft. Prevention of air violations. Air Transport for personnel and supplies going to distance regions like Ladakh. National Relief operations during Floods and Earthquakes. Reaching food, medicines and other supplies. Evacuation of casualties.

Role of the IAF in War to maintain freedom of the skies and to deny Indian air space to hostile aircraft. To carry out deep penetration in hostile areas and strategic bombing. Close support to ground operations. Air Transport. Interception of hostile aircraft. Dropping of Parachutes. To cooperate with the Navy and the Army in the defence of India.

Topic 6 : Functions of Civil Defence

Training and Preparation. Warning and Mobilisation. Control and operations Restoration of normalcy.

Topic 7 : Leadership Discipline and Training

Meaning of Leadership. Leadership of Great men like Shivaji, Rana Pratap, Gandhi, Nehru and Bose. essential quality of a leader. Development of leadership qualities at various levels-Knowledge, Practice, Self-reliance, Self-confidence. Espirit of Corps.

Meaning of Discipline, Discipline necessary for individual Groups and Nations. Factors determining discipline. Need for discipline in all fighting services. importance of training. Relation of discipline and training. Strength of good discipline and good training. Personal discipline in behaviour. Group discipline in conduct and actions.

Topic 8 : Gallantry Awards—Certain heroic actions

PVC Winner (65) Lt Col D.B.Tarapore-Central Indian House. Short story of the Tank Battle at Chawinda and the Action by Col Tarapore.

PVC Winner 71 War-from the Bangla Desh operations.

MVC Winners of Air Force 65 War. Keeler Brothes. Short story bringing out the heroic actions,

PVC to Air Force Officer in 71 War. Short story bringing out heroic actions.

MVC Winner Lt Commander Mahendranath Mulla of INS Kukri. Short story of the battle and the heroic action of Commander Mulla.

Stories of 3 Veerchakra Winners of 71 War. One each from the Army, the Navy and the Air Force.

An account of the Battle of Pirakanthi, An attack operation 1948.

An account of the Battle of Jhangar 1948. A defence operation.

An account of the Battle of Asal Uttar and Khemkaran 1965. The Tank Battle.

STANDARD—X

Topic 1 : The Organisation of an Infantry Company

An Infantry Battalion General Organisation. The Rifle Companies, Support and Administration Companies. Command and Control. The Organisation of an Infantry Company. Strength and functions of officers JCOs and NCOs.

The weapons and equipment of the Infantry Company. The Section weapons, the platoon weapons and the Company weapons. The role of the Company in the attack and in defence.

Topic 2 : The Tank—Organisation of an Armoured Squadron

An Armoured Regiment. The General Organisation. Squadron and Troops. The Detailed Organisation of a Squadron. Strength and functions of officers JCOs and NCOs.

The Tank-Description and characteristics. Light, Medium and Heavy Tanks weapons and armaments of a Tank. The Role of a Tank Squadron in attack & defence, co-operation with Infantry.

Topic 3 : The Gun—Organisation of a Battery of Artillery

A regiment of Artillery. General Organisation. Batteries and the troops. Strength and functions of officers JCOs and NCOs.

Various types of Artillery. The Light Regiment (Mortars) Field Guns. Medium Guns and Heavy Guns. Light and Heavy-Anti-Aircraft guns. The Mountain Artillery. Forward Ranging and Flash Spotting Batteries. The weapons and equipment of a Field Battery.

The role of artillery in attack and defence. The Artillery Fire Plan. Co-operation with Infantry and Tanks.

Topic 4 : Other Arms and Services in the Army

The importance of Inter Communication in War. The Radio and Telephone Communications. The Signal Regiments and Sign Battalions. General Organisation. Companies and Sections. Strength and functions of officers JCOs and NCOs. The Role of Signals in peace and war.

The importance of Engineers in Peace and War. The Engineer Battalions. General Organisation-Field Engineer Companies and Platoons. Field Park Company. Duties of Engineers in attack and defence.

Importance of ordnance in peace and war. Role of the ordnance. Procurement, Provisioning, storage and issue of ordnance stores; Arms Weapons Equipment. Sign Stores and Equipment and all general stores, General Organisation of ordnance Battalions. Various types of Depots-Base Advance and Forward,

Importance of the Supply and Transport system in war. Supply of the Ration, ammunition, Petrol oil and Lubricants. Various types of depots-Base advance and field Transport requirements. The three echelons of transport. Various types vehicles. The Army Service Corps Battalions. General Organisation. Supply Companies and Supply Points. System of supplies in war.

Importance of Electrical and Mechanical Engineers in War, Repair and Recovery in the field. The EME Battalions. General Organisation. The Light Aid Detachment and EME patrols. The workshop companies and Base workshop. Maintenance and inspection of vehicles. Backloading of vehicles. Chain of repair and recovery in the Field.

The Role of the Medical services in peace and war, Health of troops. General diseases and Battle casualties. The Army Medical Corps Battalions. The Regimental Officers and the Regimental Air Post. Treatment and evacuation of casualties. The Mobile Field Hospitals and base Hospitals. The specialist units. Surgical and Blood Transfusion teams Convalescence and Reinforcements Chain of Medical treatment and evacuation in the Field.

Topic 5 : Recruitment to the Army-Officers and Soldiers

The general rank structure in the Army Officers. JCOs and NCOs and Soldier Ranks of Officers JCOs and NCOs. Direct recruitment of officers through service selection Boards. The different types of Commissioned, Regular and Short Service. Terms and conditions of Services. Pay Allowances and Pensions. Training of officers Commission at NDA, IMA and OTS and Post Commission during service.

The Recruitment of the Soldiers. Enrolment Basic Training and attestation. Classification of soldiers by trades. Pay Allowances and Pensions. Colour and Reserve Service Promotion to NCOs ranks and JCOs ranks. Training of Soldiers NCOs & JCOs

Topic 6 : The Fighting Ship

The general organisation of the Navy. The components of Fleet. The Western and the Eastern Fleet. Types of ships. The Aircraft Carrier. The Cruisers Destroyers and Mine Sweepers and Submarines.

The aircraft carrier. General Description and Role. Armament and Equipment. The Cruisers-General Description. Armament and Role. The Destroyers-General Description. Armament and role. Mine Sweepers- General Description and role. Submarines.- General Description and role. Armament and Equipment.

Topic 7 : Executive, Technical and Non-Technical Branches and Trades of the Navy

The Command Control and Administration of the Fighting Ship. The Executive Branch. The Technical Branches. The Engineer Branch. The Electrical Branch and Signals. The Non-Technical Branches. Supply and Secretariat instructors and Medical Branch. Functions of each branch.

The Executive Branch Navigation. The Signals Branch. Inter Communication and Radar. The Role of the Fleet and the Task Forces in War.

Topic 8 : Recruitment to the Navy -Officers and Ratings

The general rank structure in the Navy. Ranks of Officers, Direct recruitment of officers through Selection Boards. Different types of Commission. Pre Commission Training at the Naval Academy, Cochin. Experience on Training Ship. Post-Commission Courses. Tenures at Sea and Shore establishments.

Recruitment of Naval Ratings. Enrolment Basic Training and attestation. Classification of ratings according to trades. Technical and non-technical trades. Terms and conditions of Service Colour and Reserve Service. Pay, Allowances and Pension. Promotion of Ratings to NCO ranks and Petty Officers.

Topic 9 : The Fighting Aircraft and Air Squadron

General Organisation of the Indian Air Force. Wings, Squadrons and Flights. Functional Classification. Fighter, Bomber, Transport. Reconnaissance and Photo Squadrons. Types of aircraft in various squadrons. Characteristics and Armaments.

Topic 10 : Branches and Trades in the Air Force

General nature of duties in the Air Force. Flying duties Pilots and Navigators. Technical Branches. Signals and-Communication. Equipment Branch. Non-Technical Branches-Administration, Accounts, Medical and Meteorology.

Topic 11 : Recruitment to the Air Force

General rank structure in the Air Force. Officers warrant officers and Airmen. Direct recruitment of officers through Selection Boards. The Pre Commission Training at NDA and the Air Force Academies, Post Commission Courses. The recruitment of Airmen. Terms and conditions of Service. Enrolment Basic Training and Attestation. Colour and Reserve Service. Promotion of Airmen to Warrant Officer Ranks.

Topic 12 : Organisation of Civil Defence at Central Level, State Level and Local Level and Civil Defence Services.

Organisation at different levels including list of important Services at local level and their aims. Organisation of different services and their tasks (with demonstrations &

Practicals) Broad outline of functions; the District Magistrate and Controller of Civil Defence. Co-ordination of (Railways) Cantonments. Industries, Municipal Autonomous Bodies, Govt. Offices etc.)

Topic 13 : The Services Selection Boards

General nature of competitive examinations for entrance to the Defence Services Examinations. Qualifications for various types of Commission. Educational and Academic qualifications. The written examination and the Services Selection Boards. Preparation for written Examinations.

A brief history of selection methods before 1939 during war time and after independence The Services Selection Boards. Organisation and functioning.

The general programme in the three day tests of the SSB, The indoor and outdoor tests. The how and what of standards of assessment. Some DOs DON'T for candidates.

Topic 14 : Testing of Personality by Intelligence Tests

What is personality-Instinctive reactions and acquired reactions. Reactions in different senses. Reactions between the viewer and the viewed. Individual reaction and Group reaction. Individual as member of a Group. Espirit de Corps.

Physical aspects of personality. Outdoor physical Tests. Complex of physical and Psychological reactions. What is meant by officer-like qualities? Detailed explanation. Non-verbal Intelligence Tests : Test No. 1. ; To test observation 8 illustrations and 8 practices.

Non-verbal Intelligence Test No. 2: To test observation. Illustration & Practice.

Non-Verbal Intelligence Test No. 3: To test observation Illustration & Practice.

Verbal Intelligence Test No. 1: To test quick thinking. Illustration and Practice.

Verbal Intelligence Test No. 2: To test reasoning and quick thinking. Illustration and Practice.

Verbal Intelligence Test No. 3: To test reasoning. Illustration and Practice.

General observations on intelligence tests. Urban and rural candidates. The medium of instruction. Types of schools, levels of education, Guardian's occupation, Caste, Religion, Language, Age, Income groups and status.

Topic 15 : Certain famous battles

The Army and Air Operations in Chamb 1965-1971.

Air operations in Bangla Desh 1971.

Operations of the Naval Task Forces off Karachi and Chittagong 1971.

The Battle of Jessore and Khulna 1971.

The battle of the Ghozi Camp-Rajasthan 1971.

An account of deep penetration commando Raid in Sind 1971.

The Multi pronged drive to Decca by land and Para drops. Cor B's amphibious landing. 1971.

10.5 CIVIL DEFENCE

Objectives :

To enable students to --

acquire the knowledge of the concept of Civil Defence including "Road Safety" understand the importance of Civil Defence in emergencies and peace time. develop ability to apply and adopt basic principles of safety and protection in Civil Defence.

appreciate the role of Civil Defence in national integration, security and defence. create an awareness of thinking of Civil Defence in various fields where Civil Defence is applicable.

develop educability for further training in Civil Defence and develop skills, aptitudes etc. which will be useful in emergencies of life, community and nation. inculcate the spirit of world-wide humanism.

Civil Defence	Topics	Standard		
		VIII	IX	X
		(Periods)		
	Outline of concept of Hazards & Aggression	10	10	10
	(a) Military			
	(b) Psychological			
	(c) Economic, cultural & social			
	(d) Revolution, Internal disturbances			
	(e) Natural Hazards, floods, Typhoon storms, fires, earthquakes.			
	(f) Accidents including road accidents, industrial hazards			
	Problems created by Aggression and Hazards. Total approach to meet the above problems. Need, concept, scope, importance, nature of Civil Defence.	6	6	6
	Civil Defence Organisation—Central, State, Local, International understanding :	6	6	6
	General outline of Civil Defence services-aims, objects organisation and functions (including Headquarters, Fire Brigades and other essential services).	12	12	12
Total		34	34	34

Road Safety Patrol

(i) Aims, functions, control and role of the R. S. P. in the community.	1	--	--
(ii) The Police Force with special reference to the Traffic Police	1	--	--
(iii) Operational duties of Road Safety Patrol	--	1	--
(iv) Code of conduct and discipline	--	1	--

Road Safety

		Standard	
		VIII	IX

Explain and Identify :

- | | | | |
|---------|--|---|---|
| (i) | Traffic, pedestrain, footpath, road, kerb, traffic lights, zebra and pelican crossings islands, bollard, refuge, divider, over-bridge or foot-bridge, sub way, moving & stationary vehicles powered two-wheeled and pedal cycles, large and small vehicles, fast and slow-moving vehicles. | 1 | 1 |
| (ii) | The correct method of walking on roads and on footpaths where one footpath exists-where no footpath exists-at night what to wear. | 1 | - |
| (iii) | Hazards-Playing on roads and near parked vehicles,crossing between parked vehicles and in front of buses-kite flying & chasing kites, alighting from the jumping & moving vehicles, throwing skins of fruits and the resultant dangers-conduct while sitting in a car, taxi, bus-skating. | - | 1 |
| (iv) | The correct method of crossing, the STOP-LOOK-LISTEN method of kerb drill-the methods of crossing at controlled and uncontrolled pedestrain crossings and junctions and at traffic lights. | - | 1 |
| (v) | Revision | - | - |

Traffic Control

- | | | | |
|---------|---|---|---|
| (i) | Manual signals | | |
| (a) | Single control and Y Junction | 1 | - |
| (b) | Dual Control and T Junction | - | 1 |
| (ii) | Traffic lights | 1 | - |
| (iii) | Drivers Traffic signals | 1 | 1 |
| (iv) | Road Traffic signs | 1 | 1 |
| (v) | Road Surface Markings | - | 1 |
| (vi) | Crowd control | - | - |
| (vii) | Different types of vehicles, their registration numbers in different states and series. | - | - |

Practical

- | | | | |
|--|--|---|---|
| Operation of Road Safety Patrol to include - | | | |
| (i) | Organisation and detailing a unit | 1 | - |
| (ii) | Operation at traffic signals | - | 1 |
| (iii) | Operation of School Bus Safety Patrol | - | - |
| (iv) | Boarding and alighting from buses safely and correctly | 2 | 1 |
| (v) | A table model-road lay out using miniture vehiles | - | - |
| (vi) | Show films on road safety | 1 | 1 |
| (vii) | Drill | 8 | 8 |

Total	20	20
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First aid

		Standard		
		VIII	IX	X

1.	Golden Rules of First Aid and description of First Aid Box	1	—	—
2.	Functions of human body—skeleton system.	1	—	—
3.	Fracture and dislocation, Definition-kinds-signs and symptoms-treatment in general.	1	—	—
4.	Blood circulation-kinds of haemorrhage-treatment (Pressure points, Tight Bandages)	2	—	—
5.	Wounds, severe injuries-burns-scalds-prevention and treatment.	1	—	—
6.	Bandages-types-teach. Triangular Bandages-			
	a) Head, plam, knee and foot-dressings	2	—	—
	b) Jaw, shoulder, hip and below	—	2	—
7.	Emergency methods of removing casualies -			
	a) With one rescuer-	2	—	—
	i) Human crawl			
	ii) Human crutch			
	iii) Pick-a-back			
	iv) Pick-a-back Reverse			
	v) Fireman's life			
	b) With two rescuers-			
	i) 2-, 3-, & 4-Handed Seat	—	2	—
	ii) Fore and Aft			
8.	Breathlessness (Suffocation) Causes-treatment.	—	1	—
9.	Poisons-methods of entering the human body-injection-inhalation swallowing-treatment.	—	1	—
10.	Shock-Definition-signs & symptoms-treatment.	—	1	—
11.	Insensibility and unconsciousness-Definition-treatment.	—	1	—
12.	Artificial Respiration - Two methods.			
	a) Holgen Neilsen & Sheafers	—	2	2
	b) Mouth to mouth, LAIF resuscitator.	—	—	2
13.	Triangular bandages (shoulder, Hip Splints-slings).	—	—	2
14.	Stretchers -			
	a) Loading/unloading			
	b) Blanfeting/Lashing			
	c) Improvisation			
	d) Stretcher Drill			
				4
	Total	10	10	10

Optional Subjects

STANDARD-1X & X

Candidates shall have to select any one of the following subjects as per the scheme given below :

Sr. No.	Name of Subject	Marks for Work-book	Marks for Practical	Total Marks
I.	Introduction to the World of Work AND Any two Work-Experience Projects from the list given below (25 Marks each) OR	50	—	
I.	Elements of Home Science. AND Two Work-Experience Projects	—	50	100
	i) Needle Work, Embroidery, Knitting and Crochet	—	50	100
	ii) Preparation of Nutritious Food (25 Marks each)			
II.	Technical	50	50	100
III.	Elements of Agriculture	50	50	100
IV.	Elements of Commerce and Accounts (As given on page 227)	50	50	100
V.	Elements of Fine Arts (Any one from the list given on page 227)	50	50	100
VI	Elements of Industrial Crafts (Any one from the list given on page 227)	50	50	100

1. Work-Experience

(Any two projects-25 Marks each-Total 50 Marks)

- | | |
|---|--|
| 1. Use of Common Tools | 13. Farm Operation |
| 2. Maintenance and Production of
School Science Apparatus. | 14. Poultry |
| 3. Maintenance and Elementary Repairs
Repairs of Radios. | 15. Preparation of Bread and
Biscuits. |
| 4. Preparation of Plastic Articles | 16. Pisciculture |
| 5. Batik Art | 17. Horticulture |
| 6. Preparation of Suitcases | 18. Bee Keeping |
| 7. Maintenance and Elementary Repairs
of Time-Pieces | 19. Preparation of Nutritious
food |
| 8. Elementary Plumbing | 20. Marine Fisheries |
| 9. Maintenance and Elementary Repairs
of Water Pump | 21. Animal Management |
| 10. Elementary Chemical Technology | 22. Maintenance and Elementary
repairs of Typewriters . |
| 11. Maintenance and Preparation of
Teaching Learning-Aids. | 23. Silk Screen Painting |
| 12. Needle work, Embroidery, Knitting
and Crochet | 24. Painting |
| | 25. Sign Board Painting |
| | 26. House Decoration |

II. Home Science & Work Experience Projects (2)**II. Technical****III. Elements of Agriculture****IV. Elements of Commerce and Accounts****Theory****Practical**Elements of **Book-keeping**

Typewriting

or

or

Elements of **Commerce****Practical Work in Commerce**

or

Economics**V. Elements of Fine Arts (Any one)**

1. **Drawing and Painting (History & Appreciation of Art & Practical OR**

4. **Dancing**5. **Clay Modelling and Ceramics**6. **Metal Craft****Work-Experience Projects**7. **Furniture Design****(Any two from the list given above)**8. **Textile Design**2. **Indian Music**9. **Interior Decoration**3. **European Music****VI. Elements of Industrial Crafts (Any one)**1. **Metal Fitting Craft**9. **Cane and Bamboo work**2. **Tailoring and Cutting**10. **Fisheries**3. **Embroidery & Needle Work**11. **Clay Modelling leading to pottery**4. **Typography**12. **Wood Work**5. **Radio Engineering and servicing**13. **Textile Technology Weaving (Power)**6. **Jr. Chemical Technology**14. **Textile Technology**7. **Plastic Technology**i) **Dyeing & Bleaching**8. **Handmade Paper-making**ii) **Engineering Drawing**15. **Preparation of Coir articles**16. **Photography**17. **Electronics**18. **Puppetry.****I. Introduction to the world of work****Objectives**

To enable the pupils to —

acquire knowledge about different types of occupations and their relevance to the needs of the people.

acquire knowledge about the factors to be considered in choosing one's own career.

understand the factors which are responsible for poverty of people and their relation to the World of Work.

4. understand principles and processes which have contributed to the economic prosperity of advanced countries like Japan, U. S. A. etc.
5. develop skills pertaining to small scale production centres,
6. develop the spirit of enquiry in the methods of production and management of small scale as well as large scale industries.
7. create interest in the study and analysis of different jobs,
8. appreciate the role of innovative practices in science and technology and their use in productive jobs.

STANDARDS-IX & X

a) Theory

1. Development of occupations

- i) Man's struggle for more and more comfortable life, on satisfaction of his needs his life becomes comfortable.
- ii) Primary need —
 - a) basic needs— Food, Clothing, Shelter.
 - b) Needs for better efficiency— i.g. Health, Education, Entertainment, Transport; Safety.
- iii) Secondary needs of comforts.
- iv) Needs are ever growing.
- v) Goods and services satisfy the needs.
- vi) The higher standard of living depends upon the greater use of quality goods and adequate services,
- vii) Man cannot produce by himself goods and services required by him consequently division of labour and diverse occupations occur.
- viii) Occupations continue to increase as man's needs increase.

2. Occupations in traditional society.

- i) Primary occupations : Food collection, Hunting, Fishery—Agriculture
- ii) Secondary occupations - Processing of primary products, Village craftsmen (बारा बलुती) cottage industries

3. Why Indian masses remained poor

- i) Varna system in India — The vanquished to labour for the victors. The conquerors enjoyed at the cost of the conquered. The vanquished were in great numbers but ignorant. Naturally there was no attempt for inventing labour saving devices in production.

The society remained traditional and static, caste system.

Production remained on the traditional lines. Poverty resulted as a consequence of insufficient production and the growing population.

- ii) The situation after the advent of the British Rule –
 - a) Aims and Objectives of British Education – To educate selected few for running Govt. administration.
Complete indifference for the education of the masses, illiteracy.
 - b) Growth of factories in Great Britain.
Export of Indian raw material for British factories. India as the biggest market for British Industries. So technical education in India was ignored.
Division of Society in white collared and labourers. Hence no progress in the field of production.
Growth of population. Poverty.

Occupations in Developed Societies

- i) Man's attempt to save human labour–Invention of machines–Fundamental machines–mechanical advantage.
Machines operated by external energies such as wind, running water etc.
Steam used for operating machines.
Industrial revolution in Europe.
Invention of some heavy machines.
The use of Petrol, gas, Electricity for operating machines.
- ii) The changes in the organisation of Primary and Secondary occupations due to the application of science and technology to be illustrated in relation to agriculture –
 - a) Processes involved – Soil study, Soil conservation, irrigation, mechanical operations, hybrid seeds, manures, insecticides, storing etc. occupations growing out of their processes.
 - b) Agro–industries – Sugar, Rubber, Tobacco, Foods, Salt, Food preservation, Agricultural tools and gadgets,
 - c) Dairy, Poultry, Piggery, Fishery, Forestry, the growth in the production and the occupations– due to the use of science and technology.
Hundreds of occupations grow around one central occupation– increase in the purchasing power of the people– Economic prosperity.

Methods of Industrial production

- i) Handicraft – the production of the complete article– Novel designs – joy of creativity – less production– high prices– limited poverty for the producer – the plight of Indian artisans.
- ii) Large scale production– job analysis,
 - a) Assembly line production,
 - b) Decentralised production of spare parts and their centralised Assembly productions– Switzerland and Japan. specialisation and

attainment of better skills leading to perfection. More production hence more remuneration.

Incentive Schemes.

The small scale industries being developed around big industries.

Man becomes a part of the machine, hence recreation and other labour welfare programmes become necessary—trade unions.

Pollution and ways to prevent it.

6. Principles of production

i) Consumption, Utility, Consumer, Production, Production of goods and services. Material and non-material means of production.

Consumption goods and production goods. Three types of production—Form, Place and Time Utility.

ii) Factors of production—

a) Natural resources

b) Capital

c) Labour

d) Organisation.

Occupations growing out of the factors of production.

Distribution of commodities giving scope for new occupations.

7. Economic planning in India after Independence

Five Year Plans, Large Scale Industries, Small Scale Industries – Cottage Industries, their importance in Indian economy.

Encouragement to cottage industries. Information about assistance from Government and other bodies, Bank loans etc. in the field of small scale industries.

Principle of Mixed Economy – Heavy Industries, dams and electrical projects. Industries in private sector, co-operative sector, Green and White revolution. Educational facilities expanded—objectives not changed—No skilled workmen, specialised jobs—no jobs for educated people. Economic growth did not keep pace with population growth—poverty increased.

8. Goals of Democratic Socialism

The needs of the common man must be met to remove poverty—Plentiful Production and proper system of distribution. Employment for all for raising their purchasing power. Hoarding, adulteration, unhealthy competition, improper profits, bribes leading to economic exploitation. Gulf between the rich and the poor—Measures to check them.

9. Citizen's responsibility and attributes in a democratic society.

i) Every citizen must perform some job of public utility.

ii) The knowledge, skills and attitudes necessary for production— Basic and specialised skills. Dignity of Labour, work, efficiency, innovation, self-reliance, Initiative and ability to take calculated risks.

The importance of efficient Management

The important aspects of management

Plant location, the efficient use of factors of production, purchase of raw materials and storing, Administration and control, maintenance, Personnel management. Precautions for industrial safety, Market studies, production and quality of finished products, packing, storage, transport, sale, Advertising, Budgeting and Estimates and maintenance of accounts,

Management of small concerns in different fields

1. Home Management
2. Farm Management
3. Management of production centre of essential commodities
4. Management of vehicles like taxis, rickshaws etc.
5. Management of a sale depot
6. Management of a maintenance and repairs centre.

Occupational Exploration

- i) Exploring the World of Work : exploration of occupation in terms of self-exploration.
- ii) Process of identification of man-occupation relationship.
- iii) Concept of an occupation- Role of an occupation in individual and social life. Acquiring occupation competence.
- iv) Basic knowledge, skills and personality traits applicable in different occupations e.g. physical, biological, economical and social environment.
- v) Orientation to occupations. First hand collection of information, through visits of men in selected careers alumni links.
- vi) Exploring self development in relation to occupations.
 - a) Intelligence, aptitudes, interests, personality traits, achievements. attitudes work, life goals, aspirations, health and physique, family background, achievement motivation, moral and spiritual values.
 - b) Bifurcation at secondary level (school stage).
 - c) Cluster of occupations per stream like agricultural, technical, commerce, trades etc,
- vii) Occupational guidance
 - a) Self analysis in choosing a career
 - b) Individual profile in relation to job profile
 - c) Surveys of local job facilities : regional, state, national
 - d) Self-employment opportunities
 - e) Employment market information.

N. B. Practical work of the students will have to be recorded in the W especially designed for the purposes.

13. i) General Education and Productivity

Only educated man can apply science and technology efficiently to processes hence the necessity of creating desired knowledge, skills and regarding their use in the educated people

Defects and illeffects of the present educational system.

Importance of Work-Experience in General Education, Recommendation Kothari Commission-Educational Policy of Maharashtra State-Work board based general education upto Std. X and then specialised education

ii) Philosophy of Work-Experience

- a) Development of intelligence through learning by doing.
- b) Change in the nature of work refreshes the mind.
- c) Manufacture skills including manual dexterity develop because eye coordination during the primary and secondary school stage required for handling tools can be learnt.
- d) One becomes aware as a member of the society, of his responsibility concerning production -- the awareness of the happy society, the system of large scale production and equitable distribution.
- e) Certain of more and more useful and beautiful things is requirement of man. In satisfaction of this cultural need a development of human personality takes place, otherwise development results.
- f) Consumer education -- to develop ability to choose useful articles being carried away by advertisements - to prevent adulterated Commodities,
- g) One understands one's inclinations and aptitudes.
- h) One develops the necessary qualities for self - employment.
- i) Work Experience projects useful to develop hobbies.

14. The school programme

The study of --

- a) the objectives of Work experience
- b) principles to be observed while selecting projects of Work-Experience schools.
- c) The projects of Work Experience in Std. VIII and Std. IX (as prescribed by the State Board of Secondary Education)
- d) The methods of teaching Work-Experience projects.
- e) Evaluation of work Experience Programmes.
- f) The practical examination in Work Experience

Work Experience Projects

STANDARDS-IX & X

1. Use of Common Tools

Objectives :

To enable the students to—

1. acquire knowledge regarding the structure and use of tools in day to day use.
2. develop the skills of handling the tools properly.
3. develop the skills of preparation of articles and simple repairs by using the tools.
4. develop an insight in the use of the modern techniques for simple repairs.
5. develop an attitude of self-reliance in undertaking simple repairs.
6. develop interest in collecting additional information and observing works of repairs.

Theory

To know the structure and use of the following tools :

- 1) Metal Saw 2) Wood Saw 3) Screw driver and connector 4) Chisel 5) Hammer 6) File 7) Bore blade 8) Tape and Die 9) Solder-Rod 10) Patashi 11) Diamond for cutting glass 12) Spanner set 13) Pipe-wrench 14) Raval Punch and plug 15) Tester.

Practicals

- 1) To bore a hole in a wall with a raval-punch and fix screws for exhibiting photos.
- 2) To replace a fuse.
- 3) To solder utensils.
- 4) To prepare a photo-frame.
- 5) To prepare a paper-weight.
- 6) To prepare a pen-stand.
- 7) To prepare a match-box stand.
- 8) To prepare a two-way spanner.
- 9) To prepare a ply-wood box.

2. Maintenance and Production of School Science Apparatus

Objectives :

To enable the students to—

1. acquire knowledge regarding scientific principles.
2. understand the application of scientific principles in day to day life.
3. develop the skill of preparing scientific instruments out of easily available material.

4. verify the scientific principles by using the instruments prepared.
5. develop the skill of performing experiments by handling different types instruments.
6. develop the skill of drawing accurately diagrams by using geometrical instruments.
7. develop interest in preparing, scientific instruments and handling the same experimentation.
8. develop scientific outlook.
9. appreciate the joy of creativity.

Theory

To acquire knowledge regarding the principles, rules, construction and working of the following :

- 1) Nature and position of the image of an object in a plain mirror.
- 2) Instrument for multiple images.
- 3) Compound-periscope.
- 4) Vernier-callipers.
- 5) Linear expansion of a thin wire
- 6) Ventilation.
- 7) Spring-balance.
- 8) Balance of a bottle and a wooden-clip.
- 9) Single steel-yard-balance.
- 10) Inclined-plane
- 11) Water-pressure-indicator.
- 12) Water-thermometer.
- 13) Water level.
- 14) Magnetic field.
- 15) Magnetic-needle.

Practicals

To prepare the following instruments :

- 1) Instrument for verifying the laws of reflection in a plane mirror.
- 2) Instrument for multiple images.
- 3) Compound-periscope.
- 4) Instrument demonstrating the process of ventilation.
- 5) Vernier-callipers.
- 6) Instrument for linear expansion of a thin wire.
- 7) Spring-balance.
- 8) Balance of a bottle and a clip.
- 9) Single steel-yard-balance.
- 10) Instrument for water pressure.

- 11) Water-thermometer.
- 12) Inclined-plane.
- 13) Instrument for demonstrating the principle :
 “ Water seeks its own level. ”
- 14) Instrument for showing magnetic attraction.
- 15) Magnetic-needle.
- 16) Two charts based on the science syllabus for Std. VII & VIII.

3. Maintenance and Elementary Repairs of Radios

Objectives

To enable the students to—

1. acquire information regarding the different parts of a radio.
2. acquire knowledge regarding the various tools for radio repairing.
3. acquire knowledge about the working of a radio.
4. develop the skill of handling different tools.
5. develop the skill of accurate reading of volt-meter, ammeter, resistance and multimeter.
6. detect the faults in the working of a radio.
7. develop the skill of repairing minor faults.
8. develop interest in handling the tools for simple radio-repairs.
9. develop the habit of listening regularly the radio broadcast supplementing the day-to-day study.

Theory

- 1) Different parts of a radio and their working.
- 2) Tools for radio repairing and their use viz, screw driver, plier, soldering gun etc.
- 3) Faults in the radio-causes and repairs.
- 4) Methods of assembling different parts of a radio.

Practicals

- 1) To observe and name the different parts of a radio.
- 2) To detach the radio chassis from the cabinet and to reset it.
- 3) To use the multimeter for measuring voltage current and resistance.
- 4) To set up the aerial.
- 5) To connect the loud-speaker and to set additional speakers to a radio.
- 6) To detect the faults in a radio.
- 7) To check and replace the valve.
- 8) To replace the cord of a radio.
- 9) To set up the public address system.
- 10) To assemble the radio.

4. Preparation of Plastic Articles

Objectives :

To enable the students to -

1. acquire knowledge regarding the development in the world of plastics.
2. get acquainted with various types of plastic material and their properties.
3. acquire knowledge regarding the raw material required for the preparation of plastic articles.
4. develop the skill in handling the injection mould machine.
5. develop the skill in the techniques of handling the process of buffing.
6. develop the skill in preparing ordinary plastic articles like buttons etc.
7. develop a liking for the use of plastic articles knowing its utility in day life.

Theory

- 1) History of the development of the world of plastics and use of plastics in various spheres of life.
- 2) Specific use of plastic articles in comparison with other articles.
- 3) Different varieties of plastics and their properties :
viz. Cellulose, Casein, Phenol, Urea, Melamine, P. V. C. Polytheleneic, Acrylonitrile, Polysterin, Nylon, Artificial plastic threads.
- 4) Method of welding by the processes of cutting and heating, method of preparing glue from plastic powder.
- 5) Knowledge regarding the equipment for production of plastic articles - injection moulding, die punch etc.
- 6) Information about powder required for preparation of plastic articles.
- 7) Different methods used for the preparation of ordinary plastic articles.
- 8) Knowledge about the plastic buffing.
- 9) Preparation of new powder from old plastic articles-various methods.
- 10) Mixing colour in plastic powder, preparing and painting articles.

Practicals

- 1) To observe and prepare a comparative statement of properties of various plastic articles.
- 2) To weld pieces of plastics by the process of heating.
- 3) To prepare liquid glue from plastic powder.
- 4) To observe and record the internal structure of the injection moulding machine.
- 5) To re-assemble the dismantled injection moulding machine.
- 6) To handle a mould for various operations like opening, closing, powder filling and setting it properly in the machine.

-) To prepare with the help of moulding machine articles like buttons, rings dishes small toys, letters, number by filling the die with plastic powder.
-) To prepare new powder out of old plastic articles.
-) To Prepare a coloured mixture out of white powder and to paint plastic articles.
-) To prepare the name plate.

5. Batik Art

Objectives:

- o enable the students to -
 -) acquire knowledge about the chemicals required for batik.
 -) develop the skill in the preparation of various colours required for batik art.
 -) develop the skill in preparing various types of designs.
 -) develop the skill of printing the various designs of cloth.
 -) develop aesthetic sense through different designs and colour combinations.
 -) develop interest in the use of chemicals for articles of decorative type.

Story

- 1) Importance and use of batik art.
- 2) Special features of batik designs.
- 3) Material for batik art.
- 4) Methods of preparing different designs.
- 5) Different kinds of waxes and their use in batik art.
- 6) Different colours and their mixtures.
- 7) Processes of printing design on cloth.

Practicals

- 1) To select proper cloth and despatch the same.
- 2) To prepare wax for batik art.
- 3) To bismear cloth with wax.
- 4) To prepare a design for printing.
- 5) To prepare colours and their mixtures.
- 6) To print the selective design on the cloth.
- 7) To iron the cloth after removing the wax.
- 8) To print a multicolour design on the pillow cover.
- 9) To prepare a traycover by printing multicolour design on it.
- 0) To prepare a handkerchief of bhadhani-design.

6. Preparation of Suit-cases

Objectives

To enable the students to -

- 1) acquire knowledge regarding the various tools required for preparation of suitcase
- 2) acquire knowledge regarding the material to be used in the preparation of suitcase
- 3) develop the skills in different operations in the preparation of a suitcase.
- 4) develop the skill in using the technique for preparing strong and durable suitcase having artistic design.
- 5) develop interest in the preparation of suitcases from the utilitarian point of view

a) Theory

- 1) Material required for preparation of suitcases and criteria for the selection of plywood, cardboard, rexzine, hinges, glue, lining-cloth, cardsheets, elastic.
- 2) Tools and their use for preparation of suitcases viz - measuring scale, trisquare, marking gauge, hand saw, jack plane, drilling machine, bore blade, hammer, screw extractor, plier, scissors, brushes, scale design of a suitcase.
- 3) Various processes involved in the preparation of suitcase i. e. cutting of cardboard, fixing the joints, fixing rexzine, strengthening the edges and corners.

b) Practicals

- 1) To observe and record dimensions of a readymade suitcase.
- 2) To prepare a design of a suitcase as per scale.
- 3) To select pieces of wood and plywood of proper sizes for cutting and planing.
- 4) To cut pieces of cardboard and rexzine of the required size.
- 5) To prepare a skeleton of a suitcase by joining different pieces of wood and plywood.
- 6) To fix the rexzine on the case with glue.
- 7) To fix the handle, hinges and locking arrangement at the suitcases.
- 8) To strengthen the edges and corners properly.
- 9) To perform various operations on the internal and external structure for artistic finish.

7. Maintenance and Elementary Repairs of Time-pieces

Objectives

To enable the students to -

- 1) acquire knowledge regarding the structure and principles in the working of time-piece.
- 2) acquire knowledge regarding the use of tools required for repairing time-pieces.

- 3) develop the skill in the maintaining, cleaning and oiling a time-piece.
- 4) develop the ability of detecting the faults in a time-piece.
- 5) develop the skill in repairing, detecting the faults and to effect minor repairs.
- 6) develop an attitude of careful use of a time piece.

theory

- 1) Principles involved in the working of a time-piece.
- 2) Tools and equipment required for time-piece repairs.
- 3) Different parts of a time-piece, its working and inter-relationships such as spring, main wheel, centre wheel, other wheels, lever, balance wheel, dial frame and alarm mechanism etc.
- 4) Major defects and measures for removing the same.
- 5) Precautions in day-to-day use of the time-piece.
- 6) Methods of cleaning and oiling the time-piece.

practicals

- 1) To open and to observe the various parts of the time-piece.
- 2) To perform the operations of cleaning and oiling a time-piece.
- 3) To detect major defects in the time-piece.
- 4) To effect necessary changes to remove the minor defects.
- 5) To replace unserviceable parts of a time-piece.
- 6) To dismantle a time-piece.
- 7) To draw and label the sketches of different parts of a time-piece.
- 8) To reassemble the time-piece.

8. ELEMENTARY PLUMBING

Objectives:

To enable the students to —

- 1) acquire knowledge regarding various pipe systems used in water supply.
- 2) acquire knowledge regarding tools and material of plumbing.
- 3) develop the ability of detecting the faults in pipe system.
- 4) develop the skill in removing the defects in pipe system,
- 5) develop the attitude of self-reliance in minor repair.

theory

- 1) Broad outline of the water supply system.
- 2) Pipes of different sizes and their use.
- 3) Methods of different pipe systems and their use.
- 4) Tools and their use in elementary plumbing.
- 5) Common defects in pipe systems and their repairs.
- 6) Construction and working of a water-meter.
- 7) Various types of taps & their cocks.
- 8) Construction & working of flush tanks.

Practicals

- 1) To observe and record the working of a household pipe system.
- 2) To draw the sketches of different types of pipe system.
- 3) To fix a tap.
- 4) To increase the length of a pipe-line with the help of a joint.
- 5) To fit a branch pipe-line.
- 6) To stop leakage in the pipe-line.
- 7) To read and record a water meter.
- 8) To repair a leaking tap.
- 9) To locate the faults in a flush tank and repair the same.

9. Maintenance and Elementary repairs of a Water Pump

Objectives :

To enable the students to –

- 1) acquire knowledge regarding the structure of a water pump.
- 2) understand the scientific principle in the working of a water pump.
- 3) develop the skill in detecting the defects in the working of a water pump.
- 4) develop the skill in the handling the tools required for pump repairs.
- 5) develop the skill in undertaking minor repairs to a water pump.
- 6) develop curiosity in collecting the information about various mechanical facilities.

Theory

- 1) Construction and working of a water pump.
- 2) Scientific principles involved in the working of a water pump.
- 3) Tools for pump repairs and their use.
- 4) Methods of setting a pump.
- 5) Defects of working of a pump and measures of removing the same.

Practicals

- 1) To observe and record the working of a water pump.
- 2) To dismantle a water pump.
- 3) To clear a water pump.
- 4) To perform the operations of oiling and greasing of a water pump.
- 5) To stop the leakage in a water pump.
- 6) To check and replace a damaged valve.
- 7) To check and replace the bearings.
- 8) To assemble the parts of a pump.
- 9) To connect a water pump to an electric motor.

10. Elementary Chemical Technology

Objectives :

To enable the students to –

- 1) acquire knowledge regarding the techniques of preparing articles of everyday use like soap, ink, tooth-powder, snow, chalk-sticks, etc.

- 2) acquire knowledge regarding the material required of preparation of such articles.
- 3) develop the skill in the preparation of such articles.
- 4) develop interest in collecting information for knowing the modern techniques for the preparation of such articles.
- 5) develop the attitude of self-reliance and economy by using home-made articles.
- 6) understand the importance of these articles in small scale industries.

Theory

- 1) Precautions to be taken while using chemical substances.
- 2) Distinction between hard and soft water. Washing and scented soaps, Study of the processes involved in the preparation of a soap. Properties and uses of a soap.
- 3) Different varieties of ink. Method of preparing pen-ink.
- 4) Different varieties of tooth-powders. Methods of preparing white and black tooth-powders, hygienic properties of the raw material used in the preparation of a tooth-powder.
- 5) Perfumed oils and scented powder, their use; properties and methods of preparation.
- 6) Ingredients of snow, special features of good snow and method of preparation.
- 7) Ingredients of chalk sticks, their properties, preparation of ordinary and coloured chalk sticks.
- 8) Gum and Saras, their preparation and properties.
- 9) Properties of different colours, colours soluble in oils, white and colour oil paints, methods of their preparation.
- 10) Scientific principles in the process of electroplating.

Practicals

- 1) To test hard and soft water.
- 2) To prepare the following articles :-
(1) Washing soap, (2) Pen ink, (3) Ball pen ink, (4) White tooth powder, (5) Black tooth powder, (6) Scented powder, (7) Perfumed oil, (8) Snow, (9) White and coloured chalk sticks, (10) Gum and saras, (11) Whitecoloured and oil paints, (12) Electroplating a copper coil.
- 3) To test the properties of perfumed oil and snow.

11. Maintenance and Preparation of Teaching-Learning Aids

Objectives :

To enable the students to -

- 1) understand the utility of various types of aids in the process of learning.
- 2) develop the skill in reading diagrams and graphs.

- 3) develop the skill in drawing accurate and neat diagrams as per given scale.
- 4) acquire skills in cutting, joining, painting and preparing finished model.
- 5) develop the skill in the effective use of aids for learning.
- 6) develop an insight into the relationship between the work at hand and its utility, in real life situations.
- 7) develop an insight in to the use of cheap and easily available materials for production of teaching-learning aids.
- 8) develop a sense of appreciation through creativity.

Theory

- 1) Different types of educational aids i. e. pictures, graphs, models, machines, etc.
- 2) Use of educational aids in learning.
- 3) Methods of preparing learning aids for the subjects of Geography, Science, Mathematics.
- 4) Methods of preparing educational aids out of and easily available material, its use and limitations.

Practicals

- 1) To prepare earth globe out of paper pulp and to indicate any two of the following: (1) Latitude, Longitude, and international line, (2) World winds, (3) Sea gulfs, (4) Natural regions.
- 2) To prepare a relief map using paper pulp any two of the following : (1) India, (2) Maharashtra, (3) North America, (4) Australia OR to prepare a model of a dam indicating how electricity is generated by use of water and how water is used for irrigation.
- 3) To prepare any two stencils out of the following with the help of cardboard or plywood : (1) India, (2) Maharashtra, (3) Africa, (4) South America.
- 4) To prepare model of solid figures like parallelepiped, cylindercone, polyhedra out of stiff paper or cardboard.
- 5) To prepare a Pascale's triangle.
- 6) To prepare Napier's multiplier.
- 7) To prepare models for geometrical representation of the expansions of the following : $(a + b)^2$, $(a + b + c)^2$ and $(a + b)^3$.
- 8) To prepare a 5×5 pin-board to acquaint the students with different geometrical figures and their inter-relationship.
- 9) To prepare a calculator for addition and subtraction for Nos. from 0 to 99.
- 10) To prepare an angle measurer for surveying.

12. Needle Work, Embroidery, Knitting and Crochet

Objectives

To enable the students to—

1. acquire knowledge about different tools of needle work, knitting and embroidery.
2. understand basic principles of working with tools.
3. develop skills in handling and using the tools.
4. develop aesthetic sense.
5. create interest in needle work, knitting, embroidery etc.

Theory and Practical

1. Knitting—baby coat—Use of two needles.
2. Embroidery—Table cloth and pillow covers using the following stitches, Kashmiri, Satin, Bullion, Queen, Feather.
3. Crochet work—Lace for Petticoat [परकर.]

13. Farm Operations

Objectives

To enable the students to —

- 1, acquire knowledge regarding the tools and equipment, seeds, fertilizers and insecticides to be used in farming.
2. develop the skills in handling equipment for farming.
3. develop the skill in pre and post cultivation operations—sowing, manuring, dusting and spraying insecticides and storing the produce.
4. develop the ability of using modern agricultural techniques.
5. develop a liking for farming as a profession.
6. understand the importance of this profession.

Theory

1. Factors affecting the fertility of the soil viz- gradation and type of soil.
2. Chemical processes in the soil, 'PH' value.
3. Ingredients of soil having retentivity of water, water in the soil, intermolecular attraction, surface tension and gravitation of force.
4. Precultivation operations—draining of excess water from the soil, knowledge about the implements for cultivation of selected crops.
5. Physical growth of plants.
6. Sterilisation of seeds before sowing and use of insecticides.
7. Cultivation of seeds and use of fertilizers.
8. Use of tools for post cultivation operations.

9. Fertilizers, their main ingredients, their effect on crops and importance of mixed fertilizers.
10. Diseases of crops, external symptoms and preventive and curative methods.
11. Criteria for detecting crops ready for harvesting, methods of harvesting.
12. Need for gradation of crops, methods for gradation.
13. Ways and means for transporting the crops to the market.
14. Accounts in farming.
15. Importance of improved varieties of seeds and ways and means to secure them.

Practicals

1. To study the physical properties of soil on the spot.
2. To find the PH value of the specimen of soil.
3. To verify the rise of water in the soil by surface tension.
4. To prepare the soil for cultivation by using plough, kudal and dind.
5. To cultivate the seeds.
6. To graft the plants.
7. To perform post cultivation operations for proper growth of crops.
8. To prepare a mixed fertilizer out of different types of fertilizers and to manure the crops.
9. To recognise the disease from external symptoms.
10. To dust or to spray the necessary insecticides.
11. To harvest the crops by digging and uprooting.
12. To identify the grade of the crop.
13. To dispatch crops to the market by labeling suitably the gunney bags or Bamboo baskets.
14. To ascertain the profit and loss after taking into consideration credits and debits.
15. To write an application to the proper authorities for securing seeds.
16. Visits to different crops for study of cultivation, fertilizers, diseases, accounts etc.

Crops for Study

Kharip	Rabbi
1. Potato (Chandramukhi)	1. Potato (Kupari Shiaduri).
2. Onion (for vegetables)	2. Onion (for seeds).
3. Radish	3. Radish
4. Sweet root	4. Sweet root
5. Nil	5. Gajar

14. Poultry

Objectives

To enable the students to -

1. acquire knowledge of the special features of the physical structure of birds.
2. get acquainted with different facets of bird life.

3. develop the skill in the use of modern techniques of poultry.
4. diagnose the different types of diseases of birds and to take proper curative measures.
5. study the economics of poultry.
6. develop the liking of poultry.

Theory

1. Place and importance of poultry as an independent and supplementary professions.
2. Different types of eggs—unfertilized, fertilized, fresh, stale egg.
3. Different varieties and types of poultry birds—producing eggs, used as food stuff.
4. Physical structure (anatomy) of birds and production of eggs.
5. Natural and artificial methods of incubation of eggs.
6. Bird and chicken care.
7. Accommodation for poultry birds, Sight and other equipment.
8. Poultry birds diet—ingredients and proportion.
9. Ways and means of improving ordinary birds.
10. Methods of preservation of eggs.
11. Common diseases of poultry birds and preventive and curative measures.
12. Economics of poultry.

Practicals

1. •To observe and record the working of different sections of poultry centre.
2. To distinguish between different eggs by lamp or torch and to record the symptoms of good and bad eggs.
3. To study the actual specimens of different types of birds and to record their characteristics.
4. To draw the diagram showing external and internal structure of the poultry birds and to label the same.
5. To handle an incubator and to prepare a suitable model for domestic use.
6. To record at various stages of the nutrition and care of the poultry birds right from incubation of eggs.
7. To prepare the food mixture for birds and to collect food materials for the birds available in the market.
8. To observe and record the various methods of increasing the breeding capacity of ordinary birds.
9. To clean the bird's fields .
10. To diagnose and to arrange for curative measures for the diseased birds.

11. To keep accounts of the poultry centre and to study the methods of accounting at other centres.

15, PREPARATION OF BREAD AND BISCUITS

Objectives

To enable the students to –

1. get acquainted with the equipment for preparation of bread and biscuits.
2. acquire knowledge regarding food materials, methods of preparation of biscuits and special processes for preservation of food materials,
3. understand the difference between nutritious and ordinary bread prepared out of maidha.
4. develop the skill in handling the material and equipment for preparation of bread and biscuits.
5. develop the skill in preparing different types of bread, biscuits and cakes.
6. develop interest in using bread and biscuits as supplementary food.

Theory

1. Merits and demerits of bread, biscuits and other food material.
2. Material, their proportion and equipment for the preparation of bread and biscuits
3. Different varieties of bread, biscuits and cakes and their comparative properties.
4. Various methods of preparing breads and biscuits.
5. Methods for enriching the nutritious content of breads and biscuits.
6. Modern techniques of preservation of bread and biscuits.

Practicals

To prepare the following types of breads :

1. Atta bread.
2. Wheat bread.
3. Milk bread.

To prepare the following types of biscuits. :

4. Sweet biscuits.
5. Salt biscuits.
6. Proteinised biscuits.
7. To prepare " Nankatai " biscuits :

To prepare cakes of following types :

8. Ordinary cake.
9. Decorative cakes.

- 10) Fruit cakes.
- 11) Pan Cakes

16. PISCICULTURE

Objectives

To enable the students to—

1. acquire knowledge regarding the anatomy and life cycle of fresh water fishes.
2. collect information about the fisheries in the State of Maharashtra in particular and India in general.
3. develop the skill in handling the equipment for fishing.
4. develop the skill in preparing simple tools for fisheries.
5. handle different methods of preservation of fishes.
6. develop interest in the collection of different varieties of fishes.
7. develop a liking for pisciculture.

Theory

- 1) Varieties and types of fresh water.
- 2) Fish anatomy, duration of reproduction, characteristics, habits and growth of fresh water fishes.
- 3) Fresh water fishes : Rohu, Catla, Mrigal, Ciprinus, Tilapia, Maral, Walshivada, Tambir, Kolashi, Kalabasu, Shingala, Study of the life cycle of any three local varieties.
- 4) Selection of a pond or a lake, selection of varieties of fish, marketing, season for breeding, proportion planning for breeding, nutrition for the production of fishes.
- 5) Methods of fish preservation.
- 6) Methods of preparing different recipes of fish.
- 7) Methods of preparing equipment for catching fish and their application.
- 8) Different types of useful products prepared from fish.
- 9) Modern techniques and equipment for fishing.
- 10) Economics of fish production.
- 11) Fish marketing and working of fisheries co-operative societies.

Practicals

- 1) To observe and record the characteristics of different varieties of fresh water fish.
- 2) To draw a sketch showing the internal and external Structure of fresh water fish.

- 3) To dissection and study of internal structure of fresh water fish.
- 4) To observe and record the life cycles of at least three varieties of fish available in the locality.
- 5) To prepare simple equipment for fishing.
- 6) To develop the skill in catching fish in a pond or a river by using ready-made equipment.
- 7) To preserve the given specimens of fish by the process of salting.
- 8) To prepare a small aquarium.
- 9) To keep accounts of pisciculture.
- 10) To visit the aquarium and record the observations.

17. HORTICULTURE

Objectives :

To enable the students to--

1. acquire knowledge regarding growth of plants.
2. acquire knowledge regarding various methods for cultivating plants.
3. develop the skill in handling the tools and equipment for horticulture.
4. develop the skill in nurturing and protecting the plants.
5. develop the skill of detecting various plant diseases and to take suitable preventive measures.
6. develop interest in the life cycle of plants.
7. develop aesthetic sense in horticulture.

Theory

- 1) Scope and limitations of horticulture.
- 2) Selection of the site and planning.
- 3) Selection of different varieties of plants and proper fencing arrangements for horticulture.
- 4) Use of various tools in horticulture.
- 5) Different methods of precultivation operations.
- 6) Cultivation and transplantation of nursery bed
Plant care and protection, use of fertilizers and insecticides, bunding and watering the plants, harvesting the fruits and flowers and their methods of distribution.
- 7) Accounting of horticulture, how and why?

Practical

- 1) To select the proper site for horticulture and to decide the grade of the soil.
- 2) To plan a garden.
- 3) To prepare land for the garden by precultivation operations.
- 4) To fence the selected sites.

- 5) To cultivate the plants for fencing.
- 6) To prepare small beds for plants and to design vatika.
- 7) To plant different varieties of flowers and fruits.
- 8) To transplant plants.
- 9) To nurse transplanted plants.
- 10) To water and to fertilise the plants.
- 11) To dust and spray insecticides for prevention of diseased plants.
- 12) To harvest the flowers and fruits.
- 13) To preserve flowers and fruits.
- 14) To pack and despatch flowers and fruits to the market.
- 15) To keep accounts of horticulture.

18. BEE KEEPING

Objectives :

To enable the students to —

1. get acquainted with history of bee keeping and its present status.
2. understand the special characteristics and life cycles of bees.
3. collect information about various types of plants giving honey and poluns.
4. develop the skill in handling tools for apiculture.
5. develop the skill in bee-keeping.
6. develop attitudes of cooperation, division of labour, industriousness, service to community etc. by the study of general organisation of life cycle of bees.
7. develop interest in apiculture.

Theory

1. History of apiculture, traditional methods of honey collection, their advantages and disadvantages, modern techniques of bee keeping.
2. Different varieties of bees, Indian bees, their habits, life cycle and community living.
3. Physical structure and special features of bees.
4. Importance of structure of flowers, nectar and poluns in bee feeding, floral calendar, suitable atmosphere for pollination.
5. Equipment of apiculture.
6. Selection of apiary site, capturing and settling of natural colonies.
7. Management of bee colonies, inspection, feeding, union division and extraction.
8. Different methods of collecting honey and wax.
9. Diseases and enemies of bees and their preventive measures.
10. Ingredients of honey and their importance in diet.

11. Criteria of purity of wax and concomitant bee-products.
12. Role of bees in pollination, fertilisation and growth of plants.

b) Practical

1. To observe and record the working of an apiculture centre.
2. To select a site for apiary and hiving a colony.
3. To arrange apiary
4. To look after the growth of flowers.
5. To manage the apiary during monsoon prior to honey flow and during the honey flow period.
6. To take preventive and creative measures against the enemies of bees.
7. To collect honey and wax.
8. To test the purity of honey and wax.
9. To bottle and seal honey.
10. To keep accounts of an apiary.

19. PREPARATION OF NUTRITIOUS FOOD

Objectives :

To enable the students to—

1. acquire knowledge regarding the merits and demerits of the present diet.
2. acquire knowledge about the ingredients of diet like proteins, minerals and vitamins and their importance in nourishment.
3. collect information about the ingredients of diet and their corresponding proportion in foodstuffs.
4. develop skill in different methods of cooking.
5. develop the skill in preparing hygienic and nutritious food materials with easily available resources with economy.
6. develop the skill preparing new recipes from food stuffs.
7. arouse awareness amongst family members for bringing about suitable changes in their food habits.
8. develop interest in the preparation of nutritious and delicious recipes,

a) Theory

1. Food habits of common man in Maharashtra.
2. Merits and its effect, need of proteins, minerals and vitamins for health symptoms due to deficiency of the same.
3. Food materials rich in proteins, minerals and vitamins and their properties.
4. Different methods of cooking and their comparative advantages and disadvantages.
5. Plans to secure proteins, minerals, vitamins from locally available food material.

Practical

1. **Proteins—**
to prepare four recipes including two sweet and two spicy.
2. **Minerals—**
to prepare four recipes including two sweet and two spicy.
3. **Vitamins—**
to prepare four recipes including two sweet and two spicy.
4. To classify the recipes according to nutritious value.
5. To prepare recipes rich in proteins, minerals and vitamins viz.
1) Halva, 2) Vadya, 3) Shira, 4) Ladoos, 5) Dhamate, 6) Thalipeeth,
7) Different types of vegetables, 8) Salads and 9) Chatani,

20. MARINE FISHERIES

Objectives :

To enable the students to—

1. acquire knowledge about the marine fishes and their varieties.
2. know the historical background of marine fisheries of Maharashtra in particular and India in general.
3. acquire knowledge regarding reproduction, life cycle, anatomy of marine fishes and their use.
4. develop the skill in preparing equipment for marine fishing.
5. develop the skill in handling the equipment for marine fishing,
6. develop the skill in the method of preservation of marine fishes.
7. develop interest in the modern techniques in marine fisheries.

) Theory

1. Varieties and types of marine fishes.
2. Characteristics, anatomy, reproduction habits, migration and growth of marine fishes.
3. Study of life cycle of any three locally available varieties of fish viz. Bombay Duck, Black Pomfret, Ravas, Shark, Mackerel, Jitaba, Bel, Seerfish, Catfish.
4. Tool for marine fishing and their use.
5. Methods of marine fish preservation.
6. Methods of preparing recipes of fish.
7. Useful fish products.
8. Modern techniques and equipment for marine fishing.
9. Economics of marine fisheries : sale and purchase of marine fish, working of co-operative societies for marine fisheries.

b) Practical

1. To prepare and record the habits and life cycles of different varieties of marine fishes.
2. To prepare equipment for marine fishing.
3. To catch marine fishes.
4. To preserve marine fishes by the processes of salting.
5. To prepare and despatch sealed packets of marine fishes for sale.
6. To keep accounts of marine fishery.

21. ANIMAL MANAGEMENT

Objectives :

To enable the students to—

1. get acquainted with animal life.
2. develop the basic skills in animal management.
3. develop scientific attitude towards animals management.
4. develop a friendly attitude towards animals.
5. develop interest in animal management.

a) Theory

1. Importance animals in Indian farming.
2. Physical structure of animals.
3. Physical characteristics of farm cattle.
4. Physical characteristics of milch cattle.
5. Varieties of farm cattle.
6. Types of milch cattle.
7. Fodder for cattle and its types.
8. Cattlebyres.
9. Hygienic of a cattlebyre.
10. Symptoms of sick cattle
11. Cleanliness of cattle.
12. Hygienic methods of milching
13. Ingredients of milk and their food value.
14. Cattle improvement.
15. Calf rearing.
16. Economics of dairying

Practicals

1. To visit and to observe and record Goshala.
2. To clean a cow shade.
3. To handle different methods of feeding the cattle.
4. To diagnose common diseases of cattle and to take preventive measures.
5. To milk a cow and a (she) buffalo.
6. To store and preserve properly fodder and other nutritious food for cattle.
7. To prepare special fodder for the cattle by mixing husk and other ingredients.
8. To cut properly grass and kadaba.
9. To vaccinate the cattle under supervision.

22. MAINTENANCE & ELEMENTARY REPAIRS OF TYPEWRITER

Objectives :

enable the students to –

1. acquire information regarding the different parts of a typewriter.
2. acquire knowledge regarding the use of different tools required for repairing a typewriter.
3. acquire knowledge about the working of a typewriter.
4. develop the skill in maintaining, cleaning and oiling of a typewriter.
5. develop the skill of handling the different tools.
6. detect the faults in the working of a typewriter.
7. develop the skill of repairing the minor faults in a typewriter.
8. develop the attitude of careful use of a typewriter.

Theory

1. Different parts of a typewriter and their working.
2. Various tools required for servicing and repairing and their uses. e.g. pliers, spanners, screw drivers etc.
3. Major defects and measures to removing the same.
4. Method of servicing the typewriter.
5. Precautions of maintaining a typewriter in a perfect working condition.
6. General information about different makes and models of typewriters.

b) Practical

1. To open typewriter and observe and name the various parts in a typewriter.
2. To perform toe operations of servicing - cleaning and oiling of a typewriter.
3. To detect defects in a typewriter.
4. To effect necessary change to remove the minor defects.
5. To replace the unserviceable parts of a typewriter.
6. To fix the ribbon after removing the worn-out one.
7. To remove and to fit the carriage of a typewriter.

23 SILKSCREEN PRINTING

Objectives :

To enable the students to :

1. acquire practical knowledge regarding the tools, equipments and process silkscreen printing.
2. develop technical skill and sense of design through the printing efforts.
3. learn to decorate objects by employing the printing process.

STANDARD - IX

a) Theory

To know the use of the following tools and equipments, Wood saw, Screw drive Chisel, Hammer, File, Patashi, Spanner set, Drilling equipment, Randha, Iron (इस्वी) Rubber squawgges, Printing Table, Pncer, Screen Frames and Screen Cloth and Scre printing colours.

b) Practical

(Preparing Silk Screen frames with the help of carepenter) Stretching of silkscreen cloth on the prepared frame, To prepare shellac solution of fish glue and use them as preventing coats.

Tracing the designs on the screen for the purpose of stencil.

Thus the screen frame is ready for printing.

Colour and Printing

On paper, cloth etc.

Subjects :

To print a handkerchief,
Scarf,
Pillow covers,
Greeting cards etc.

STANDARD - X

) Theory :

To know the use of tools, equipments and material processes.

Tools and Equipments :

Screen stretching table, Printing table, Screen printing colours, Binders, Fixer and required chemicals.

Processes

Fish Glue process, Shellac process.

Information regarding PVA solution process.

) Practical

Stretching and fixing the screen cloth on the printing frame. Transferring the design on the silk screen by tracing and applying the preventer mediums. Frame is ready for print.

Colour and Printing :

Preparation of colours with proper binders and fixers.

To Print :

A Table cloth.

Saree Borders and Palav.

On Kurtas and T shirts.

Invitation cards and Greeting cards.

Purses and shopping bags.

Neckties etc.

24. FABRIC PAINTING

Objectives :

To enable the students to :

1. acquire skill of designing and painting on various Fabric surfaces.
2. develop practical skill with the brush and a sense of colour combinations.
3. learn to decorate objects (Fabrics) of furnishing and personal wear.

STANDARD-IX

a) Theory

To know the use of brushes, drawing papers, natural printable surfaces like onion, potato and other farm vegetables; various types of fabrics, poster and fabric printing colours, printing table, inking pads and plates for colour mixing.

b) Practical

To take prints on paper by poster colours with the help of natural printing surfaces of vegetables, obtain patterns and repetitions using varied colours

Painting by brush preparatory patterns and designs.

Printing on varied Fabrics with the help of natural vegetable surfaces (fabric colour), manual designing by brush.

Objects :

To prepare -

Handkerchiefs, Scarfs, Pillow Covers, Tea Cosy, Shopping bags etc.

STANDARD-X

a) Theory

To know the use of stencil cutting nib, stencil paper, stencil brush, rubber sponge, poster colour, Oil and fabric colours, varnish: turpentine etc.

b) Practical

To take prints on various fabrics by stencil method. To paint various design motifs on fabrics by brush.

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Objects :

To prepare-

Table cloths,
Sarree borders and Palav,
Kurtas and T Shirts,
Window and Door curtains,
Wall hangings.

25. SIGN BOARD PAINTING

Objectives :

To enable the students to :

1. acquire the useful skill of designing and fashioning the letters as direct communications.
2. develop practical skill in lettering of various styles and fashions.
3. learn to utilise enamel and varnish paints on wood, metal, hardboard surfaces.

STANDARD-IX

a) Theory

To know the use of brushes, oil paints, surfaces of hard board, wood, metal sheets. To use skillfully the compass, ruler and other tracing material in sign board painting. To learn sharp colour combinations and proper mixing.

b) Practical

To prepare the right kind of surfaces of wood, plywood, sheet metal, hard-board etc. by coating them with varnished colours (ground), Designing letters with accept on easy readability and attractiveness, Transferring the letters on sign board surface and painting.

Objects :

To prepare-

small sign boards, for office purpose and residential purpose ;
indicator for various purposes.

STANDARD-X

a) Theory

To know the use and preparation of surfaces such as sheet metal, wood, plywood, hard board, canvas cloth stretched on frame in various sizes.

To learn sharp communicative colour combinations and bold lettering use of stenciling and spray gun.

b) Practical

To prepare the right kind of surfaces by painting or priming. Design in letters in simple and stylised manner with accept on recognising varied need and functions of sign boards, locality, visibility etc.

Objects :

To prepare sign boards for specific purposes, such as indicators, cinema hall signs, public offices and gardens, museums etc.

26. HOUSE DECORATION

Objectives :

To enable the students to ;

1. become aware of beauty and order in his environment.
2. acquire special skills for the creation for tasteful objects and their arrangement along with the already existing objects,
3. learn the use of various materials such as paper, card board, wood, natural found objects, colourful papers, flowers, flower pots etc.

STANDARD-IX

a) Theory

To know the use of simple carpentry tools, pair of scissors, plaster of paris, cement, stones and pebbles, wires and adhesives. Colours, wall papers and colour combinations.

b) Practical

To make of tasteful additions to one environment through rearrangement, flower arrangement and other decorative objects. Wall decorations by paper patterns, wall hangings, wire patterns. To decorate dining room, kitchen, sitting room with flower arrangements, embroidery, patch work and proper selection of furnishing material for doors, windows, cushions, sheets etc.

Objects :

To prepare Pannels for wall decorations, with paper, wire, cloth, plaster and found natural objects. Painting of flower pots, Rongoli, Lamp shades etc..

STANDARD-X

a) Theory

To know the use of carpentry tools, paper and plywood cutting tools, wall painting brushes, spray, plaster of paris, cement, stones and pebbles, sands. Wires and various adhesives. Various kinds of furnitures and their standard measurements, colours, (Plastic emulsions), oil bound distempers and oils, Pleasing colour combinations.

b) Practical

To make tasteful and additions & omissions in one environment with a view to add beauty and liveliness. To prepare mobiles (with wires, coloured card boards) wall hangings, paper decorations, plywood, perforated panels, etc. To prepare and decorate lamp shades for pleasing light effects, selecting and fixing coloured and decorative tiles, pebbles for walls and teapoys. Selection of furniture and proper arrangement for space utilisation, selection of furnishing material, pleasing colour combinations and evaluating the total interior effect of the house.

Objects :

To prepare decorative panels of perforated plywood, wall hanging by patch work, embroidery etc. Flower arrangements, Furniture arrangements, Rangoli, other floor decoration.

I. Elements Of Home Science

Objectives :

To enable the pupils to -

1. understand the significance of Home Science.
2. understand the means of planning and saving time, money and labour.
3. understand the means of health and hygienic living.
4. understand the necessity of nutritious and balanced diet,
5. develop the skill to budget according to the income of the family.
6. inculcate respect for manual labour and love for social work.
7. inculcate moral values leading to good behaviour and culture.
8. foster love for home. neighbourhood and society.

STANDARD-IX

1. Home management

- 1.1 Choice of house, its site and aspects, allocation of rooms and their arrangement, lighting and ventilation.
- 1.2 Care of the house-hold equipment and home library, daily, weekly and seasonal cleaning of the house and equipment.
- 1.3 Precautions against pests, rats flies, cockroaches, bed bugs, ants, lizards, white ants, fishworms.
- 1.4 Metallic poisons, effects of different kinds of metalwares on food-stuffs.
- 1.5 Use of labour saving devices : improvised cookers, slicer, grinder, toaster.
Use of leisure.
- 1.6 Cleaning and polishing brass, silver, copper and leather articles.

2. Family relations :

- 2.1 Duties of the girls in the family.
- 2.2 Responsibilities of the girls towards the family.

3. Textile, Laundry and Clothing

- 3.1 Choice of clothes according to seasons. Properties of clothes as related to washing with special reference to ironing of cotton and wool fibres.
- 3.2 Common stains and simple methods of removing them. (Tea, coffee, ink, oil, turmeric.)

4. Health

- 4.1 Hygiene—Kinds of personal cleanliness. Good habits regarding exercises rest and food. Sanitation and disposal of sewage and refuse, dry conservancy and water carriage system. use of kitchen refuse as manure for kitchen gardening.

4.2 Home cleaning : House-hold remedies for simple elements such as house-custs, swelling, bruise, shocks, burns and scalds, sprain and strain, Preparation of barley water, albumin water, whey, eggfilip. kanjee, sugi. Different kinds of soups and fruit juices.

4.3 First Aid—General principles of first aid to the injured.

First Aid Box—its preparation and uses. Treatment of burns, scalds and wounds. Types of bandages, Use of triangular bandage. Preparation of different poultices.

Practical :

1. Home management

1.1 To show a well ventilated and equipped house.

1.2 Mending, cleaning, arranging and polishing furniture, Cleaning the library and arranging the books.

1.3 Daily work—Sweeping, dusting, cleaning of bathrooms and sinks, Weekly work—cleaning utensils and cupboards. Seasonal work—Airing bed linen mattresses and cleaning heavy carpets. Cleaning of rooms.

1.4 To show the different labour saving devices, their use and maintenance.

1.5 To clean and polish brass, silver, copper articles. polishing leather and canvas articles (shoes, bags, belts).

2. **Food and Nutrition**—Preparation of some of the following food stuffs :

- १] मटकोची उसळ, २] पालकाचे घपाटे, ३] गुडदाणो, ४] मुगाच्या डाळीचा हलवा,
५] कोबीची कोशिंबीर [पचडी], ६] गाजराचा हलवा, ७] कणकेचे लाडू, ८] भरली केळी,
९] माठाची भाजी, १०] कैरीची डाळ.

3. Textile, Laundry and Clothing :

3.1 To show various types of cloth, Long cloth, Manchester cloth. Satin, Drill, Muslin, Nylon, Tericot, Woollen, pure silk, artificial silk.

- 3.2 Washing of cotton' silk and woollen garments.
- 3.3 Ironing of cotton garments.
- 3.4 Ironing of woollen garments.
- 3.5 Removing of stains (tea, coffee, ink, oil, turmeric).

4. Health : Home Nursing

- 4.1 To show a film regarding First Aid methods.
- 4.2 Preparation of various diets concerned with the sick.
- 4.3 To prepare a First Aid Box ; names of the different medicines and articles etc.
- 4.4 Use of the Triangular —4 types of the bandage ----sling, elbow, knee, ankle.
- 4.5 Preparation of different poultices——mustord, flour, Javas [जवस]
- 4.6 First aid treatment for simple fractures; Use of splint.

5. Clothing Construction :

- 5.1 Drafting a blouse.
- 5.2 Drafting an underwear.
- 5.3 Sewing the blouse.
- 5.4 Sewing the underwear.
- 5.5 Ironing garments.

STANDARD - X

1. Home Management;

- 1.1 Planning the income to meet the requirements of the home.
(1) Food, (2) Clothing, (3) Housecraft, (4) Health, (5) Education,
(6) Provision, (7) Entertainment, (8) Festivals, marriages, functions, (9) Travel.
- 1.2 Use and organisation of single room tenement. The importance and necessity of house decoration, selecting suitable furniture, fittings and simple articles for decoration, colour combination, arrangement of pictures and flowers.
- 1.3 The girl and her duties towards neighbours, relatives and society.
- 1.4 Use of labour saving devices e. g. pressure cooker, washing machine, mixer, refrigeration.
- 1.5 Small Saving : different ways. National Defence Savings Scheme, National Savings Certificates.
- 1.6 Postal Saving—deposits and withdrawals, savings ar d cheques.
- 1.7 Marketing—Seasonal wholesale vegetables, fruit, clothing, food stuffs.

Textile, Laundry and Clothing

- 1 Classification of fibres, supply and structure of different fibres.
- 2 Ironing of silk and synthetic fibres.
- 3 Removing stains--blood, perspiration, urine, rust.

Health Education

1) Hygiene

- 1 Infection and Disinfection.
- 2 Different ways in which infection is carried : food, water, air contagions insects, prevention of its spread (some of the topics are taught in Std V to VII).
- 3 Different kinds of disinfectants and their uses, e. g. DDT.
- 4 Duties of the individual to the community in the matter of health. Dangers of spitting and throwing garbage.

2) Home Nursing

- 5 Preparation of the sick room (changing of the bed sheet and arrangement of the articles.)
- 6 Care of the sick--prevention of bed sores, sponging. Application of hot and cold fomentation, Disinfection of food and articles in the sick room. Temperature reading, pulse, respiration counting. Use of ice bag, hot water bag, its care and maintenance.

3) First Aid :

- 7 Some common poisons--metallic poison, D. D. T. Kerosene, Swallowing of foreign article, Elementary information regarding stings and bites of poisonous animals and insects--serpent, scorpion and mad dog, and their places of treatment, Primary health unit, Municipal Dispensary.
- 8 General information of nearby medical help.

4. Child Care

- 1.1 Elementary knowledge of the care of the baby : food, sleep, bath,
- 1.2 Common ailments, sore eyes, convulsions, cold, cough, fever, teething etc.
- 1.3 Importance of vaccination.

Practical

1. Home Management

- 1.1 Arrangement of a one room tenement (use of cupboards as a partition, big wooden boxes as seats etc.)
- 1.2 Use of cheap stuff for household decoration, (fused bulbs, teapots with broken spouts and handles, babul twing with popcorn etc.)

- 1.3 The use of a pressure cooker. To show a washing machine, mixer etc. with working where possible. and Its care and maintenance.
- 1.4 To show the various types of saving certificates, pass-book, cheque-book, pay slip, withdrawal slip, etc.

2. Food and Nutrition

- 2.1 Preparation of ground-nut recipes.
- 2.2 Preparation of sprouted gram.

मोडाच्या मुगाची खिचडी, मोडाच्या मुगाची कोशिंबीर, मोडाच्या गव्हाची खीर, भाजलेल्या शेंगदाण्याचा लाडू, खारे दाणे, दाण्याच्या वड्या, शेंगदाण्याची उसळ, मॅथ्यांना मीड आणून डाळमेथू

3. Textile, Laundry and clothing

- 3.1 To show different fibres under the microscope-cotton, silk, wool, nylon.
- 3.2 Ironing of silk and synthetic fibre garments.
- 3.3 Removal of stains-blood, perspiration, urine, rust.

4. Health Education

- 4.1 Preparation of the sick-room-changing of the bedsheets, to arrange all the necessary things in the right place (chart, thermometer, feeding bottle, medicine glass, drinking water etc,
- 4.2 Temperature reading, counting of pulse.
- 4.3 Use of ice-bag, hot water bag, filling and emptying it-its care and maintenance,
- 4.4 Sponging changing clothes etc.
- 4.5 Application of hot and cold fomentation.
(टोल्याचा शेक, पिळाचा शेक, बोळ्याचा शेक, बर्फाचा शेक, मिठाच्या पाण्याची पट्टी, पाण्याच्या पिशवीचा शेक, बर्फाची पिशवी वापरणे.)

5. Needle work

- 5.1 Knitted pullover.
- 5.2 Pair of socks.
- 5.3 Embroidered Tray cloth.
- 5.4 Frock with smocking.

Practical for Std. IX and X

Work Experience projects in :

- (i) Needle Work, Embroidary, Knitting and Crochet
- (ii) Preparation of Nutritional food.

II. TECHNICAL

Objectives :

To enable the pupils to ---

1. acquire knowledge of the elements of Civil, Mechanical and Electrical Engineering.
2. understand the basic principles underlying designing and engineering works.
3. develop skill in handling different tools.
4. acquire skill in preparing designs, blue prints.
5. develop skill in manipulating engineering material.
6. use of principles learnt in designing and engineering projects.
7. develop interest in different branches of engineering.
8. appreciate the role of engineering science in the development of culture.

A. WORKSHOP TECHNOLOGY

STANDARD - IX

(4 periods per week for 30 weeks)

Carpentry

(Theory : 8 periods and Practicals : 24 periods)

Theory :

Introduction to usual timber : Teak and Deal wood, Timber seasoning, Timber defects : Carpenter's work bench. Vice Acquaintance with names and uses of wire nail's wood screws, Butt hinges, Rising Butt hinges. Tee hinges, Strap hinges tower bolts, flush bolts, pad locks, cupboard locks, rim locks, Description and uses of joints : Mortise and tenon joints, Tongue and groove joints, Mitre joints, Bridle joints.

Practicals :

Preparing two joints and on utility article finished with French polish.

Pattern Making

(Theory : 6 periods and Practicals : 18 periods)

Theory :

Study of simple wood turning. Lathe and wood turning tools. Principles of pattern making allowances. Contraction rule. Care, maintenance and precautions in the use of these tools.

Practicals :

Two wood turning exercises and one simple pattern with core box.

Smithy and Foundry

(Theory : 8 periods and Practical : 24 periods)

Theory :

Smith's forge, blower, staple vice swage block, swages fullers, punches, hardie, hammers and cold sets.

Description of cupola and pit furnace, Ladle crucibles and tongs cope drag middle, meaning of runner and riser, gates, vents, feeding cups, core prints, core boxes, Care and maintenance and precautions.

Practicals :

Three simple jobs in Smithy and one mould of a cored pattern.

Fitting

(Theory : 6 periods and Practical : 18 periods)

Theory :

Steel rule, fitter's try-square, Jenny, outside and inside callipers, dividers, marking block, Centre and dot punches.

Cold Chisels : Flat, Cross Cut, round nose diamond point.

Files : Flat half round, triangular, square, knife, hand file. Hacksaws and Hacksaw Blade. Care, maintenance and precautions in the use of these tools.

Practicals :

Two jobs in simple fitting.

Metal Turning

(Theory : 6 periods and Practical : 18 periods)

Theory :

Study of main parts of a centre Lathe --Standards of legs, bed, head stock, carriage, tool post. Lathe tools :- Vee Tool, knife tool, parting tool, round nose tool, Simple Turning operations.

Practicals :

One job on Simple Turning.

B. ENGINEERING SCIENCE (MECH. & ELEC.)

STANDARD - IX

(Periods : Theory - 2, Drawing - 2, Practical - 4 Total 8 periods per week for 32 weeks)

(a) Mechanical Engineering

Units of Measurement, System of Units, Units of mass, force, work and power and distances.

Force: Definition, Types of forces, Parallelogram of forces and Triangle of forces, Simple Examples on triangle of forces and polygon of forces.

Work, Principle of work applied to Machines, Law of Machine's, Simple machine's pulley block (Second System). Smooth inclined plane, Simple axle and wheel.

Moment of a force, Simple examples on levers, Principle of Moments.

(b) Electrical Engineering

Analogy of fluid with Electricity. elementary idea of electric current, voltage and resistance and their units, conductors and insulators, Ohm's law,

Primary cells, lead acid cell, Secondary cell, Battery Charging.

Resistances in series, Parallel and compound circuits.

Systems of indoor wiring.

Effects of electric current, heating effect, chemical effect, magnetic effect, Electrolysis, Electroplating.

Principle and working of household appliances, heating iron, electric bell, bell indicator.

Work, power and energy.

Exercises : (Mechanical)

1. Triangle of forces and parallelogram of forces.
2. Polygon of forces.
3. Coefficient of friction between two surfaces - 1. Wood and Wood 2. Wood and Glass.
4. Simple axle and wheel.
5. Jib crane.

Exercises : (Electrical)

1. Two lamps in series.
2. Two lamps in parallel controlled from two points.
3. One lamp controlled from two points (Staircase).
4. Two lamps controlled from one place using twin knob switch.
5. Replacement of fuse in a cut-out, fuse holders and study of fuses.
6. Connections of an electric bell and bell indicator.
7. How to read meters.

Class work : Journal should be maintained.

(c) Engineering Drawing**Theory :**

Projections of solids, cones, pyramids, section of these solids on vertical horizontal planes, developments of surfaces of solids (1/2 Imp. Four sheets)
 Preparing an isometric scale, types of drawings, to draw isometric views orthographic views and vice versa (1/2 Imp. 2 sheets.)
 Free hand sketching and drawing to the scales of rivets, riveted joints (Lap Butt and simple machine parts).
 Joints with single and double cover plates (1/2 Imp. 2 sheets).
 Simple bearing brackets, plumber blocks (1/2 Imp. 2 sheets).
 Conventions in machine drawing.

ENGINEERING SCIENCE (ELEC. AND RADIO)
STANDARD - IX

(Theory : 2 periods, Practicals : 4 periods : Total 6 periods per week)

(a) Electrical Engineering

Current Electricity - Units of E.M.F. Current and resistance, Ohm's Law, U of Energy and Power, Resistance in series and parallel, Effects of Electric Current. Study of dry cell and lead acid cell, - Battery Charging and testing of Secondary cells.

Magnets and Electromagnets - Concept of Electric and Magnetic circuits, Intion - Laws of Electro-Magnetism, Principle and working of D.C. and A.C. supplies. Principle of an Electric Motor.

Types of household and power wiring.

Principle and working of household appliances viz. heater, electric iron, toaster. Specific Resistance and Resistivity.

(b) Radio Engineering

Model of atomic structure, gas discharge, ionisation, Electron and its properties. Types of electron omissions.

Radio components - Constructions of different types-fixed and variable. (a) resistors, (b) condensers (c) inductors, H. F. and A. F.

A.C. Theory -Alternating quantities, frequency, peak, Average and R.M.S. Value phase relations, Vector representation, power in A. C. Circuits, power factor, inductive and capacitive reaction, impedance, Resonance, Q factors, series and parallel resonance filter circuit.

Transformers-Principles of operations, construction of all types of transformers used in Radio Circuit. Power A. F., R.F. and I. F.

Valve Theory-Thermionic emission, developments of valves from diode, triode, tetrode to pentode, Static characteristics of valve. Constants like amplification factor, mutual conductance, A. C. resistance, their relationship,

Study and construction of different types of microphones and loud speakers.

Practicals :

(a) Electrical Engineering

1. Testing of dry cells and secondary cells-Battery charging system.
2. Study of starting and reversing direction of D. C. Motors.
3. Wiring Exercises – Three exercises.
4. Study and use of Ammeter, Voltmeter and Multimeters.

(b) Radio Engineering

1. Study and testing of different types of resistances.
2. Study and testing of different types of condensers.
3. Study and testing of different types of coils and transformers.
4. Study and testing of different types of valves (reference to manual)
5. Study and testing of different types of loud speakers and microphones.
6. Study and testing of D. C. and A. C. Supplies,

N.B. : Schools will have to conduct Annual Examination in this Subject for Std. IX on the same lines as for S.S.C. (Tech.) Examination at the end of Std. X.

ENGINEERING SCIENCE (CIVIL)

STANDARD – IX

(Theory : 2 periods, Drawing : 2 periods and Practicals : 2 periods
Total 6 periods per week)

(a) Surveying

Practicals :

1. Definition of surveying. General principles of surveying. Classification of surveying. Types of measurements in plane surveying, Scales and representative fraction
2. Chain and tape survey. Types of chains and tapes, Methods of chaining, methods of ranging-Direct and indirect ranging, offsets, use of optical square, Cross-staff and line ranger, booking field notes in field book, Cross-Staff survey, conventional symbols.
3. Surveying by measurement of angles, definition of magnetic needle, bearing of lines, whole circle bearing, reduced bearing, true meridian, magnetic meridian, Local attraction, Prismatic compass-structure, adjustment and its use in surveying.

b) Building Construction

1. **Foundation** : Definition, objects of foundation, classification of bearing capacity of soils and its testing, Depth and width of foundation, Timbering for trenches, Setting out for foundation.
2. **Masonry** : Classification of stone and brick masonry. General principles observed for stone and brick masonry. Bonding in stone and brickwork, Types of bonds in brickwork, joints in masonry, pointing, plastering, white wash distemping, scaffolding.
3. **Cement Concrete** ; Plain and reinforced, placing and proportioning of concrete, water cement ratio, mixing and curing of concrete. Form-work, methods of formwork for R. C. C., Removal of formwork.
4. **Floors** : Elementary knowledge of masonry, Concrete, brick, stone, timber reinforced Concrete floors, cement tile flooring-methods and uses.

Practicals : Field work in surveying only will be based upon the theoretical portions prescribed under "Surveying". The list of practicals to be conducted is as under:

1. Study of various types of chains, folding and unfolding the chain. Study of various types of measuring tapes.
2. Methods of chaining. Chaining on sloping ground.
3. Methods of ranging-Direct and indirect ranging.
4. Use of optical square, cross staff and line ranger.
5. Cross staff survey.
6. Use of prismatic compass. Temporary adjustments of prismatic compass. To include angle between two lines.
7. Chain and compass survey. Booking field notes in the field book.

Class-work : Following survey drawing will be submitted on half imperial sheets together with field book.

- | | | |
|------------------------------------|-------|------------|
| 1. Conventional Symbols and Scales | | one sheet. |
| 2. Chain and Cross staff survey | | one sheet. |
| 3. Chain and Compass survey | | one sheet. |

(Students will be given sufficient practice in lettering before they start drawing the above sheets.)

N. B. : 1) Schools will have to conduct Annual Examination in this subject in Std. IX on the same lines as for S. S. C. (Tech.) Examination at the end of Std. X.

2) Class-work of Std. IX as stated above will have to be preserved by schools and will be presented for assessment at the time of S.S.C. (Tech) Examination at the end of Std. X.

A. WORKSHOP TECHNOLOGY

STANDARD - X

Carpentry and Pattern Making

(Theory : 6 periods and Practicals : 18 periods)

Theory :

Chisels and Chiseling, Saws and Sawing, Plans and Planning.
Sharpening of these tools. Saw Sets and Saw setting, Joinery. Marking methods.

Practicals :

Making one joint and one pattern with Core box.

Smithy and Foundry

(Theory : 6 periods and Practicals : 18 periods)

Theory :

Smith's Tools, Types of hammers, Flatteners, Fullers, Hot and Cold Sets, Punches and Drifts, Demonstrations in elementary and advanced smithy operations, Fullering swaging, punching, drifting, forewelding and heat treatments.
Description of Cupola and its working, Laddles, Different Moulding methods, Demonstrations in advanced foundry, Small Casting.

Practicals :

Smithy 2 jobs.

Fitting

(Theory : 6 periods and Practicals : 18 periods)

Theory :

Surface plate, angle plate, Vee Block. Marking Block, Fitter's work bench and parallel jaw vice. Marking methods in Filing. Methods of Fitting and Sawing.
Study of advanced Tools : Taps, dies, drills Outside Micrometer callipers (M.M.)

Practicals :

One Composite job involving drilling and tapping.

Metal Turning

(Theory : 9 periods and Practicals : 15 periods)

Theory :

Study of main parts of a centre lathe-Lathe accessories, socket and centre, face plate, angle plate, driving plate, carrier, three jaw chuck, four jaw chuck, drill chuck, steady rest, Follower rest, Lathe tools, Vee tool, knife tool, parting tool, round nose tool, boring tool, knurling tool.

Turning Processes : Cylindrical turning, stepped turning, form turning and taper turning.

Practicals :

Two simple jobs involving stepped turning, form turning, taper turning and knurling.

This subject carries 100 marks as detailed below : (for S. S. C. Exam.)

(1) Theory paper : (40 marks). 2 Hours

Theory examination will have one paper to cover the syllabus of Std. X. It will carry 40 marks and the duration of the paper will be 2 hours.

(2) Practical Examination (will be conducted by the Board, in one trade only by lot from the following four trades and the duration of the practical will be 2 hours) – 30 marks.

(1) Carpentry.

(2) Smithy.

(3) Fitting.

(4) Turning.

(3) Year's work : 30 marks.

Two jobs in Carpentry. (Stds. IX and X).

Two jobs in Wood Turning and Pattern Making.

Two jobs in Smithy.

Two jobs in Fitting.

Two jobs in Metal Turning.

Total : 10 jobs. (These jobs will be prepared in Stds. IX and X)

ENGINEERING SCIENCE (MECH. AND ELECT.)

STANDARD - X

(Periods : Theory-2 Drg-2 Practicals - 4 Total 8 periods per week for 24 weeks.)

a) Mechanical Engineering

theory :

Principle of moments. Beam supported on two supports and practical application.
Jib Crane, Examples based on law of triangle of forces.
Simple Machines : Screw Jack, Simple Purchase Crab.
Examples on Effort Lost in friction and Load Lost in friction in case of Machines.
Friction, Laws of friction, Lubrication.
Power (concept of BHP & IHP), Transmission of Power by Belt and Gears.
Fuel, sources of power, Properties of Steam.
Small boilers (Water and fire tube), working of simple steam engine, Two stroke and four stroke Cycle Oil Engine and Petrol Engine.

b) Electrical Engineering

Fleming's right hand rule, induced E. M. F. Type of D. C. Generators.
D. C. Motor principle. Fleming's left hand rule, D. C. Shunt motor Starter, its working and necessity.
Study of moving coil instrument.
Single phase circuits, concept of inductance, Inductive reactance and impedences.
Power factor and power-Single phase and three phase, induction Motor.
Elementary idea of working of transformers (Single phase).
Examples on resistances and effects of electric currents.

Practicals : Mechanical

1. Triangle of forces and parallelogram of forces.
2. Polygon of forces.
3. Coefficient of friction between two surfaces.
i) Wood and Wood. ii) Wood and Glass.
4. Simple axle and wheels.
5. Jib Crane.
6. Pulley block (Second system of Pulleys).
7. Smooth inclined plane.
8. Screw Jack.
9. Single Purchase Crab.
10. Starting of Diesel Engine and Petrol Engine.

} Experiments 1 to 5 performed in Std. IX to be revised.

Practicals : Electrical

- | | |
|---|---|
| 1. Control of a lamp from two points (Stair case). | } Experiments
1 to 4
to be revised. |
| 2. Control of two lamps from one point-using twin knob switch. | |
| 3. Bell indicator wiring. | |
| 4. Traffic control wiring. | |
| 5. To find out unknown resistance using voltmeter and ammeter (Ohm's law). | |
| 6. Internal resistance of a dry cell. | |
| 7. Finding out the unknown resistance by meter bridge. | |
| 8. Fall of potential. | |
| 9. Study of the circuit of flourescent tube. | |
| 10. Connection of D. C. shunt motor starter and reversing the direction of rotation of the motor, | |

Class-work :

- 2 Journals : one mechanical and one electrical should be maintained.

c) Engineering Drawing**Theory :**

Free hand sketching of machine parts such as bolts, nuts, keys and lathe tail stock. Drawing to scale and study of screw threads, standard forms of threads, nuts, bolts, washers, RH and LH threads and locking devices. Foundation bolts, keys, cotters and pins. Drawing and Sketching of flame coupling catch plate.

Practicals :

Year's work to be submitted at the S. S. C. (Tech.) Examination.

- | | |
|-------------------------|--------------------|
| 1) Geometrical Drawing | .. 2 sheets |
| 2) Machine Drawing | .. 4 sheets |
| 3) Tracing | .. 1 sheet |
| 4) Blue print | .. 1 sheet |
| | <u>.. 8 sheets</u> |

Scheme for S. S. C. (Tech.) Examination

This subject carries 100 marks as detailed below :

- 1) **Theory paper** : (40 marks, 2 hours)
Theory examination will have one paper in two sections I. Mechanical Engineering and II. Electrical Engineering - to cover the syllabus of Std. X; It will carry 40 marks and the total duration will be 2 hours.
- 2) **Practical Examination** : (1 Practical, 20 Marks, 2 hours)
Practical Examination will be conducted by the Board and will consist of practical by lot from the practicals performed as the year's work. This practical will have 20 marks and the duration will be 2 hours.
- 3) **Year's work**
This will comprise of two journals :- (a) Mechanical Engineering (10 marks) and (b) Electrical Engineering (10 marks) and (c) Engineering Drawing - (8 sheets, 20 marks).

Engineering Science (Electrical and Radio)

STANDARD - X

(Theory : 2 periods, Practical : 4 periods - Total 6 periods per week for 24 weeks)

Theory :

a) Electrical Engineering

Principle and working of A. C. Motors. Classification of A. C. Single phase motors and their uses. Starters for A. C. Motors their necessity and principles. Working principle and circuit diagram of domestic electrical appliances - Mixer Gas lighter, Bell Buzzer, Toaster.

Study of instruments-moving coil and moving iron type.

Single phase A. C. circuits-concept of inductance, impedance, power and power factor.

Three phase induction motors, squirrel cage, sliping type and their starters. Elementry idea of working of transformers (single phase only).

b) Radio Engineering

Basic Principles of rectification, amplification, oscillation and deflection and their circuits, Working principle of different types of rectifiers, amplifiers detector and Oscillator circuits, Valve as Rectifier, Amplifier and Oscillator, Superhetro-Receiver, Types of semi-conductors. P. and N. Junction. P. N. P. P. & N. P. N. transistors. Basic principle of flow of Electron and holes. Advantages of transistors over valves. Meaning of forward and reverse biasing. Transistors and their biasing methods. Servicing of Superbetrodyne valve and trnnistor receiver.

Practicals :

a) Electrical Engineering

1. Study and fault finding of domestic electrical appliances.
2. Finding out the unknown resistance by Wheatsone Bridge Principle (Post Office Box).
3. Finding internal resistance of a dry cell.

b) Radio Engineering

4. Building and testing of A. C. Power Pact.
5. Building and testing of two tube amplifier.
6. Building and testing of two transistor amplifier.
7. Trancing and testing of A. C. Receivers.
8. Connecting microphone and gramophane to P. A. system.
9. Tracing and testing of A. C; D. C. Receivers.
10. Tracing and testing of transistor receiver.

Teaching Scheme (Std. X)

Theory :	(a) Electrical Engineering	.. 1 period per week
	(b) Radio Engineering	.. 1 period per week
Practicals :	(a) Electrical Engineering	.. 2 periods per week
	(b) Radio Engineering	.. 2 periods per week
	Total ..	<u>6 periods per week</u>

N. B. : For practicals sparate journals for Electrical aud Radio Engineering will have to maintained and drawing of the circuit will be included in the journals.

Scheme for S. S. C. (Tech.) Examination

This subject will have 100 marks; as detailed below. The examination will be conducted by the Board for theory, practicals and assessment of class-work.

1. Theory paper-1 paper having two sections :

a) Electrical Engineering	} 2 hours duration
b) Radio Engineering	
	} 40 marks

2. Practical Examination- 2 practicals of 2 hours duration- 30 marks.

3. Class-Work : Electrical Engineering Journal and Radio Engineering Journal together-30 marks.

ENGINEERING SCIENCE (CIVIL)

STANDARD - X

Theory : 2 periods ; Drawing : 2 periods and Practical : 2 periods,
(Total 6 periods per week.)

Theory :**a) Surveying**

Compass and chain traversing- closed and open traverse, methods of traversing, plotting a traverse survey. graphical adjustment of closing error.

Levelling-Concept of various terms used in levelling-level line, horizontal line, vertical line, elevation of a point, datum surface, bench mark. axis of telescope, line of collimation, axis of level tube, back sight, foresight, intermediate sight. change point, parallax, bubble tube.

Dumpy level- Its temporary adjustments, methods of levelling, field book recording with checks, levelling staff and its reading, profile levelling, reciprocal levelling.

Plane table survey- Different parts of a plane table, Setting up and orientation of a plane table, methods of plane tabling (except two point and three point problems). Advantages and disadvantages of plane tabling.

b) Engineering Materials and Building Construction

Engineering materials-Varieties, properties and uses of the following engineering materials :- Stone, bricks, tiles, mild steel, copper, aluminium, limes, cements mortars, concrete, timber, paints and varnishes.

Building Construction :- Fixing door frames in the wall, Types of doors and windows with their common sizes, Location of the doors and windows.

Roofs :- Simple roof trusses in timber-ordinary type, king post and queen post roof trusses, Roof Coverings by tiles, A.C. Sheets, G.I. Sheets. Simple methods of terrace roofing.

Stairs :- Location of stairs, parts of stair with common sizes, Types of stairs based upon shapes and materials employed.

Elementary knowledge of drainage and water lines in the buildings,

Practicals :

Field work in surveying only will be based upon the theoretical portion under surveying. The list of the practicals to be conducted is as under :-

1. Use of optical square, cross-staff and line ranger,
2. Cross staff survey.
3. Chain and compass survey. Booking field notes
in field book. } Experiments done in
Std. IX to be revised.
4. Study of different parts of a Dumpy level,
5. Temporary adjustments of a Dumpy level, Practice in reading a levelling staff.
6. Methods of working out reduced levels of points by (1) Colimation system
(2) Rise and fall system.
7. Practical on profile levelling.
8. Practical on reciprocal levelling.
9. Study of plane table with its different parts. Setting up and orientation of a plane table.
10. Plane table survey by various methods.

Class work :- Following survey and building drawing will be submitted on half imperial sheets together with field book as class work for S. S. C. Examination.

- 1) A line of levels and cross sections-one sheet.
 - 2) and (3) Working drawing of a simple, single storeyed building with few details such as foundation, doors windows and roof trusses - Two sheets.
- Total sheets - 3 sheets (for Standard X).

N. B. :- 1) The practical examination in Surveying at the end of Standard X S. S. C. (Tech.) will be conducted according to the list given above. The first three exercises which have be done in Standard IX will have to be revised.

- 2) Year's work : To be submitted for assessment by the Board's Examiner at the end of Standard-X S. S. C. (Tech.) Examination will consist of the following :-

(A) 1) Conventional symbols and scales	... One sheet
2) Chain and cross staff survey	... One sheet
3) Chain and compass survey	... One sheet
(B) 1) A line of levels and cross-section	... One sheet
2) and (3) working drawing of simple single storeyed building with few details such as foundation, doors, windows and roof trusses.	... Two sheets
Total ... Six sheets	

The sheets as started against (A) above, are already completed during Standard IX will be preserved and submitted for assessment at the end of Std. X S. S. C. (Tech) Examination along with the class-work of Std. X as started against (B) above

Scheme for S. S. C. (Tech.) Examination

This subject will carry 100 marks as detailed below :

The examination will be conducted by the Board for theory, practicals and assessment of the class-work.

1. Theory paper :- One paper containing two sections.
(a) Surveying and (b) Engineering Materials and Building Construction - Two hours together. Marks 40.
2. Practicals Examination :- One practical of 2 hours duration on Surveying only from the list of practicals given above by drawing lots - 30 Marks.
3. Year's work :- 4 sheets in Surveying Drawing and 2 sheets in Building Drawing
Total 6 sheets. Marks 30.

Scheme of Practical Examination in Technical Subjects

General guide-lines :

1. There will be two examiners at each centre of practical examination in technical subjects. One of them will be an Internal examiner who will carry out the necessary arrangements for the examination.
2. The practical examination will be of a comprehensive nature, of four hours duration only.
3. The candidate will be required to complete two jobs each of two hours duration, one from Work shop Technology and the other from one of the subjects in Engineering Sciences.
4. The selection of the two jobs will be made by the candidate from given jobs by drawing lots.
5. The job sheets, journals etc. of candidates will be kept ready at the centre by the Internal examiner at the time of practical examination for assessment. These will be assessed jointly by both the examiners.
6. The candidates may be instructed by the school to bring the necessary material for the practical examination.

III. Elements of Agriculture

Objectives :

To enable the pupils to.

1. understand that agriculture is the main profession of the majority of Indian people and that it plays an important role in Indian economy.
2. understand that horticulture and animal husbandry are supplementary and complementary professions to agriculture.
3. acquire knowledge of various methods of cultivation.
4. acquire knowledge of methods of rearing animals that are useful in agriculture.
5. develop skills in using various agricultural appliances.
6. understand and apply new and scientific methods useful in high yields and production.
7. develop habits of working hard in sun and rain,
8. develop interest in studying various crops, seeds, manures, etc.
9. appreciate and honour the work of those who are engaged in farms and animal husbandry.

STANDARD - IX

SOIL TILLAGE AND CROP HUSBANDRY

Part I

Rocks

- 1.1 Types of rocks.
- 1.2 Characteristics of different types of rocks.

Soils and their characteristics

- 2.1 Different agencies responsible for weathering of rocks: physical, chemical and biological.
- 2.2 Meaning of soil.
- 2.3 Types of soil.
- 2.4 Texture and structure of soil.
- 2.5 Broad outline of textural classification of soil.
- 2.6 Soil contents and their importance.

Soil Water

- 3.1 Types of soil moisture.
- 3.2 Water holding capacity of different types of soils,

Soil temperature

- 4.1 Sources of soil heat.
- 4.2 Importance of soil heat.

5. Tillage and other operations

- 5.1 Soil tilling and its importance.
- 5.2 Ploughing, bakharing, clod crushing, bed farming.
- 5.3 Methods of sowing and transplanting.
- 5.4 Inter cultivation and thinning.
- 5.5 Harvesting, threshing and winnowing.

6. Implements

Indigenous and improved implements and tools.

7. Soil fertility

- 7.1 Soil conservation.
- 7.2 Soil testing (important major and minor plant nutrients).
- 7.3 Soil fertility and its importance.

8. Manures and fertilizers

- 8.1 F. Y. M. green manure, compost manure, oil cakes, fish meal, bone meal and ash.
- 8.2 . Examples of important nitrogenous, phosphoric, potassic and mixed fertilizers. Methods of application.

Practicals

1. Recognition of main rocks (Igneous, Sedimentary, Metamorphic).
2. Recognition of different types of soil (light, medium and heavy).
3. Drawing a map of Maharashtra showing broad classes of soil.
4. Demonstration of determining water holding capacity of different soils.
5. Demonstration and working of ploughing to winnowing.
6. To yoke the plough, to handle the yoke, to yoke the common bullock-drive implements.
7. Clod crushing and harrowing, preparation of seed beds.
8. Sowing operations.
9. Inter-culture operations—thinning, weeding, hoeing, mulching, earthing.
- 10 Use of hand tools.
- 11 Demonstration of digging, filling and closing a compost pit.
- 12 Application of manures and fertilizers to different crops by different methods.
- 13 Spraying fertilizers.
- 14 Identification of different manures and fertilizers.
- 15 Procedure of collecting soil and sample testing.
- 16 Irrigation in farms.
- 17 Visits and excursions to model farms.

Horticulture And Animal Husbandry

Part II

Horticulture

- 1.1 Importance of Horticulture in Agriculture Sector.
- 1.2 Study of the following crops on the following points : Soil, Climate, Season Preparatory cultivation, Manures and fertilizers, Sowing, Improved varieties— Intercultivation, Transplantation of plants, protection, Harvesting and marketing,
- 1.3 Vegetable crops:
Bhendi, Brinjal, Guar, Cowpea, Tomato, Chili, Cauliflower and Cabaage, Beans, Potato, Cucumber, Carrot, Radish, Onion, Leafy vegetables—Palak, Methi Hemaranthus.

Pot Culture

Different types of pots and their usefulness.

Animal Husbandry

- 3.1 Importance and usefulness of animals and birds in agriculture.
- 3.2 Introduction to important breeds of cows and buffaloes as high milking— Drought purpose and dual purpose—Breeds and Poultry Breed also.

Practicals

1. Planning and layout of garden.
2. Layout of kitchen garden and growing vegetables in the kitchen garden. Preparation of different types of beds.
4. Raising Seedlings.
5. Transplantation.
6. Filing of pots and potting the plants.
7. Observation of points of animals and birds.
8. High milking good cows and buffaloes to be shown to the students, taking them to a nearby Dairy farm or to the cultivator who maintains good milking animals.

STANDARD-X

Part I

Crop Husbandry

- 1.1 Detailed study of different crops with special reference to the following points: Soil, climate, season, preparatory cultivation, sowing, improved varieties of manures and fertilizers, transplantation, rotation, mixed cropping, irrigation, crop protection, harvesting, threshing and marketing.

- 1.2 Crops : Cereal crops—Jowar, Wheat, Bajara, Paddy.
- 1.3 Pulses : Tur, Gram, Mung, Urid, Soyabean, Peas.
- 1.4 Oil Seeds—Groundnut, Til, Linseed, Softflower and Sunflower.
- 1.5 Fibre Crops—Cotton, Sun hemp.
- 1.6 Commercial Crops—Sugarcane, Tabacco.
- 1.7 Fodder Crops—Gajraj, Gini, Lucern Berseam, Alfalfa, Bluc panic.

2. Plant protection

General information of plant protection, Methods of plant protection.

Practicals

1. To find out the germination percentage of seeds.
2. Eneasculation.
3. Cross pollination.
4. Self pollination.
5. Selection of seed.
6. Seed production by hybridization,
7. Spraying and dusting.
8. Visit to important agricultural institutions in the near vicinity like C
Sevak Training Centre, University, Bib Farms,

Part II

1. Fruit Culture

- 1.1 Fruit Cultivation—To study important fruits on the following points:—
Soil, Climate, Season, Planting, Intercultivation, Plant protection measu
Marketing the products.
- 1.2 Fruits :- Mango, Citras fruits, Papaya, Chiku, Grapes, Guava, Pineapple, J
fruit, Pomegranate, Banana.

2. Floral Gardening

Study of cultivation of biannual annual and perennial floral and /or name
plants, shrubs, trees and vines.

3. Vanmahotsava

- 3.1 Importance of tree planting
- 3.2 Study of planting of quick-growing trees.

4. Dairy Farming

- 4.1 Study of high milk-yielding breeds of cows and buffaloes,
- 4.2 Feeds and Feeding.
- 4.3 Up-grading of local breed by way of cross-breeding with better breed b
like-Hariana, Jersey, Holstive, Murrah.

acticals

1. Visit to local gardens.
2. Planting some fruit trees in the school garden or in a model kitchen garden either in the premises of school or in the farm belonging to school.
3. Laying out a school garden and planting seasonal shrubs and trees in it.
4. Planting trees and taking care of them continuously and regularly as a part of Vanmahotsava.
5. Showing the students different breeds of cows and buffaloes on the availability in the vicinity or from pictures.
6. Feeds and feeding poultry birds.

IV. ELEMENTS OF COMMERCE AND ACCOUNTS

bjectives :

To enable the pupils to —

1. acquire knowledge about procedures in commerce and accounts.
2. understand principles of book-keeping and accounts.
3. use knowledge of commerce in day to day transactions.
4. develop skills in maintaining accounts and official correspondence.
5. acquire the necessary speed and accuracy in typing.
6. take interest in modern commercial practices.
7. develop commercial outlook.

Elements of Book Keeping

STANDARD-IX

1. Objects, Importance and Utility of Book-keeping. Principles of Double Entry Book-keeping.
2. Classification of Accounts—Personal Accounts, Real Accounts and Nominal Accounts with examples.
3. Rules of Journalizing and writing of a Journal.
4. Ledger—posting of journal entries into ledger and balancing of Ledger Accounts and Preparation of a Trial Balance.
5. Writing of a simple Cash-book and Balancing the same, Posting of Cash-book transactions in to the Ledger.

STANDARD-X

1. Writing of subsidiary book—purchase book, sales-book, returns inward and outward books and posting the transactions entered therein into the ledger.
2. Cash book, Cash book with discount column, Cash book with Cash Discount and Bank Columns and Posting into the ledger.
3. Preparation of Bank Reconciliation statement without overdraft.

4. Preparation of Trading account, Profit and Loss account and Balance sheet of a sole trader with simple adjustment entries such as closing stock, outstanding expenses, prepaid expenses.

STANDARDS-IX and X

Practicals in Elements of Book-keeping

Every student is expected to maintain a Journal having specific proforma for recording the practical work done by him. This journal should be examined and signed by the teacher. Teachers are expected to select appropriate practical work activities to match with the original topics covered in class-room.

Every student should complete five assignments of practical work in two years' time. These assignments are classified as under :—

- a) Two compulsory assignments: One in each year.
- b) Three assignments from optional group.

a) Compulsory Group

- I) Journalising and posting journal entries into Ledger;— This assignment should be completed in Standard. IX
- II)
 - a) Preparation of Simple Trial Balance.
 - b) Preparation of Trading and Profit and Loss Account.
 - c) Preparation of Balance Sheet.

The assignment should be completed in Standard-X

b) Optional Group

- I) Any **one** of the following:
 - a) Writing of a dummy simple Cash-book OR Writing of Petty Cash-book
 - b) Preparation of :
 - i) Cash memo/Cash receipt.
 - ii) Voucher.
 - iii) Writing of a cheque.
 - iv) Credit Note and Debit Note.
 - v) Invoice.
- II) Any **two** of the following :
 - a) Writing of subsidiary books:
 - i) Purchase book.
 - ii) Sales book.
 - iii) Purchase Returns book.
 - iv) Sales Returns book.

- b) Writing of two or three columnary Cash-book.
- c) From accounting in the proper proforma :
A student is expected to find out cost of cultivation per unit i. e. per acre or per hecter.
- d) Writing of account-books of small business units.
 - i) Hotel
 - ii) Bakery
 - iii) Small Retailer.
- e) Preparation of simple Bank-Reconciliation statement from cash-book and Pass-book.

- Notes: 1) Necessary physical facilities should be provided in the form of dummy records such as receipts, vouchers and other material for completing the assignments.
- 2) Use of work-book should be encouraged.

Elements of Commerce

STANDARD-IX

1. Commercial Organisation

- a) Evolution of commerce, A simple outline, Concept of Barter Economy and Evolution of money, pre-machine age and machine age.
- b) Trade : Retail Trader-Types of retailers. Shop-keepers. Departmental stores, Mail Order Houses, Chain Stores.
- c) Wholesale Trade-Functions of Wholesaler, his role with reference to services to retailer and manufacturer.

2. Office Organisation :

- a) Concept and Importance.
- b) Working of different Departments in an Office.
- c) Outward and Inward correspondence.
- d) Need and importance of filing. Various systems of filing.
- e) Time and labour saving devices.
- f) Postal information - Letter-Parcels-Registration-Telegrams-Money orders.

STANDARD-X

1. Commercial organisation and their types

Sole Trader-Partnership-Joint Stock Company-Cooperative Societies and their relative merits and demerits.

2. Elements of Salesmanship

Role and Importance of Salesmanship and Advertising-Qualities of good salesmen.

3. Banks and other institutions.

- a) Different types of Banks and their importance.
- b) Opening and operating a Bank account, services to the customer.

Practical work

- 1) Visits should be arranged to Departmental Store and retail shops.
- 2) From the given material inward and outward registers should be written by the students.
- 3) From the given material the students should be required to fill in the forms such as money order forms, registered A. D., certificate of posting.
- 4) An attempt be made to show and demonstrate the working of the various labour saving devices such as Typewriter, Duplicator, Numbering machine, Calculating machines, Franking machines etc.,
- 5) Simulated situations in Salesmanship for developing selling points, for specific goods could be conducted by the method of role play between student-customer and student-salesman.
- 6) Opening a Bank account by using actual documents with the method of role play between student-customer and student-Bank Officer.

Practicals in Commercial Organisation

STANDARDS-IX and X

Every student is expected to complete, in all, five assignments. Each assignment carries ten marks. A Student is expected to maintain a separate note-book for recording details of practicals. A teacher is expected to inspect the note-book and sign the same.

Following are the assignments- out of which every student should complete any five assignments during the period of two years :

1. From the given material inward and outward dummy registers should be written by the students.

2. From the given material the students should be required to fill in the forms such as money order forms, registered A. D., certificate of posting etc. and to preserve these forms.
3. Demonstration of the working of the various labour saving devices such as Type-writer, Duplicator, Numbring Machine, Calculating Machines, Franking Machines, Telephones, Every student is expected to be acquainted with them.
4. Simulated situations in Salesmanship for developing selling points, for specific goods could be conducted by the method of role play between student-customer and student-salesman. Model lessons should be given and acted upon. They should be entered in Journal Book.
5. Opening a Bank account by using dummy documents with the method of role play between student customer and student Bank Officer.
6.
 - a) Classification of papers - supplied to a student.
 - b) Demonstration of the filling papers in different files.
 - c) Demonstration of working of Index system.
7. Observations of the visit arranged to a retail-shop, commercial office, Government Office, post office. Bank, etc. should be recorded in the practical book.
8. Registration of a Co-operative Society in rural area or an unit under small scale industries scheme, The dummy forms for registration will be supplied to students.

Notes : 1. Use of Work-book should be encouraged.

2. Use of film-strips should be encouraged.

Economics

STANDARD-IX

Human wants, their characteristics and classification.

- 1.1 Means to satisfy these wants.
- 1.2 Scarcity of the means.
- 1.3 Economic problems and Economics.
- 1.4 Importance of the study of Economics.

Basic concepts of Economics

- 2.1 Consumer's goods and services.
- 2.2 Producer's goods and services.

- 2.3 Wealth, production, exchange and distribution.
- 2.4 Division of Labour (only concept to be introduced, no details.)
- 3. **Kinds of money** : coins, paper currency and Band money
- 4. **Banks** : their kinds and function; cheques; kinds of cheques, crossing.
- 5. **Factors of production** : Natural and Human.
 - 5.1 Natural resources, land and irrigation, Forests Minerals and Sea Wealth,
 - 5.2 Human resources and their efficiency.
 - 5.3 Capital and its forms, Machinery and Merits and demerits of machine production.

STANDARD-X

- 1. **Organisers and their functions**
 - 1.1 Organisation of production and its forms.
 - 1.2 Proprietorship, partnership, Joint Stock Company, Co-operative and State enterprises (Detailed study).
- 2. **Market and their types**
 - 2.1 Means of communication and the sizes of markets.
 - 2.2 Free Competition and monopoly.
- 3. **Demand and Supply : their laws**

Determination of the price of the commodity.
- 4. **National Income and its distribution** (only concept to be introduced)
 - 4.1 Money Income and Real Income.
 - 4.2 Inequality of Income, its causes and remedies.
- 5. **Price level**

Fluctations in price and their effects on different classes.
- 6. **Kinds of Taxes** : Direct and Indirect Taxes, Progressive Proportional and regressive taxes.
 - 6.1 Developmental and Non-developmental Expenditure.
 - 6.2 Productive and un-productive.

Practicals

Typewriting (Commerce)

STANDARD-IX

Insertion and adjustment of paper and setting of margin - explanation of touch system practicing of 3 lines excluding figures, row of the keyboard - typewriting of easy words - introduction of shift-keys. Typewriting of simple sentences alphabetical sentences and passages. Knowledge and proper use of punctuation signs. - Knowledge of lay-out commercial letters - typewriting of simple commercial and official letters - Use of carbon papers.

STANDARD-X

Introduction of figuring of first row (figures and signs thereon) - typing of difficult passages consisting of figures - Layout of Agenda - typing of Agenda of meetings - Use of tabular system - typing of tabular statements and book-keeping accounts.

V. Elements of Fine Arts

A-ARTS

1. Drawing and Painting

History and Appreciation of Art and Practical

Objectives:

To enable the pupils to -

1. acquire knowledge of the history of art as also fundamentals of art and principles of design.
2. understand drawing and painting that depict culture.
3. express through the media of drawing and painting.
4. develop skills in using tools and materials of drawing and painting.
5. develop interest in fine arts, particularly in drawing and painting.
6. appreciate good pictures and painting.
7. appreciate the beauty in nature.
8. develop the feeling of emotional integration through the love of the fine art.

STANDARD-IX

I. History of Art

1. The pre-historic art of India and Europe ; The meaning of the terms-Palaeolithic or early Stone Age and Neolithic or later Stone Age ; Development of forms in the early stone implements, potteries, figurines, engravings, the cave paintings of pre-historic man.

2. Art of the early River Valley Civilizations of the ancient world :
 - i) Nile River Valley Civilization.
 - ii) Euphrates – Tigris River Valley Civilization.
 - iii) Indus Valley Civilization.
 - iv) Yellow River Valley Civilization of China.

Cultural developments of the people as seen from their important art objects such as monumentals, sculptures, paintings and minor crafts. Comparative study of some art objects such as seals, statues, potteries etc.

3. Brief survey of the developments in ancient India on arrival and settlement of Indo-Aryans after destruction of Indus Valley civilization till the beginning of Maurya Empire in India.
4. Early Buddhist art and its development in India under the following empires :
 - i) The Maurya Period.
 - ii) Sunga Period – Bharut, Bodhgaya and Sanchi phases – Chatiyas and Viharas.
 - iii) Andhra Period – Amravati and Nagarjunkonda.
 - iv) Kushana Period – Mathura and Gandhara Art.
5. European Art – Greek and Roman Art - Similarities and differences, contributions to the European world in Art and Architecture.

II. Appreciation of Art

1. Fundamentals of Art and Principles of Design. Detailed study of these aspects to be covered during this year.
2. General principles of Indian art with reference to Drawing, Painting, Sculpture, Architecture and Crafts.
3. Study of visual and emotional appeal of form, colour and texture.

Practicals

N. B. - About six exercises in each of the following three subjects i. e. still-life, design and composition should be done in a year.

1. Still life

Study of man-made objects and natural specimens.

To understand forms, colour and their interrelationship for creating a picture with reference to the group of objects arranged.

A. Representational Approach

To study a single object or a group of objects with particular reference to -

- i) Relative proportion through drawing of shapes.

- ii) Tonal values in pencil of achromatic and monochromatic scheme.
- iii) Organisation of shapes considering the group, background and foreground etc.
- iv) Similar exercises should be executed in colours.
 - a) Creative approach (overlapping).
 - i) To organise the forms of the objects placed (not arranged in a group) before students.
 - ii) To create a design by overlapping the forms thus arranged and to invent new patterns to be filled with masses of light and dark tones.
 - iii) Such designs should be finished in different colour schemes.
 - b) Creative approach (change in relative proportion).
 - i) Similar exercises given in under (a) i. ii. iii should be arranged.
(Note – The students should be encouraged to make necessary changes in the relative proportions of the objects to suit their design.)
 - ii) Similar exercises may be arranged to use both devices simultaneously.
(Overlapping and change in relative proportion).

Design

- a) To execute a design based on geometrical, natural, conventional forms through colour medium and to suggest the particular purpose, such as -
 - i) Pottery - Vase, dish, tray, bowl, cup, saucer etc.
 - ii) Common objects - fan, lamp-shade, toy, articles of metal, stone, wood, plastic etc.
 - iii) Textile - Weaving, printing and embroidery etc.
- b) Lettering - (Deonagari and Roman-scripts) Layout and designing required for publicity purposes, such as name-plates, labels, bookjackets, greetings, show-cards, posters etc.
- c) Colour - Experimenting colours to gain different colour schemes such as monochromatic, analogous, complimentary, warm and cool colour schemes and to gain confidence for creation of different textures as well.
- d) Print-making - Experiments as laid down for standard VIII should be continued. Extensive practice giving stress on monoprint-making should be continued.
- e) Experimenting and executing the design and construction work through paper, card board, cloth, wood, clay, plastisine and wire should form a part of design.

Notes : a) Designs may be executed in temperate water, poster colours and other mediums.

Other technique such as print-making, stenciling, paper-cut pasti may be used.

- b) The prevailing limited concept of decorative design being exclusively symmetrical needs to be done away with and the teacher should try give scope for treating the concept and colours independently.

3. Composition (Design).

- a) Expression and creating of composition on the subject, topic or incident daily life, history, mythology and culture activities and to be executed in colours.
- b) Understanding of drawing, form (studied from human and animal figures).
- c) Study of traditional Indian paintings, such as Mughal, Rajput, Kangda.
- d) Indoor and outdoor sketching.

STANDARD-X

I. History of Art

1. Gupta Period - i) Culmination of Indian Classical Art through literature, religion and visual arts i. e. Sculpture, paintings, architecture (ii) Technique contents and style of Ajanta paintings and Bagh paintings. (iii) Impact of Indian classical paintings on other Asian countries i. e. China, Turkestan, Indonesia, etc.
2. Renaissance in European Art - Development of plastic form, perspective, anatomy and revival of classical elements, effects on art on account of humanistic studies and development of other Sciences.
3. Temples in India - a) Development of Hindu Art and Architecture during the 7th to 13th Century in India under the following dynasties-
 - i) Chalukyas - Temples at Badami and Aihole.
 - ii) Pallavas of Kanchi in South - Rock cut shrines and sculptures at Mahabalipuram.
 - iii) Rashtrakutas - Kailasa Temple at Ellora - Elephanta cave near Bombay
 - iv) Chandelas - Khajuraho Temple.
 - v) Gangas of Kalinga - Temples at Bhuvaneshwar, Konarak and Puri.
 - vi) Chola - Temples at Tanjore - Bronze Nataraja.
 - vii) Hoysala and Yadava - Temples at Halebid and Bellur.
 - viii) Vijayanagar - Vithal Temple, Shrirangam.

- b) Jain Temples of Solanki in Gujarat - Abu, Girnar.
- c) Buddhist Art in Pala Dynasty - Sculpture and Bronzes.
- 4. Miniature paintings of India. - (i) Pala Miniatures. (ii) Western India School. (Jain Miniatures). (iii) Rajasthani. (iv) Pahari. (v) Moghal School (iv) Deccan School.
- 5. Islami Monuments.
- 6. Art of India during British Regime-Impact of Western elements.
- 7. Revival of Indian Art : Bengal School.
- 8. Survey of Art in India and Europe during the 19th and 20th Centuries.

Appreciation of Art

Broad information on following point-and to be given to develop the understanding appreciation of works of art :-

- 1. Perception, learning to see form, matter, relation between nature and art, sensibility of human being and desire for expression. Artists way of looking at things and his expression, medium and materials.
- 2. Special features of Indian Art (Painting, Sculpture, Architecture and Crafts).
- 3. Emotional and visual appeal of line, form, colour and texture.

Practicals

- 1. Still life

Study from man-made and natural objects to be contained progressively and with reference to the study covered in Standard IX.

A. Representational Approach

To render a group of objects (including natural specimens) arranged against some background and foreground in pencil, ink or colours as seen or giving dominance to object of attraction.

B. i) Creative Approach (distortion).

To create a design based on the distortion of forms of the objects placed before the students (but not arranged in any group).

The distortion should be done to suit the design but based on overlapping and change in proportion. Colours and tonal values may be changed to suit the design.

ii) Creative approach (change in colour).

Exercises suggested above may be given allowing the students to change the colour in the following manner :

- a) To maintain the colour of the dominant object and to render the design (still life) either in analogous, complementary, cool or warm colour schemes.

- b) To colour the design (still life) based on distortion and change of colours by adopting different mediums and materials for creating textures to suit expression.

2. Design

- a) Organisation of forms, colours within a given or created shape. Execution of design should aim at free use of different mediums and techniques, including collage.
- b) Designing of posters, covers—greetings, showcards etc. Devnagari and Roman scripts, free forms to be used.
- c) Experimenting and creating of three dimensional constructions and designs using different mediums, including local materials.
- d) Blending of colours for creation of different schemes, textures and dimensional illusions.

3. Composition (Design).

- a) The study of this subject will have the continuity of the previous years' study but the students will be required to study various (styles) of painting both Indian and Western with special reference to drawing colouring, philosophic aspects of the concepts etc.
- b) Study of master-pieces to understand different techniques and approaches,
- c) Outdoor and Indoor sketching.

Note :- Exercises suggested previously may be continued progressively maintaining and developing interest of students in creation and expression

N. B. - About six exercises in each of the subjects i. e. Design, Composition and still life should be done in a year.

2. Indian Music

Objectives :

1. To provide opportunities for expressing and developing his/her artistic abilities.
2. To train the student to appreciate and enjoy music.
3. To enable him/her to understand the relationship between culture and music.
4. To inspire and encourage him/her to build a career as a musician in future.
5. To help him/her in developing his/her personality.
6. To create the feeling of national and emotional integration through various forms of music.

STANDARD—IX

History and Appreciation

Theory : (Vocal and Instrument) :

1. Knowledge of Sangeet. Swara and its kinds, Saptak and its kinds, That, Raga, Aroha, Avaroha, Vadi, Samwadi, Pakad, Alankar, Anuvadi, Vivadi, Rag-jati, Laya and its varieties, Matra, Tal, Sam, Kal, Khand, Avartan, Sound and its qualities.
2. Study of the following Talas : Vilambit-Ektal, Tilwada, Choutal.
3. Study of 'Bhatkhande' or 'Paluskar' notation system and ability to write the notations of the Geets or Gats in the prescribed Ragas.
4. Description of the following varieties of songs with their special features : Bada Khyal, Dhrupad, Powada and Lavani.
5. General information about the following instruments : Sitar, Violin, Tabla, Tambora.
6. Short life sketch of the following artists : Ravishankar, Bismila Khan, Abdul Karim Khan and Thirakhwa.
7. Knowledge of Varna and its kinds Samwad, Shruti.
8. Brief history of Indian Music during Vedic and Mughal periods.
9. General knowledge of special features of Indian Music.

Practical

Note - A candidate who is not able to sing may be allowed to give his practical test by playing on any of the following instruments :

- 1) Violin, 2) Sitar, 3) Dilruba.

- 1) a) Study of Swaralankars (स्वरालंकार).
- b) Ability to sing or to play the Swaras asked by the examiner and ability to recognise the Swaras and Ragas sung by the examiner.
- 2) Study of the following Talas with their Matras (मात्रा), Talis (टाळी), Kal (काल), Bols (बोल) and Khands (खंड), Vilmbbit Ektal(विलंबित एकताल),Tilwada (तिलवाडा) Choutal (चौताल), Dhumali (धुमाळी), Ability to utter the Theka-Bols (ठेका बोल) of the Talas mentioned above.
- 3) Study of 'Paluskar' or 'Bhatkhande' notation system. Ability to write the notations of the Geet (गीत) or Gats (गत) from the Ragas mentioned below in No. 4,

4 A) Study of the 'Geets' or 'Gats' from the following Ragas with Alap (आलाप) Tan (तान), Boltan (बोलतान) : (1) Kalyan (कल्याण), (2) Bhimpalas (भीमपलास) (3) Bageshri (बागेश्री).

B) One Geet from each of the following Ragas and any one Lakshangeet (लक्षणगीत) : (1) Bhairavi (भैरवी), (2) Malkans (मालकंस), (3) Kafi (काफी), Study of all these six Ragas regarding Aroha-Aavroha (आरोह-अवरोह), Pakad (पकड), Vadi-Samwadi (वादी, संवादी), Jati (जाती), Samay (समय), is essential

Ability to sing one Bada Khyal with Alap in any one of the Ragas given in 'A'
Ability to sing one Bhajan or one Dhrupad in any Raga.

Note: Candidates offering Sitar should play 'Maseedkhani' gat in place of Bada Khyal.

Note: In lieu of the above syllabus a candidate can take the following subjects.

TABLA

Theory :

1. Knowledge of Sangeet, Swara and its kinds, Saptak and its kinds, That, Raga, Aroha, Avaroha. Laya and its kinds and Matra, Tal, Sam, Kala Khand, Theka, Mukhada, Tukada. Mohara, Tinha, Avartana etc.
2. Study of the following Talas:- Vilambit-Ektal, Tilwada, Choutal.
3. Study of 'Bhatkhande' or 'Paluskar' notation system.
4. Description of the following varieties of songs with their special features : Bada Khyal, Dhrupad, Pawada, Lavani.
5. General information about the following instruments: Sitar, Violin, Tabla, Tambora.
6. Short life-sketches of the following artists : Ravishankar, Bismillakhan, Thirakwa, Abdul Karim Khan.
7. Brief information about 'Delhi', 'Baj'.
8. Brief history of Indian Music during Vedic and Mughal periods.
9. General knowledge of special features of Indian Music.

Practical :

1. a) Knowledge of producing the following syllables on Tabla and Dugga :
ना घा ति धि धागे तक त क्त् कता तिरकिट धिरकिट तक कडां छिडनग, तिटकतं गदिगन.
b) Ability to produce the syllables asked by the examiners and to recognise the syllables played.
2. Study of the following Talas with their Bols.
Matras [मात्रा], Kal [काल], Khands (खंड), Talis (टाळी), Sam (सम), Trital (त्रिताल), Zaptal (झपताल), Drut Ektal (द्रुत एकताल), Vilambit Ektal (विलम्बित एकताल)--
Dadara (दादरा), Kerawa (केरवा), Choutal (चौताल), Ability to express and to play the Thekas of the above mentioned Talas.
3. a) Study of the Tal Notation system of the Late Pandit Paluskar or Bhatkhande
b) Ability to express and to write and to play dugun of the Tala—त्रिताल.

- 4 Ability to play one Tihae (तिहाई) in Trital from Kal (काल) to Sam (सम) and from Sam (सम) to Sam (सम) of one avartan (आवर्तन). Similarly the candidate should be able to play two mukhdas (मुखडा) from Kal (काल) to Sam (सम) in Trital (त्रिताल).

STANDARD-X

story and Appreciation

theory: (Vocal and instrumental)

1. Knowledge of Varna and its kinds : Samwad, Shruti, Raga-Rules.
2. Study of the following Talas : Zumra, Deepchandi, Dhamar, Roopak.
3. Description of the following varieties of song with their special features : Thumari, Hori, Tappa, Chatarang.
4. General information of the following instruments : Dilruba, Flute.
5. Shortlife- sketches of the following artists : Pannalal Ghosh, Ali Akbarkhan, Bhaskarbuwa Bakhale, Bade Gulam Ali.
6. Brief information about 'Kirana Gharana'.
7. Brief history of Indian Music during 'Maratha' and 'British' periods.
8. General knowledge regarding appreciation of Indian Music.
9. Importance and use of modern educational aids in music education.
10. Study of 'Bhatkhande' or 'Paluskar' Notation system. Ability to write the notations of the Geets or Gats in the prescribed Ragas.

practical

Note:- A candidate who is not able to sing may be allowed to give his practical test by playing on any of the following instruments : Violin, Sitar, Dilruba.

1. a) Study of Swaralankars (स्वरालंकार), Ability to sing or to play and write 'Swarlankar' upto the combination of five Swaras.
- b) Ability to sing or to play the Swaras asked by the examiner. Similarly, ability to recognise the Swars and Ragas sung by the examiner.
2. Study of the following Talas with their Matras (मात्रा), Talis (टाली), Kal (काल) Bols (बोल) and Khands (खंड), Zumara, Deepchadi Dhamar, Roopak. Ability to utter the Theka bols (ठेकाबोल), of the Talas mentioned above.
3. Study of 'Paluskar' or 'Bhatkhande' notation system. Ability to write the notations of the three Geets (गीत), or Gats (गत) from the Ragas mentioned below in No. 4.

4. A) Study of the Geet or Gats from the following Ragas with Alap (अलाप) (तान), Bolatan (बोलतान): (1) Bihag (बिहाग), (2) Awarari (आसारि), Shankara (शंकरा).

B) One Geet from each of the following Ragas and any one Lakshan (लक्षणगीत): (1) Khamaj (खमाज), (2) Des (देस), (3) Patdeep (पटदीप).

Study of all these Ragas regarding Aroha (आरोह), Avaroha (अवरोह), Pa (पकड), Vadi-Samvadi (वादी-संवदी), Jati (जाती), Samay (समय) is essential.

5. Ability to sing one Bada Khyal with Alap and Tan in any one of the Ragas given in 4 (A). Similarly ability to sing one Tarana and one Bhajan or Naam Geet.

Note: Candidates offering Sitar should play 'Ma'eedkhani Gat' instead of 'Bada Khyal'.

Note: In lieu of the above syllabus a candidate can take the following subjects.

TABLA

Theory:

1. Knowledge of: Mohara, Tihara, Kayada, Peshakara, Uthava, Paran, Rag Lagge, Simple, Chakradhar.
2. Study of the following Talas: Zumra, Deepchandi, Dhamar, Roopak.
3. Description of the following varieties of songs with their special features: Tappa, Thumari, Hori, Chatrang.
4. General information of the following instrument: Pakhwaj, Dilruba, Flute.
5. Short Life sketches of the following artists: Samataprasad, Pannalal Ghosh, Ali Akbar Khan, Bhaskarbuwa Bakhale, Allarkhan.
6. Brief information about 'Ajrada Baj'.
7. Brief History of Indian Music during Maratha and British periods.
8. General knowledge regarding appreciation of Indian Music.
9. Importance and use of modern educational aids in music education.

Practical:

1. a) Knowledge of producing the following syllables on Tabla and Dugga: धिर, धिट, किरध्रा, तकिटथा, तूना, किडनग, धानीन, धिःकिट, धिडनग, तिःकिटन, धिरकिटनक, तिःकिट, गदिमन.
- b) Ability to produce the syllable asked by the examiner and to recognise syllables played.

2. Study of the following Talas with their Bols (बोल्), Matras (मात्रा), Khanda (खंड), Tali (टाली), Sam (सम), Tal (ताल).
Dhamar (धमार), Tilwada (तिलवाडा), Dhumali (धुमाली).
Deepchandi (दिपचंदी), Roopak (रूपक), Zumara (जुमरा).
Ability to express and to play the Bols of all above Talas.
3. Ability to express and to write and to play Dugan of the following Tal (ताल)
Zaptal (झपताल)
4. a) Ability to play one Kayada (कायदा), one Paran (परन), and two Mukhadas (मुखडा) in Zaptal.
b) Ability to recognise Theka and to play it by recognising 'Sam' of the Geet or Gat.
5. Ability to play some varieties of Laggees (लग्गे) in Dadara and Kerwa.

3. EUROPEAN MUSIC

STANDARD—IX

theory

(Knowledge of Standard VIII is included in this course).

1. a) Notation.—Position of the notes on the staff ledger lines—Treble and Bass Glef—Accidentals.
b) Scales—Formation of the Major and Minor Scales (Harmonic and Melodic) with key signatures.
c) Transposition—Of a melody from one key to another naming the Key of a given passage and supplying its Key signatures.
2. a) Time—Relative duration of sounds—notes rests dots—Tibs—Staccato—Marks—The Pause—Regular and Irregular Grouping of Notes—Syncopatims—Adding Time Signatures and Bar Lines to a given melody—Rewriting a passage with altered note—values after a different Time—Signatures, Completing a Bar by the addition of Notes and Rests.
b) Intervals,—Diatonic and Chromatic within the Octave with their inversions.
c) Terms and Signs in general use—Words (English and Italian only) and marks indicating Tonal variety and contrast speed and general direction as to performances of abbreviations.
3. Harmony— a) The construction and designation of Cadences in a major or minor keys (perfect—plagal—Imperfect mixed—and Interrupted).
b) The Analysis of a simple eight bar melody into Fore and 'After' phrases and sections.
c) The indication of key changes in a given example (Modulation).
4. Musical History—Short lives of Bach—Beethoven and Brahms.

Practical

1. Sight Reading and Aural Tests—The following tests should be studied:
 - a) Test of an Elementary Character (Grade II or III) in a Major Key. The Signatures not exceeding more than two sharps or flats in 2/4 or 3/4 times.
2. Aural Training:—
 - a) A simple Rhythm: 4 bars in 2/4 or 4/4 times should be played as a Melody to the candidates (note-value expected Semibreve—Minim—Crotchet: or Quaver (dotted or undotted); Candidates will be expected to write a rhythm on a monotone.
 - b) Candidates will be required to produce in notation, prefixing the correct time-signatures. A short melodic phrase of not more than 4 notes beginning on the first beat of a bar. The Key Signatures not exceeding more than 2 sharp or flats. (Major keys only on any degree).
 - c) Candidates will be expected to describe the intervals played melodically.
 - d) Candidates will be expected to name perfect, imperfect, mixed and interrupted Cadences in Major keys only.
 - e) Candidates will be expected to recognise—Major, Minor, Augmented and Diminished Triads in Root position only.

STANDARD-X**SECTION: RUDIMENTS OF MUSIC****Theory**

1. Notation

- a) Scales— (Diatonic and Chromatic Major and Minor Both forms) Name the Key of a given passage and Supplying the Key Signatures etc.
 - b) Transposition – Transposition of a simple passage from clef to clef (G. C. F) and from Key to Key.
2. Time and intervals :—
 - a) Time :- Relative duration of sounds, notes, rests, dots, Tibs, Staccato Marks. The Pause, Regular and Irregular grouping of notes, Adding time--Signatures and bar-lines to a given melody. Re-writing any passage with altered note values after a different Time. Signatures. Completing a Bar by the addition of Rests or Notes.
 - b) Intervals :- Diatonic and Chromatic, Simple and Compound, Direct and Inverted. Concord and Discords.
 3. Musical Terms, Signs and Ornaments :-
 - a) Word (English and Italian) and marks indicating tonal variety and contrast, speed and general directions as to performance.
 - b) Abbreviations, Embellishments, the appoggiatura-Accieatura-Pralltrill Mordent, Turn

Section II: Harmony and History

1. Harmony— a) Simple exercises on Triads and their Inversions the Dominant Seventh and its Inversions and Resolutions.
b) The constructions and designations of Cadences (Perfect, Plagal, Imperfect, Mixed and Interrupted) in a Major or Minor Keys.
2. Figuring of Bases—Melodic Analysis and Modulations.
 - a) Figuring the Bass of a Simple example of a vocal Harmony, upto and including chords of the seventh and their Invesions,
 - b) The analysis of a simple eight-bar melody into 'Fore' and 'After' phrases and sections.
 - c) The indication of Key changes in given examples (Modulation).
3. Musical History—The biography of the following three great composers with their main works etc. will be required.
 1. Bach J. S. (1685-1759)
 2. Beethoven L. V. (1770-1827)
 3. Brailis J. (1833-1897)

actical

Sight Reading and Aural Tests— 45 minutes.

(The examinations will be conducted by a suitable qualified examiner appointed by the Board.)

Requirements :

1. Sight Reading Test : (Piano or Violin)—A test of an Elementary Character (Grade IV or V) in a Major or a Minor Key. The key-signatures not exceeding 3 sharps or Flats in simple or compound time.
2. Aural Training—From the following Five Tests candidates can state any **three** of them
 - i) A simple rhythm in one of the following times :- $2/4$, $3/4$, $4/4$. The passage will be played as a melody to the candidates who will be expected to write the rhythm on a monotone.
 - ii) Candidates will be required to produce in notation prefixing the correct key and time signatures, a short melodic phrase of not more than 4 bars, beginning on the 1st beat of a bar. The key will be named and passage played three times, the key-signatures not exceeding 3 sharps or flats.
 - iii) Candidates will be required to name the intervals played melodically, the extremes of which will not be more than an Octave apart. The topic chord

will be sounded before each example and the key named. Each example will be played 3 times.

- iv) The perfect, imperfect, interrupted or plagal cadences in Major or Minor keys will be played by the Examiner. Each cadence will be preceded by the Tonic Chord and will be played 3 times. Candidates will be expected only to describe the cadences and not to write them in Musical notations.
- v) Triads will be played in Root-position. Candidates will be required to recognise them as a Major-Minor-augmented and diminished.

4. DANCING

Objectives:

1. To provide a foundation course for students intending to take up Dancing at the higher secondary level of education.
2. To create an interest in the art of Classical Dancing as one of the main aspects of the Indian Culture.
3. To provide a timely opportunity to the students to know their artistic inclinations and to identify the inherent aptitude or talent for Dancing.

Note on choice of subjects

Students opting for the subject of Dancing at the 9th and 10th Standards will have to take up two papers of 100 marks each (one theory and the other practical) in any one of the four main classical dances of India—viz.

(1) Kathako (2) Manipuri (3) Bharat-natyam and (4) Kathakali.

KATHAK (कथक)

STANDARD—IX

Theory

Introduction to the Kathak Style of Dancing

- a) i) Brief history and development.
- ii) The present form.
- iii) Main Schools (Gharanas).
- b) i) Definitions of Tal (ताल), Laya (लय), Khan ka (खंड), Matra (मात्रा), Tala (टाली), Khali (खाली), Sam (सम), Theka (ठेका), Paran (परन), Tukra (तुकड़ा) Tihai (तिहाई) etc,

- ii) Distinction between Nritta (नृत्य), and Nritya (नृत्य), Lasya (लास्य), and Tandava (तांडव), Vilambita (विलंबित), Madhya, druta (मध्य, द्रुत), Sthayi (स्थायी), Dugun (दुगुण), Chowgun (चौगुण).
- c) Knowledge of Trital (त्रिताल) and Zaptal (अपताल).
- d) Life Sketches of the late Pt. Acchanmaharaj (पं. अछनमहाराज), Pt. Shambhu-maharaj (पं. शंभुमहाराज), Pt. Layalal (पं. लयलाल) and Pt. Sunderprasad (पं. सुंदरप्रसाद).

acticals

- a) Introduction to the technique of Kathak Dance through Basic Exercises.
- i) Foot positions : Sama (सम), Udghatita (उद्धतित), Agratala sanchara (अग्रताल संचार), Anchita (अंचिता), Kunchita (कुंचिता) and Soochi (सूची).
- ii) Stances (2)
- iii) Bhramaris (भ्रमरी), Chakkars (चक्कर). (2)
- b) Trital (त्रिताल), Madhya (मध्य) and Druta laya (द्रुत लय), Nritta (नृत्य) (Pure Dance).
- i) Amad (आमद) } 12 in number
- ii) Parans (परन) }
- iii) Tukra (तुकड़ा) }

Nritya (नृत्य)

- i) Gatnikas (गतनिकास) (2).
- ii) Gat—Ghunghat and Murli (गत—घुंघट आणि मुरली) (2).
- c) **Tatkar** (तत्कार)
- i) Basic tatkar (तत्कार) of Trital (त्रिताल) in Sthayi (स्थायी), Dugun (दुगुण) and Chougun (चौगुण) Laya (लयी).
- ii) Simple variations in Tatkar (तत्कार) in Trital (त्रिताल) (1).
- d) Practical knowledge of Asamyukta (असंयुक्त), and Samyukta Hastas (संयुक्त हस्त) from Abhinayadarpan (अभिनयदर्पण).
- e) Recitation of all the Bols (बोल) learnt. keeping time with the hands.

STANDARD-X

Theory

- a) A general survey of the history and development of one South Indian and one North Indian classical style of Dancing (leaving the chosen style).
- i) Kathak or Manipuri.
- ii) Bharatnatyam or Kathakali.
- b) Definitions of : (i) That (थाट), Amad (अमद), Kavita (कविता), Bol tukra (बोल तुकड़ा), Chakradar (चक्रधार), Gathikas (घटिका), Gathbava (गतभाव), Tatkar (तत्कार), Anga (अंग), Pratyanga (प्रत्यांग), Upanga (उपांग).
- ii) Distinction between : Four types of Abhinaya (अभिनय), Angika (अंगिक), Vachika (वाचिक), Aharya (आहार्य), Sattvika (सात्विक).

- c) Knowledge of the Talas (ताल), Dadra (दादरा), and Kharwa (करवा), together with Trital (त्रिताल) and Zaptal (झपताल).
- d) Life sketches of Swa. Bindadin Maharaj (स्व. बिनदादिन महाराज), and Kalka Prasad (कालकाप्रसाद), and Madana Monaka Sokhe (मदनामोनाका सोखे).

Practicals

- a) Zaptal (झपताल) : Vilambita and Madhya Laya : (विलंबित आणि मध्य लय) :
Nritta (pure dance) (नृत्त)
i) Amad (आमद) }
ii) Parans (परन) } 12 in number
iii) Tukra (तुकडा) }
- b) Trital ; Revision of the Bols (बोल) learnt in the previous year, together with three new Tihais (तिहाई)
- c) Nritya : (नृत्य)
Gatnikas (गतविकास) in Trital (त्रिताल) (2).
Gat-matki (गत मटका) (1).
Gatbhava (गतभाव) (2). (any incident from the puranas)
- d) Tatkar (तत्कार)
i) Basic Tatkar of Zaptal (झपताल) in Sthayi (स्थायी), dugun (दुगुण) and Chowgun laya (चौगुण लयी)
ii) Kramlaya (क्रमलय), in Trital-Sthayi (त्रिताल स्थायी), Dugun (दुगुण) Chowgun (चौगुण) and Asthagun layas (अष्टगुण लयी).
iii) Two more variations of Tatkar (तत्कार) in Trital (त्रिताल).
- e) Recitation of all the 'bols (बोल)' learnt in the current and previous year keeping proper time with the hands.

MANIPURI DANCING

STANDARD-IX

Theory

- a) Introduction to Manipuri Dancing (मणीपुरी).
i) Brief history and development.
- b) Musical aspect
i) Learning Tal (ताल) and its prastars (प्रस्तार)
ii) Mridang Vadan (मृदंग वादन).
iii) Geet-learning songs.
- c) Hastas (हस्त).

Practical**(a) Analytical Movements**

- i) Padabheda (पदभेद) - Positions of feet.
- ii) Chari (चारी) - Movement of feet.
Rasanatika (रस-नाटिका) on the ground.
Sampluta (संभूता) while jumping.
- iii) Upavishtha (उपविष्टा) - Sitting movements.
- iv) Bhramari (भ्रमरी) Lasya and Tandav (लास्य आणि तांडव)
(Spiral movements).
- v) Sthanak Bheda (स्थानक भेद) Basic Postures.
- vi) Shirsha Bheda (शीर्ष भेद) - movements of the head.
- vii) Baubheda (बाहुभेद) - movements of the arms
- viii) Parshva Bheda (पार्श्वभेद) - movements of the torso.
- ix) Karakarana Bheda (करकरण भेद) - movements of the fingers.
- x) Nritya Hasta Kriya (नृत्य हस्त क्रिया) - uses of the hand gestures used in pure dance.

b) Nritya Bandh (नृत्य बंध)

1. Chali-Lasya (चाली लास्य) - 4 Prastars (प्रस्तार).

c) Festival Dance (any one)

- e. g. Meibi Jagoi (मायेबी जागोई).

STANDARD-X**Theory**

- a) A general survey of the history and development of one South Indian and one North Indian Classical style of dance (leaving the chosen style).

- i) Manipuri or Kathak,
- ii) Bharatnatyam or Kathakali.

b) Musical Aspect

- i) Learning Tal (ताल) and its Prastars (प्रस्तार).
- ii) Geet-Learning songs.

- c) Usage of Hastas (हस्त).

Practicals**a) Nritya Bandh (नृत्य बंध)**

- i) Chali (चाली) - Tandav (तांडव) - 4 Prastars, (४ प्रस्तार).
- ii) Tal Tanchep (ताल तनचेप) - Tandav (तांडव) - 4 Prastars (४ प्रस्तार).

- b) **Nritta Prabandh** (नृत्य प्रबंध)
 i) Krishna Abhisar (कृष्ण अभिसार)
 ii) Radha Abhisar (राधा अभिसार).

b) **Festival Dance**

- i) Khomba (खोंबा) - Thoibi Jagoi (Leiharaoba) (थपोयी जागोई) (रैहरीबा)

Bharatha Natyam

STANDARD-X

Theory

Introduction of Bharatha Natyam [भरत नाट्यम्]

- a) Brief history and development of Bharatha Natyam; Different styles of Bharatha Natyam like Pandanallor Style (पडनल्लूर) Pichayya Pillai Style (पिच्चय्य पिल्लै) why was the name 'Devadasiattam' (देवदासीआत्तम्) etc,
 b) Systematic training of Bharatha Natyam.
 c) Five famous living Bharatha Natyam gurus.

Practicals

- 1) Basic adavs (अडाव) in 2 different talas.
- 2) Two Theerumanams (थिरुमणम).
- 3) Exercises of Neck, Body, Legs (3 each).
- 4) Eleven Samyukta (संयुक्त) and 15 Asamyukta Hastas (असंयुक्त हस्त).
- 5) Eye and Eyebrow Exercises,
- 6) Recitation of any 3 Talas.
- 7) Eight Folk Dance steps from Kuvavanj (कुहवंजी).
- 8) Allarippu (अलारिपु) in full.

STANDARD-X

Theory

General survey of the history and development of one South Indian and one North Indian Style of Classical dancing, leaving the chosen style.

- a) (1) Manipuri (2) Kathak (3) Bharatha Natyam (4) Kathakali.
- b) Systematic training in an ancient Bharatha Natyam School; describe 24 hours stay there as a dance student.
- c) Five late renowned gurus.
- d) Names of Bharatha Natyam vaggayakars (वाग्गकार)

Practicals

- 1) Revision of the old Adavs (अडाव) and all the Theerumanams (थिरुमणम).
- 2) Exercises of Neck, Body, Legs, Eyes, Hands alongwith revision of previous years' exercises.

- 3) Jatiswaram (जटिश्वरम्) (4 Advas).
- 4) Rasabhinayam (रसाभिनयम्), Shringara (शृंगार) and Hasya (हास्य).
- 5) Recitation of 3 Talas in (3 speeds).
- 6) All the samyukta (संयुक्त) and Asamyukta Hastas (असंयुक्त हस्त).

KATHAKALI (कथकली)

STANDARD-IX

Theory

Introduction of Kathakali (कथकली)

- a) Brief history and development of Kathakali Ramanattym (रामनाट्यम्) and Southern School of Kathakali in Kerala.
- b) Five Famous pioneers among Kathakali Gurus.

Practicals

Kalsadhakam (कालसाधकम्) Foot work (पदग्रास)

- a) i) Aryallattannu Madump Lital (आर्यलत्तान्नु मंडुप-लिटल) (getting down waist shifting weight side to side and heel stroke)
ii) Two different kinds of Thikita Thi (थिकितान थि).
- b) Thita ita thintha theThe very first Kalasam (कलासम्) of male dancer and the very first Kalasam (कलासम्) thom thom kitataka of female character.
- c) Kummi (कुम्मी), Kathakali कथकली, Folk Dance (Full).
- d) Kanna Sadhakam (कण्ण साधकम्) (Eye exercises (2).
- e) Sixteen Hastas in Pataka (पताका १६ मधील हस्त नेत्र मुद्रा क्रिया) (Surya, Raja (राजा) Gaja (गज), Simho (सिंह), etc. (Slokam full) (पूर्णश्लोक)
- f) Adi Talam (आदितल) with Vaitari (वायतारी) (बोल) (3 speeds).

Exercises

- a) legs (two .
- b) Fingers and Hands (two each.)
- c) Body (two).

STANDARD-X

Theory

General survey of the history and development of one South Indian and one North Indian Classical Style of Dancing :-

- a) 1) Manipuri 2) Kathak 3) Bharatha Natyam (4) Kathakali.
- b) Importance of Kathakali massage in details, describe 24 hours in an old Kathakali Kalari (School).

- c) Five past, present Gurus and their contribution to Kathakali.
- d) Write the synopsis of any one the Kathakali story,
- e) Significance of Thirasheela Kathakali Curtain. (स्थिरशीला कथीकली दर्शनीपट)

a) Practicals

- a) Kalsadhakum (Foot work) (कालसाधकम पदन्यास)
 - i) Kuttukal Thakita Kita Taki (कुत्तुकाल तत्कित कित, तकती) (Two types.)
 - ii) Foot work in Champatalam (चंपताल) (दोन प्रकार) (two types);
- b) Two bigger kalasams (कलासम) each of male and Female characters;
- c) Kathakali Dance (सारी नृत्य) in full.
- d) sixteen Hastas in Kataka (कटकामध्ये १६ हस्त) (Vishnu) (विष्णु) Balacha (बालक, Ramcha, राम, Stree, स्त्री Shiru, श्रु etc.)
- e) Aditalam (आदिताल)
Tripuda Talam (त्रिपुटा ताल) and Panchari Talam (पंचारी ताल) (with Vaitari वायतारी बोल)

Exercises

- a) Jumps (three),
- b) Suchikal (सूचिकाल) (three)
- c) Exercises of eyes, eyebrows and cheeks.
- d) Rasas 3 : Shringara, Veera and Karuna. (रस, शृंगार, वीर, करुण)

B. ART ORIENTED CRAFTS

Objectives :

To enable the pupils to-

1. acquire knowledge of various tools and materials used in art-oriented crafts.
2. understand different methods and techniques of preparing pieces of art.
3. take keen interest in preparing various articles out of clay, metal or cloth.
4. develop aesthetic sense.
5. develop skill in preparing different designs and articles in art-oriented crafts.
6. appreciate the beauty in man-made pieces of art.

5 CLAY MODELLING AND CERAMICS(INCLUSIVE OF TERRA COTTA)

STANDARD - IX

Part I : Theory

1. Clays to be used-Modelling clay slip body and Terra cotta General information : properties, characteristics and handling. Basic methods of preparing slip body and Terra Cotta.

2. Tools,—Modelling tools—knives—roller and wooden strips.
General information regarding their uses in clay work.
3. Potter's Wheel.—Handdriven—paddle wheel and electrical wheel.
Function and use, precautions to be taken.
4. Plaster of Paris.—General information—Preparation and precaution.
5. Kiln,—Traditional—Gas and Electrical. General information—function—uses—temperature obtained. Precaution.
6. Firing—Knowing firing. Temperature required for bisque—firing—precautions to be taken throughout firing process. (before, during and after firing).
7. Finishing methods—Surface finish, dehydration etc.

art II : (a) Drawing and Visualisation (Design) : (Committed to paper only).
Medium : Pencil—ink—pencil.

1. Various kinds of lines—Straight, curved, zigzag, dotted, vertical, inclined, thick and thin (single and group of lines).
2. Combination of lines—To obtain various textural effects.
3. Combination of lines.—To obtain various forms, viz. regular and irregular forms.
4. Recognising the familiar forms of object through these forms—Ball—fruit—potato—from circle forms. Animal, bird etc. forms from irregular forms.
5. Visualisation of objects.—By free hand simple forms of birds, animals, pots, toys etc. colour rendering.

(b) Workshop Practicals : These practicals should begin with first modelling clay then gradually Terra cotta and slipbody should be introduced.

1. Making a Clay Slab.—By rolling the lump of clay.
2. Texture.—(i) by scratching with tools of various end-shapes (flat, V-shape, curves—shape, blunt etc.)
(ii) by dabbing with finger-tips—pencil end, stone etc.
3. Obtaining forms.—By cutting slab with sharp knife (circle, square, triangle, strip, any irregular shapes).
4. Combination of such forms into shapes.—Cubes, pyramid, cone, cylinder and other interesting forms.
5. Making of objects.—Toys, bowls, simple pot, simple form of animals, birds, etc.
6. Making of Shapes and objects on potter's wheel.—Learning to handle the potter's wheel, building the simple shapes and objects viz. dish, pot etc.
7. Bisque-fire.—Bisque-firing of the object prepared.

STANDARD-X

Part I : Theory

1. Different clays used in clay work and pottery : proportions, mixing methods and precautions.

2. Tools, equipments and machinery. – Methods and process of using them. Working of ball mill and its uses. Kiln. – general construction and working-process obtaining require temprature, temperature reading – precautions to be taken before, during and after using the kiln.
3. Casting. – Plaster of Paris, moulds-methods and casting process with slip bodies precautions.
4. Colours and Colouring Methods. – Ceramic colours—preparations of colour solutions—application of colour to the objects (brush, dip and spray), precautions (only basic information).
5. Glazing —Method – process and precautions (only basic information).
6. Elements of design.— Balance, contrast, colour, harmony, form and texture.

4. Part II : Work-shop practicals

Modelling clay Terra-cotta and Slip bodies.

1. Imprints on clay slabs by dabbing with various natural and other objects—the vivid textural effects.
2. Making of shapes and Visualising the objects : tiles, bowls, simple pots, toys addition of simple decoration.
3. Motif and texture.
4. Bisque-firing of objects.
5. Colouring and glazing of bisque objects.
6. Casting with slip bodies.

6. Metal Craft

STANDARD-IX

Part I : Theory (Basic information)

1. Introduction of metal-work—Its importance in every day life.
2. General properties and uses of metals to be handled viz., Aluminium, copper brass etc.
3. The tools, equipment and machinery required for metal work, its function preservation, precaution while handling them viz., engraving tools, embossing tools, files, hammers, measuring tools like foot rule, dividers and callipers Machinery like drill machine, grinding machine etc.

4. Acid solution used i. e. sulphuric acid solution for metal cleaning. Nitric acid solution for metal etching. Hydrochloric acid and mild acid for soft soldering etc. its preparation, precaution while handling them etc. (brief information).
5. Different methods of cutting metals : Cutting with scissors, chisels, hacksaw and piercing saw frames and drill machine.
6. Different methods of metal joinery :— a) Folding, b) Rivetting, c) Screw fitting, d) Soft soldering.
7. Elements of drawing and design :— Line, form, colour, texture, dimensional qualities (2-D and 3-D) and organisation.

Part II : a) Practicals : Drawing and Design (committed to paper).

Medium. — Pencil, ink, pastel and water colour.

1. Texture Lines. — Straight, curved, dotted, zigzag, horizontal, vertical, inclined, thick and thin (single and group) and their combinations.
2. Form. — Combinations of variety of lines to obtain forms.
3. Organisation.— Organising into designs forms thus obtained, rendering such forms and design with 2-D and 3-D effects.
4. Designing objects.— Simple objects like dish, cutter, key, charm, ring, bangle etc. colour rendering.

b) Workshop Practicals

1. Bending-twisting of wire, (one and two combined wire), round and square wire. An attempt to give object form like rings and bangles.
2. Texture.— (on metal sheet and shape).
 - a) by beating with ball pen hammer and embossing tools.
 - b) by etching.
3. Shapes (metal sheet) simple shapes like dish, based on basic forms : square, triangle and circle. Transferring them into object form. Finishing with texture.
4. Etching : (simple forms and motif letters) objects like nameplate, key-charm, pendent etc.
5. Practicals to know joinery.

STANDARD—X

Part I : Theory (Basic information)

1. Tools and equipments required for Repousse, etching and perforated work : functions, preservation and precautions, pitch (राज) components handling and precautions.

2. Processes :— General information and importance.
 - i) Repousse.
 - ii) Etching.
 - iii) Perforation.
3. Solution-formulas etc. :— i) Acid solutions for cleaning, etching etc.
 - ii) Proportions of the components of solder (soft), pitch (राख) important alloy (Brass)
 - iii) Melting points, chemical symbols of aluminium, copper, lead, zinc and tin.
 - iv) Measurements : weights, gauges etc.
4. Polishing and finishing processes.— i) Surface treatment with emery, wire brush, sand and burnishing. ii) Oxidizing.
5. Elements of Drawing and Design — Line, form - colour - texture balance and contrast.

Part II : a) Practicals

Drawing and Design (committed to paper).

1. Study of natural objects, their simple derivatives.
2. Form and organisation : basic forms and arranging them into simple designs rendering 2-D and 3-D effects.
3. Design : of objects like dish, bowl, ash-tray, pendent, knob etc. with simple decoration (texture-simple motif).

b) Workshop practical

1. Bending wires and metal strips and creating forms of objects— rings, bangles etc.
2. Objects like dish, bowl, ash-tray, simple box, pendent etc. by the following methods :— i) Shaping, ii) Repousse, iii) Etching, iv) Perforating.

7. Furniture Design

STANDARD—IX

Part I : Theory : (Basic Information).

1. Introduction to the subject.
2. The trees.— Indian trees, cross-sections, contours, logs, defects and diseases; good qualities of timber.

3. Timber used in wood work.— Teak, yellow wood, rose wood, Shivan (शिवण), Mango wood etc. in the form of planks and battens with various thickness and width, qualities and use.
4. Processes.— Sawing, chipping, planing and carving. General information—precautions and handling.
5. Material used in wood work. — i) Plywood and Novawood of various thickness, general information, qualities, precaution, uses.
ii) Hardware material like nails, screws, panel pins etc., use sizes standard.
6. Tools and equipments. — used in the wood work : names, functions, working precautions; working bench, vice, clamp chisels, saws, planes, try square, pleyer and pincer, marking gaze etc. machinery like drill machine, grinding machine simple lathe machine.
7. Joinery — Simple joinery, half-lap, half-lap-dovetail through mortise and tenon.
8. Wood turning.— On simple lathe : working, process and precautions.
9. Polishing and finishing. — Wax and French polishing, sanding.
10. Elements of Drawing and Design.— Line form, colour and texture 2-D and 3-D qualities and organisation.

Part II: a) : Practical

Drawing and Design (committed to paper)

Medium. — pencil, ink, pastel, water colour.

1. Solid geometry and orthographic drawings.— Plan and elevations of solids-cube, cylinder, pyramid and cone.
2. Texture and forms.— i) line—straight, curved, dotted, zigzag, vertical, horizontal, inclined, thick and thin (single and group interlocking.)
ii) combination of lines and obtaining forms rendering 2-D and 3-D effect.
3. Joinery — Drawings of simple joinery.
4. Design. — Simple objects like chalk-box, paper weight, ink stand, pen rack and simple turning objects, rod, peg, towel stand etc.

b) Workshop Practicals

1. Practical in sawing, planning, chiselling and carving on wooden plank and fret sawing on plywood.
2. Joinery — Making of simple joinery.
3. Objects.— Simple toys, box, paper weight etc.

STANDARD—X

Part I: Theory (Basic information)

1. Timber — Seasoning and preservation; colour-contour and texture.
2. Plywood Variety — Teak and rose veneered; (ply from 3 onwords), pro advantages and disadvantages, preservations.
3. Processes — Fret sawing and turning, functions and working, pre and handling.
4. Polishing — Sanding wax and French polishing, materials required, pre precautions.
5. Joinery — Blind-mortise and tenon, mitre-mortise and tenon, dovetail, construction.
6. Turning tools — Handling and sharpening methods, callipers outside an
7. Elements of designs — Line form—colour—texture - balance and contra

Part II: a) Practicals : Drawing and Design . (Committed to paper)

Medium — Pencil, ink, pastel and water colour.

1. Orthographic drawings — Plan and Elevations.
2. Isometric drawing of solids, cube etc.
3. Joints -- Drawings.
4. Designs — Simple Design with basic forms and simple motif rendering w effect designs for carving.
5. Designs — Of objects like letter-box, simple box, lamp stand, toys, d bowl (turning), colour renderings.

b) Workshop Practicals

1. Practical in making of joints, carving simple forms, motif, perforati turning.
2. Objects— making of objects stated as above (inclusive of turning).
3. Polishing or finishing of above made objects.

8. Textile Design

STANDARD—IX

Part I: Theory (Basic information)

1. Introduction to the subject.
2. Tools and equipment.— function, handling, precautions

- a) Weaving — Simple frame loom and handloom and their function, held, needs, shaft, their functions.
- b) Dyeing — Colours — basic and direct, acids and salts, required properties, formulas, precautions.
3. Processes and Methods — Weaving, Dyeing and primary (elementary).
4. Calculation — formulas etc. — Counts of yarn, colour and solutions, formulas.
5. Materials — Fibre, kinds, natural and man-made cloth, plain and twill.
6. Simple printing process.— Stencil, lino and wood block.
7. Elements of Drawing and Design — Line, form, colour, 2-D forms and texture organisation.

Part II: a) Practicals: Drawing and Design

Medium — Pencil ink, pastel, water colours.

1. Texture by lines — Straight, curved, dotted, zigzag, vertical, horizontal, by imprints with simple textural surfaces, dabbing with the sections of vegetables like onion, potato, lady's figures etc., in a regular and irregular way (ink and colour).
2. Form — Combination of lines and obtaining forms—circles, squares, triangles etc. and irregular forms,
3. Organising such forms into simple design, colour renderings.
4. Designing for objects like border, handkerchief, table cloth etc.

b) Workshop Practicals

1. Weaving on frame loom and handloom.— Plain weave like strip, small mat, plain cloth etc.
2. Dyeing — Hank and cloth with one and two colours.
3. Printing — i) by sections of vegetable, linocut, woodblock on paper as well as on cloth with various colours. (ii) Stencil Printing with simple repeats on paper as well as on cloth.

STANDARD—X

Part I Theory: (Basic information)

1. Weaving : Looms. handlooms, throw and fly-shuttle, close study of function and handling. preparation of warp, arrangement of shafts, understanding of picks and ends to obtain various texture and simple design form.

2. Fibre : Natural cotton, wool, jute, etc. Man-made Nylon etc. Main characteristics, uses, general properties ; calculations of count etc.
3. Batik : elementary knowledge process, materials required for dye fixing.
4. Tie and dye ; elementary knowledge, process : dyeing and fixing.
5. Dye-colours and other chemicals.— Naphthol and sulphur, chemical names, symbols, properties, processes etc.
6. Elements of Drawing and Design.— Line-form, colour harmony, texture, and contrast.

Part II : a) Practicals : Drawing and Design (Committed to paper)

1. Texture — With interlacing various kinds of lines, dots, thick and thin, and irregular.
2. Design — Form arrangements into designs, colour renderings.
3. Design — With simple repeats for objects like mats, table cloth, small colour renderings.

b) Workshop Practicals :

1. Weaving Simple—plain weave—mat, napkins, towels cloth with one-two and colour warp and weft.
2. Dyeing — a) Tie and dye on plain cloth. } One and two
 b) Batik.— Simple motif and design. } colours
3. Printing — a) Lino-block, b) Wood block, c) Stencilling : Upto
 colours : Curtain cloth, table cloth. All over print :— On paper as on cloth

9. Interior Decoration

STANDARD—IX

Part I: Theory

1. Introduction to the subject — good arrangement -- pleasant outlook.
2. Common furniture names — Standard sizes, materials of which they are made.
3. Materials in object from used for interior— Curtains, (window and door), carpets (mat, linolium jute and cotton and woollen), lamp piece of decoration (only brief information) names, purpose, selection (good taste).
4. Materials used for making objects for decoration — box boards, colour plaster of paris, plywood etc. characteristics, uses and handling.

Wall colour — Colour effects-warm and cool-texture.

Colours — Primary and Secondary colour and the combinations pigments.

Methods and processes — Fret work process—plaster casting—colour preparation and application.

Element of Design—Line-form-colour and texture.

Formation of 2-D and 3-D Design, and formation of interior space through 3-D Design.

II: a) practicals : Drawing and Design

Variours kinds of lines — Straight, curved, zigzag, dotted, vertical, horizontal, inclined thick and thin (single and group of lines).

Combination of lines to obtain various textural effects.

Combination of lines to obtain various forms viz., regular and irregular forms.

Textural imprints (i) from simple textural surface of objects, (ii) printing on paper, with the sections of vegetable viz., onion, potato etc.

Solid Geometry and orthographic drawings of simple solids. (cube, cylinder, pyramid and cone.)

Simple planning of interior — Planning of furniture (basic) in a given (only drawings – (plan and elevation) colour rendering.

b) Workshop Practicals

Medium material — Box board, colour paper, plywood, wire, plaster of paris, waste materials.

Textural feel— i) using box board cutting some portion of the forms down on it and raising them to one side and both sides. (ii) by dabbing the surface with any tool.

Making forms — using box board — simple forms like cube, pyramid, calinder cone etc.

Plaster cast — drawing patterns and forms on clay slabs and getting plaster prints.

Stencil for wall paper — Stencilling the design and printing on paper.

Fret work — patterns and forms to be perforated in plywood.

Making of objects — Simple panels, in plaster and wood, lampshade etc.

STANDARD—X

I: Theory

Kinds of furniture used in drawing room, bed room, kitchen : names, standard sizes, material of which they are made, care.

2. Synthetic materials used in interior : sunmica, formica, plastic sheet, fibre general information, uses.
3. Colour scheme for interior walls : warm and cool etc.
4. Material used for decorative objects : Plywood, plaster of paris, mosaic characteristics, uses and handling.
5. Colours — Pigment, distemper, oil bond etc. general information.
6. Adhesives— Glue, gum-arabic, favicol etc. : general properties, uses.
7. Methods and processes of machinery, like fret machine, drill machine, plaster casting, making of moulds and casts, polishing methods, French polish, spraying.
8. Elements of designs — Line, form, colour and texture. formation of 2-D and 3-D design, formation of interior space through 3-D design.

Part II : a) Practicals : Drawing and Design (committed to paper)

1. Imprint by various, textural surfaces.
2. Study of natural forms and their simple derivatives.
3. Orthographic drawing : Plan and elevation.
4. Interior drawing : Rendering in colours.

b) Workshop Practicals

1. Making of forms : i) In box board, plaster and plywood: simple geometric form. (ii) Arranging such forms for interior designing.
2. Making of wall paper — With simple decorations.
3. Models of furniture— In box board, plaster, plywood etc.
4. Making objects like lamp shade, panel, painting vases for decoration.

VI. Elements of Industrial Crafts

Objectives :

To enable the pupils to —

1. acquire familiarity with different tools and machines used in industrial craft
2. acquire knowledge of properties and characteristics of material used in industrial craft.
3. understand different methods of using tools and machines.
4. develop skill in preparing different designs and pieces of craft.

develop interest in using articles prepared by industrial artists.

develop aesthetic sense.

form the habit of working hard.

appreciate the work of those who are engaged in craft work.

1. Metal Fitting Craft

STANDARD—IX

ry

- i) **General Information** about short history of fitting work.
- ii) **Safety precautions** to be followed in a workshop.
2. i) **Simple orthographic projection**, views of simple hollow and solid **bodies** with dimensions.
- ii) **Use of different types of lines and symbols** for drawing.
- iii) **Reading simple Blue prints**.
3. **Description and uses of :**
 - i) **Simple measuring tools**, such as **Steel Rule Callipers, Verniers, Micrometres,** etc.
 - ii) **Work bench, Table vice, Surface, plate, Drilling M/C and Bench Grinder.**
 - iii) **Hand tools** such as **Hammers, Chisels, Files, Screw-drivers. Hack-saws.**
 - iv) **Method of Marking Object** with the help of **Marking Table, Dividers, Scribing Block, Vee Block, Centre punch,** etc.
 - v) **Information about different metals** used for fitting work.
 - vi) **Care and Maintenance** of the above tools.

acticals

1. **Exercise on chiseling.**
2. **Simple exercises on Hack-sawing, the marking and fitting at right angles.**
3. **Marking out according to simple blue-print drawing.**
4. **Simple exercises of Male-Female fitting**
5. **Simple rivetting.**
6. **Making three articles like —**

1. Inside callipers.
2. Outside callipers.
3. Pen stand.
4. Dividers.
5. Exercise like making square from round bar.

STANDARD—X

Theory

1. Methods of using drills, Taps, Dies and Reamers.
2. Description of stand and screw threads and forms.
3. Different types of locking and fastening devices for Nuts, Bolts, Rivets etc. their use in making joints.
4. Method of soldering, Different types of fluxes and their uses.
5. Care and maintenance of the above tools.

Practicals

1. Simple exercises involving drilling, tapping and die threading.
2. Making simple Gauges and Templates.
3. Simple exercises involving the filing of curved surfaces and steps and Grooves to the required dimensions.
4. Cutting of C. I. and Conduit pipes to required dimensions. Threading of pipes.
5. Preparing articles like Try-Square, Paper weight etc.

2. Tailoring and Cutting

STANDARD—IX

Theory

1. Information about the quality and quantity of cloth required according to breadth (Pana) of different types of cloth and shrinkage.
2. Information about the correct method of cutting economically.
3. General knowledge of sewing machine; its care and maintenance.
4. Knowledge and use of following Tailor's tools :
 - 1) Drafting Table
 - 2) Measure Tape
 - 3) Thimble
 - 4) Different Needles

- | | |
|--------------------|--------------------------|
| 5) Tailor's Chalk | 9) All Types of Scissors |
| 6) Tailor's Square | 10) Iron |
| 7) French Curve | 11) Iron Table |
| 8) Tracing Wheel | 12) Paper Scale |
5. Essential stitches – Tacking, Running, Back stitch, Top sewing (over sewing), Hemming, Chain-Stitch, Herring Bone, Feather Stitch, Button hold and Loop Stitch, Patching,
 6. Taking and recording correct measurements.
 7. Seams – Felling, French and ordinary, Extra Cloth in seams for alterations.
 8. A drawing book should be maintained with four samples (Chosen for the practicals) of 15x15 cm. The methods of drafting should also be noted down It should also contain samples of stitches mentioned in item No. 5 and 7.
 9. Information about the texture of different types of cloth such as Poplin, Drill, Long-cloth, Voils, Cambric Lawn.
 10. To show the method of recording correct measurements.
 11. Removing the following stains from garments – Ink, Rust, Oil, Tea, Coffee and Faint.

Practicals

Drafting, cutting and stitching with completion of the following :

1. Half Pant (with belt and loops).
2. Baba suit.
3. Skirt and Blouse; (Blouse with open collar and Sleeves).
4. Baby Frock with puff sleeves.
5. Six pieces Sari Petti Coat.
6. Nehru Sadra.

N. B. : Any full size four articles to be completed during the year.

STANDARD-X

Theory

1. Information about the texture of different types of cloth such as woollen cloth, Silk, Terrylene, Terry cloth and Terry Wool Fibres. Suitable materials for different garments.
2. Shrinking of cotton, woollen and silk cloth and their ironing.

3. Information about suitable lining, padding, trimming, button zips etc. in garments to be made.
4. Information about repairs of old garments and alterations of stitch garments.
5. Study of latest fashions of garments, (chosen for Practical), pocket (patch pocket and side pocket) collars and sleeves and necks.
6. Calculation of the cost of finished articles.
7. A drawing book should be maintained with diagrams, brown paper, pattern and samples of 15 x 15 cm. of all the articles mentioned in practicals. Methods of drafting should be noted down. It should also contain the lay-out of one of the garments chosen for practical.

A drawing book should also contain stitching of all Types of buttons — (button and hole, hook and loop, and press buttons.)

Practicals

- A) Drafting, cutting and stitching with completion of any four of the following to be completed during the year.
 - i) Manila Shirt (Half with open collar).
 - ii) Plain Frock with latest type of smocking (without embroidery).
 - iii) Chunidar Pyjama.
 - iv) Guru shirt.
 - v) Bell Bottom with Punjabi Khamis.
- B) Drafting should be done on paper according to the scale.
- C) Cutting should be done on paper and of full size garment.

3. Embroidery and Needle Work

STANDARD—IX

Theory

1. General knowledge of the sewing machine with embroidery attachments, required for, round and running stitches its care, oiling, maintenance and minor repairs, common defects and their use and practice.
2. Knowledge and use of tailoring and embroidery tools and fancy work equipment,
3. General information about the varieties of cloth for tailoring and embroidery.
4. Knowledge of the following seams and their uses : Plain seam, French seam and flat seam.

5. Knowledge of different types of embroidery threads, their use and maintenance.
6. Knowledge of tracing of simple designs for embroidery work and knowledge of colour combination.

Practicals

1. Machine embroidery, One pattern of each of the running and round stitches used in design.
2. One simple article of Crochet or Teneriffe work.
3. A) Hand Embroidery – Drafting, cutting and stitching of Baby frock with smocking on sleeves and front.

B) Drafting cutting and stitching a pillow cover with 4 cms. border and overlapping flaps and a Table Cloth 125 x 80 cms. Both the articles to be embroidered with following stitches (at least five) - Stem stitch, Chain stitch, Lasy daisy satisy stitch. Rope and Blanket stitch, Button hole stitch, Fish bone stitch Cross stitch and shadow Work
(Students should prepare samples of all the above mentioned stitches)
4. Knitting 'गवळी टोपी' for a child of two years.
5. Preparation of one of the following fancy articles. (using fancy cloth with simple embroidery).
 - i) Embroidery compact
 - ii) Needle work kit
 - iii) Handkerchief Box
6. Maintaining a log book.

Containing samples of all the embroidery stitches used in patterns of 7 x 7 cms. cloth diagrams of the Baby frock, Pillow cover etc. Theoretical information about stitches designs and the type of cloth used for them.

STANDARD—X

Theory

1. Different methods of tracing designs on different coloured clothes.
2. Knowledge of decorative stitches.
3. Knowledge of drawing diagrams to scale 1-1/4.
4. Knowledge of darning (रफ़) and patching [फिगळ] of cloth with checks, prints, stripes etc.

practicals**2. Machine embroidery -**

Drafting, cutting and stitching of box plate skirt with atleast three plates in the front and three at the back with machine embroidery in satin stitch.

2. Any simple article of Abhla Work. with Cutchi Kashida e. g. Batwa.
3. Hand Embroidery : drafting, cutting and stitching of Tea cosy cover and Tray Cover. To be embroidered with atleast six stitches of Hand Embroidery mentioned below :

Feather and Herringbone Stitch, Cast over stitch, Spider Stitch, French knot, Bullion Stitch, Queen Stitch, Kashida stitch (Kanadi) Applique and Richelieu work.

4. Knitting - Sweater without sleeves for three year old child.
5. Maintaining a log book containing samples of 11 embroidery, stitches used in pattern on 7 x 7 cms. cloth diagram of Tea cosy cover. Tray cover and Batwa, Theoretical information about stitches, designs and the type of cloth used for them.

4. Typography**STANDARD—IX****Theory**

1. Simple description and use of material used for type manufacture.
2. Simple description and use of appliances and materials used in composing.
3. Elementary information about the point system. Definition of a point, conversion of a point into inches and vice versa, Ems and Ens, etc.
4. System of type manufacturing — Punch, Matrix, Mould, Casting and Dressing
5. Description of the various parts of types, body and set. Names of various type faces.
6. Type fount, characters in a fount.
7. Leads, rules, quads and quadrets and their relation and calculations on the basis of point system.
8. Sizes and weights of normal qualities of paper in common use.
9. Simple arithmetic required for composing, calculations.

Practicals

1. Lay of the case, drawing the sketch and filling in the characters etc. and learning them by heart.

22. Drawing the sketches of cases.
33. Achieving the speed up to 150 cms. of 12 pt. Devnagari.
44. Simple running matter from printed copy or legible handwriting manuscript for speedy composition.
5. Setting of manuscript copy for simple table or tabular works with or without leads and rules, contents page, price list, cash-memos and receipt forms etc.
6. Visit cards, Letter-heads, Envelopes etc.
7. Correct spacing, justifying and taking of proofs.
8. Composing simple poems.
9. Maintenance of class-work files.

STANDARD—X

Theory

1. Study of qualities of ink suitable for different jobs.
2. Sizes of various chases and methods of locking.
3. Description of various kinds of locking furniture, spacing material etc.
4. Rollers and Roller composition.
5. Folding, gathering, collating, hand stitching, Saddle stitch and stab stitch, section binding and their connection with imposition.
6. Calculation of paper.
7. Examples on point system (Ems, Ens, Leads, weights, words, etc.)
8. Different methods of composing.
9. Information about making and uses of Blocks and stereotypes.

Practicals

1. Special practicals for speedy work in running and tabular work.
2. Composition of title page of a book.
3. Invitation and programme cards.
4. Composing poems by different methods.
5. Composing hand-bills by different methods.
6. Maintenance of class work file.

5. Radio Engineering and Servicing

STANDARD - IX

1. Theory

1. Sources of electricity
 - 1.1 D. C. Primary Cell (Dry Cell). Principle and construction. Arrangement of dry cell in series and parallel.
 - 1.2 Secondary cell (Lead Acid Battery). Construction. Principle and Function.
2. Circuit Elements.
 - 2.1 Resistance—Meaning, basic types, colour code, Ohm's law. Series and Parallel combination of resistances.
 - 2.2 Elementary idea of condensers, different types and their uses.
 - 2.3 Transformers — Step-up. Step-down. Output, A. F. I. F. and Power transformer.
3. Electron Tubes
 - 3.1 Electron emissions. Different types of emissions: Diode; Triode; Tetrode; Pentode. Their construction and characteristics.
4. Rectifiers
 - 4.1 Half wave and Full wave. Different types of rectifiers, e. g. valve rectifiers, Metal rectifier, Selenium rectifier.
5. Different Types of Speakers and Microphones.
6. R. L. C. Circuits.
 - 6.1 R. L. C. Circuits, series and parallel resonance. Use of series and parallel resonant circuit.

Practicals

1. Experiments on Resistance Colour code.
2. Drawing a diagram of multi meter.
3. Measurement of Resistance on multimeter.
4. Measurement of voltage and current on multimeter.
5. Experiment on Ohm's Law.
6. Measurement of step up and step down voltages with transformer.
7. Demonstration of wave forms on C. R. O. at input and output points of rectifier.
8. Testing a few valves on valve-tester.
9. Constructional drawing of diode, triode, tetrode and pentode.
10. Demonstration of charging of condenser with the help of neon lamp.

STANDARD-X

Theory

1. Introduction of Amplifiers.
 - 1.1 Triode characteristics. Names and use of A. B. C. supply biasing. Three

constants of triode Mu. Gm. and Rp. Triode as a voltage amplifier, with resistive load only. Three basic types of couplings. (i) R. C., (ii) Transformer, (iii) Tuned circuit.

- 1.2 Names of different classes of amplifiers such as A.B.C. and their operating point with respect to Eg. – IP curve.
- 1.3 Characteristics of tetrode and Pentode. Beam power tube construction, use and advantage over ordinary pentode.
2. Oscillators
 - 2.1 Feed Back—Basic concept of Feed back.
 - 2.2 Oscillators — Basic concept of names of important types. (i) Reaction, (ii) Hartely, (iii) Colpit, (iv) T. G. T. P. Circuits and functions.
3. Mixers : Basic types of mixers.
4. Modulation and demodulation. Meaning and need of modulation, different types of modulation.
5. Hetrodyning Principle. Elementary descriptive treatment only.
6. Elements of circuit drawing and circuit tracing. Methods of Circuit tracing.
7. Receivers : Basic Principles. Block diagram of receiver. Different stages in a receiver and function of each stage.
8. Fault finding methods. Some important faults which generally come across receiver.
2. Instruments. Signal generator, V. T. V. M. B. F. O. etc.

Practicals

1. Drawing a circuit diagram of power supply stage in a receiver and the resistance and voltage measurement in the stage.
2. Drawing a circuit diagram of output stage in a receiver and the measurements of resistances and voltages at different points.
3. Drawing a circuit diagram of Ditector stage in a receiver and the measurements of resistances and voltages at different points.
4. Drawing a circuit diagram of Intermediate Frequency stage in a receiver and the measurement of resistances and voltages at different points.
5. Drawing a circuit diagram of Converter stage in a receiver and the measurement of resistances and voltages of different points.
6. Circuit tracing of an A. C. Receiver.
7. Circuit tracing of an AC/DC Receiver.

6. Junior Chemical Technology

STANDARD—IX

Theory

1. Properties and uses of Halogenes.
2. Properties and uses of Lime-stone, Calcium Carbonate, Quick-lime, Calcium Sulphate, Plaster of Paris.

3. Elementary ideas about Quartz and Sand. Properties and uses of glass.
4. Essential oils and perfumes.
5. Backing action and its effects.
6. Properties and uses of Tartaric Acid, Citric Acid.
7. Different preservatives—Their properties and uses.
8. Glue and Gelatine.
9. Properties and uses of Starch. Glucose, Cane-suger.
10. Study of Alcohols.

Practicals and Preparations

1. Distillation of Essences from such substances as Lemon Grass.
2. Khus (Wala), Tulas etc.
3. Preparation of Copper Oxide from Copper Sulphate.
4. Preparation of Plaster of Paris.
5. To prepare metal polish.
6. To prepare Tartaric acid.
7. To prepare writing inks and stamping ink.
8. Preparation of Carbon papers and Duplicators.
9. Preparation of Sand-paper and polish paper.
10. Preparation of Chalks and Crayons.
11. Preparation of smelling salt.
12. Preparation of tooth powders.
13. Preparation of Lemon juice.
14. Preparation of Baking powder.

STANDARD-X

Theory

1. Ions and Ionisation.
2. Electrolysis and Electro-plating.
3. Properties and uses of Nickel and Chromium as metals.
4. Different Organic solutions.
5. Theory behind Glue and Gelatine.
6. Study of Fatty acids.
7. Study of different processes of fruit preservation.
8. Gravimetric analysis.
9. Volumetric analysis.
10. Analysis of a substance having one basic and one acidic radical.
11. Standard and normal solutions.

Practicals and Preparations

1. Preparation of printing inks and special inks.
2. Preparation of Jam and Jellies.
3. Preparation of Pain Balms.
4. Preparation of Envelope Mucilage and office paste.
5. Preparation of stain removers.
6. Preparation of hair oils, creams, face-powders and scented powder.
7. Silver and Nickel plating.
8. Extraction of essential oils.
9. Preparation of Glue and Gelatine.
10. Case in Glue.
11. Preparation of boiled oils and paints.
12. Preparation of snow.
13. Preparation of insulating tapes.

7. PLASTIC TECHNOLOGY

STANDARD-IX

theory

1. Introduction of Plastic : History of development of world of plastic and the use of plastics in various spheres of day to day life.
2. Different types of plastics : Their names only and their uses for different types of work.
3. Fitting practice : Study of different tools used in fitting e. g. Files, Vices; Hack-Saw, Chisels, Steel-rules, Marking block, Inside and outside callipers etc.
4. Knowledge of Equipments : Such as Injection Moulding Machine, Heat Regulator etc. Their construction and functions.
5. Dyes and Pigments : Introduction of Dyes and Pigments and the methods of using them in plastics production.
6. Filters : Different types of filters used in plastic moulding.
7. Knowledge about buffing : Study of buffing machine. Its construction and function in plastic production.
8. Dyes : Different type of dyes in plastic moulding and their specific uses,

Practicals

1. Practice of cutting on fret work machine.
2. Making a piece of plastic sheet correct upto the size by using files.
3. Cutting a plastic piece to the given size with the use of Hack-Saw.

4. Fitting practice of a Male and Female joint.
5. To weld pieces of plastic by the process of heating.
6. To prepare a coloured powder using pigments.
7. To prepare 'Name Plate' by using plastic sheet.
8. To polish a plastic article on a buffing machine.

STANDARD-X

Theory

1. Thermosetting plastics : Different types, their common names, characteristics and the usual applications.
 - a) Phenol Formaldehyde.
 - b) Phenol Furfural.
 - c) Phenol Asbestos.
 - d) Cast Phenolics.
 - e) Melamine-Formaldehyde.
 - f) Epoxy Resins etc.
2. Thermoplastics : Different types, their common names, characteristics and usual applications.
 - a) Cellulose Acetate.
 - b) Cellulose Nitrate.
 - c) Polystyrene.
 - d) Polyvinyl Chloride.
 - e) Polyvinyl Acetate.
 - f) Polyethylene.
 - g) Nylon.
 - h) Casen etc.
3. Different types of processes in moulding.
 - a) Injection Moulding.
 - b) Compression Moulding.
 - c) Transfer Moulding.
 - d) Extrusion.
 - e) Blow Moulding.
4. Moulding Difficulties : Various types of moulding difficulties which occur across in moulding plastic. Their causes and corrections.
5. Elementary techniques of Production of Plastic articles : Fabricating, finishing and cementing operations.
6. Elementary idea of dye making : Process of making dye.

acticaals

1. Chipping 'T' in a steel plate with the of **chisel and hammer**.
2. To prepare liquid glue from plastic powder
3. **Dismantle the Hand operated injection-moulding machine.**
4. **Reassemble the machine.**
5. Moulding articles like buttons, ring, dishes, spoons etc. with injection moulding machine.
6. To make a simple dye of a simple article.

8. HANDMADE PAPER MAKING

STANDARD-IX

ieory

1. Writing materials in pre-paper area, development of paper manufacturing processes : **Handmade Paper.**
2. **History of Handmade paper : Place of Handmade Paper, its use and importance with special reference to Indian raw materials, supply and un-employment problem.**
- 3.. **Manufacturing of Handmade Paper : Study of various processes, their use and importance.**
- 4.. **Pulping : Raw materials and their treatment for conversion into pulp: Familiar sources of usable fibres. Sorting of waste paper : Isolation of fibres from plants, production obtainable from each kind, characteristics of pulp from rags, jute, grasses and straw : Cooking of raw material, Digester and use of chemicals. Pulp washing, old and modern methods of washing, bleaching of the pulp.**
5. **Beating : Effect of beating on fibre structure-Beater, its working and use-capacity of beaters : Measures for preventing jamming : Precautions to be taken in the operation of the beater.**
- 6 **Paper lifting : Comparison of old and modern hand-lifting methods, Common sizes of paper. Relation between the sizes of paper moulds and vats, Construction of mould and fixing their sizes : Mesh and gauge of wire cloth or moulds. Adjusting uniform thickness and weight of paper - Introduction of decimal sizes.**
7. **Pressing and Drying : Need of pressing : Old and new methods of pressing. and drying : The use of screw press : Methods for quick drying.**
8. **Sizing : Its purpose and preparation-Sources of starch, Method of applying rosin : Its sources and properties : Preparation of Rosin soap. Alum, its uses and properties : sources of glue and its properties : Use of preservatives : Comparison of rosin and Glue Sizing,**

9. Glazing – Old and new methods of glazing paper : knot and shives in paper and their effect on the finish : Calender Machine and its use : Use of plates : Impart smooth and linen finish.

10. Cutting and packing : Use of cutting machine : Cutting paper in popular sizes : Packing finished paper : Materials used in packing : form of table - weight per ream, base weight in grams per sq. meter.

Practicals

1. Preparing raw materials like waste paper-cutting, dusting and soaking, washing soda solution, tramping and rubbing,
2. Production of pulp to suit writing paper album paper.
3. Pulp washing in cradle and by chhader.
4. Lifting paper on Poona vats and grass mats.
5. Pressing in screw press : Couching with and without pieces.
6. Drying on walls and stands.
7. Sizing with starch.
8. Calendering the paper sheets and cutting and packing.

STANDARD X

Theory

1. Place of paper in modern civilization, cultural and industrial paper. Limitations of traditional industry : invention of machinery to meet increased demand.
2. Modern large scale Industry : Paper materials used and the sources of supply, varieties of paper and their uses.
3. Loading : Secret of glossy smooth art paper. Purpose of loading : Properties of China-clay. Titanium dioxide. Ochres and their use.
4. Dyeing : Vegetable dyeing, Turmeric : Mineral colours, yellow ochre and marine, synthetic dyes-acid, basic and direct dyestuffs. Fixation of mordants.
5. Costing : Costing of paper.
6. Wastage – Waste, its causes and remedies.
7. Factory lay-out, water quality and quantity of effluent disposal.

Practicals

1. Charging and firing digester, cooking raw materials for production of pulp to suit different varieties of paper, straw boards, packing and wrapping paper and watermarked paper. Use of chemicals in cooking.
2. Preparing solutions of caustic soda and bleaching powder for bleaching of paper. Lifting of duplex and watermarked paper, use of felts in lifting.

3. Preparing rosin soap : Calculating the amount required for stock. Adding soap to stock, adding colours, alum, loading etc.
4. Preparation of glue sizing and its application.
5. Pressing and Drying of glue sized papers.
6. Cutting paper in foolscap, half foolscap and other popular sizes and packing them in reams.
7. Maintenance of machinery and carrying out minor repairs.

9. CANE AND BAMBOO WORK

STANDARD-IX

ory

1. Information about different kinds of cane and bamboo, their utility and prices etc.
2. Selection of bamboo and cane useful for weaving work. Use of cane for weaving work. Use of cane for weaving chairs, stools and preparing the bodies of tray etc. and other cane work and bamboo articles.
3. Information about the instrument for cane and bamboo work.
4. Information about different kinds of weaving in cane and bamboo work.
5. Information about different kinds of handles and borders in cane and bamboo work.
6. Information about different types of strips, sticks or screens and chicks.
7. Study of plans, elevation and scales.

acticals

1. How to handle different instruments in cane and bamboo work.
2. Skinning and breaking of cane and bamboo.
3. Preparing different types of strips.
4. Simple weaving of bamboo mat.
5. Preparation of table mat from cane.
6. Waste paper basket from cane and bamboo.
7. Market bag,

STANDARD-X

theory

1. The study of traditional bamboo articles in India.
2. Methods of making and utilizing articles from bamboo such as chicks, screens, knitting needles, tooth picks, lady's hand bags and trays.
3. Methods of colouring and polishing of bamboo and cane.

4. Preservation of finished articles.
5. Study of cane and bamboo work in ancient India.
6. Calculation of the cost of finished products.
7. Information about repairs of cane and bamboo articles.

Practicals

1. Preparation of simple flower basket from cane and bamboo.
2. Paper racks with full cane.
3. Cane tray from Goba cane.
4. Preparation of chicks, knitting needles and tooth picks.
5. Preparation of Mango basket.
6. Repairs of bamboo and cane articles.

10. FISHERIES

STANDARD-IX

Theory.

1. Introduction to Fisheries Science

- 1.1 Fisheries Science.
- 1.2 Scope and importance of fisheries science.
- 1.3 Definition and division of fisheries.

2. Study of fishes

- 2.1 Difference between fish and other animals.
- 2.2 Position of fish and other animals in the animal kingdom.
- 2.3 External characters of a fish.
- 2.4 Difference between cartilaginous and bony fishes.
- 2.5 Knowledge of commercially important fishes and other aquatic animals.

3. Fishing craft gear and methods of fishing

- 3.1 Indigenous types of boats.
- 3.2 Materials for boat and preservation.
- 3.3 Elementary knowledge of gear material.
- 3.4 Study of indigenous fishing gear.

4. Fish preservation, transport and marketing

- 4.1 Fish spoilage.
- 4.2 Importance of preservation and quick transport.
- 4.3 Marketing of fish.
- 4.4 Use of ice and cold storage.

5. Fish as food and fishery by-products

- 5.1 Importance of fish as food for human consumption.
- 5.2 Various constituents of fish.
- 5.3 By-products of fish and their utilization.

6. Inland pisciculture

- 6.1 Definition of pisciculture and Difference between culture and capture fishery.
- 6.2 Selection of important species for culture.
- 6.3 Stocking of fishes in impounded water.

7. Marine environment and other aquatic animals

- 7.1 Different zones in the sea.
- 7.2 Study of types of habitats in the marine environment.
- 7.3 Study of aquatic animals.
- 7.4 Maintenance of aquaria.

8. Fisheries co-operatives

- 8.1 Fundamentals of co-operation.
- 8.2 Fisheries Co-operatives.

9. Elementary knowledge of navigation

- 9.1 Rules of the Road.
- 9.2 Admiralty chart.
- 9.3 Chartreading depth and patent log.
- 9.4 Mariner's compass.

10. Fish production

Fish Production in Maharashtra.

Practicals

- 1. To draw a world map showing division of the earth's surface between water and land.
- 2. To draw a flow sheet showing all activities of fishery.
- 3. To draw figures showing differences in characters of a fish and other land vertebrates.
- 4. To see various animals either in picture or under Microscope and observe the differences between them.
- 5. To draw a typical bony fish showing external characters.
- 6. To draw and observe cartilaginous and bony fish and study the difference.
- 7. To observe various fishes and to draw them showing their external characters.
- 8. To draw diagrams of whales, dolphins and porpoises.
- 9. To observe and draw various types of indigenous boats.
- 10. Visit to boat building yards and boats fabricated from various materials.
- 11. To study gear materials and draw their pictures wherever possible.
- 12. To draw figures of various fishing gears and to study them with models and observe them on landing sites when nets are dried.
- 13. To learn making starting meshes and fisherman's knot.
- 14. To observe fresh and stale fish and learn to differentiate between them.
- 15. To visit a fish market and observe wholesale and retail fish transactions.

16. To visit a cold storage plant and to observe how fish are stored in ice.
17. To draw charts showing comparative values of proteins and their respective cost.
18. To prepare a table of proximate composition of fish.
19. To observe various by-products of fish by means of samples and develop a museum of these samples.
20. To draw charts showing growth rates in fishes of ordinary varieties and quick growing varieties.
21. To draw a map showing various zones in the sea.
22. To see and study the animals—Benthic, Pelagic and Columnner.
23. To draw figures of aquatic animals and to observe them, collect aquatic animals and preserve them and attempt their identification.
24. To observe the operation of setting an aquatium tank and taking care of fish.
25. To draw a flow sheet and visit a fisheries co-operative society to observe its working.
26. To prepare a chart of the rules of the road.
27. To study chart and understand how it helps in navigation and fishing.
28. To draw structure of an echosounder and patent log.
29. To draw the figure of compass showing various parts.
30. To draw three systems of compass card.
31. To draw map of Maharashtra showing fish production.
32. To prepare a table of production of the fish landed in Maharashtra.
33. To prepare vital statistical table of Maharashtra State fisheries.
34. To study various fishes and pay visit to landing sites.
35. To see how fish is used in several ways. To visit such units.

STANDARD-X

Theory

- 1. Introduction to Fisheries Science**
 - 1.1 Oceanography.
 - 1.2 Fishery Biology.
 - 1.3 Craft and Gear Technolgy.
 - 1.4 Fishery Technology.
 - 1.5 Marketing.
- 2. Life histories**
 - 2.1 Internal characters of fish and other animals.
 - 2.2 Habits and habitat.
 - 2.3 Food and feeding habits.
 - 2.4 Growth.
 - 2.5 Breeding.
 - 2.6 Migration.
 - 2.7 Fishery.
- 3. Fishing craft, gear and methods of fishing**
 - 3.1 Mechanization of fishing craft.

- 3.23.22 Gear material.
- 3.33.33 Study of modern fishing gear.
- 3.43.44 Preservation of nets.
- 3.53.55 Classification of fishing gear.

4. 4. . Preservation, Transport and Marketing

- 4.14.11 Care in handling and transport of fish.
- 4.24.22 Methods of fish preservation.
- 4.34.33 Efficient marketing and marketing through a co-operative society.

5. 5. . Fish as food and Fishery by-products

- 5.15.11 Nutritive value of fish.
- 5.25.22 Study of by-products.
- 5.25.33 Utilization of the by-products.

6. 6. . Inland pisciculture

- 6. 6.11 Study of cultivable waters.
- 6. 6.22 Survey of tank.
- 6. 6.33 Knowledge of breeding major carps.
- 6. 6.44 Nursery Management.
- 6. 6.55 Economics of pond culture.

7 7. . Fisheries Co-operatives

- 7.7.11 Types of fisheris co-operative Societies and their relation with district and central organisation.
- 7.7.22 Working of a primary society.
- 7.7.33 Role of co-operative movement in the development of fisheries.

8.8. . Study of Oceanography

- 8.8.11 History of Oceanography.
- 8.8.22 Constituents of Sea-water
- 8.8.33 Tides and currents.
- 8.8.44 Temperature and salinity.

9. . Navigation

- 9.1 Storm signles.
- 9.2 Buoyage system.
- 9.3 Life saving appliances.
- 9.4 Custom regulations and Fishery legislation.

10. Fish production

- 10.1 Fish production in India
- 10.2 World fish production.

Practicals

1. To study the oceans of the world.
2. To study reading of the design.

3. Visit to processing units to see the processes, fish and its by-products.
4. Visit to markets.
5. To draw and study the major organism involved in the system.
6. To draw fishes to be studied.
7. To observe and draw organs of alimentation and a chart showing food of fish studied.
8. To prepare a table of growth in fishes.
9. To observe and draw reproductive system of a typical fish.
10. To observe fish landings.
11. To observe the various types of fibres.
12. To draw figures of various nets to be studied.
13. To fabricate 25 fathoms of nets.
14. To observe how nets are tanned.
15. To prepare a chart showing classification of gear.
16. To observe about five different methods of fishing.
17. To observe preserved fish.
18. To visit fish-curing yards.
19. To observe how fish are cured.
20. To visit canning and freezing plants.
21. To observe how fish are preserved by canning and freezing.
22. To observe packing of fish for transport.
23. To visit a fish market and observe its working.
24. To visit a co-operative society to see marketing of other essential commodities.
25. To prepare a chart of the comparative values of fish and edible items.
26. To observe by-products and visit the places of manufacture of some of them.
27. To prepare a table showing by-products.
28. To get acquainted with proforma for survey of tanks.
29. To draw figures showing various stages in the life of a fish.
30. To draw enemies of fish culture.
31. To prepare a table of economics of fish culture.
32. To draw a figure of compass showing various parts.
33. To draw three systems of compass card.
34. To prepare a chart of the rules of the road.
35. To visit a fisheries co-operative society and a district Federation to see their working.
36. To visit a fishery project and observe the working through co-operatives.

37. To show with the help of pictures various oceanographical expeditions.
38. To prepare a table of the constituents of sea water.
39. To draw figures of the sun, the moon and the earth with their positions and the type of tides.
40. To draw a world map showing currents.
41. To visit the shore and see the tidal effects.
42. To observe temperature recordings.
43. To observe and record salinity.
44. To know determination procedure.
45. To draw storm signals by day and by night.
46. To draw various types of buoys.
47. To observe life saving appliances.
48. To prepare a table showing percentage, composition of marine catch landed in India.
49. To observe and prepare a table of world catch and its utilization
50. To prepare a table of fresh water fish production by various countries.

11. CLAY MODELLING LEADING TO POTTERY

STANDARD—IX

theory

1. Introduction to Pottery, Eastern and Western Potteries.
2. Different theories pertaining to the Age of Earth. Formation of rocks and the result of weather action on them.
3. The reasons of impurities in clay and its filtration for getting fine clay. Washing equipment used in old and modern age.
4. Knowledge of various types of clay.
5. Necessity of ' ageing ', ' wedging ' and ' kneading ' clay.
6. Preservations of clay. Reconditioning of clay.
7. Definition of Body. Classification of body. Properties of earthy bodies. Raw materials used in preparation of the body, casting slip. behaviour of bodies in various stages of firing. Equipment tools used for preparing bodies.
8. Types of formation and method of preparing clay modelthrowing, Jiger casting pressing, machine and tools used for the same.

9. Advantages and disadvantages of each one of the above. Turning and finishing of each one of them,
10. Drying by natural and artificial methods, Stages of drying possibilities of cracks by shrinking and dehydration.

Practicals

1. Preparation of clay by filtration.
2. Washing of different types of clay. Removal of impurities by traditional method and using washing plant.
3. Ageing, wedging and kneading clay for making it homogeneous and workable.
4. Preservation of clay, and storage of the same.
5. Preparation of the body suitable for throwing, pressing and casting slip.
6. Practice of wheel throwing — Preparation of simple round shape pots like jars, bowls, vases of different sizes.
7. Preparing cups and saucers by casting.
8. Modelling — Preparation of simple coil pots, slab pots, simple round models like toys, birds, animals etc.
9. Simple moulds and casting slip. (Moulds prepared in Plaster of Paris).
10. The maintenance of a sketch book with sketches for encouraging creative forms and drawing done during class hours.

STANDARD - X

Theory

1. Meaning of ' biscuiting ' and need of biscuiting.
2. Application of Lac-solution.
3. Oven, Kiln ; their construction and function.
4. Fuel—Coal, fire-wood, oil gas and electricity,
5. General information of temperature reading by seggar-cone and pyrometer. The accuracy of these in indicating the firing chamber temperature.
6. Knowledge and definition of Seggars and their advantages.
7. Use of sticking material.
8. Raku-firing.
9. Knowledge of preparing different types of moulds—Pull out mould. Press mould, single waste mould and double waste mould. Master mould and intricated moulds.

Practicals

1. Preparation and construction of biscuit-kiln; loading, firing and unloading the kiln.
2. Preparation and application of lac-solution.
3. Use of seggar cones.
4. Preparation of three dimensional clay models. Human figures, decorative articles etc.
5. Practice of preparing of relief plates from natural plants, tiles, wall decorations etc.
6. Use of different types of texture and designs, techniques in model.
7. Knowledge of stylization of motifs, technical points to observe in preparing the models and in making them suitable for moulding and firing.
8. Preparing moulds of above mentioned articles taking sections at proper places.
9. Preparing of slip casting and moulding.

12. WOOD WORK**STANDARD - IX****Theory**

1.1. Introduction — The tree : Important Indian and Foreign trees, cross section of a log, defects and diseases of the tree, good qualities of timber, sawing the logs to cut the, Preservation of timber, Seasoning, Varnishing, polishing colouring, etc. Veneering ply wood, teak ply and other laminated sheets.

2.2. Simple orthographic projection, views of simple hollow and solid bodies with dimensions. Use of different types of line and symbols for drawing. Reading simple blue prints.

3.3. Operations : Processes of carpentering such as cutting, sawing, planing, marking measuring, testing, drilling, mortising, tenoning, etc.

4.4. Tools and Equipments : Tools and equipments used by carpenters for above, apparatus such as carpenter's table, vice, clamps, bench-hook, bench stop, axe and adze, chisels, saaws, planes, plier and pincer, Try square, marking and mortise-gauge. A fold foot rule, mallet, claw hammer etc. Grinding and sharpening of tools and their care and maintenance. joints—different kinds of wooden joints—their description and application.

5.5. Cost Accounting : Necessity of assessing the job value from planned programme of work order. Assessing the price at prevailing market rates of material and manpower. Important notation used by carpenter and its specifications.

Practicals

1. Selecting good quality of timber for the particular purpose and practice in sawing of wooden pieces to sizes.
2. Toy-cutting of ply wood on fret saw.
3. Preparing name board, table calendar, and waste paper tray, chalk box etc. out of teak wood or ply-wood.
4. Wood Turning jobs such as chisel handle, latne (ञरढरे), pegs-stand, mallet-dumbels etc. table lamp stands.
5. Sawing and planing practice.
6. Simple lap, dovetail, M. T. joint. T. G. joint.
7. Practice in making of different joints for articles- i) Dovetail halving, ii) Thron and stopped housing, iii) Mortise and Tenon.

STANDARD.—X

Theory

Patternmaking— Pattern, allowances of pãttern, use of core-box. Use of pattern in moulding box.

Advanced Tools and Equipment – Special planes such as circular, compass and core box plane.—Hand drills, auger and gimlets, Metre block. Informative description of special purpose m/c, such as Grinding stone - Circular saw, hand saw, fret saw, universal wood working m/c etc. —Sharpening, use, care and maintenance of tools.

Jointing:– Various types of joints e. g. widening, lengthening, corner, peripheral joints Selecting and Preparing of joints- Special tools used for each type of joint. Special purpose of each joint.

Hardware – Variety of hardware used by a carpenter, such as screw, nails, hasp and staple, locks, hinges, knobs.

Waxing – Sand Papers, French polish, glue-liquid and solid, decorative and laminated sheets e. g. Sunmica used in modern life. General discription.

Allied General Knowledge – Various sections, their functions, special purpose. M/Cs used in the sections, a small scale workshop common tools used by the industrial worker, such as hammers, vernier calliper, -callipers, files, scales, spanner, drill, bits, screw driver. Use of cane, rexin, glass, plastic wire in furniture turning operation.

Practicals

- Advanced Joints - 1. Such as hunched m/c joint and metre dovetail on each.
2. Preparing one pattern involving wood turning operation.
3. Core box.

1. Photo frame (preparing at least one complete). Preparing at least one article involving all important operations with polishing, gluing and use of decorative sheet.
2. Tea-table-top, small show case, any show room article, telephone stand, stool.
3. Domestic articles such as Indian seat, Towel stand, Tea tray—Kitchen room tray. Newspaper box, Letter box—Book room.

13. TEXTILE TECHNOLOGY-WEAVING (POWER)

STANDARD-IX

Theory

Warping : General outline, methods in processes of warping, sizing of yarns. **Subjects**, common ingredients used in sizing. Standard methods of application of sizes to the yarn.

Calculations : Length, count and weight of yarn, Calculation of yarns : Determination of the weight of warp, weft and size in cloth piece, Elementary knowledge of power-looms (construction).

Practicals

Based on the above theory.

STANDARD-X

Theory

Power-loom weaving : working of power looms.

Designing : Use of design (point) Paper, Design, Draft and peg plan. Construction of various weaves. viz. Plain warp rib, weft rib mat (all derivatives of plan weave), Simple twill, pointed twill (herring bone) and diamond weave.

Calculations for determining the weights of warp yarn, weft yarn and size as well as the percentage of size.

Testing of yarn for counts andlea breaking strength.

Testing of yarn for counts and strength.

Practicals

Weaving on power-loom 3 Samples of 1 meter cloth each designed and woven by the students.

14. TEXTILE TECHNOLOGY

(I) Dyeing and Bleaching

STANDARD-IX

Theory :

Textile fibres : The classification of cotton, jute, wool and silk, their methods of production, properties, strength elongation, elasticity, action of heat, light, acids and alkalis.

Mercerization of cotton. Scouring of wool, degumming of silk and retting of jute.

Man-made fibres ; Viscous and acetate rayons, their physical and chemical properties, Properties of nylon and terylene, Bleaching of cotton : Impurity of cotton cloth and its removal. Designing with acids and enzymes.

Scouring : its necessity and the chemicals used. Other conditions of scouring, light, temperature, pressure and time.

Description of a simple pressure kier and its working. Bleaching powder and sodium hypochlorite : their methods of preparation and use in bleaching.

Scouring, antichloring, bluing, Fluorescent brightening agents. Outlines of the bleaching with hydrogen peroxide.

Practicals

1. During test on common fibres like cotton, jute, wool, silk, viscose and acetate rayons, nylon and terylene.
2. Action of acids and alkalis on cotton, wool, jute, silk etc.
3. Effect of calcium and magnesium salts in water on chemicals like caustic soda, sodium carbonate and on soap, Turkey red oil and synthetic detergents.
4. Desizing of cotton cloth piece with acid and enzyme solutions.
5. Scouring of yarn or desized cotton cloth.
6. Bleaching with hypochlorite solutions, Scouring, antichloring and bluing. Making a solution of bleaching powder and from that, making sodium hypochlorite solution.

STANDARD-X

Theory

Classification of dyes, general properties and methods of applications of direct, basic azoic, sulphur and vat dyes on cotton, Dyeing of acid and acid mordant dyes on wool and silk.

Fastness of dyeing to washing and light, Simple methods of their assessment.

Hard and soft water : Effect of hardness of water on dyeing and bleaching operations. Lime-soda and base-exchange medium methods of softening Soap and Turkey Red Oil. Their preparation and properties, Advantages of synthetic detergents over soap and Turkey Red Oil.

Practicals : (Ten experiments)

1. Dyeing cotton cloth and yarn with direct dyes. (About four experiments illustrating scouring, dyeing and after treatments should be given).
2. Dyeing cotton with basic dyes using tannic acid and proprietary mordants

4. Dyeing cotton with azoic colours. (Use of stabilised fast salts only should be stated. Bases need not be used).
5. Dyeing with sulphur dyes and after-treatments.
6. Dyeing with vat dyes.
7. Simple methods (requiring no special equipment) to assess the washing and rubbing fastness of dyeing.
8. Effect of bleaching powder solution on the various classes of dyes dyed on cotton.

(II) Engineering Drawing

STANDARD-IX

Theory /

Projections of solids, cones, pyramids, section of these solids on vertical and horizontal planes, developments of surfaces of solids (1/2 Imp. Four sheets).

Preparing an isometric scale, types of drawings, to draw isometric views from orthographic views and vice versa (1/2 Imp. 2 sheets).

Free hand sketching and drawing to the scales of rivets, riveted joints (Lap and butt. and simple machine parts).

Joints with single and double cover plates (1/2 Imp. 2 sheets).

Simple bearing, brackets, plumber blocks (1/2 Imp. 2 sheets).

Conventions in machine drawing.

STANDARD-X

Theory

Free hand sketching of Machine parts such as bolts, nuts, keys and lathe tail stock.

Drawing to scale and study of screw threads, standard forms of threads, nuts, bolts, washers, RH and LH threads, locks and locking devices.

Foundation bolts, keys cotters and pins. Drawing and sketching of flange coupling, catch plate.

Practicals

Year's work to be submitted at the S. S. C. (Tech.) Examination.

1)	Geometrical Drawing	— 2 sheets
2)	Machine Drawing	— 4 sheets
3)	Tracing	— 1 sheet
4)	Blue print	— 1 sheet

Total — 8 sheets.

15. Preparation of Coir Articles

STANDARD-IX

Theory

- a) Functions of Coir Industry Board of Govt. of India and State Govt.
- b) Information of technical process of preparation of coir.
- c) String turning wheel : its parts and functions.
- d) Classification of yarn and its number (score of different types of yarn).
- e) Handloom-its parts and functions, weaving of mat on handloom, selection of yarn for tana and wana.
- f) Machines used in coir industry and their functions (string turning wheel, Rope making machine, electrically operated machine, carding machine etc.)

Practicals

- a) Weaving of 3 meter mat with design on handloom.
- b) Weaving 30 cms x 50 cms footmat from fibres or coir.
- c) Preparation of bags by preparing good turned strings.
- d) Preparation of broom by using dry coconut blade.

STANDARD-X

Theory

- a) Improvements in the articles made out of coir.
- b) Fixing cost of the products.
- c) Acquiring knowledge of procedures followed in different industries by paying visits to them.
- d) Knowledge of the methods of preparing fibres from plants other than coir (Jute, Ghaipat, Ambadi).

Practicals

- a) Turning of rope by hand 10 meters long by using a less thick roll,
- b) Weaving of 50 cms x 100 cms mat on frame.

16. Photography

The syllabus at this stage is aimed at stimulating interest in photography and its various process-theoretically-at a suitable level and prepare individual candidates, to work independently in various areas, like pictorial, industrial, interiors architectural, fashion and scientific fields.

STANDARD—IX

Theory

1. A brief history of photography as a pictorial medium.
2. Different types of Cameras their mechanism, and their handling for different uses.
3. Elements of photographic processes e. g. developing techniques.
4. Different chemicals and their uses.
5. Introduction to various sensitising materials and exposure.
6. Optics. Different types of lenses.

Practicals : (Dark Room Practice)

1. Developers and developing techniques .
2. Fixing, hardening and washing.
3. Experiments in chloride and bromide paper in different grades.
4. Printing and enlarging methods and techniques.
5. Washing mounting and finishing

STANDARD X

Theory

- 1 Elements of composition.
2. Different developers, its composition and its uses.
3. Choice of suitable negative grade.
4. Technique of copying processes-continuous and line.
5. Negative care.

Practicals : (Dark Room Practice)

1. Film developing with different developers.
2. Practice in enlarging, dodging, cropping (Print making)
3. General out-door photography and picture story with reference to events related to games, sports, camp trips and social activities etc.
4. Simple portraits, out doors and indoors with one, two and three lamps.

17. Electronics

STANDARD—IX & X

Part I : Introduction to the world of electronics.

1. The Atom. Origin of the electron. Positive and negative charges.
2. The electric current. Electricity and Electronics.
3. Electric and magnetic fields.
4. Conductors and Insulators.
5. Electro motive force—its measurement - Voltage.
6. Measuring the quantity of current - The Ampere.
7. Resistance offered to flow of current - its measurement in ohms. Ohm's Law.
8. Direction of current. Alternating and Direct current (A.C./D.C.)
9. Amplitude, Frequencies, Wave forms, Wave length. A. M. & F. M.
10. The Electrical circuit : Open/closed/short circuit. Fuse.

Practicals : Experiment 1 The Electrical Circuit. (Conductors, Semiconductors, Insulators.)

Part II Introduction to the world of Semiconductors

- A. Description and functions of components.
1. Circuit diagram/printed circuit board.
 2. Battery - dry cells - symbols and colour code used for connections.
 3. The Resistor - symbol, value, tolerance - colour code.
 4. The lamp and lamp holder.
 5. Photo Cell - L. D. R.
 6. Capacitors/condensers, symbols - types - ceramic or disc, electrolytic variable capacitors.

1. Inductor coil - inductance - use of inductor and capacitor to tune to a frequency of transmitter.
2. Reaction coil - ferrite rod.
3. The Diode.
4. The Transistor - two types - NPN and PNP.
The earphone, earphone plugs, wire probes, morse key and switch.
5. Types of connectors : Banana plugs/sockets, microphone plugs/socket R. C. A. plugs, Philips, Grunding plugs.
- B. How to build circuits.

Practicals : Experiment 2. Action of Diode.

- „ 3. How a transistor works.
- „ 4. Capacitor action using a Transistor.

Part III : Introduction to the world of circuits :

1. Difference between Digital and Amplifier circuits
2. The amplifier, pre-amplifier, pick-up.

Practicals : Experiment 5. Telephone pick-up and a amplifier.

- „ 6. Microphone Amplifier.
- „ 7. Gramophone Amplifier.

Part IV : Digital circuit - The Transistor use as a switch

Practicals : Experiment 8. The transistor used as a switch.

- „ 9. Burgular alarm - light beam (normally on.)
- „ 10. Burgular alarm - light beam (normally off.)
- „ 11. Parking light (normally off)
- „ 12. Moisture detector.
- „ 13. Lighting the candle. (burgular alarm lock on)
- „ 14. A batch counter.
- „ 15. Signal transmission using light.
- „ 16. Time switch.

Part V : Preparing circuits to produce ' beat & rythmn ' in sound.

Experiment 17. The multivibrator.

- „ 18. Electronic Violin.

- Experiment 19. Morse Flasher Buzzer.
 „ 20. Metronome.
 „ 21. Sound operated warning device (with automatic reset)
 „ 22. Memory Circuit.
 „ 23. Sound operated warning device (Manual reset)
 „ 24. Memory circuit with one switch.
 „ 25. The frequency divider.

18. Puppetry

Puppetry is an age-old folk-art which has served as a source of door-to-door entertainment and as means of social cohesion and social correction.

It involves art, craft, entertainment and has a wider scope than any craft or art. It is a very special art and it is very difficult to categorize it.

Schools can make a very serious effort to introduce puppetry in schools with the intention of reviving this vibrant folk-art. It will help the pupils to keep close contact with a folk-art, to become aware of the social problems and to become familiar with an age-old, easily available and cheap source of entertainment.

Objectives :

1. To become familiar with this ancient creative media of social entertainment and social correction with all its colour and rhythm.
2. To exploit the ancient folk-art as an educational aid to make history - and other social sciences - and literature alive and interesting.
3. To make the colourful world of drama informal and bring it to the door of the common man - particularly in the villages.
4. To cultivate dexterity of fingers and awareness of rhythm.
5. To keep the folk - art alive.
6. To learn to exploit the language of everyday use for putting across complicated historical or social - situations like problems of cleanliness, population explosion and village upliftment.
7. To learn the art of entertaining and to add a different dimension to one's life.
8. To develop life - long interests which can serve a social purpose and also provide a minor source of livelihood.

STANDARD—IX

PART I: Theory - (Basic information)

1. Different types of puppets - string puppets, finger and fist puppets, glove puppets, marionetts, shadow puppets and rod puppets

- 2. Theory and technique for story, music and drama script for puppetry.
- 3. Puppet stage.

PART III : Practicals

- 1. Handling different media for making puppets papiermache, wood, cloth.
- 2. Putting up a puppet - show using material from history and mythology.

STANDARD-X

PART I : Theory

- 1. History and origin of puppetry.
- 2. Puppetry today - nations where puppetry has flourished and different forms of puppetry in different countries.
- 3. Puppetry : Techniques, skill and possibilities of its use as an educational aid.

PART II : Practical

- 1. Writing the script for puppet shows.
- 2. Setting it to music and preparing the dialogue.
- 3. Putting up puppet shows on different occasions like Teacher's Day, Ganeshotsava- for exploring the possibilities of using puppetry as (i) means of social correction, (ii) one of the subsidiary means of earning money, (iii) means of reviving and/or keeping alive folk music, folk art and folk - lore.

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