



**SYLLABI AND COURSES
FOR
RECOGNISED SCHOOLS
IN
DELHI ADMINISTRATION**

**(VOLUME II)
MIDDLE CLASSES (VI to VIII)**

1964

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Note :: For detailed syllabus in Social Studies see volume 3.

SUBJECTS OF STUDY

Middle Deptt. (Classes VI, VII & VIII)

For Hindi medium Schools

Total number of subjects:—8

Compulsory Subjects:—(1) Hindi, (2) Mathematics, (3) General Science/Home-Science, (4) Social Studies, (5) English, (6) Physical Education.

Optional Subjects :—Any two out of the following:—

- (i) Sanskrit or Persian or Arabic.
- (ii) Drawing & Painting.
- (iii) Music.
- (iv) Dancing.

or (v) One of the following crafts :—

- (a) Hand work.
- (b) Spinning & Weaving
- (c) Wood work
- (d) Clay work & Pottery
- (e) Gardening & Agriculture
- (f) Card Board modelling & Bookcraft.
- (g) Metal work and
- (h) Leather work.

Schools where Hindi is not being taught as mother tongue:

Total No. of subjects :—8

Compulsory Subjects:—(1) Mother Tongue, (2) Hindi, (3) Social Studies, (4) Mathematics, (5) General Science/Home Science, (6) English, (7) Physical Education.

One optional subject from the following :—

- (1) Sanskrit or Persian or Arabic.
- (2) Drawing & Painting.
- (3) Music.
- (4) Dancing.

or (5) One of the following Crafts :—

- (a) Hand work
- (b) Spinning and weaving
- (c) Wood work
- (d) Clay work & pottery

- (e) Gardening & Agriculture.
- (f) Card Board modelling and Bookcraft
- (g) Metal work, and
- (h) Leather work.

NOTES:—1 The standard of Hindi in the non-Hindi schools will be one class below as in the Hindi medium schools.

2. In the Girls schools where General Science is taken as one of the compulsory subjects, Home Science must be taken as an optional subject.

3. In the senior Basic & Basic Oriented schools Craft education will be part of compulsory core.

SYLLABUS IN HINDI

CLASS VI

By the time a pupil reaches class VI, he must have attained the ability :—

1. To express freely in speech as well as in writing his ideas and personal experiences clearly, connectedly and suitably.
2. To read aloud correctly and with expression simple reading material suiting his age and ability.
3. To read silently for enjoyment and for information.
4. To recite a poem with expression and effect.
5. To narrate a story.
6. To write simple letters to relatives, friends, businessmen as also applications and invitations.
7. To write dialogues.
8. To make a short speech.
9. To consult a dictionary or reference book, especially written for children.

As the pupil advances in age, his experiences and interests become increasingly varied and wider. It then becomes the duty of the teacher to increase his vocabulary, making it sufficiently rich and discriminating, so that he is enabled to express exactly what he wishes to convey by way of oral speech or in writing. There is need, too, of teaching him different ways of expression in order to sharpen and improve his tools of communication.

In regard to oral expression the following additions should be made in class VI:—

- (i) Telling a story from the point of view of some one other than the person assumed to be telling it to the reader.
- (ii) Describing a cognate experience.
- (iii) Discussing subjects of living interest.
- (iv) Discussing pros and cons of adopting or having adopted a course of action.

As regards written composition the following new items should be taken up, apart, from the previous ones suggested in lower classes :—

- (i) Completing in-complete sentences.
- (ii) Reproduction of narratives and descriptions in 3 or 4 paragraphs.
- (iii) Using newly learnt words, phrases and idioms.

- (iv) Filling in some common blanks, such as Admission Forms, Telegraphic forms, withdrawal forms, Money Order forms.

Eight short essays on very simple and familiar subjects.

In regard to story-writing, writing of dialogues and letters, sufficient practice should be given.

1. Reading aloud is a skill and like any skill, it requires practice and imagination to master it. Pupils in this class will continue to practise this invaluable skill by being required to read audibly, expressively and fluently. Suitable passages in the text as well as in the supplementary books should be chosen for this purpose.

2. More and more emphasis will gradually be placed on independent silent reading for providing leisure time entertainment and as a means of furthering education and disciplined thought. With the love of books already kindled in elementary classes, it would now be the duty of teachers of Hindi to cultivate judgement and taste. Breadth and depth in reading will have to be reconciled ensuring that whatever pupils read, they read intelligently.

3. The Text should consist of about 200 pages and should include a new vocabulary of 300 words. One fourth of the Text should consist of poetry and three fourth of prose. The lessons, among others, should deal in a general and interesting way with topics on (1) History (2) Geography, (3) General Science, (4) Civics, (5) Biography (6) Ethics, (7) Travels and Adventures and (8) Events depicting the culture of the country.

At the end of the each lesson there should be comprehensive exercises dealing with different aspect of the lessons, grammar, composition, subject matter, explanation etc. The class should also be given ample practice in exercises of explanation of Prose and Poetry.

Four library books including biographies, novels, dramas, description of travels and incidents suitable for the age should be read by all the students and a record should be kept of all the reading done by the students. These books should be copiously illustrated and attractively designed. The language should be easy to follow.

Reading room and library facilities must be amply provided. The library should be well equipped with abundant juvenile literature.

One supplementary reader of about 150 pages containing instructive and interesting stories.

Grammar.

- (a) Revision of the previous work.
- (b) Sentence and its parts: Subject and Predicate.
- (c) Verbs-transitive and intransitive, active and passive (simple cases).
- (d) Kinds of pronouns, adjectives, adverbs, prepositions, conjunctions and interjections.
- (e) Cases of Nouns and Pronouns.

(f) Punctuation—Comma, semi colon, dash, hyphen and inverted commas. (harder cases).

(g) Idioms and Proverbs.

There should be a small book for grammar of about 40 pages.

CLASS VII

Oral Work.

(1) As in class VI.

(2) Discussing problems arising out of the various school activities e.g. how should the school crafts be organised; what place is most suitable for a picnic and why; which story is most suitable for dramatization and how can a school co-operative shop be run successfully.

(3) Taking part in debates. The preliminary step of approaching a question in a rational way, considering points in its favour as well as against it, had been taken in the previous classes. What is now required is explaining the technique of meeting the opponent's arguments. The pupils should be required to write out, first of all, all the points in favour of a proposition. By means of oral discussion in the class, arguments should be adduced contradicting these points. These should be written out by pupils against the first ones in a separate column. In this way pupils will be equipped with all the material they are to handle and in what way to meet the arguments of the opponents.

The early subject for debates should be very simple, in fact within the pupils' daily experience, e.g. water from the Surahi is better for health than the iced water; dhoti is more comfortable to wear than the pyjama, manual work is better than table work and hand-made goods *versus* machine made goods etc. Gradually as the students get more and more used to this type of oral work, they are given topics for which they have to collect material from the school library and other sources.

Reading.—As in classes V & VI the emphasis should here shift from 'learning to read' to 'reading to learn'. This implies a change not only in our main objectives of teaching reading and in our methods of approach, but in the content of reading instruction as well. In the first place this should lead us to strive to develop the pupils, reading vocabulary both of a general, literary kind and of the special vocabularies met with in different subjects of their study. Secondly, silent and extensive reading should ever be on the increase as the pupils move from one class to another in order to develop liking and love for reading, to enable them to seek knowledge and information on their own and to get introduced to ideas and themes that have haunted the imagination of countless generations and that recur continually in literature. Thirdly, the teacher should make constant endeavour to cultivate judgment and taste, so that whatever the pupils read, they read critically and thoughtfully. Lastly, as progress in most other subjects depends largely on reading, as much help as possible should be given at this stage to increase speed and accuracy.

However, the loud reading and intensive study will not be excluded, but will have an important place in the reading programme. As is well known reading aloud provides excellent opportunities for practice in good pronunciation and intonation, proper phrasing and expression, helping to develop the ability to speak well and impressively in daily life and on the platform. Intensive treatment of the text has the merit of giving an insight into the uses and meaning of words in different contexts and combinations and helps to fix these in pupils to be used in speech as well as in writing. It also fosters the habit of studying critically and thoughtfully the reading material—thus providing depth in contrast with the breadth supplied by extensive reading.

Reading, to sum up, will at this stage, have fourfold aim: to furnish information, to increase vocabulary and improve expression oral and written, to entertain and to cultivate judgment and taste.

To achieve these aims we shall have to resort literally to both the aspects of reading, namely reading aloud and silent reading. Though lessons in the text generally provide reading for both these types, it would be necessary to encourage pupils to do a lot of extra-reading. Since supplementary readers or library books are to be read by the students themselves, it would be desirable that their subject matter is suited to their age level and the language used is so easy to read that it gives the pupils no more trouble than an occasional reference to dictionary.

Moreover, reading to be of benefit must help a child to recall details and to identify central thought of a passage or passages read by him. The teacher should guide and assist him in these skills, for on these depend much of the pupils' success and pleasure in later life.

The text book should have about 225 pages and should introduce 300 new words. One fourth of the text should consist of poetry and three fourth of prose. These lessons among others should deal in a general and interesting way with topics on (1) History (2) Geography, (3) General Science, (4) Civics, (5) Biography, (6) Ethics, (7) Travels and Adventures, (8) Events depicting the culture of the country. At the end of every lesson there should be comprehensive exercises dealing with different aspects of the lesson, grammar composition, subject matter, explanation etc. The class should be given ample practice in exercises on explanations of prose and poetry.

Four library books including biographies, novels, dramas, description of travels and incidents suitable for the age should be read by all the students and a record should be kept of all the reading done by the students. These books should be copiously illustrated and attractively designed. The language should be easy to follow.

Reading room and library facilities must be amply provided. The library should be well equipped with abundant juvenile literature.

One supplementary reader of about 150 pages containing instructive and interesting stories, one act plays, dialogues etc.

Writing.

- (1) As in class VI
- (2) Completing stories by inserting portions left out.
- (3) Writing for school magazine (in manuscript).
- (4) Writing notices and reports of class meetings, matches, etc.
- (5) Writing letters of social utility, e.g. to an Editor, to the President of the Local body, etc.
- (6) Writing a summary of a lesson (reducing the matter to about one half).
- (7) Writing at least 10 short essays on familiar topics.

This is a valuable exercise, since it provides very useful mental training in so far as pupils are required to understand and bear in mind all that the writer has said, has to pick out its essential points, has to link them up in a logical and sensible manner and to write them out in his own language.

Teachers are advised to begin this exercise with a sentence as a unit of thought. They can give their pupils a good practice in reducing a long sentence into a shorter one after its superfluous parts have been pruned.

The second stage will be the giving of a gist of a short paragraph consisting of a few sentences.

From one paragraph, the teacher can proceed to a passage consisting of more paragraphs than one.

In Summarizing the students will follow the following procedure :—

- (1) Reading the passage carefully and trying to understand it thoroughly.
- (2) Noting different points the passage contains and numbering them in the margin.
- (3) Eliminating repetitions, illustrations and superfluous matter.
- (4) Arranging points in a logical and sensible way.
- (5) Writing out the summary in their own language.

Grammar.

(1) Detailed conjugation of verbs in three tenses. Different kinds of verbs.

- (2) Impersonal voice.
- (3) Imperative mood.
- (4) Participles.
- (5) Kinds of sentences. Transformation and synthesis of sentences.

(6) Analysis of simple sentences.

(7) Idioms and Proverbs. There should be a separate book of grammar of about 100 pages containing topics prescribed for VII and VIII classes.

CLASS VIII

Oral Work.

This class marks the end of the Middle Stage. It is expected that by the time pupils are promoted to class IX, they should have acquired ability to talk in a lively, distinct and correct manner; to describe experiences, events, scenes, etc. vividly and impressively; to reproduce narratives with a full sense of sequence of events; to give short talks on simple subjects; to take part in discussions and debates; and to recite poems with expression and proper emphasis. Beginnings of all these various modes of oral speech were made in the preceding classes and it becomes the duty of the language teacher to give his pupils ample practice in each of them on various occasions, e.g. while dealing with the text, the supplementary reader, written composition, etc. or during the time pupils are engaged in literary activities in class-meetings, elocution and recitation contests, debates, etc.

Writing.

- (1) As in class VII.
- (2) Writing the summary of a lesson or a chapter in a book.
- (3) Completing a story.
- (4) Writing of posters.
- (5) Making an index.
- (6) Expanding ideas.
- (7) Supplying the title or heading.
- (8) Paraphrasing.
- (9) Writing of at least 6 letters, 10 essays and 2 dialogues.
- (10) Character sketches with reference to the subject matter of the text.

Reading.

The students in class VIII have reached a stage when it is desirable to develop more mature reading interests and habits. There are at least four directions in which special efforts are required to be made:—

- (i) Stimulating interest in finding out, through reading, about the new and the unfamiliar.
- (ii) Developing skill in recognising and assimilating with the help of dictionary, etc. the meaning of the new and difficult words which appear with increasing frequency in the broader range of materials now placed in his hands.

(iii) Increasing ability to read critically and thoughtfully and to use the ideas thus acquired in enriching previous concepts and ideas. This again will help in acquiring improved behaviour patterns.

(iv) Increasing speed of reading.

The text-book should consist of about 250 pages (with exercises in composition and applied grammar as in previous classes) covering an additional vocabulary of 300 words. One fourth of the text should consist of poetry and three fourth of the prose. These lessons among others should deal in a general and interesting way with topics on (1) History (2) Geography (3) General Science (4) Civics (5) Biography (6) Ethics (7) Travels and Adventures (8) Events depicting the culture of the country. At the end of every lesson there should be comprehensive exercises dealing with different aspects of the lesson, grammar composition, subject matter explanations of prose and poetry.

Four library books including biographies, novels, dramas, description of travels and incidents suitable for the age should be read by all the students and a record should be kept of the reading done by all the students. The books should be copiously illustrated and attractively designed. The language should be easy to follow.

Reading room and library facilities must be amply provided. The library should be well equipped with abundant juvenile literature.

Supplementary Reader of about 150 pages. In addition to these text-books, six library books must be read by each and every pupil.

Grammar.

- (1) Revision of work done in class VII.
- (2) Parsing (Complete).
- (3) Analysis of complex and compound sentences.
- (4) Sandhi (Swar and Viyanjan).
- (5) Degrees of comparison of adjectives and adverbs.
- (6) Compounds (समास).
- (7) Word-building.
- (8) Prefixes and suffixes.
- (9) Idioms and Proverbs.

PUNJABI
CLASS VI

Oral.

- (a) As in class V.
- (b) Story telling.
- (c) Dialogues on personal experiences and activities.
- (d) Short speeches on familiar topics.
- (e) Dramatization of scenes taken from Text books, children magazines or folk-lore.

Reading.

- (a) Reader covering about 200 pages. Poetry being twenty per cent of the whole matter.
- (b) Supplementary Reader about 110 pages.
- (c) Two or three library books and children's magazines in order to develop the silent reading.
- (d) Use of dictionary.

Composition.

- (a) Revision of work done in class V.
- (b) Different kinds of letters, applications and invitations etc.
- (c) Completing incomplete sentences.
- (d) Reproduction of narratives and description in 3 or 4 paragraphs.
- (e) Simple exercises in composition on familiar topics.
- (f) Using words and phrases in sentences.
- (g) Filling in various forms, such as Money order forms, admission forms etc. and writing receipts.

Grammar.

- (a) Sentence and its parts (subject and predicate).
- (b) Practice of recognising various parts of speech, to be coordinated with the text.
- (c) Punctuation (important signs only).
- (d) Correction of incorrect sentences.

CLASS VII

Oral.

- (a) As in class VI.
- (b) Staging of small one-act plays.

Reading.

- (a) A Reader covering 220 pages. Poetry being twenty per cent of the whole matter.
- (b) A Supplementary Reader 110 pages.
- (c) Two or three library books, children's magazines and newspapers.

Composition.

- 1. As in class VI.
- 2. Writing for school magazine.
- 3. Writing a summary of a lesson reducing it to one half.
- 4. Composition on simple topics.
- 5. Composition exercises, such as substitution of one word for many different meanings of the same word, pairs of words having opposite meanings.

Grammar.

- (a) All parts of speech.
- (b) Kinds of noun, pronoun and adjective.
- (c) Cases of noun and pronoun.
- (d) Analysis of simple sentences.

CLASS VIII**Oral.**

- (a) As in class VII.
- (b) Continuation of all the important types of oral composition dealt with in the previous classes.

Reading.

- (a) Reader covering 220 pages. Poetry being twenty per cent of the whole matter.
- (b) Supplementary Reader about 130 pages.
- (c) Two or three library books and reading of magazines and newspapers to develop the habit of silent reading as well as to increase the speed of reading.

Composition.

- (a) As in class VII.
- (b) Preparation of Index.
- (c) Posters, notices and reports of school functions etc.
- (d) Expanding of ideas.
- (e) Supplying the title or heading to an unseen passage.
- (f) Writing of answers to questions on a given paragraph.

Grammar.

1. Revision of work done in previous classes.
2. Analysis of complex and compound sentences.
3. Word building.
4. Prefixes and suffixes.
5. Idioms and proverbs.
6. Synthesis and transformation of sentences.
7. Distinction of pairs of words.

URDU
CLASS VI

Oral.

- (a) Description of personal experiences and activities.
- (b) Story telling.
- (c) Dramatization from stories.
- (d) Taking part in discussion on subjects of living interest.
- (e) Enlarging the vocabulary by adding to it new words and phrases learnt in connection with other activities.
- (f) Making short speech on a familiar topic.
- (g) Dialogues.
- (h) Using newly learnt words and idioms in conversation.
- (i) "Bait Bazi".

Reading.

- (a) Text book of about 160 pages, containing about 25 pages poetry matter.

Note.—One-third portion of this should consist of selections from very well known writers.

- (b) About six library books suitable for this stage.

Written.

- (a) Writing different kinds of letters, applications and invitations.
- (b) Writing essays and composition, creative writing like stories, verses and poems by the students may be encouraged.
- (c) Reproduction of narratives and descriptions in 3 or 4 paragraphs.
- (d) Completing incomplete sentences.
- (e) Writing stories from given outlines.
- (f) Arranging given facts in a particular order.
- (g) Dialogues.
- (h) Using newly learnt words, phrases and idioms.

Grammar.

- (a) Parts of sentences, subject and predicate, verbs, three tenses, transitive and intransitive verbs, active and passive (simple cases).
- (b) Kinds of verbs in the past tense.
- (c) Kinds of verbs in the future tense.
- (d) Kinds of verbs in the present tense.
- (e) Punctuation, signs of interjection and the comma (complete).

CLASS VII**Oral.**

- (a) As in class VI.
- (b) Discussing problems arising out of the various school activities.
- (c) Taking part in general discussion in class and school debates.

Reading.

- (a) A text book of about 160 pages with exercises in composition and applied grammar containing about 25 pages of poetry matter.
- (b) About eight library books suitable for the stage and reading of magazines and newspapers.
- (c) Practice in the use of the dictionary. Recitation as in class VI.

Written.

- (a) As in class VI.
- (b) Writing of letters and general type reflective essays.
- (c) Completing stories by inserting portions left out.
- (d) Writing for school magazine (in manuscript) and wall papers etc.
- (e) Writing a summary of a paragraph.

Grammar.

- (a) As in class VI.
- (b) Kinds of nouns.
- (c) Pronouns, conjunctions and interjections.
- (d) Parsing.
- (e) Kinds of sentences.
- (f) Idioms and similies.
- (g) Verbs formed from nouns and adjectives.
- (h) Punctuation (complete).

CLASS VIII**Oral.**

As in class VII.

Reading.

A text book of 192 pages containing about 25 pages of poetry matter with exercises in composition and applied grammar. Reading of about 8 library books suitable for this stage.

Recitation.

Recitation of pieces of poetry of student's own selection on the topics suggested by the teacher.

Written.

- (a) As in class VII.
- (b) A summary of a chapter in a book.
- (c) Making an index and using library catalogue.
- (d) Short stories and dialogues.
- (e) Posters, notices and reports.

Grammar.

- (a) Revision of work done in class VII.
- (b) Transformation of sentences.
- (c) Prefixes and suffixes.
- (d) Mataphors.

Caligraphy.

Practice of copying couplets and sentences on paper from printed models.

Appendix.**Method of Teaching etc:**

Books should be suitably graded and should employ only limited but gradually increasing vocabulary. The material for these books should be based mainly on:—

1. Familiar experiences of children at home.
2. Experiences of children at play.
3. Experiences of children with domestic animals and kindness to animals.
4. Experiences of children at farm.
5. Experiences of children in the street and market place.
6. Knowledge about Postal System the journey of a letter.
7. Experiences of children at school.
8. Experiences of children with nature.
9. City and Country life.
10. Stories of wild animals and birds.
11. Stories of adventures, fairy tales, folk lore and legends.
12. Stories of life in other countries of the world.
13. Trees and forests.
14. Tales of great men and women of India and other countries.
15. Agriculture, sanitation and hygiene, medical relief, education, co-operation, industries, country life and village welfare.
16. Travel, geographic expeditions and discoveries.
17. Conquest of nature.
18. Biographies.

19. Short stories and modern one-act plays.
20. Selection from standard literature not earlier than the 19th century.

Silent Reading.

Proper attention should be paid to this activity so that children might learn abstract ideas with rapidity, enjoy what they read and retain for the enrichment of their minds with new ideas and knowledge. Class library books should be utilized for the purpose.

Dictionary.

Systematic training in the use of dictionary should be given.

Audio Visual Aids.

Maximum use of Audio Visual Aids should be made in order to make the teaching of language more effective.

SINDHI
CLASS VI

Reading.

- (i) Text Book consisting of about 175 pages, preferably prose and poetry of a nature to give the child an idea of his country and culture.
- (ii) One Supplementary Reader of about 100 pages.
- (iii) Extra reading: Use of library books to be encouraged.
- (iv) Recitation: Poetry about 75 lines.

Composition.

A. Oral.

- (i) Description of personal experiences and activities.
- (ii) Story-telling—Stories from Shah.
- (iii) Dramatization from stories.
- (iv) Making short speeches on familiar topics.

B. Written.

- (i) Different kinds of letters, applications and invitations.
- (ii) Simple descriptive and narrative paragraphs.
- (iii) Writing stories from given out-lines.

Grammar.

- (i) Kinds of Noun.
- (ii) Kinds of Pronoun.
- (iii) Degrees of Adjective.
- (iv) Verbs—Transitive and intransitive.
- (v) Revision of the parts of speech learnt earlier.
- (vi) Use of Idioms from the Text Book.

CLASS VII

Reading.

- (i) Text Book of about 200 pages with exercises on grammar and composition at the end of each lesson.
- (ii) Supplementary Reader of about 125 pages.
- (iii) Use of Library books.
- (iv) Recitation as in Class VI.

Composition.

A. Oral.

As in Class VI.

B. Written.

- (i) As in Class VI. Topics should be suited to age and development of the child.
- (ii) Completing incomplete stories.

Grammar.

- (i) All kinds of verbs, tenses and cases.
- (ii) Parsing: Noun, Pronoun, Adjective.
- (iii) Active & Passive Voice.
- (iv) About 100 Idioms and proverbs in common use.

CLASS VIII**Reading.**

- (i) Text Book of about 220 pages. Prose about 180 pages and Poetry about 40 pages.
- (ii) Use of Library books.
- (iii) Recitation (a) Poetry as in Class VII (100 lines)
(b) Recitation of pieces of Prose may be encouraged.

Composition.**A. Oral.**

- (i) Students should be encouraged to participate in Class and School debates.

B. Written.

- (i) Essays of more advance type suiting the age and mental growth of students.
- (ii) Applications, official letters and letters to an Editor.
- (iii) Dialogue.

Grammar.

- (i) Revision of work done in Class VII.
- (ii) Parsing (Complete).
- (iii) Analysis of simple sentences.
- (iv) Compound words.
- (v) Word-building.

SOCIAL STUDIES

CLASS VI

'Now we govern ourselves'

- Unit I: We are now a free country.* (thirteen weeks)
1. How we were governed in the past (three weeks)
 2. We and our Independence Day (three weeks)
 3. The units of our Union (three weeks)
 4. Our rights and duties as citizens of free India (two weeks)
 5. Our Republic Day and what it means to us (two weeks)
- Unit II: We govern ourselves* (six weeks)
1. We make our laws (two weeks)
 2. How do we govern ourselves (two weeks)
 3. We defend our country and its freedom (two weeks)
- Unit III: We need to exchange and develop our ideas* (eight weeks)
1. We hold meetings (two weeks)
 2. Reading newspapers (two weeks)
 3. Listening to a radio (two weeks)
 4. The languages of our land (two weeks)
- Unit IV: We are a member of the commonwealth* (three weeks)
1. Some of the Commonwealth countries (three weeks)
- (There should be a text-book of about 180 pages.)

CLASS VII

"We face our future"

- Unit I: Planning for the people* (eight weeks)
1. How many heads and hands are we? (two weeks)
 2. We plan our activities (two weeks)
 3. Our savings help us as well as our plan (two weeks)
 4. We have to encourage small industries (two weeks)
- Unit II: The changing face of our land in the country side* (six weeks)
1. We need to produce more and more from our farms and fields (Two weeks)
 2. We are trying to tame some of our big rivers (two weeks)
 3. The villages that are on the march (two weeks)
- Unit III: Running big industries with the help of machines* (six weeks)
1. We are developing big industries (two weeks)

MATHEMATICS
CLASS VI

Arithmetic.

1. Revision of work done in class V.
2. Decimal fractions—multiplication and division by decimal fraction; conversion of common fractions into decimals and *vice-versa*; simplification of common and decimal fractions.
3. G. C. M. and L. C. M. of decimal and common fractions and problems on G. C. M. and L. C. M. continued.
4. Use of 'brackets', 'of', etc, relating to common fractions & decimals of concrete quantities; expressing a given concrete quantity as fraction of another quantity of the same kind.
5. Average.
6. Percentage conversion into equivalent decimals or proper fraction, given a certain percentage of a quantity, to find the quantity and *vice-versa*. Problems on calculation of allowances, discounts, etc.
7. Simple interest (continued)—inverse problems, finding out rate, time and principal.
8. Profit and loss (involving percentage) finding C.P. and S.P. Keeping accounts of percentage profit and loss in connection with actual craft work done.
9. Area of four walls, paths and cross-roads.

CLASS VII.

Arithmetic.

1. Revision of work done in Class VI.
2. Square roots by factors and by division and problems thereon.
3. Square root of decimal fractions.
4. Area continued: inverse and miscellaneous problems.
5. Surface and volume of cubes and cuboids.
6. Investment in post-office savings bank; defence bonds; National savings certificate and national plan certificates—compound interest to find amount, interest and principal by decimal method.
7. Income and expenditure account relating to cooperative stores, craft work and farm, house-hold account and family budget.
8. Bills and invoices.

Algebra.

1. Use of letters for numbers (symbolic representation).
2. Positive and negative quantities.

3. Four fundamental rules.
4. Use of brackets.
5. Simple equations and problems.

CLASS VIII

Arithmetic.

1. Revision of work done in class VII.
2. Misc. and inverse problems on simple and compound interest and use of formulae.
3. Time and distance, time and work, work and wages.
4. Easy problems on mixtures.
5. Ratio, simple and compound proportion, proportional division, partnership.
6. Area of a circle, volume and surface of cylinder.

Algebra.

1. Easy simultaneous equations involving two variables only and simple problems thereon.
2. The following formulae:
 $(a+b)^2$, $(a-b)^2$, and a^2-b^2 , $(a+b+c)^2$ and its extension.
3. Plotting of points, simple statistical graphs of temperature, rainfall, etc. their reading and drawing.

CLASS VI

Geometry.

1. Recognition of equilateral, isosceles and scaling right angled triangles and their construction.
2. Construction of triangles (i) when three sides are given, (ii) when two sides and included angle are given, (iii) when one side and the two angles at its ends are given, (iv) hypotenuse and one side is given.
3. Bisection of straight lines and angles. Drawing of perpendiculars using a pair of compasses. Construction of squares and rectangle using a pair of compasses.
4. Recognition of parts of circle: radius, diameter, chord, circumference, arc, segment and sector; measuring of circumference with the help of a thread; finding relation between circumference and diameter.
5. Drawing designs based on circles, squares, rectangles and triangles.
6. Representation of simple data by bar-graph.

CLASS VII

1. Construction of angle=given angle, Drawing of parallel lines with the help of compasses. Simple cases of construction of quadrilateral, parallelogram and rhombus—use of the above is practical work connected with Art or Craft.

2. Verification by practical methods of the following statements and easy numerical problems based on them:
- (i) If a straight line stands on another straight line the sum of the angles so formed is equal to two right angles and its converse.
 - (ii) If two straight lines intersect, the vertically opposite angles are equal (Theoretical proof should be given).
 - (iii) If a transversal cuts two parallel lines then the alternate angles are equal, the corresponding angles are equal, the sum of the interior angles on the same side of the transversal is equal to two right angles.
 - (iv) The sum of the angles of a triangle is equal to two right angles. (Theoretical proof should be given).
 - (v) The sum of the angles of a quadrilateral is equal to four right angles (Theoretical proof should be given).
 - (vi) If the sides of a polygon are produced in order the sum of the exterior angles so formed is equal to four right angles.
 - (vii) If two sides of a triangle are equal, the angles opposite to the equal sides are also equal and *vice-versa*.
 - (viii) If two sides of a triangle are unequal—the greater side has the greater angle opposite to it and *vice-versa*.

CLASS VIII

1. Construction of the following :—
 - (i) Angle of 60 degree and other angles which are multiples of 15 degree.
 - (ii) Division of a straight line into a number of equal parts, division of a straight line in a given ratio.
 - (iii) Construction of 2 or 3 circles touching each other externally or internally.
 - (iv) To inscribe in and circumscribe a circle in and about a triangle.
 - (v) To inscribe in and circumscribe about a circle (a) an equilateral triangle, (b) a square, (c) a regular hexagon and a regular octagon.
2. Verification by practical methods of the following propositions and easy riders thereon.
 - (i) All four cases of congruency of triangles.
 - (ii) In a parallelogram (a) the opposite sides and angles are equal (b) the diagonals bisect—each other, (c) each diagonal of the parallelogram bisects the parallelogram. (Theoretical proofs should be given).
 - (iii) The square on the hypotenuse of a right angled triangle is equal to the sum of the squares on the other two sides. Geometrical illustration: $(a+b)^2 = a^2 + b^2 + 2ab$.
 - (iv) Geometrical interpretation of axb, a^2 .

3. (a) Area of (i) a triangle when base and height are given (ii) a triangle when the three sides are given, (iii) a parallelogram or a rhombus (iv) a circle.
- 3a. (a) Finding the area of (i) Parallelogram and a rhombus (ii) a triangle when base and height are given,
- (b) Deriving relationship between circumference and diameter and finding the area of a circle.

GENERAL SCIENCE

CLASS VI

Animal Life.—To know the uses and ways of the life of animals of transport.

Animals which carry loads or persons or draw carts or vehicles from one place to another are known as animals of transport. Donkeys, bullocks, ponies, camels, elephants are common animals of transport. In high mountain regions, yaks (in Tibet) and llamas (in Andes mountains) are used as animals of transport. In Tundra regions reindeer and polar dogs do this job.

A camel is used in deserts and is known as the 'ship of the desert'. An elephant is used for carrying loads in forest regions.

All animals of transport have a great power of endurance and strength of body. They generally eat grass, shrub leaves, leaves of trees, twigs, sugar-cane, ground gram and such other things. Most of them have hard hoofs or cushion feet. Camels have an extra bag for storing water, and some other animals have one for storing food.

The teacher should show models or pictures of such animals (as well as their habits of living) as are not commonly seen in the vicinity. Pictures of gallantry of horses, their use in wars, races and other events may also be shown.

Pictures of animals of transport may be collected in an album by the pupil. Pictures of various carts, chariots and vehicles drawn by these animals may also be included.

Insect Life.—To know the life of mosquitoes and cockroaches.

Mosquitoes are very common insects of hot and wet countries. There are two kinds of mosquitoes: anopheles and culex. The latter are harmless; they only suck blood when they bite. Only the female anopheles is harmful for its bite causes malaria. Anopheles and culex mosquitoes pass through the same stages of development but differ in characteristics from stage to stage.

Children should be taken to such places where mosquitoes breed. They should find eggs and watch the moving larvae. Their specimens should be collected in gas jars. Where this is not possible, mounted specimens of all the stages in the gas jar should be shown. Pictures to illustrate the difference between the two kinds should be shown to children. The teacher should take up the study of cockroaches in the same manner.

Equipment needed: Gas jars with covers; mounted specimens of mosquitoes and cockroaches, pictures showing the difference between their kinds, syringe, spray apparatus, FILT and DDT.

Reptiles.—To know the ways of life, parts of body and habits of reptiles like snakes and lizards.

Animals which crawl on the ground, or walls or ceiling are known as reptiles. Tortoises, crocodiles, lizards, snakes, etc. are reptiles.

There are two kinds of snakes: poisonous and non-poisonous. Snakes have no legs. They move swiftly in a zigzag way by the action of the bones which lie across the body. They have a distinct head, a body and a tail. They have no ears, yet they are very susceptible to sound. The tongue is fork-like and is divided into two at the open end. The front teeth are sharp and a little curved; these are known as fangs. In poisonous snakes, the poison from the poison-glands in the neck flows down through poison ducts which open into small holes in these fangs, and the poison is thus injected into the wound the snake makes by its fangs.

The body of a snake is cold and slippery. It has a thin scaly skin, which it casts off once a year and gets a new one. Snakes live in holes in the earth. They hibernate, that is, they enjoy a long sleep during the cold season in which they lie in their holes.

Some snakes can wriggle up even on trees and eat the eggs and young ones of birds. Some snakes can swim in the water. Cobras are very dangerous snakes.

The teacher should take children to a snake-charmer to see snakes at close range. If possible dead snakes preserved in spirit may be shown. Charts to show the bones in the body of snake should be shown and the locomotion should be explained. The study of other reptiles, such as lizards should be taken up along the same lines. Pictures of different kinds of snakes may be shown to the class.

Equipment needed: Specimens of dead snakes preserved in spirit bottles, charts showing bony structures of the body and pictures of different kinds of snakes.

Plant Life.—To know how plants reproduce themselves; to know the classification of plants.

1. Germination is the name given to all the changes through which the dormant living matter in the seed passes to develop into a seedling capable of leading its own independent life. There are different modes of germination. The plants may be classified as plants, shrubs, creepers or vines and trees. The plant body typically consists of root, stem, leaves, flowers, fruits and seeds, which perform different functions for the plants.

An idea of small plants, e.g. moss (kai), shrubs, creepers and trees should be given by actually showing the plants wherever they exist.

Equipment required: Illustrative charts and collections of various leaves, flowers, seeds etc.

2. Plants may be raised in two ways: seed propagation and vegetative propagation. Some examples of vegetative propagation are:

Suckers.—Propagation often occurs naturally e.g. in the plantain orchard or canna-garden, where many small plants sprout out surrounding the mother plant. These are suckers.

Cuttings.—The parts of the plant bearing buds may be cut into pieces and inserted in the soil. Root-cuttings in sweet-potato (shakar-kand) and leaf-cuttings of Bryophyllum (patharchata) are the common examples. Usually, stem cutting are used for raising plants e.g. in rose, peach, mulberry, fig, croton, bougainvillia, etc.

Layering.—A large number of plants are raised by layering. Although it takes a longer time as compared to cuttings, yet the plants raised are healthier and larger in size. The branches of a mature tree reaching the ground are selected and some portion is inserted in the ground. The covered portion in due course forms new rootlets and thus a new plant is obtained. Layering is practised in Litchi, Bela and Chameli (jasmine).

The teacher should give an actual demonstration of these methods of propagation in the school garden. The help of a gardener may be sought if necessary. Suitable period for practice is from spring to rainy season.

Equipment needed: Knives, tape, spades, ropes, pegs, secateur, khurpis, baskets and flower pots. Horticultural charts may be used to illustrate the subject-matter.

3. Tender and minute seeds cannot be sown economically, so these are sown in protected places. When seeds are very densely sown on a well manured small plot of land, it is called a nursery. This small plot is protected against the violent changes of weather, hot wind, storms, frost and heavy rain etc.

Vegetables and flowering plants are usually raised in wooden-boxes or nurseries. The nurseries are kept covered at nights and during hot days. A nursery plot should be prepared with proper soil inversions, manures and irrigation facilities. When the plants are mature enough to withstand natural forces, these are removed from the nursery and planted on the field. This process is termed 'Transplantation'. Advantages of transplantation should be discussed. Rice and vegetables are sown mainly by transplantation.

The student should plan a visit to some nearby nursery or garden to get a first hand knowledge of various horticultural activities.

The children should be introduced to the life of Jagdish Chandra Bose and his contribution to the science of plants discussed.

Rocks and their Kinds.—To know the kinds of rocks.

Rocks are classified as igneous, sedimentary and metamorphic. Igneous rocks are formed when molten-rock cools and solidifies. Sedimentary rocks are formed of sediment deposited by water. Metamorphic rocks are other types that have been altered by pressure and heat.

A collection of the common rocks found in the community may be made with the help of pupils. It is not necessary to know the names of all the rocks. Similar specimens may be placed together on a table. The pupils may try to find as many ways as possible of grouping the rocks. Then a single rock may be selected and the pupil may try to learn as much as possible about it by careful observation. Pupils should be encouraged to make their own collections of rocks.

Some rock specimens may be broken and the appearance of a freshly broken surface may be compared with the weather-worn outside of the rock. The rock samples may be tested if any are limestone by dropping lemon juice, vinegar or some other dilute acid on them. Freshly broken rocks may be studied with a magnifying glass. A field trip to a quarry may be an interesting and informative experience for the pupils.

Equipment required: Pieces of rocks collected from the surroundings, lemons, vinegar, magnifying glass.

The Sun.—To know some facts about the sun.

The sun is made up of almost the same things as the earth but everything is in a gaseous state because it is very very hot in the sun. It gives us sunlight and warmth. We get coal from the trees which grow with the help of sunlight. In this way the energy of the coal comes from the sun. The food we eat comes from plants and they cannot grow without sunlight. Sun, therefore, is the ultimate source of energy.

The teacher may demonstrate that the sun gives us warmth by concentrating the sun's rays on a piece of paper with the help of a magnifying glass. The class may discuss how the sun helps plants to grow, how these during the millions of years got converted into coal.

Equipment needed: A magnifying glass and a piece of paper, samples of coal, chart to show sun as the source of all energy.

Some Contagious Diseases.—To understand the cause and prevention of some contagious diseases like ringworm, scabies and trachoma.

Ringworm is a contagious disease caused by a parasite. It starts as a pink patch which spreads in a circular fashion and soon becomes bluish red. The disease spreads by direct contact with infected instruments of the barber or by using caps, towels, handkerchief, combs, brushes or clothes of an infected person. The infection can be prevented by not using these articles belonging to an infected person.

Scabies is caused by a small mite (arachnid) which burrows into the skin and lays its eggs there. When the eggs are hatched there is intense itching.

In the case of trachoma, the inner part of the eyelids becomes red and velvety and develops granules. The eyes cannot bear light and there is irritation, watering or sometimes a whitish pus-like discharge. Scrupulous cleanliness on the part of the affected person helps to prevent the extension of the disease.

The teacher may discuss the causes and the prevention of these diseases with the children. The past experience of the children, if any, may help the teacher. Pictures and charts may be used to show how ringworm and scabies spread.

Equipment required: Pictures or charts showing the causes of these diseases and their prevention.

The Control of Fire.—To understand the factors which cause fire and the ways to control it.

Fire helps us in many ways but it may also do great harm. A fire must have oxygen to burn and oxygen is one of the gases in the air. Some things catch fire very easily. Some things can be set on fire by friction. Shutting out the air puts out fires. Water, sand and carbon dioxide can be used to put out fires. Water is not a good extinguisher for oil fires such as caused by kerosene because the burning oil floats on water. Sand or blankets may be used as they keep out the air.

The teacher may clarify the above facts by simple experiments. Some common baking soda may be put in a cup of water and stirred well. Now stand a candle in a glass. Pour the water and the baking soda into the glass, taking care that the wick of the candle does not get wet. Light the candle. Pour a little vinegar into the glass. Let the children observe the result and draw a conclusion. A small demonstration fire extinguisher may be made with the help of the children.

Pour a small amount of kerosene oil on a piece of cloth in a dish. Set it on fire. Pour some water on it and watch the result. Now smother a similar fire with a cloth or by pouring some sand on it. Let the children draw conclusions.

The teacher may discuss the important rules to be observed if caught in a burning building. The first aid to burns may be explained. The application of Burnol, crushed potato or violet bintment may be explained.

Equipment required: Baking soda, a candle, a beaker, vinegar, a few thin tubes of varying diameters, a dish, kerosene oil, sand, pieces of cloth.

Digestion.—To understand the nature of digestion.

We eat in order to obtain energy to live. There are various kinds of food that furnish this energy. In order that food may be utilised by the body it must be digested. Certain foods are digested partially as soon as they are chewed in the mouth. The process of digestion continues in the stomach and the intestines. Food is made into liquid form before it is finally absorbed into the blood stream.

The main parts of the alimentary canal may be demonstrated by the use of model or chart. The changes that food undergoes may be shown on a chart. The trip of a loaf of bread makes through the body from the digestive stand-point may be discussed. The children may make a chart listing all the changes the food undergoes while passing through different parts of the alimentary canal.

Equipment required: A model or chart showing the digestive system.

Circulation of Blood.—To understand the nature of the circulation of blood.

The blood carries food and oxygen to the cells of the body and carries off carbon dioxide and other waste products from them. It also helps in the prevention of diseases. It contains red and white corpuscles. It is carried from the heart by means of arteries and is returned by means of veins. Capillaries are small blood vessels which carry the blood to and from the body cells.

With a stethoscope which may be made with the help of rubber tubes and a funnel, the heart beat may be listened to. The pupils may be asked to record the pulse of other children which may be taken at the wrist, side of the neck or ankle. The construction and working of the heart may be explained with the help of a model or a chart. The pupils may be asked to draw a chart showing the path of blood in the body.

Equipment required: A funnel, rubber tube, model or chart showing the heart and the circulatory system.

Air—pure and impure.—To understand the composition of air and to know the ways in which it is purified.

There are two main parts of air, one is active and the other is inactive. The active part is oxygen and is necessary for burning and breathing. It is one-fifth part of the air. The inactive part is nitrogen. Carbon dioxide is being constantly added to the air by burning and breathing. Dust and bacteria also pollute the air. The sun, plants, rain and wind purify air. Heat and light from the sun kill many germs. Plants take up carbon dioxide and manufacture carbohydrates in the presence of sunlight giving out oxygen.

The teacher may demonstrate experimentally the active and inactive parts of air. A candle may be lighted in a pan to which water is added. Then a bottle or a jar may be inverted over the candle. Children should be asked to observe the changes and draw conclusions.

The production of oxygen may be shown experimentally by covering some water plants with a funnel in a jar containing water and inverting a test tube over the funnel. The jar should be placed in sunlight for a few hours and the gas collected in the test tube tested.

Equipment required: A trough, a candle, a jar, a funnel, a test tube, some water plants, etc.

Weather and Climate.—To understand the factors on which weather depends.

Weather depends upon the temperature of the air, the moisture contained in it, and the direction and velocity of the wind. The temperature of the day is higher than that of the night. There is always some water in the air. On some days the air contains more water than on other days. The wind-vane tells us the direction of the wind.

The children may be asked to look at a weather forecast in a news paper. What things are predicted? A day's summary of the weather in the whole country may be discussed, which station reported the heaviest rainfall, the highest temperature, the lowest temperature. A daily record of maximum and minimum temperature may be kept. A wind-vane may be constructed with the help of pupils.

A weather record may be kept including the following items—the date, hourly temperature, coldness, and direction of the wind. It is better to take all the readings the same time each day. If no thermometer is available, a suitable temperature scale is hot, warm, moderate, cool, cold, very cold. The wind velocity can be recorded as (i) light wind—moves smoke but not the wind-vanes, (ii) moderate wind—raises dust and just moves twigs, (iii) strong wind—large branches move, (iv) high wind—blows dust and sways whole trees, and (v) gale—breaks off twigs from trees and uproots the trees.

Equipment required: A wind-vane and a thermometer.

Water.—To know the sources of water and some of its properties.

Rain, rivers, sea, lakes, springs, snow, wells etc. are the main sources of water. Water is a great solvent. Decantation, filtration and distillation are the processes for getting pure water. Certain chemicals like potassium permanganate and chlorine kill the germs that may be present in water. When heated, water begins to boil at a fixed temperature. Evaporation of water goes on at all temperatures.

The teacher may demonstrate decantation by allowing muddy water to settle and slowly pouring it off, filtration by pouring slightly muddied water over filter paper in a funnel, and distillation by allowing water to condense in a long tube over a flask or boiling water.

The children may be asked to observe the changes which take place as water is heated to the boiling point. Elementary ideas of difference between boiling and evaporation may be discussed.

Equipment required: A few beakers, flasks, dishes, funnels, long tubes, potassium permanganate, etc.

Soil.—To know the kinds and properties of soil.

Soil is the thin, loose, top layer of the earth's crust in which plants grow. The kinds of soil are—sandy soil, clay soil, loam, a soil rich in humus. Soil is made from rocks by the action of heat, air, water, and living-beings. Soil contains air and water. Loam is generally considered to be a better type of soil.

As many soils as possible may be secured and placed in glass jars. Let the pupil study the samples and examine bits from each sample with a magnifying glass. Some handfuls of soil may be placed in a glass jar. The jar may be filled with water and then the soil be shaken up thoroughly. On allowing the jar to stand for some hours, the heaviest particles will settle to the bottom first and the lightest ones last. The water from the jar may be siphoned away and a small sample from each layer may be examined with a magnifying glass and the difference of the various types may be observed.

Equipment required: Soil samples collected from various places, a few jars and beakers, a siphon, a magnifying glass.

Water Lifts.—To know about the common water lifts employed by farmers.

Bokey, dhenkli, charasa, rahat and tube-well are the main kinds of water lifts that are used by a farmer.

The children may be taken out to the fields and the different kinds of water lifts may be observed. Many children will already be familiar with them. Their merits and demerits may be discussed and they may be asked to arrive at a conclusion as to which type is best suited to their locality.

Transference of Heat.—To know the ways in which heat is transferred from one place to another.

Heat is transferred from one point to another in three ways: by conduction, convection or radiation.

The teacher may perform some simple experiments to demonstrate conduction of heat. A Davy's Safety lamp may be constructed with the help of the pupils. With the help of simple experiments, the children may be led to conclude that heat travels in liquids and gases by convection. The importance of ventilation and chimneys may be emphasised. The cause of winds may be traced to the difference in temperature of air. Simple properties of heat radiation may be shown to the pupils. The effect of radiation on black and white surfaces may be studied.

Equipment required: Wire gauze, a lamp, a tin sheet, metal rods, test tubes, thermometers, a lamp chimney, a few beakers, etc.

Light.—To understand some important properties of light rays.

Light travels in straight lines. This causes shadows and eclipses. When light falls on an opaque surface much of it is reflected. Reflection may be regular or irregular depending upon the nature of the surface.

The fact that light travels in straight lines may be demonstrated by putting three cards with pin holes in the centre with a lighted candle behind them. When all three holes are in a straight line, the light passes through. A pin-hole camera may be constructed with the help of the pupils to demonstrate the same principle. The formation of shadows may be shown with the help of some card board pieces of different shapes and sizes. Mention of umbra and penumbra and eclipses may be made.

Equipment required: Card board sheets, black paper etc.

Matter.—To know some important properties of matter and its kinds.

Matter has weight and occupies space. A simple method of classifying materials is to divide them into solids, liquids and gases.

The children may be given an opportunity to observe all the living and non-living things coming within their experience and find out that each thing is made up of some form of matter. The three forms may be studied and the children may find out that a solid has definite shape and volume; a liquid has a definite volume but no shape and gas has neither definite shape nor size and that it can be compressed or made to expand.

Equipment required: Physical balance, a tumbler, soda water bottles, balloons, some vessels, of different shapes, etc.

(There should be a text book of about 160 pages.)

CLASS VII

Plant Life.—To understand the growth of plants, formation of seeds and their preservation.

1. Growth of Plants.—Plants are living beings. They feed, drink, breathe and move, though not bodily. They rejoice when happy, droop when sad and feel the pinches of cold and heat. They require sun, air, soil, and water for their growth.

Take a plant and by means of a magnifying glass, concentrate sun rays on a leaf. Observe what happens. Place a piece of ice for some time on another and observe the change. Experiments performed by Sir J. C. Bose should be discussed in the class, and if possible, to be performed by the pupils.

Equipment needed: Similar plants placed in flower pots, saw dust magnifying glass and few pieces of ice etc.

2. Formation of Seeds.—Flowers form the seeds which reproduce plants. In some cases, however, seeds are not used. Some part of the plant is used to produce a new plant of the same kind. Such a form of propagation is called vegetative propagation. Potato, sugar-cane, mint, ordinary grass and bryophyllum (*Pathar Chatta*) are a few examples.

In reproduction by seed, the flower plays an important part. To know how seeds are formed, we must know the parts of a flower. An ordinary flower has four parts: sepals, petals, pistil and stamens.

The pistil and stamens in one flower do not generally mature at the same time. Stamens mature in one flower and the pollen is carried away by air, insects and by water in water-plants. It falls on the upper end of a mature pistil of another flower. The pollen travels down to the seed-box through the duct. It fertilizes the seed egg contained in the seed-box and in course of time forms seeds.

The teacher should show all the parts of a flower, say *Althea-rosea* (*Gul Khaira*). Separate sepals and petals and the central pistil carrying the stamens attached to it. With a safety-razor blade, cut through the style and show the seed-box. Let the pupils make drawings, in colour if possible of the parts of a flower. Collect pictures of a few flowers and add them to the class album.

Equipment needed: Eyelets of potato, sugar-cane, stems of grass or mint, a leaf of bryophyllum, a few flowers of the season, a safety razor blade and a needle etc.

3. Preservation of Seeds.—Most of the plants grow by seeds. They have to be preserved till the time of next sowing. If not properly kept, many insects or pests begin to grow in them and eat away the seeds. Some animals like rats, squirrels etc. also eat away the seeds. It is, therefore, very necessary to keep them safe, so that these animals or insects or pests do not harm them. They have to be kept in closed vessels, with their mouths tightly closed. They have to be examined at intervals. If certain pests begin to grow, they must be destroyed by exposing the seeds to the sun or by spraying them with some poisonous liquid or by fumigation.

A few kinds of seeds should be collected by the teacher and kept in glass bottles. They should be examined at intervals. Before putting them in bottles, the seeds must be examined carefully. The teacher should also discuss the indigenous methods of preservation.

Equipment needed: A few glass bottles, a few seeds of different plants, a spray apparatus, some liquid chemicals, pictures showing modern method of grain storage.

Vegetative Propagation.—To know how some plants reproduce by aerial layering, budding and grafting.

1. *Aerial Layering (Guttee).*—Aerial Layering is practised when ground layering is not possible as branches cannot reach the ground. A healthy mature branch is selected one or two inches of the bark is removed in the form of a ring and a special soil prepared from clay, dried fish, oil cakes, etc. is placed on this portion and a gunny bag tied over it. A constant supply of water drops into the portion aerially layered. This method is suitable during the months of July, August for litchi, lemon and grape fruit propagation.

The class should be shown the process of aerial layering in a nearby nursery. Charts showing the process should be used.

2. *Budding.*—Rose, grapes, lemon and other citrus fruit plants can be propagated by buds. A bud is removed from a healthy branch with the help of a knife along with the leaf and the portion of the branch is planted in the soil. New roots and shoots sprout after a few weeks. It is practised during the months of September, October or February.

The process of budding should be shown to the class.

Equipment needed: Khurpi, spade budding and grafting knives.

3. *Grafting.*—Raising a superior variety of plant on the mother plant of an inferior variety is called grafting. Grafting is mainly practised on mango, guava, amala, and loquats during July to August and February.

The advantages of the process may be discussed. If possible the processes may be shown in some garden in the vicinity of the school.

Equipment needed: Khurpi, spade, earthen pots, rope, bamboo sticks and knives and charts illustrating the method.

Interdependence of Plant and Animal Life.—To know how plants and animals depend upon one another.

Animals produce carbon dioxide as a product of breathing. Plants require carbohydrates for their growth. In the presence of sun, plants take the carbon from carbon dioxide forming carbohydrates and liberate oxygen for animals. The chlorophyll or the green substance of the leaves brings about this change.

The teacher should take a few leaves of a water plant, wash them and put them in a glass funnel. Put the funnel in a glass vessel containing some water. He should then carefully invert a glass test-tube containing water on the funnel, and put the whole apparatus in the sun. The pupils should be asked to observe the bubbles which

rise up and collect in the upper part of the test-tube. Let the gas be examined with a glowing splinter of wood and the change observed.

The class should discuss why plants are kept in or near houses and why it is harmful to remain under trees after dusk, or at night?

Equipment needed: A glass funnel, a glass test-tube, a cylindrical glass jar, some green leaves, a splinter of wood, match box etc.

Fertilizers.—To know the uses and kinds of fertilizers; about crops in the different seasons, and simple implements used by farmers.

1. Fertilizers.—Just as we require food for the growth and maintenance of our body, so do plants for their growth from the soil. The amount of plant food in the soil is limited and after its use by the plants, the soil becomes bereft of it. So, more plant food is to be added to the soil. This plant food that we add is called fertilizer. It increases the productivity of the soil and gives better crops.

The class should discuss how the farmer adds articles of refuse, dried leaves, cow-dung and even ashes to the soil. There are small heaps of them in the field before he ploughs the fields. The teacher should show different kinds of fertilizers and discuss their uses. He should demonstrate the use of fertilizer either in the field, in beds, in flower pots or in jars. He should explain the methods of preparing different fertilizers and discuss their advantages and disadvantages.

Equipment needed: Different kinds of manures and fertilizers, different products of kharif and rabi crops.

2. Crops in different seasons.—There are two seasons for growing crops, namely: (i) The Kharif and (ii) The Rabi.

(i) *Kharif (Sawni).*—Its duration is from the middle of June to the middle of October. Crops such as bajra, pulses, ground-nuts, cotton, chillies, sun-hemp etc. are grown in this season.

(ii) *Rabi (Asadhi).*—Its duration is from the middle of October to the middle of February. Crops such as wheat, barley, gram etc. are grown in this season.

The cultivation of crops in dry farming depends on rain, while in wet farming it depends upon irrigation. Different types of seasonal crops should be grown in farm beds or packing cases. No two crops of the same kind should be grown one after the other. The Rotation of crops is the best method.

The teacher should draw a chart of crops sown in different seasons, indicating the time of sowing and harvesting with the help of students. He should also stress upon the preparation of fields for a crop and other necessary steps taken during the crop-growth.

Equipment needed: Different kinds of manures; different products of Kharif and Rabi crops.

3. Farm implements.—The plough is the first implement used by farmers. In flower beds, phawra and khurpi can be used for this purpose but in big fields, this is done by ploughs which become the first necessity of a farmer.

Ploughs are of different kinds: the country or desi plough is used both for ploughing, weeding and sowing of seeds. It has a simple construction and can be used in any soil. The Meston plough and Raja plough are other useful kinds. Mention of tractor ploughing should be made.

The teacher should show each of these ploughs if available or their pictures showing the parts. The class should discuss the comparative usefulness of each kind.

Place of the earth in the solar system.—To know the sun, the earth and the important planets.

All the planets, stars and constellations that we see in the sky at night and also our earth form a big family of heavenly bodies. The sun is a star nearer to us than the others. The planets revolve round the sun. The sun and the revolving planets form the solar system. The solar system is just a small part of the vast galaxy of stars.

There are nine principal planets including our earth. Such heavenly bodies as are connected with some planet are called satellites; the moon is a satellite of the earth. There are 27 such satellites that accompany the planets. There are other bodies such as comets and meteors which also revolve round the sun. Mars, Jupiter, Saturn, Uranus, Neptune and Pluto are known as superior planets and Mercury, Venus and Earth are known as inferior planets. These are of different sizes and are at different distances from the sun.

The teacher should ask the pupils to observe the sky on different nights and guide them to find the important planets, stars and constellations. The pupils should also be shown a chart showing the planets, their sizes and their distances from the sun. Charts showing the stars at night may also be shown if available. Pupils should be asked to note down any thing peculiar that they sometimes observe at night, such as meteors or falling stars, and the milky-way.

Equipment needed: Charts showing the solar system, sizes of planets and their distances from the sun; charts of the principal constellations, the milky way etc.

Respiration.—To understand the nature of respiration.

We can do without food or water for sometime, but we cannot do without air even for a minute or two. Breathing forms an essential process of life.

The teacher should show the chart showing the system of respiration and show each part. If a model is available, it can be better utilised. If there is no objection, a specimen of breathing organs of a goat can be obtained and shown to pupils. The change that takes place in the lungs should be clearly explained by means of a drawing on the black-board.

The teacher should tell the pupils how to exercise deep breathing profitably, and if possible, the right method of Pranayam. The importance of deep breathing should be stressed.

Equipment needed: A fully illustrated chart of respiration, showing various organs, a model of respiratory organs, goat's lung and the wind pipe.

Removal of Waste Products from our Body.—To know how waste products are removed from our body.

The excretory system and the skin help to remove waste products of the body. The lungs and the liver also help.

The teacher should show a fully illustrated chart showing kidneys and the urinary bladder. Another chart showing the construction of skin (magnified) should also be shown to the children. If there is no objection real goat's kidneys obtained from a butcher can be shown.

Equipment needed: Fully illustrated charts of excretory system or their models, goat's kidneys etc.

Malaria.—To understand how malaria is caused, spread and prevented.

Malaria is an insect-borne disease. It is caused by the bite of the female anopheles mosquito which injects malarial parasites into human blood. These parasites cause malaria.

Symptoms of the disease and its prevention should clearly be explained to the pupils. The pupils may discuss the symptoms and conditions of malaria from their own and their families' experience.

Equipment needed: Charts showing life stages of mosquitoes, specimens of these, mounted or preserved in gas jars; kerosene, FLIT or DDT, a spray syringe, quinine and other anti-malaria tablets.

The teacher should deal with other insect-borne diseases like plague etc. on similar lines.

Moisture in air.—To know something about the moisture in the air, and how rain is caused and measured.

The air contains moisture produced by evaporation of water so commonly taking place in nature. The amount of this moisture is not always or everywhere the same. It differs from place to place and from time to time. The amount of moisture in a limited volume of air is called humidity. It can roughly be found by a pair of thermometers called dry and wet bulb thermometers.

This moisture condenses into water when it gets cooled. Dew, fog, mist and rain are caused by such a condensation of vapour into droplets of water. Snow, frost and hail are caused under very cold conditions when the moisture is solidified.

The rain can be measured in an apparatus called the rain-gauge. Rain is caused by clouds which are huge collections of moisture in air.

The rain in Delhi during summer months is caused by the monsoon coming from the Bay of Bengal and also from the Arabian Sea. The winter rain is caused by cyclones coming from the Persian Gulf.

The teacher should show the presence of moisture in air by placing pieces of crushed ice in a glass tumbler. A wet and dry bulb thermometer should be shown and the pupils should be asked to find the difference between the readings of the two thermometers.

The construction of a rain-gauge should be explained to the pupils by showing its parts and how rain is collected and measured in it. Let the children measure rain daily during the rainy season and record the amount of rainfall. They should be asked to keep a record of weather in a tabular form shown below :—

Weather Chart for the Month of

Date	Temperature		Humi- dity	Direc- tion of the wind	Nature of sky	Nature of clouds	Rainfall, if any	Other remarks
	Maxi- mum	Mini- mum						

The pupils should be taken out for an excursion on a rainy day and shown the nature of clouds and the direction of wind and such other observations as are connected with rains.

Equipment needed: An ordinary glass tumbler, ice, dry and wet thermometers, rain-gauge and wind-vane, etc.

Air pressure.—To understand the pressure of air and its effects in every day life.

1. *Air exerts pressure.*—Air has weight and occupies space, therefore, it exerts pressure. Pressure is a force exerted on an unit area. This pressure of air can be measured by a simple barometer. There is another barometer known as the Aneroid barometer which tells weather conditions.

The teacher should show both these forms of barometers and explain how each works. The pupils should be asked to record weather changes as indicated by the Aneroid barometer. The teacher should also illustrate air pressure by a few experiments, such as the inverted tumbler.

The pupils should be asked to prepare a record of atmospheric pressure for a month in a tabular form given below :—

Daily Atmospheric Pressure for the Month.....

Date	Average temp.	Atmospheric pressure	Conditions of the sky	Other remarks
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The relation of pressure, temperature, wind and cloud may be discussed.

Equipment needed: A glass tumbler, a piece of paper, an empty tin with screw cork, barometric tube, pneumatic trough, mercury, Aneroid barometer etc.

2. *Effects of Air pressure.*—Fluids flow from a higher pressure to a low pressure. Air being a fluid, follows the same principle. Many pumps and other implements are based on this principle. Some of these are: football pump, cycle pump, and water pump. The same principle is applied in fountain pens, syringes, etc.

The teacher should show how the football pump, cycle pump and syringe work. The pupils may make drawings of the working of

these pumps showing the inner parts. Function of valves should clearly be brought out.

Equipment needed: A football pump, cycle pump, syringe, fountain-pen and the model of a water pump.

Water pressure.—To understand the pressure exerted by water and its effects; to understand the Principle of Archimedes.

(a) *Water pressure.*—Like air, water also exerts pressure in all directions. Water seeks its own level. The water supply system in towns, fountains, springs and Artesian wells all depend upon this. When a body is thrust into water, it is pushed up. It loses a part of its weight for this reason.

The teacher should illustrate examples to show water pressure by different experiments such as putting a block of wood in water. The pupils should be taken to a tank or river and asked to have a dip in water and experience the upward push or thrust. The force with which the water pushes up an object is called buoyancy.

(b) *The Principle of Archimedes.*—Bodies lose weight when weighed in water. When a body is immersed partly or wholly in water, it loses a part of its weight which is equal to the weight of water displaced by it. This is known as the Principle of Archimedes. The teacher may demonstrate this by the bucket and cylinder experiment. Life story of Archimedes should be discussed.

(c) *Floating bodies.*—A body floats when the weight of water displaced by it is greater than its weight. If the weight of the body is less than the weight of water displaced, it floats, if it is equal to it, it just floats or remains suspended and when it is greater than it, it sinks.

The teacher should show experimentally how bodies float and how they sink. He should use different objects and compare the results. Make a paper boat and float it on the water. Show how to sink a cork or a block of wood.

Equipment needed: A water level, a block of wood and other small objects, a physical balance, a spring balance, a bucket and cylinder; bodies of different densities, some lighter than and some heavier than water.

Machines and their uses.—To understand machines and their applications in common-day life.

Machine is a contrivance by the application of which we can do more work by applying a small force. The simplest form is a lever, which is a straight rod acting about a point known as the fulcrum. There are three orders of levers and they act in different forms in common-day life. Balances of different kinds, tongs, pincers, nut crackers, crow-bar, wheel-barrow are a few applications. Pulley is another form of machine which is used in lifting loads.

The teacher should experimentally show the working of all the three forms of lever and the use of pulleys in different articles of common-day life. He should show pictures, toy specimen or parts of some machines to the class.

Equipment needed: Pictures, toys, parts of some machines, different kinds of balances such as a simple balance, physical balance, home and other implements etc.

Light.—To understand the dispersion of light, formation of colours and rain-bow.

When a ray of light travels from a rarer medium to a denser one, it deflects from its original path and bends toward the denser medium. This is called refraction of light. Pencils and pens look bent when dipped partly in water. Water tubs and tanks look shallow on account of this effect.

Take a glass-prism and let a pencil of sun-light pass through it. Observe a coloured band. The white light of the sun is in fact made of several colours. The rays of different colours deflect differently and hence split up to their natural colours. This is called dispersion of light, and the band of seven colours is called a spectrum. VIB-GYOR is an inverted word consisting of the first letters of the seven colours of the spectrum violet, indigo, blue, green, yellow, orange and red.

Colours.—When sun-light falls on a surface, it absorbs some colour rays and not others. The colour of a surface, say red, denotes that the surface could not absorb red rays and hence looks red, and so on.

Sometimes the colour of the cloth purchased at night in electric light is found to have changed in the day-light because electric light differs from the sun-light.

Rainbow.—When it rains, the atmosphere is charged with small drops of water which hang and move in the air. Sometimes, a ray of light so passes through some of the droplets that it is dispersed. The tiny drop acts like a prism. The result is a rainbow. Sometimes two adjacent drops act so as to form two rainbows.

Equipment needed: A glass prism, a narrow slit in a piece of cardboard, Newtons colour disc, a chart showing the colours of the spectrum of sun-light.

Magnetism and Electricity.—To understand magnetism and electricity.

1. *Magnetism.*—Magnets are natural or artificial. Loadstone is a natural magnet whereas the iron piece which has acquired this property is called an artificial magnet.

The two ends of a magnet are called its poles. If suspended, one end points the north and is called north-pole, the other points the south and is called the south-pole.

Take a magnet, bring it near some iron filings spread on the table. Observe what happens. Now suspend the magnet by a piece of thread. Note what happens. Rub the magnet on an iron-nail and examine the nail. It has acquired the same properties.

Equipment needed: A piece of loadstone, a pair of bar magnets, iron, filings, a small magnetic needle, a sheet of white paper, a piece of thread etc.

2. *Electricity*.—On a stormy day, ask the children to observe the lightning in the sky and the thundering sound that follows. This is natural electricity. The teacher should tell the story of Benjamin Franklin and the way in which he produced the spark by bringing his knuckle near the key.

(a) *Frictional Electricity*.—Certain substances (ebonite rod and cat skin; glass rod and silk cloth etc.) when rubbed against each other produce electricity.

There are two kinds of electricity: positive and negative. Like charges repel whereas unlike charges attract each other.

The teacher should rub a dry comb in hair and bring it near small pieces of paper placed on the table. He should repeat it by ebonite rod rubbed with cat skin and glass rod rubbed with a piece of silk. Suspend a charged rod by a piece of thread and bring another similar charge near it, and note the change. Try the same on a gold-leaf electroscope.

Equipment needed: A hair comb, ebonite rod, a glass rod, a piece of cat skin, another of silk cloth, a stirrup and a gold-leaf electroscope.

3. *Effects of Electricity*.—Some of the important effects are:

(i) *Heating effect*.—Immerse the coil of eureka wire attached to a wire carrying a current in water contained in a container. Note the temperature of the water in the beginning, note it again after a quarter of an hour or so. Note the change. The current produces heat as in electric heaters, electric hearth or furnace.

(ii) *Lighting effect*.—Connect the two wires of a cell to an electric bulb, it glows and produces light. The amount of light depends upon the substance of filament of the bulb.

(iii) *Magnetic effect*.—Hold the wire carrying the current over a magnetic needle, note the deflection. Reverse the direction of the wire and now note the change. Hold the wire under the needle and note. Take a semi-circular piece of iron. Wind a wire round it and give it quite a large number of turns. Now pass the current and examine the piece of iron by bringing it near a magnetic needle. The piece of iron behaves like a magnet so long as the current passes through it. It is known as an electromagnet. It is used in an electric call bell.

(iv) *Chemical effect*.—Take a voltameter, or, insert two metallic electrodes through the bottom of an earthenware or a china clay bowl, about an inch or more apart from each other. Fix the electrodes well with clay or cement. Put some acidulated water in the bowl and pass a current of electricity. The water decomposes.

Equipment needed: Any cell, copper wires, a thermometer, an electric bulb, a piece of iron, electric bell, clay bowl, metallic electrodes and cement, resistance wire, etc.

Elements, Compounds and Mixtures.—To know what these forms are and to know the differences between them.

When a substance is made up of only one kind of matter and exists in its purest form, it is known as an element. The ancient

conception of an element has been proved to be incorrect. On the other hand, a substance may contain several elements. Such forms are complex in nature and are grouped as mixtures and compounds

The teacher should bring out clearly the characteristic difference between mixtures and compounds by performing suitable experiments. He should also show experiments to separate the ingredients of a mixture by using different methods such as picking out or sorting, by the use of sieve or magnet, by heating or boiling or by the methods of decantation, filtration and distillation.

Equipment needed: Some elements, compounds and mixtures, sieve, magnet, a beaker, a glass funnel, filter papers, glass rod, crucible, distilling flask or retort, china clay dish, iron-stand, a burner or spirit lamp, a piece of wire gauze etc.

Minerals : Iron and Coal.—To know the importance of iron and coal in the present day life.

1. *Iron.*—In ancient times iron was used not only for weapons but also for making utensils and other useful articles. Iron is found both in crude form and mixed with other substances. It is now used for making huge factory machines and implements. It is beaten into sheets, drawn into wire and converted to any shape by heating and beating. It melts at a high temperature in suitable furnaces and is turned into liquid form, which is put into moulds and given any form or shape. It is of many forms such as pig iron, wrought iron and steel. Iron is an element.

The teacher should show a few samples of iron and steel and articles made from iron. He should emphasise upon the children that iron is used in so many ways and is so often used that it has become an essential part in man's struggle for supremacy in the present day.

2. *Coal.*—The coal is taken out of mines and is used as fuel. It gives out enormous amounts of heat and is, therefore, used in engines and furnaces. It forms a great source of heat energy and is used in working Railway engines, engines used in factories and mills. Coal is a form of carbon.

Hard and Soft coke are prepared from Coal, on heating at a fixed temperature, when certain substances separate out. Soft coke is used for cooking purpose. It does not give out smoke as coal does.

The teacher should show samples of different kinds of coal and charcoal to children and after burning them, show the difference between them.

Equipment need: A few samples of iron and coal, as found in nature and also in present forms used in common-day life.

(There should be a text-book about 176 pages.)

CLASS VIII

Nervous System.—To understand the working of the nervous system of the human body.

The many systems of the body perform different life processes (like breathing, digesting etc.) and their work should proceed in perfect coordination. To achieve this, there is the Nervous System in

our body. The nervous system also keeps us aware of the external environment. The various organs of the nervous system are the brain, spinal cord and nerves. The brain controls the network of nerves like a telephone exchange which controls the network of telephones. Nerves carry impulses or sensations. When the nerve is cut or damaged, impulses cannot be carried. Injury to the nervous system is difficult to correct. The brain is, therefore, protected from injury to a great extent by being situated inside the bony structure of the skull. Working for too long a time at one task tires the nervous system and rest is needed.

A chart or model would be very helpful in understanding the structure of the nervous system. The teacher may wish to discuss the harmful effects of narcotics.

Equipment needed: A chart of the nervous system and a model of the brain.

The Sense organs.—To understand the working and care of the eye, ear, nose, tongue and skin.

We have five senses: seeing, hearing, smelling, tasting, and touching. These senses come to us through the eye, ear, nose, tongue and skin respectively. We learn by using several of our senses at the same time. Our senses, being so important, need protection from injury and disease.

The teacher may show the main parts of the eye, ear and skin by the use of models, charts and photographs. The class may discuss the several health rules which apply to the care of eyes, ears and skin. Some students may wish to prepare a chart showing the care of these organs.

Equipment needed: A chart showing the eye, ear and skin and models of the eye and ear.

A Good House.—To know the essentials of a good house to live in.

A good site free from dampness should be selected. It should not be near burial grounds, stables, factories, etc. Good drinking water, open air, and sunshine should be available. The foundation of a house should be of limestone and concrete. It should be at a higher level than the road to avoid collection of rain water. The ceiling of a house should be from 12 to 14 feet high. A good cross-ventilation, drainage, and disposal of sewage and refuse need special attention. Sleeping and drawing rooms, kitchen, bathroom and latrine of a house need cleaning daily. Arrangement for removal and disposal of human excreta in a village and in a city are different. Community sanitation, cleanliness campaigns in schools and localities should be stressed. (Shramdan to be encouraged for these).

The pupils may visit a house, make a drawing of a house that they would like to live in. The pupils may make a cardboard model house.

Equipment needed: Cardboard, scissors, paste and pins etc.

Common Diseases.—To know how diseases like small-pox, influenza and tuberculosis are carried and prevented.

Small-pox is a highly infectious disease, attacking persons of all ages. It is more fatal to children between two and four years. The particular germ causing the disease is a type of virus. It is spread by direct contact, patients' infected clothes or by flies. The disease starts with a sudden onset of high fever with severe headache and pain in the back. The fever subsides after about three days when the characteristic eruptions of small red pimples appear first on the face and fronts of wrists and then upon the whole body. The preventive methods of the disease are: isolation of the patient, disinfection of the room of the patient, vaccination and timely intimation to health authorities.

The teacher may discuss the causes and preventive methods of these diseases with the children. The past experience of the children or their families, if any, would be helpful. The pupils should familiarize themselves with the precautionary measures taken by the local bodies to prevent infection and spread of these diseases. The pupils may be taken to such centres as carry on prevention of disease. The pupils should be impressed with the importance of reporting a case of infectious disease to the nearest health centre.

Food from fields (Agriculture).—To know how the food we eat is produced in the fields.

1. The methods of sowing may differ according to the kind of crop, availability of labour and area to be covered. The common methods of sowing are: broadcasting, dibbling and sowing behind the plough.

If possible the children should be given a practical demonstration of sowing methods in the vicinity of the school or on the school farm.

2. For the proper growth of the plants, inter-culture operations are very important. They are: weeding, hoeing, irrigation and drainage.

An idea of working of the hoes, harrows, khurpi, spade and kudal should be given to the children.

Equipment needed: Hoes, harrows, khurpis, spades and kudals.

3. There are two kinds of fertilizers:

- (a) Artificial organic fertilizers such as oilseed cakes, ash and bone-meal.
- (b) Artificial inorganic fertilizers which supply any particular plant nutrient or several of them, such as, ammonium sulphate (for nitrogen), sulphate of potash (for potash), superphosphates (for phosphorus), and lime (for calcium).

Equipment needed: Specimens of the important fertilizers in properly labelled glass bottles.

4. Proper storage of seeds is essential so that they may not be damaged by any natural calamity or otherwise, and their germination percentage may not be reduced.

The teacher should explain the advantages of storage. Points of ideal storage for protection from the harmful effects of moisture, insects, animals and fungi should also be described. Mention of cold

storage should be made. Suggestions for the improvement of the local storage conditions may also be made and, if possible, observed. The germination test for seeds should be demonstrated. The percentage of germination should be shown by keeping the germinated seeds on the wet blotting paper covering the dish surface. A visit to a cold storage plant may be arranged if convenient.

Equipment needed: Blotting paper, two shallow dishes, seeds of gram beans or lobiya (cow-pea) etc.

5. There are friends and foes of the farmer in the flora and fauna surrounding his farm. The farmer's foes are the plant enemies. Animals like jackals, rats, deer, etc. are a great menace to standing crops. Birds also pick up the grains and destroy fruits. Insects, crop pests, fungus and bacteria cause diseases and destroy the standing crops. Plant parasites such as *Amarbel* and *Akashbel* suck the nutrients from the host plants.

The farmer's friends are the various animals like oxen, horses, and the birds feeding on insects like teetar, (partridge) crows, peacocks, etc. and predators (kinds of insects living on other insects e.g. the lady-bird, the mantis etc.).

The ways of protecting the plants against their enemies should be emphasised, drawing upon the experiences of farmers in the surrounding areas. The class should be encouraged to prepare charts showing how some plants and animals help or harm the crops. Charts showing the names of different plant enemies and the nature of damage done, dust powders, sprayers and damaged plants should also be exhibited and explained to the children. Films available on the subject may also be shown.

Equipment needed: Various insecticides and sprayers commonly used on the fields and some charts.

6. Cooperative farming by pooling the meagre resources of the farmers has certain advantages. The consolidation of holdings on the cooperative basis, cooperative banking and multipurpose societies play an important role in the National Extension Schemes.

The pupils may wish to invite an official of a cooperative farming organization to address the school.

Increasing Air Pressure.—To know how air pressure is increased in pneumatic appliances.

Air pressure in a closed space can be increased by using a compression pump. The piston of the compression pump fits the cylinder tightly and has no valves. The valves at the bottom of the cylinder are arranged so that air enters on one side and leaves on the other. This compressed air may be forced into a tyre, a football, basket ball, or any other object needing increased air pressure. Your bicycle pumps are forms of compression pump.

The class may be shown the different parts of the bicycle and football pump and be asked to draw a diagram showing the stages in the working of a pump.

The equipment needed is a force pump and bicycle pump.

Reducing Air Pressure.—To know how air pressure is reduced in pneumatic appliances.

1. In a medicine dropper, syringe or ink filler some of the air leaves when you pinch the bulb. On releasing the bulb the air inside expands. If the lower end of the dropper is under a liquid, the outside air pressure will force the liquid to rise in the dropper to balance the pressures.

The class may discuss why the bulb is made of rubber; what pushes the water upward; and why the bulb is squeezed. Let the pupils actually use them.

Equipment needed: A medicine dropper, a syringe, and a cup containing water etc.

2. The air pressure in a container can be reduced by using an air pump. An almost complete vacuum results in the air pump. The space in which the pressure is reduced usually called a partial vacuum. The water pump creates a partial vacuum. The upward and downward movement of the piston in a pump should be explained clearly.

The class should examine models of an air pump and a water pump. Let them locate the various parts of the pumps. In case of the water pump let the pupils observe the four strokes carefully, observing what happens to the valves and to the air above and below valves, and to find out what forces air and water into the cylinder; why it is also called a lift pump.

Equipment needed: Models and charts of air and water pumps.

3. The siphon transfers liquid from one container to another at a lower level. It consists of a bent tube and works under certain conditions, which may be discussed by the class. The teacher should explain how air pressure helps the siphon work. The class may discuss the various purposes for which the siphon is used.

Life under Low Pressure Conditions.—The extreme cold, presence of a small amount of oxygen and low atmospheric pressure are the main difficulties to the ascent of mountains.

The teacher may discuss the difficulties and enumerate the various devices by which these difficulties are overcome. The pupils may wish to read portions of Tensing's autobiography or other books describing the ascent of Mt. Everest.

Application of the Principle of Archimedes.—To understand how the principle is applied to find the relative density of solids lighter than water and soluble liquids by means of the principle of floating bodies.

Specific gravity of light bodies may be found by tying light bodies to heavy bodies and putting them in water. This could also be shown by the method of flotation. The specific gravity of a solid soluble in one liquid may be found by means of another liquid of known specific gravity in which it is insoluble.

The bodies float or sink in a liquid according as they displace more or less weight of liquid than their own. The floating of ships, submarines, and life preserves, cork belts, floats, buoys and lactometers are applications of the law of flotation.

The pupils may give examples of various devices like skins inflated with air, floating a raft Principle of bamboos or floating bridge. The teacher can demonstrate the principle of flotation by means of a cartesian diver or the bottle imp and the floating of an egg by adding salt to the water.

Equipment needed: A balance, sinker, light body, over bridge breaker, water and liquid. A hollow and imp-shaped figure made of glass having a small opening in the end of its tail and containing air, ajar nearly full of water a rubber sheet, an egg, common salt solution and a thistle funnel etc.

Weather and Climate.—To know the effects of change in air pressure.

The unequal air pressure in various regions causes winds and cyclones. They blow from regions of cool, heavier air to regions of warm, lighter air. Weather forecasters call these regions of cool, heavy air, high pressure areas and regions of warm, light air, low pressure areas. When the pressure difference between the two is greater, the winds blow strongly.

The class may suggest the people who can benefit from forecasts of weather and knowledge of altitudes of places.

Balloons and Aeroplanes.—To understand how the balloons and aeroplanes are held up in the air.

The air pressure supports balloons. A balloon rises because air has buoyancy. A balloon can be made to rise or fall. Similarly the aeroplane depends upon the upward pressure of the air under the wing and the partial vacuum created above the wing for the lifting effect.

The teacher may prepare hydrogen gas and pass it through a soap solution containing a few drops of glycerine to show that the bubbles float. Let the pupils find the reason why the bubbles float.

Equipment needed: A wide-mouthed bottle, a two-hole rubber stopper, a piece of bent glass tube, a glass funnel, a piece of rubber tubing, a glass trough, zinc, sulphuric acid, soap and glycerine.

Force of Gravity and its Application.—To know the force of gravity and how it works in nature.

All things on the earth are attracted towards the earth. This force of attraction is known as gravity. Newton was the first to discover this. The weight of a body is the measurement of the force with which the earth attracts it towards its centre. The point at which it acts is known as the centre of gravity.

The teacher should show experiments to show how things flung in air fall on the earth. He should show by means of a piece of cardboard how to find its centre of gravity. Give the children opportunities to observe the base and the bottom of a bus, a boat, and some playtoys to find out that the base is flat and heavy while the top is light and narrower. The teacher should explain how bodies tumble or slip. Life story of Newton and his contribution to science should be discussed.

Sound.—To understand how sound is produced and transmitted.

Sound is produced by vibration of matter. Air is the most common medium but gases, liquids and solids carry sound. Sound is not transmitted through a vacuum. Sound waves produce vibrations in the membrane of the ear and make us hear. Echoes result from reflected sound waves. Multiple echoes like rolling thunder result from repeated reflections of sound waves. The whisper of a person speaking at one point is heard quite distinctly at another point in galleries in Taj Mahal at Agra and in Gol Gumbaz at Bijapur due to the reflection of sound waves from the cylindrical shaped walls and these are called whispering galleries. The human voice is produced by air from the lungs passing between the vocal chords which are tensed by muscular action and thus vibrate. The voice is modified by the lips, tongue, teeth, nasal cavity and mouth. Some sounds are pleasant other are unpleasant. Music is produced by regular vibrations; a noise is produced by irregular vibrations. An elementary treatment of the telephone and radio may be included.

The teacher can show that sound is produced by vibration of matter with the help of a tabla, also by plucking a stretched wire or a stringed instrument. With the help of a bell-jar fitted with an electric bell and air pump it can be shown that sound does not travel in a vacuum and that some medium is necessary. A toy telephone can be prepared by children with cardboard or tins and thread. A musician in the community may be asked to give a demonstration.

Equipment needed: Wire, tabla, and a stringed instrument, bell-jar fitted with electric bell, air pump, few dishes or glasses, cylindrical boxes and thread etc.

Electricity:—To understand the structure and uses of a light bulb.

The light bulb consists of a glass globe containing no air and fitted with tungsten or other suitable wire. When a current of electricity is passed through tungsten wire it becomes hot and produces heat and light. In the case of an electric heater or iron, special wires having a high melting point are used.

Pupils may be encouraged to make a drawing of the interior of the electric bulb.

Equipment needed: Dry cells and a light bulb.

Elements and Compounds.—To understand the difference between elements and compounds.

All the things in this world are made up of 98 simple substances which are called elements. Compounds are made up of two or more elements. A compound seldom looks like the elements in it.

The teacher may ask the children to collect some materials which are elements and others which are compounds. The difference between the two may also be explained with the help of some examples as water is made up of hydrogen and oxygen.

Acid, Alkalis and Salts.—To know the properties and uses of acids, alkalis and salts.

Lemon juice, tamarind water, and vinegar are sour and turn blue litmus red; also sulphuric, hydrochloric and nitric acids. These

dissolve in water. Hydrogen gas is liberated when these acids are treated with metals and carbon dioxide when treated with limestone, etc.

Lime water, caustic soda and liquid ammonia are soluble in water. They turn red litmus blue, and are soapy to the touch. These are called alkalis. Salts result from the mixing of acids and alkalis having opposite kinds of properties, and neither turn litmus red nor blue.

The teacher should discuss the various properties of acids and alkalis and salts and enumerate the uses of these in life. Common salt and soap may be prepared in the class.

Equipment needed: Sulphuric, hydrochloric, nitric acids; lime water, caustic soda, liquor ammonia; red and blue litmus and heating apparatus to dry out.

Sulphur and Phosphorus.—To know the properties and uses of sulphur and phosphorus.

Sulphur is found abundantly in nature both in pure and combined form. It is used in preparing other substances like gun powder, fire works, matches, medicines and in the vulcanising industry.

Phosphorus is not found in pure form. There are two kinds of Phosphorus: yellow and red—one; highly inflammable and the other burning at a high temperature, hence its use in the match industry.

The teacher may discuss the use of sulphur and phosphorus as germicides and medicines and in the match industry. The teacher may pour sulphuric acid over a mixture of sugar and potassium chlorate. Repeat using red phosphorus instead of sulphuric acid and stirring well. Various forms of sulphur and phosphorus may be kept on the science table.

Equipment required: Sulphur, red and yellow phosphorus, sugar, potassium chlorate, iron tray, sulphuric acid and stirring rod.

Carbon.—To know the various forms of carbon, their properties and uses.

Diamond, graphite, charcoal, coal, coke, lamp black and gas carbon are the forms of carbon.

The pupils may be allowed to handle these and their properties and uses may be enumerated.

Equipment needed: Samples of graphite, coke, lamp, black coal and charcoal and gas carbon.

Petroleum.—To know the importance of petroleum.

Petrol, a product of petroleum has made it possible for us to fly to distant countries and back in a few days. It is found in the ground. It is refined into many other useful products. It is a very good solvent for substances, such as grease.

By means of discussion the class may discuss the various lubricating oils, vaseline, and paraffin wax and their uses.

Removal of Stains.—To know methods of removal of some common stains.

The stains of ink, grease, oil, fruit, tea, paint, grass, rust are very common. Ink stains can be removed with the help of lemon juice or citric acid or oxalic acid. Grease or oil stains can be removed with the help of some grease solvent like petrol or benzene. Fruit and tea stains can be removed by soaking the cloth a short time in warm solution of borax. Paint marks can be removed by applying turpentine or petrol. Grass stains may be removed by sponging gently with methylated spirit. Rust stains can be removed by applying a solution of oxalic acid.

The teacher may ask the children to bring various kinds of stains. The stains may then be removed in the class. A through practice should be given to the pupils. The experiences of some pupils in this connection may also be helpful to the teacher.

Materials needed are: Citric acid, oxalic acid, petrol, benzene, borax, turpentine oil and methylated spirit.

(There should be a text book of about 200 pages).

HOME SCIENCE

Purposes and Ideas for Activities for Home Science Students in Middle Schools

CLASS VI: (1-2 weeks or 6-12 periods).

Purposes.—1. Realization of the importance of personal attractiveness. 2. Development of good habits of grooming. 3. Understanding of the value of naturalness, simplicity and neatness.

Topics and Suggested Activities.—Show pictures of a well groomed girl and have pupils list requisites of a well groomed appearance. Discuss reasons why a pleasing personal appearance is important to school girls. Discuss the importance of neatness, cleanliness and posture on first impressions. Discuss what is meant by a well groomed look. Demonstrate special care needed for feet, elbows, and knees. Present a skit contrasting hasty washing of face and hand with a thorough washing. Demonstrate care of skin to prevent chapping in cold weather. Assemble an exhibit of grooming supplies i.e. hair brush and comb, soap, wash cloth, tooth brush and datoon; tooth paste or powder, nail brush, nail file, shoe polish and brush or cloth etc. Make a simple grooming schedule and estimate the time required to follow it. Discuss cleanliness habits to be observed in the bathroom. Make a plan for taking care of personal belongings in the bathroom. Demonstrate how to care for nails and hands. Discuss nail biting and ways to break this habit. Make a list of "do and dont's" in relation to care of the hair such as wash and oil regularly, brush thoroughly, keep brush and comb clean, etc. and do not comb hair in public or where food is being prepared or served, do not borrow combs, do not use a dirty comb etc. Demonstrate care and washing of comb and brushes. Demonstrate brushing and braiding hair.

Note.—The same project may be continued for 1-2 weeks if necessary. Rules regarding cooking of food. Advantages of keeping fast, preparation of pickle, jams, squashes etc. Utility of tea, coffee and other stimulants, general knowledge of cleanliness, exercise, bathing etc.

CLASS VII: (1-2 weeks or 6-12 periods).

Making and keeping good social relations.

Purposes.—1. Appreciation of the value of friendship. 2. Some understanding of what it means to be a friend. 3. Ability to meet new people and to be at ease with people of various ages. 4. Knowledge of approved social practices.

Topics and Suggested Activities.—Have each pupils think of a good friend and list the values implied in friendship. Discuss the advantages of having more good friends. List qualities which one admires in her friends. Each pupil checks through these to see qualities she possesses. Discuss good and poor choice of friends and the results. Discuss the importance of accepting friends as they are. Give examples of how first impression of a friend were wrong. Report on

characters in biography or fiction whom one would like to have for a friend. Compile a list of articles and stories in which qualities of friendship are featured.

Discuss and report ways in which one became acquainted with persons she likes. Make a suggested list of possible topic of conversation which might be used when meeting a new friend. Have class demonstration or dramatization of various situations in the school, home or public places showing socially accepted practices such as taking one's place in the queue at the bus stand, (using) containers for waste materials, the temple meeting, a school friend at a festival etc. Dramatize making introductions. Practice making introductions in real situations. Have pupils report on cases in which good manners proved worth while. Class sponsor good manners week at school. Make plans for hostess responsibilities in the home science class room. Girls take turns acting as hostesses.

Note.—Knowledge of human behaviour, knowledge of different atmospheric condition for people of different natures during different seasons.

Knowledge of the following diseases—Malaria, Pneumonia, whooping-cough; knowledge of Vaccination and inoculation. Prevention of bleeding. Treatment of scorpion and wasp bite and centipede bite. First aid for fracture.

CLASS VIII

Being at one's best as a hostess and guest.

Purposes.—1. Knowledge of how to act at school functions and other social situations. 2. Appreciation of the joy of making happy occasions for others. 3. Ability to plan and prepare for a class picnic.

Topics and Suggested Activities—Pupils make list of various school functions and the responsibilities. Pupils have to assume as hostesses. Dramatize various situations. Make posters about etiquette, the "do's and dont's" at various social functions such as a music or dance programme, the cinema or a lecture etc. Dramatize how to greet a hostess at a party, how to leave courteously from a party. Give examples of situations around the school where pupils have done courteous things for others. Tell of embarrassing moments at parties or in other situations and what might have been done to help the situation. Make a list of the kind of entertaining that children do. Discuss difference in responsibilities when one is a hostess and when one is a guest. Have pupil tell about picnics that are more fun than others. Review requirements for a balanced lunch. Discuss suitable picnic foods. Make some picnic menus. Choose one menu. Discuss ways of serving food at a picnic and decide on the way of serving the food. Make work plans for before and after the picnic, dividing jobs etc. Discuss suitable clothes for picnics, make a list of food and equipment needed. Prepare food and have the picnic. (This project on the picnic is to be correlated with the units in food for this class). Respect views of others who differ from you.

Note.—Simple knowledge of menses, symptoms, of menstrual period. Infant case.

Medicinal value and use of the following spices:—cloves, dry-ginger, cardamom, cinnamon, cumin seed, chillies, Asafoetida, unent turmeric, aniseed, nut meg and onions.

Use of Iodine, penicillin, mercurio-chrome and gum paint.

First Aid

Class VI.

Purposes. 1. Ability to understand the meaning and utility of first aid in their daily life. 2. Ability to protect on all occasions where accidents are liable to occur.

Topics.

1. Meaning of first aid and its scope.
2. Duties of a first-aider.
3. Essentials of first aid.

Suggested Activities.—Ask the students to collect and make a first aid box and thus come to know about the utility of first aid box and its importance.

First Aid

Class VII.

Purposes.—Ability to handle the patient and to care on different accidents.

Topics.

First aid to be given on the following accidents :—

1. Cuts and wounds.
2. Bleeding from the nose.
3. Foreign bodies in eye, ear, throat and nose.
4. Common bites and stings.
5. Burns.
6. Fainting.

Suggested Activities.—Demonstration on the treatment for simple cuts, bleeding from the nose, foreign bodies in eye, ear and nose and throat, common bites and stings, burns and fainting.

Mother craft

Class VIII.

Goals.—Development of sense of responsibility and co-operation. Helping small children and caring for them at home.

Topics.

1. What is mother craft and its utility for girls.
2. Responsibilities of a mother in bringing up children well.
3. Formation of habits among children.
4. Understanding of suitable food and clothing for small children.

5. Bathing and dressing up a child.
6. Common ailments among children.
 - (a) Teething.
 - (b) Vomiting.
 - (c) Diarrhoea.
 - (d) Fever and common colds.

Suggested activities.—1. Bathing and dressing a baby or a doll. 2. Care for the child's garments and other clothes. 3. Preparation of foods for baby or a child. 4. Looking after the K. G. and Nursery school children, helping them with food, play and other things.

Home Nursing

Class VI.

Purposes.—Ability to understand the meaning and utility of home nursing in their daily life.

Topics.

1. Meaning and importance of home nursing.
2. To see to the cleanliness of the sick-room.
3. Various uses of potassium permanganate, phenyle etc.

Suggested activities.—1. Demonstrate to them the different methods of cleaning the sick-room. 2. Demonstrate to them the different methods of using potassium permanganate, phenyle etc. in the sick-room.

Class VII.

Purposes.—Ability to understand the utility of having a separate sick-room. 2. Ability to prepare a sick-room and bed for a patient. 3. Ability to prepare simple furnishings for the sick-room for the comfort of the patient.

Topics.

1. Choice and preparation of the sick-room.
2. Bed and bed making.

Suggested activities.—1. Selecting a room for a sick person and furnishing it properly. 2 Demonstrate the methods of preparing a sickroom.

Laundry

Class VII.

Goals.—To have washing and finishing of cottons and simple dyeing.

Suggested activities.—Washing a handkerchief, a tray cloth or table cloth, shirt or frock—plain dyeing of dupattas—preparation of starch and use of blueing—use coal irons.

Class VIII.

Goals.—To have washing and finishing of woollens and silks.

Suggested Activities.—Washing and finishing of a sweater. Washing and finishing of a blouse. Use of soap water, gum water, vinegar, rithanuts, ironing of woollens and silks. Removal of common stains.

Needle work

Class VI : 6-8 weeks for needle work.

Purposes.—To teach them the ability to make garments and other useful articles for house-hold use and decorate them with simple stitches.

1. Jhabla (simple kurta) 2. knitting a comb case. 3. tray cover.

Suggested Activities.—To teach cutting of Jhabla on paper and material. To teach them the seam which is done on Jhabla. To teach them correct method of tacking and hemming. How to finish the neck and arm-hole with crochet or any other fancy stitch using left over wools; knitting with plain or purl pattern. Uses of a tray cover. How to make the edges. Embroidery on tray cover using correct method.

Class VII: (7 weeks for needle work).

Purposes.—To teach them how to knit, stitch and embroidering garments for small babies and house hold use.

Topics.

Bags or cushions with simple decorative stitch, baby's towel, jangia or hand towel, baby set.

Suggested Activities.—Different shapes of bags or cushions and how to stitch them. How to make edge of baby's towel or hand towels with simple embroidery on it.

Knitting of baby's set (coat, bonnet and booties) in simple patterns. How to make button holes while knitting. Sewing in all the knitted parts together neatly.

Class VIII.

Purposes.—To teach them how to make garments for their personal use or for their younger sisters or brothers.

Topics.

1. Child's combination or a simple frock.

2. Pullover.

3. Embroidery on a table cloth.

Suggested Activities.—To teach them seam which is done on child's combination or a simple frock. Cutting of child's combination or a simple frock on paper and material. How to place the drafted paper patterns on material. Knowledge of colour, types of materials, matching colours, designs, selection and placement of designs.

Use of a table cloth. How to decorate it with simple stitches.

Correct method of embroidery.—Knitting on pullover in simple pattern. How to shape sleeves and neck. Importance of stitching the knitted parts neatly. How to make the front and neck band.

SANSKRIT

Aims.—To enable the students to have a good vocabulary of Sanskrit, its root and derivations, so that they find no difficulty in comprehending the newly coined Hindi terminology for various subjects.

To enable the students to pronounce the Sanskrit words used in Hindi with proper accent and facilitate smooth and easy writing thereof.

To inculcate love for language of ancient Indian Culture and literature (like Upanishads, Gita our epics, etc.) in order to broaden their outlook in the works of our forefathers who were the forerunners of patriotism and valour and have left a glorious heritage for us.

To put in a concrete form the objectives of teaching Sanskrit in Middle Classes will be as follows :—

To enable the child :—

- (i) To read aloud simple reading material correctly, and with expression.
- (ii) To recite verses with expression and effect.
- (iii) To express in speech as well as in writing his thoughts and personal experiences in clear, simple and suitable language.
- (iv) To read simple reading material silently for inspiration and self-satisfaction.
- (v) To consult dictionary and reference books.

General Directions

(a) The vocabulary should contain of sufficient number of words of daily use.

(b) A general understanding of the following :—

1. Karaka 2. Vibhakti 3. sub-ant 4. Tigant (Kriya) 5. Four Lakaras 6. 40 roots 7. Vachya 8. Kridanta 9. Samas 10. Taddhita and 11. Sandhi 12. Numerals degrees in adjective.

(c) Words of daily use, dialogues generally inspiring high ideals and feelings of character, behaviour, patriotism, policy, valour, five principles, discipline and character building etc. should be in abundance in the text. The construction of sentences should be totally free from Sandhi and Samasa in the 6th and 7th classes excepting essential in verses. The knowledge of grammar should be imparted through lessons. Effort should be made for writing correct Sanskrit through exercises at the end of each lesson.

(d) The attention of teacher is specially drawn to lay full emphasis on the proper pronunciation of letters and words. At the same time attention should be paid towards calligraphy and construction of alphabets. Students should be warned of the common errors like ब for व, श for ष or स, फ for ऩ or vice-versa क्ष for छ, ज for य, ख for ष, र for (रेफ) and रि, ऋ etc.

(e) The text should contain in abundance such Sanskrit words as are used in Hindi in the same form, to enrich the vocabulary of Hindi for their daily use and to remove the horror of difficulty in Sanskrit.

(f) The lessons should contain the vocabulary of the following :—

Parts of the body, relations, utensils, fruits, vegetables, other articles of food, sports, materials used in study, study of natural objects, including animals, birds, beasts, seasons, environments of school, market places, post office, conveyance, communications, roads, army, business, parliament, court, industries, provinces, cities, etc.

Method of Teaching :—

(a) The central idea of the lessons should be clarified through audio visual aids e.g. attractive picture, questions and answers and conversation in the beginning of the period.

(b) The reading of the text book should be done by the students. They should be encouraged to bring out the meaning for themselves. Teacher should assist only when the student fails.

(c) The feeling of getting through with only pass marks and cramming without understanding the meaning should be discouraged.

(d) The lesson should be taught first and exercises should be done after teaching.

(e) The student should be advised not to memorise the necessary portions without comprehending proper meaning.

(f) To create the necessary self-confidence in the use of simple Sanskrit in daily conversation with fellow students and others.

CLASS VI

The Alphabet—Classification and Pronunciation.

Reading.—A text book of about 112 pages, including exercises on grammar and translation containing very simple and easy sentences, avoiding Sandhis and compound words as far as possible such Sanskrit words should be chosen as are frequently used in Hindi (or तत्सम words). It should contain 40-very simple verses about good character and behaviour. Only simple indefinite present, past and future tenses and imperative mood (in परस्मैद् only) should be used. The lessons should be in the form of stories and dialogues on familiar topics of everyday life. Every lesson should have a limited glossary, also easy and intelligent exercises according to specified grammar and translation.

Recitation.—15 easy verses etc. to be memorised with meaning, tone and tune.

Grammar.—The teaching of formal grammar may appear towards the end of text book, while the application of the rules of grammar should form part of the exercises appended to each lesson. It is suggested as follows :—

1. कारक with their meaning and usages.
2. विभक्ति and their use for Karkas.

3. Singular, dual and plural number with their general use.

4. Construction of conjugation with the help of Suffixes of नर, जलम्, लता, कवि, साधु, नदी, भगिनी, (with a glossary of) अकारान्त, इकारान्त, उकारान्त, आकारान्त, ईकारान्त, Words of every day use.

5. युष्मद्, अस्मद्, इदम्, यत्, तत्, only in nominative एतत्, यत्, किम् and objective case (प्रथमा, द्वितीया, विभक्ती) in all genders.

6. Roots of 1st conjugation म्वादिगण, in लट्, लङ्, लृट्, लोट् ! and their declension with the help of the said लिङ्, suffixes, पठ्, पत्, खेल गम्, क्रीड्, नम्, वद्, चद्, द्रश् (पश्य), हस्, चल, वद्, (लिख) खाद्, भक्ष्य, क्षिप, स्था, तिष्ठ, अस्, पा-पिव, दा यच्छ ।

7. 9 लिङ्, suffixes with the knowledge of persons.

8. Numerals upto 20 with पूर्ण प्रत्यय । (प्रथमः द्वितीय, आदि are essential) प्रत्यय ।

9. Indeclinable with their meaning शनैः, प्राप्तः, अत्र, यत्र, तत्र, कथम्, कुत्र, यथा, अपि, यदि, किम्, तथा, यदा, कदा, सायं, द्रुतं, (शीघ्रं) च एव, तदा, इव, एवं, आदि इत्यादि ।

Translation:—Translation of simple sentences from Sanskrit to Hindi and vice versa.

Note:—First ten lessons should be altogether free from any formal teaching of grammar. Students should be made familiar with the construction and meaning only of Sanskrit Sentences.

CLASS VII

Reading.—A text book of about 144 pages containing easy lessons and illustrating the rules of grammar prescribed for the class. It should also contain about 60 verses about character, behaviour, discipline, brotherhood, patriotism and conduct. Lessons should be on varied and interesting topics in the form of simple stories as in Ramayana, Mahabharata, Panchtantra and Katha Sarit Sagar.

Every lesson to have graded exercises in translation from Sanskrit into modern Indian Language and vice versa.

The subject matter should as far as possible deal with suitable interesting topics related to everyday life.

References to easy formation of Sanskrit to be made in the course of teaching the verbal and nominal inflections.

Recitation.—25 verses should be memorised with meaning, tone and tune.

Grammar.—(i) Revision of VI class.

(ii) The use of Karka and विभक्ति in detail.

(iii) The declension of following words with the help of suffixes :—

- (क) पति, नृपति, सुधी, भानु, दातृ, पितृ
 (ख) श्री, धेनु, वधू, सूम्हू, मातृ, पितृ, भ्रातृ
 (ग) वारि, मधु (घ) इदम्, किम्, इत्यादि

(iv) Suffixes of आत्मनेपद :—Conjugation of the following root in लट्, लोट्, लङ्, लृट्, सिव्, वृत्, कम्, शम्, लभ्, and other roots चुर, भञ्ज, चिन्त, कथ, in लट्, लङ्, लृट्, लोट् in परस्मैपद ।

(v) Simple knowledge of कर्तृत्वाच्च्य and कर्नवाच्च्य.

(vi) Use of शतृ, ज्ञानच्, तव्य, प्रत्यय with their declension and meaning of the verbs prescribed in 6th and 7th class.

(vii) Numerals upto 50 with their declension.

(viii) Translation from Sanskrit to Hindi and vice versa. Simple cases of स्वर-सन्धि, (दीर्घ, गुण यण and वृद्धि Sandhi आदि).

Note.—The grammar portion should be at the end of the book.

CLASS VIII

Reading.—A text book of about 144 pages containing stories biographical sketches, narrative dialogues etc. in simple and lucid Sanskrit free from cumbersome and complicated constructions. The lesson should depict patriotism, valour, zeal and the ten principles of character-building viz. यम and नियम. It should contain at least 80 verses from classical writers about नीति, राजनीति, character, behaviour, love towards God, respect for elders and discipline etc. Simple letter writing should also be introduced.

Recitation.—30 verses should be memorised with comprehension of their meaning, tone nad tune.

Grammar:—

(i) Revision of the seventh class grammar.

(ii) (a) Declension of युष्मद्, अस्मद्, तत्, यत्, गुणिन्, शशिन्, दाण्डिन, स्वामिन्, the prominent nouns, pronouns and किम्, सर्व, वाच्, सुहृद्, महत्, राजन्, जगत्, महत्, स्वसृ, वणिक, सम्राट्
 (b) Conjugation of चन्द्रमस्, मनस्, विद्वस्, verbs from म्वादिगणं, 30 roots of परस्मैपद, 30 of आत्मनेपद and 5 of उभयपद of कृ, चुर, गण, ताड, every day use (c) 10 roots each of दिवादि, पा, पिव, तुयादि and चुरादि in firm लकार and of कृ, अस्, also in four lakaras.

- (iii) A knowledge of कर्तृवाच्य, कर्मवाच्य, भाववाच्य and कर्म कर्तृवाक्य ।
- (iv) कृदन्त with a little detail कृ, कृत्वा, तुमुन्, शतृ शानच् ।
- (v) Knowledge of the Simple compounds.
- (vi) Simple knowledge of स्वर, व्यंजन, विसर्ग, संधि and विच्छेद ।
- (vii) Translation from Hindi to Sanskrit and vice versa.
- (viii) General familiarity of ancient Shastras in Sanskrit, वेद, उपनिषद्, गीता, षट्शास्त्र, रामायण, महाभारत ।
- (ix) The Sandhis used in the Text should be shown in the foot note with their विच्छेद ।
- (x) Formation of sentences (syntax) use of adjective, adverb etc.
- (xi) Numerals up to 100.

PERSIAN

Its Importance, Aims and Objects.

Language is the most effective mode of expression. We come to know people, their actions and thoughts through written or spoken word. Idea is the basis of action, and no idea can be expressed without language. This is true of every language. But with the Persian Language, the significance is deeper. Iran is our neighbour. She has strong social and cultural ties with our country. Persian is the only classical language having much in common with Sanskrit that is the life-blood of our national Language Hindi. Therefore the knowledge of Persian enables one not only to get an idea of the cultural and social life in neighbouring Iran but also realize the brotherhood and oneness of the Aryan race.

Persian is a language which, once occupied a very important place in India. It was for centuries together, the Court Language during the Medieval Period of our history. There are a number of literary, historical, biographical, geographical and revenue books written in Persian. The language was so widely and commonly used in India that it came to be called "Indo Persian Language." This language is very rich in literature, philosophy, sociology and culture. It is very difficult to get a clear and complete picture of Medieval India without a knowledge of the ancient Persian Language. It is an indisputable fact that we cannot study contemporary Iran satisfactorily unless we know modern Persian Language and Literature.

In Indian schools, the importance of teaching Persian to the children is not as a classical language alone, but it could foster an early interest in and friendship for a country with age old bond with their motherland. Moreover, the Persian Language cannot be profitably pursued as one of the subjects in the higher classes unless it is properly taught in the Middle Classes.

Syllabus of Persian for Class VI.

Reading.—(Primer and Reader 1-80 pages in all). The students of this class should learn the proper use of words which should not exceed 300. The students should get adapt at using these words freely and accurately by means of pictures, conversational charts, talks on class room objects, parts of the body and home experience. A thorough mastery over these words is to be achieved. The Reader will help them learn the alphabet and memorize the vocabulary steadily and imperceptibly. Teachers and students should be encouraged to frequently use some standard Persian-Urdu Dictionary.

Good Reading and Correct Pronunciation.

The following methods should be observed for good reading:

- (1) *Correct Pronunciation.*—Correct sound should be demonstrated by imitation and vocal exercise. Facilities of language should be provided at the schools to learn the correct pronunciation of Modern Persian words.

- (2) *Good Pronunciation*.—It depends upon the correct sound of the vowels and consonants and a natural Persian intonation. But the difficulty is this that some teachers still follow the same old Indian pronunciation of Persian words. For example they normally pronounce 'Amdeed' and 'Amdeem' as 'Am-daid' and 'Amdaim'. Due emphasis should be laid on correct pronunciation, accent and modulation.

Composition and translation.

In the sixth class the students should be taught to compose phrases and simple sentences orally, not in writing. Simple questions should be put to the students to be answered orally. Written exercises could be introduced in the latter half of the academic year. Compositions should be on topics relating to the students' daily life at home and in school. At the end of the year they should be able to write out answers to given questions. The students should also be able to write ten or fifteen simple sentences grammatically correct on a topic thoroughly discussed and talked out in the class room.

Transcription, exercises and dictation.

At this stage the students should be given exercises in transcription. Dictation of simple sentences extracted from the lessons thoroughly read and prepared by the students should be started in the latter part of the academic year.

Translation.

Very simple sentences from Hindi or Urdu into Persian and *vice versa* should be set for Translation for this class. In this connection emphasis should be laid on simple sentences.

Grammar.

At this stage no separate book of Grammar should be prescribed but the teaching of Grammar should form part of the text. The students should be able to pick up parts of speech as Noun, Adjective, Pronoun, Verb and Preposition from their text book. The elements of Persian Grammar should be taught as far as possible, in proportion to the students' knowledge of the Grammar of his own mother tongue.

The analysis of a sentence into subject and predicate or subject and object may be taken up. The students should be able to distinguish between singular and plural nouns. In the construction of a sentence the idea of positive and negative sentence be pointed out. Simple and easy questions may be framed on the lessons of their text with what, when, why, how much, who and how many.

Note:—A single book should be prescribed containing a Primer and a Reader. It should begin with the alphabet, followed by the two-letter and three-letter words, and finally words containing four and five letters. These words should be the names of things familiar to the students as birds, class room articles, utensils etc. All these, should as far as possible, be illustrated with colourful pictures. Dialogues in short sentences should be formed with these words. It will be desirable if such a book is based on some modern Persian Primers.

The latter part of the book, that is the reader, should consist of very short and interesting stories of some model boy and girl, and their good habits and virtues etc. These stories should make one fourth of the book. It should contain a set of questions at the end of each lesson and other types of easy exercises—grammatical, idiomatic and literary. Exercises should be simple and easy enough for the pupils to attempt without help from the teacher. The language used in text should be simple and modern. The text-book should be neatly and correctly lithographed.

CLASS VII

Reading. (A text-book containing 128 pages.)

Containing revision of the vocabulary acquired in class VI. Another set of 250 simple words of common use together with, terms of expressions, idioms and idiomatic phrases should be introduced and thoroughly practised by students in sentences of their own making. These sentences should be varied and should employ the use of different forms of verbs; past, present and future; negative, positive, active, passive, and of adjectives, conjunctions etc. Now the questions as well as the answers should be considerably long and should contain several sentences. Correct and fluent reading should be encouraged.

Composition.

Oral composition in this class should take the form of dialogues between the teacher and pupil or group of pupils relating to simple and familiar topics. Oral work should include story telling based on the text-book. Students should develop stories from a given outline. They should further be taught to write composition on familiar topics already discussed in the class room. The number of composition assignments should not be less than 15 during the academic year. A good number of selected poems from the Reader should also be learnt by heart.

Letter Writing.

Simple letters on everyday aspects of life.

Speaking power should be developed gradually.

By encouraging the students in declamation of Dramatics, dialogues and stories included in the text-books.

Handwriting, Transcription and Dictation.

In the case of a poor hand copying of caligraphic models should be continued as home task. Dictation from the text should be given. Spelling mistakes should be corrected by the teacher and a chart of the words similar in sound, but different in meaning and *vice versa* should be prepared by the teachers.

Translation.

Emphasis should be laid on the comparison and contrast between Persian constructions and idioms and those of the vernacular. In case of Urdu vernacular it is very necessary to show the difference of meanings of the words used in Urdu and the meanings in which the same word is used in modern Persian. Applied Grammar should be further explained, amplified and impressed through translation, particularly teaching of the different forms of verb should be undertaken through translation exercises.

Grammar.

To avoid mistakes in the use of verbs it is necessary to teach the students how to form different verbs from the infinitive and conjugate them. Now the field should cover all the parts of speech—nouns, pronouns, verbs, adjectives, degrees of comparison, verbs, tenses, affirmative, negative, active and passive, perfect and imperfect compounds, 'Izafi', 'Tausifi' and 'Adadi', nominal simple sentences—subjects and predicates; verbal sentences—subject, verb and object; gender and number of nouns, affixed and isolated pronouns, demonstrative and relative nouns, transitive and intransitive verbs—past, advent and future and present; imperative and proginitive verb, participles and their kinds and use of auxiliary verbs etc.

No separate book of Grammar should be prescribed. The text-book should contain exercises on applied Grammar at the end of each lesson.

CLASS VIII

Reading. (A text book containing 160 pages.)

Revision of the selected vocabulary previously mastered, only those difficult words and idioms should be revised which have an important place in the spoken and written language. The book should have two parts, the first, prose portion comprising two thirds of the book. One half of the Prose Section of the book should consist of selection from modern Persian Prose, and the Poetry Section should contain selected modern Persian Poems, but not forming more than one third of the Section.

The following topics, among others, should be dealt with in the text-book prescribed for this class:

- (1) The objects and places familiar to the child, e.g., home; class room; bazar; railway station; etc.
- (2) Occupations of the people.
- (3) Games.
- (4) Civic sense.
- (5) Laws of health.
- (6) Ethical virtues like truthfulness, honesty, sense of duty, discipline, patriotism etc.
- (7) Lessons relating to Iranian and Indian History and Geography.

- (8) The world we live in: Travel, discovery and inventions.
- (9) Indian and Iranian fruits, plants, birds and animals.
- (10) Poems on Patriotism, ghazals and selection from well known elegies.

Composition.

Oral and written exercises as in class VII, comprising simple stories and short essay of biographical and historical nature. The topics may be such as games, post office, bus, railways, modern topics of interest as experienced or studied from a newspaper, motor car, aeroplanes, radios, animals and birds of India and other countries. Emphasis should be laid on free composition, and accuracy of observation. All topics should relate to the environment and experience of the students. Rewriting of a few simple stories from the text and summarising of some long stories should be undertaken by them. The students should be encouraged to develop their speaking power. At least 15 compositions should be attempted by each student.

Letter writing as in class VII with the addition of simple form of application, invitation etc.

Handwriting, translation and dictation.

To be continued as in class VII.—Unseen passages of the standard lower than that of the text from Persian Vernacular should be suggested for translation. Hand writing and dictation to be continued as in class VII.

ARABIC

CLASS VI

It will be desirable if a single series of Readers, are prescribed from classes VI to VIII.

Method, Primer and Reader.—75 pages consisting of 150 words of Arabic should be taught from the class VI in the schools. Since it is a hard language like Sanskrit, it must be given a particular attention towards the method and gradual progress. The Primer will have two parts. The first part will begin with the Arabic Alphabets, words and phrases. The second part will consist of short nominal sentences, dialogues and description of familiar things.

The students should be made fully acquainted with Arabic letters. The letters, first, should be given in order and after that in disorder so that the student may be able to recognise them. Later on these should be introduced the words having two letters, then the words of three letters and so on. Every word, as far as possible should be illustrated with colourful pictures. The words undertaken would be the names of the objects relating to the daily life and familiar environments of the children, as those of utensils of daily use e.g. cups, saucer, spoon, jug, glass and the names of the familiar animals and birds, and the name of furniture, class-room articles, familiar flowers, trees, fruits and the name of game article. Some modern words should also be introduced as radio, aeroplane etc. The use of the verbs should be strictly avoided at this stage. Short and simple sentences should be formed with the words already taught and learnt by the children.

Unlike other languages, the nominal sentences can be formed in Arabic, even without the help of defective verbs *افعال ناقصة*. It is impossible to form a nominal sentences in English, Persian or Urdu without the help of a verb to be e.g. is, was, has, bud or tha and hai respectively. But in Arabic, a nominal sentence is formed even with two nouns, or with one noun and an adjective as Haza Waladun هذا ولد this is a boy, Zaleka Jamalun ذالك جمال that is a camel Alwalado Saghiron الولد صغيرو The boy is small, Alfaraso Jamilun الفارسو جميل the horse is beautiful. It is therefore, very easy to form a sentence in Arabic, without a verb.

After the introduction of short and simple sentences dialogues on the class room articles, games etc. should be introduced, and hence the second part of the Primer will begin. Every lesson will follow with the exercises relating to the words and phrases given in that lesson.

Reading and pronunciation.

The different sound of the letters should vocally be demonstrated by the teacher. Students should learn and grasp, the correct sound. If the correct sound of letter is not introduced in this stage, it will be difficult to them to avoid the mistake in sounding and pronunciation. Correct and good pronunciation, correct accent, phrasing, emphasis and pause will result in correct reading.

Composition and translation.

At this stage composition will be mainly oral. However some written exercises will be given as has already been said that the Primer of this class will consist of some easy exercises at the end of every lesson. These exercises will be done by the children as home work without the help of the teachers. Hindi or Urdu passages for translation will be made out of those words which have been taught in the lessons thoroughly mastered by the children. No unseen passages will be given at the stage for translation or composition. Those questions which will be given at the end of some lessons, would be attended to by the students for answering them in Arabic.

Transcription and dictation.

No model for the teaching of handwriting will be given unless the students are fully acquainted with the form and shape of letters. Transcription should be kept up throughout the year. Dictation of simple sentences extracted from the lessons thoroughly mastered by the students, will be given in the last quarter of the year.

Grammar.

No book of grammar will be used in this class. The reader will be arranged in such a way that the students should be able to recognise the proper nouns, common nouns, pronouns, adjectives, prepositions, the articles Al if lam, ﻻ but solar and lunar letter will not be mentioned. It will be said to them that the words affixed by ﻻ will have no Tanwin. Harakut, Sukun, Tashdid, Tanwin should be taught. Iz Afi and Tausifi construction, Isme Ishara and Musharun Ilaih, Jar and Majroor, idea of noun and particle should be pointed out.

Tazkir and Tanis, singular, dual and plural forms of nouns and pronoun, separate and isolated pronouns will be given in this class. No definition of grammatical technologies will be given. No classification and Stunmermy of terms etc. will be undertaken. Elementary grammar, will be taught as mentioned above, side by side along with the lessons taught and the exercises done. Forming of verb will not be aimed at.

CLASS VII

Reading Text Book (desirable the second reader of the series.)
100 pages.

Revision of the vocabulary acquired in the Class VI.

Another set of 200 or some more words consisting of useful simple modern Arabic words, usages, terms of expression and idioms, and idiomatic phrases should be introduced and thoroughly learnt and practised by the pupils in their own sentences which should be varied and should employ the use of trilateral verb, past tense, aorist, imperative and prohibitive forms, negative and positive, active and passive, person, gender and number. Now the verbal sentences will be introduced, but after the third portion of the reader. The sentences will be to some extent longer. Questions and answers should continue to form the main basis of the teaching. Now the answer can be pretty long and can consist of several sentences. Independent reading should be encouraged.

Composition and translation.

Oral composition in this class will mainly be in the form of dialogues between the teacher and pupils or group of pupils. For translation emphasis should be laid on the comparison and contrast between Arabic construction and idiom and those of vernacular. Vernacular practice by means of translation should continue. Applied grammar should be further explained, amplified and impressed through translation.

Grammar.

Etymology and syntax.—All parts of speech, definition of verb, noun and particles. Some kinds of noun, kinds of verb, adjective, verbs and tenses. (2) How to form past tense from infinitive verbs مصدر and how to form aorist, imperative and prohibitive verbs, active and passive voice. (3) Nominal sentences, subject سناداليه and predicate سناد pronouns and its kinds. Active participle and passive participle. Noun of instrument, time and space. (4) Verbal sentence, verb, subject and object. (5) Simple imperative and prohibitive forms, particle of interrogation. (6) The conjugation of Ism Fail, Ism Ma-foul and Ism Affoul.

Handwriting, Transcription and Dictation.—Copying of models in weak case should be continued as home task. Dictation from the Reader should be introduced. Spelling mistakes should be corrected in class room and the set of words which are commonly mis-spelled should be given in a chart which the students will maintain for reference.

CLASS VIII.

Reading, 150 pages (desirable for the third reader of the series).

This reader will have very small portion of poetry at the end, and the rest will consist of prose comprising in the beginning, long passages dealing with the description of school life, utilities of some animals, game, health etc. Later on simple stories based on the qualities of virtue, patriotism, sense of duty, value of time, sacrifice etc. The part of poetry will consist of easy simple short poems, more rhythmic and interesting.

The set of words and phrases primarily mastered will be repeated in this reader. Such words, usages and phrases will be revised as are difficult to be retained in memory, but have a high place in usefulness both in speaking and in writing. Another set of words usages, idioms and terms of expressions frequently needed in idiomatic self-impression will be introduced in the reader. The use and understanding of idiomatic phrase should be emphasised. Emphasis should also be given on the development of speaking and imaginative power. A portion of prose and poetry should be undertaken from Modern Arabic. A set of words and phrases should be introduced as to help in reading short news in a newspaper and in writing simple letters and applications.

Composition.

Oral and written as in class VII, description of object and incidents, game, modern topics of interests, motor car, aeroplane, radio, familiar birds and animals. Emphasis should be laid on accuracy, on observation and phrase. All topics should be written from the environment and experience of the pupils.

Handwriting, transcription and dictation.

As in class VII with addition that unseen passages of equal difficulty may be dictated.

Translation.

Now the sentences will be longer, and expected to be translated more idiomatically and up-to-date. A gradual progress should be aimed at as to give passages for translation in the last quarter of the year.

Grammar.

- (1) Abwab Thulathi Mujarrad.
- (2) Abwab Thulathi Mazid Fih (8 babs only).
- (3) Mafa' il-e-Khamsa.
- (4) Sahih, Mugtalm Mahmuz and Mudha'af.
- (5) Af'al-e-Naqisa.
- (6) Huroof Mushabba Bill F'el.

ENGLISH

It is evident that English will continue to occupy an important place in the Curriculum of Indian schools—but since it is no longer the medium of instruction and since pupils begin its study from Class VI, a change in the objectives of teaching English is called for. In the past no difference was made between the study of English as a foreign language and as a mother tongue. Hence the cultural aspect and the content of language study was over-emphasised. The traditional approach tended to consider language as a subject of instruction virtually synonymous with literature. With the limited amount of time at our disposal, however, the aim of teaching English at school must be confined to helping boys and girls acquire a good grasp of simple straight forward modern English for purposes of communication. Thus the new approach considers language mainly in its dynamic aspect. Pupils need to learn how to understand the spoken foreign word, how to read and write it reasonably well. This syllabus aims at giving them the essentials of the language, primarily as a tool for communication and as a basis for further studies.

The Skills.

In helping pupils acquire these skills, it is important to bear in mind that the ability to understand the spoken language naturally comes first. The beginnings must be made by giving children opportunities to hear good spoken English. Active command over a living language can only be acquired by learning to speak it. Speech is the ground-work all the rest of the skills can be built upon it. We must give pupils the ability to speak correct English within a limited vocabulary used in the most useful sentence-patterns. Reading is a difficult skill to learn, but if it has been preceded by systematic practice in the oral language, it becomes an easier task. Writing is the last skill that a child requires and in our teaching, it therefore, follows the other skills.

It is important to remember that the four abilities should be treated on a par as ultimate major aims. This need not preclude the switching of emphasis from one feature to another, provided that the claims of the others are not overlooked. That is to say, that while speech may dominate the first year's work, it should not be neglected when reading replaces it as a major aim nor should reading suffer when writing becomes predominant about the time of examination. All four abilities need to develop concurrently and be co-active. A minimum of six hours per week is essential for the success of this scheme.

The New Approach.

Until recent time those engaged in research in the methods of teaching English as a foreign language were primarily concerned with problems of vocabulary control. It was assumed that the most difficult aspect of learning English was the learning of individual words and hence strict control over vocabulary was advocated. The principles underlying the new approach indicated by this syllabus however treat language differently. Linguistic analysis has revealed that

the most fundamental thing in English is its word-order. A sentence built to a specific word-order is called a "structure" and is referred to as such in the syllabus.

The most useful structures in English have now been selected and also graded. The basic principles of the syllabus are:—

1. The sentence is to be treated as a unit. Pupils should be introduced to a language through a series of structures. The language used should be real and as far as possible arise from an actual situation. For example Gopal is giving his book to Ram is the normal structure in English and is built up on the following:

This is Gopal.

Gopal is here.

Gopal is walking.

Gopal is walking to the door.

Gopal is walking to Ram.

Gopal is giving his book to Ram and so on.

2. The material to be taught has to be carefully graded, the easily demonstrable structures being taught first leading on to the more difficult forms. Each new learning point should follow all the previous ones in a logical manner and language should be built up step by step. For example, "Gopal is walking". The question form which requires effort in understanding a different structure is introduced after several statement patterns have been established. The teacher should, therefore, take care not to introduce questions in the first few lessons.

3. These structures should be taught orally first, one at a time. It is important that there should be the maximum of activity in a classroom. Verbs of movement should be introduced early and children should perform the action as they use the verbs.

4. Reading should be started only after the foundation has been laid orally.

5. The vocabulary to be taught to the pupil should also be controlled. Only those words need be taught as will be required for the operation of the structures.

The list of structures has been specified for each class and the language work of that class will be limited to those structural items alone. A list of 1500 essential words is appended and the vocabulary of the learners during the first three years i.e., from classes VI to VIII should be taken from this list.

The use of the Mother tongue.

Considering that the basis of the syllabus rests on establishing an oral foundation for language learning, minimum recourse is to be taken to the mother tongue. While teaching English, it is desirable not to use the mother tongue when it is possible to convey ideas through English or through pictures and objects that can be brought to the class room or even through simple gestures.

The mother tongue may be used only:

- (i) to give directions in the initial stages.
- (ii) to explain words when it is not possible to explain them in English or when the word cannot be illustrated.
- (iii) to explain a structure or a point of language usage occasionally in more advanced classes by comparison with its form in the mother tongue.

As a rule it should be remembered that a very judicious use has to be made of the mother tongue, if at all, for every minute taken up for this means, one minute less in which the pupils can hear or speak English.

Translation as an exercise should not be encouraged during the first three years.

Grammar.

The important point to remember is that children need language. According to the structural approach to language teaching, it is but obvious that by continued practice in the sentence-patterns that constitute the language what children will learn is usage, which is certainly more important than a formal rote learning of grammatical rules and definitions. Now the disrepute into which School Grammar has fallen has been because of the exaltation of definitions and nomenclature over construction and application. Children learnt about relative pronouns and preposition in the abstract; they did not learn how to use them in practice. So what is to be condemned is not "Grammar the useful art, but grammar the formal science". As such it would be wrong to conclude that there is no grammar being taught in the present syllabus, for in a sense it is all grammar, only the applied aspect of it is being emphasised. The work of the word depending on its form and position in a sentence is always more important than the term or the label that is attached to it.

Some of the more useful terminology of grammar can, therefore, be learnt from class IX onwards when it is assumed the pupils will have had a fairly reasonable proficiency in the use of the language. During the first three years it is enough that attention is drawn to the various structures that form the normal pattern of the English speech and the students be given sufficient practice both in recognising and using them.

Poetry.

Children love poetry for its rhythm and that is for this reason that some poems are recommended for being taught in each class. There is to be no language study of these poems. They are to be read, enjoyed, learnt and recited so that they reinforce good speech habits. They need not be confined to the structural and vocabulary limits of each class. The teachers could include a few selections. Care must be taken in the choice of poems.

Text-Books, Supplementary Reader and Work Books.

The prose text for each class should confine itself to the structures prescribed for the class and be within the vocabulary listed. It is necessary that the structures be introduced in the order given

in the syllabus. Teachers should always keep the children's oral work well ahead of the material in the book and text book writers should bear this in mind in the arrangement of their lessons. Authors may add up to fifty content words (*i.e.* words which appear to have some meaning of content) to the list prescribed for each of the readers provided those words are simple and picturable.

In writing the book, the teaching of the language skill should be placed before the giving of information or moral teaching. Every effort should be made to provide interesting and varied material. Pictures should be clear and attractive. The text should also contain a series of exercises of practice in the use of structures and words.

From class VII two Supplementary Readers should be introduced in each class. These readers also need careful planning. The readers prescribed for a particular class must necessarily be of the level of difficulty of the class below so that easy reading material is available and no difficulty is presented to the pupil in gaining speed in reading and comprehension. Interesting stories, descriptions of the lives of children from other lands, even simple versions or classical stories should form the content of these Readers. The supplementary Readers are meant to give practice in rapid intelligence, silent reading. As such they should not be treated by the teachers as detailed prose text.

It is desirable to have a series of work-books corresponding to the language material treated orally or in the text-books. This is essential for the purpose of studying and practising the new language form actively. These work-books can be of special value because most of our classes are usually large.

The Use of Teaching Aids.

In the past little or no use has been made of teaching aids. For the success of this scheme the use of aids like flash-cards, charts, pictures, models, gramophone-records etc. A beginning might be made in collecting these so that in a few years each school has its own equipments.

Tests.

In the early years the test in English should be primarily a test of language and not a test of memory or of the information given in the Readers. Questions of the type "Where did.....live?" "Who said "What did.....do?" are merely tests of information and so too are the "Explain with reference to the context" questions that figure prominently in later years. As such if the information given by the pupil in the answer is wrong no marks are allotted to him even if the construction of the answer is grammatically correct. This is bad testing of the language. When we realise that learning a language is the acquisition of the skill and not the learning of subject matter. We realise that the method of testing must be suited to the testing of the skill.

There is skill in using the language, and skill in understanding it. These are sometimes referred to as usage and comprehension. Both must be tested. Questions designed to test usage must be specific so that the teacher may find out pupils' weaknesses and be able to help them.

Below is an example for testing usage :

Fill in the blanks with the correct form of the word given in brackets :—

He.....from Calcutta yesterday (arrive).

Ram.....a letter now (write).

Tomorrow they.....at home (play).

Everyday we.....to our school (go).

This kind of test may be devised all along the line right from the first year up to the school-leaving stage in forms presenting increased difficulty.

Responses to simple directions would test comprehension. Besides, a passage composed of words and in structures familiar to the pupil but not from the text may form the basis of a comprehension test. Questions may be asked to test understanding.

The pupil's ability to express himself in continuous prose can only be tested through the writing of free compositions. This might be attempted in Class VIII and should be very simple and always on a topic well within the vocabulary of the pupils and based on their personal experiences.

Vocabulary can be tested in a number of ways. 'Teaching of English Abroad' for types of exercises. Suggestions for a variety of exercises have been incorporated in the syllabus prescribed for each class. It must be borne in mind that the English tests have to be different from the types school have been used to so far.

A word to the Teacher.

The success of even the best thought out syllabus depends upon the understanding and enthusiasm of the teachers who have to give it the living touch. This syllabus being a departure from the old deserves the closest study of the principles underlying it. Study circles might be organised for the language teachers of each school to clarify these principles and share experiences. Given the understanding of the best principles, a little modification of the scheme here and there to suit the needs of the individual class is not unwelcome for this syllabus must not be interpreted and followed too rigidly. This syllabus goes forth to teachers with full faith in their interest and enthusiasm for their work and we are sure that they will get much joy in making a success of an experiment that is being undertaken to enable the teaching and learning of English to become more enjoyable and effective.

Some of the latest books on the subject are listed below and should be made available to teachers.

1. French, F.G. The Teaching of English abroad. (Parts I, II and III) O.U.P.
2. Gatenby, E.V. Teaching English as a Foreign Language. (Advice to Non-English teachers of English). Longmans Green & Co.

3. Gurry, P. The Teaching of English as a Foreign Language. (Orient Longmans)
4. Morris. I. The art of Teaching English as a Living Language (Macmillan)
5. Ballard. Teaching and Testing English. (U.L.P.)
6. The British Council (London) English Language Teaching (Quarterly).
7. The British Council (India) Teaching English (Quarterly)
8. W.S. Allen, Living English Structure and Living English Speech. (Longmans Green & Co.)
9. Mehta, R.L. Teaching of English in India.

CLASS VI

Listening and Speaking.

When the pupil begins the study of English, he has first to learn to recognise and understand the spoken foreign word. He then learns to pronounce the same sound by imitation. The natural order of the skills to be acquired at the beginning stage is, therefore, listening, understanding and reproducing the foreign word. It is urgent that schools should start teaching English by attuning the ears of children to correct English sounds, sentence patterns and word-forms. It should be remembered that by far the only model the pupils have for imitation is the teacher himself and every effort should be made to see that teachers of English, particularly those teaching beginners, are themselves proficient in the spoken language. Every opportunity should be provided, within the limited time available, for pupils to listen to correct English.

It is very important that from the beginning the pupils should hear, and speak sentences, not isolated words. Habitual operation of the most common sentence structures rather than the mere addition of new words should be the objective. Oral work should be confined to structures specified for this class and must necessarily be ahead of reading and writing.

A few suggested oral exercises are:

- (i) Repeating simple statements accompanied by actions.

Examples : This is my book.

That is your pen.

I am walking to the door.

She is putting the book on the table.

- (ii) Asking and answering questions.
- (iii) Making requests.
- (iv) Carrying out simple directions silently or with the corresponding descriptions.

Examples : Teacher: Mohan, shut the door.

Mohan does the action and says,

"I am shutting the door."

- (v) Describing in a few connected sentences pictures or objectives from both in and out of the class-room.

Reading.

The great difference between learning to read the mother tongue and learning to read a foreign language is that in the former the pupils are learning to read words that are already familiar to them. In the latter case, however, pupils take time to associate the printed foreign word with its correct meaning. This makes reading a slow business. The only way in which the burden can, to some extent be lessened for the pupil is by starting with oral work. It is imperative that listening and speaking must precede reading.

After six to eight weeks of oral work as a result of which some important structures have been acquired, children should start reading flash-cards written in bold print script. These cards will, of course, present to the child only those structures and vocabulary that have been already taught orally. It must be borne in mind that even from the very beginning pupils' speed of reading and understanding could be developed side by side if they are helped to recognise and read words in bigger and bigger groups.

Reader I containing about 100 pages of material within the limits of the prescribed sentence structures is to be introduced after the oral work.

It is obvious that at this stage most of the reading must be oral. Care must be taken to develop the ability to read with increasing speed, correctness, expression, understanding and enjoyment.

Writing.

The mechanics of writing may be taught along with reading. The letters of the alphabet should be taught according to their formation and not in the traditional order. Small letters should be taught first and then the capitals.

The following order is a suggestion.

i l v w x k

u h t f

j y

r n m

s z

o a c e b d g p q

However, by the end of the year the children should have learnt the alphabet in order. To help correct formation of the letters suitable charts depicting these letters should be displayed where they can be seen constantly by the pupils.

The following exercises may be useful:

- (i) Transcribing words, phrases and sentences from the Reader.

- (ii) Rearranging jumbled words to form a sentence.
 (iii) Regrouping of sentences taking note of sequence of thought.
 (iv) Completion of sentences by choosing the correct word or words from a list of those given.

Example.

Put tomorrow, yesterday or now in the gaps :

1. He will give the ball to me.....
2. He is throwing the ball.....
3. He went to his house.....
4. Did he take the book.....?
5. Will you give that pen to me.....?

(v) Constructing sentences with the help of a substitution table.

Example.

1. Write out sentences from this table :—

Is	my your his her	pen book bag box	on	that this	Table?
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2. Write out sentences from these tables :—

which	Book Pencils Pots Picture	is are	he she they	putting on the table?
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- 3.

Each Another The other Every	dog girl woman goat	is making a garland has a tail goes to school is eating grass
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- (vi) Taking down words and sentences previously from the Reader for dictation. This exercise is to be attempted only towards the end of the year. Spelling games may be introduced gradually.

Note.—In all writing emphasis should be laid on the proper formation of capital letters and the proper use of the full-stop, the comma and question mark. No punctuation exercises as such need be done.

Poetry.

Four or five short poems of about 6 lines each should be taught helping children to enjoy the rhythm. A start may be made with the more elaborate Nursery Rhymes and a few very simple ones from Robert Louis Stevenson's "A Child's Garden of Verses" (as for example):

'Happy Hearts and Happy faces.

Happy play and grassy places.

That was how in ancient ages.

Children grew to be kings and sages'

might be attempted.

Vocabulary.

About 300 words from the list appended should be taught.

CLASS VII**Listening and Speaking.**

The sentence structures specified for this class should be taught orally first. More advanced exercises of the types suggested for class VI may be attempted.

The following additional exercises are suggested and are to be practised within the limits of the structures and the vocabulary already learnt.

- (i) describing common objects and simple actions in continuous speech.

Examples.

1. Say in one or two sentences what these are—A key, a miser, a letter-box, a plough, a banana.
2. Some one has never seen a gramophone, a well, a car, a bullockcart. Describe it so as to make it clear to him.
3. Tell clearly what is the difference between a table and a chair, a flower and fruit, a pencil and a pen.
4. Say how you will prepare for a picnic. Say how you would make tea. You see a man making a fire. Tell your friend what you see. What would you do if someone fell down.

- (ii) answering suitable questions designed to test comprehension of what is read in the text.

- (iii) participating in simple dialogues. Subjects chosen should be within the immediate environment of the pupils.

Examples.

Ram: How are you, Gopal?

Gopal: I am fine and how you are?

Make Ram and Gopal continue to speak four more sentences.

You are in a train. It is hot. Someone wants to close the window of your compartment.

What will you say to him?

A man says:—"Girls should not be given education." What will you say?

A man says:—"Life in a village is better than life in a town." What will you say?

(iv) giving an account of personal experiences or familiar incidents.

(v) telling simple stories.

Reading.

Reader II containing about 120 pages of language material specified for the class should be begun. Stress should be laid on correct oral reading with attention to pronunciation, stress and pauses.

Two supplementary Readers covering about 32-48 pages each and of the same level of difficulty as the Reader for class VI should be introduced in this class for rapid silent reading. To develop the habit of careful reading questions should be set either before or after reading. The aim should be to keep pupils to get general understanding of the story or stories and not burdened with details.

Writing.

Cursive writing should be begun at this stage. During the transition from the print script to the running hand, the joining of letters must however, be carefully taught.

In all written work the importance and use of correct punctuation marks should be stressed. At this stage pupils should learn to make fuller use of the comma and the use of the apostrophe and the inverted comma should be introduced.

The following exercises may be useful:

- (i) Transcribing short paragraphs from the Reader.
- (ii) Dictation of sentences from the text or from easy unseen material. Spelling games may also be helpful. Variety could be introduced into the dictation exercises as can be seen from the following examples.

Examples.

There are some words and phrases written on the black-board. If you can substitute any of these for any word or phrase I use in dictation, do so. The meaning of my sentence and what you write should not be different.

In my dictation, I will describe what I did yesterday. Write the same as if I will be doing them tomorrow.

While dictating I will only mention the full-stops. Put the capital letters and the inverted commas where necessary.

- (iii) Composing a number of sentences conforming to given patterns.
- (iv) Building up a paragraph in continuation or completion of one or two sentences.
- (v) Writing answers to questions designed to test comprehension of material read.
- (vi) Describing familiar objects and happenings.

Examples.

In not more than 30 words describe, a musical instrument you have seen, a spinning-wheel, a hut, a villager.

- (vii) Learning the layout of simple letters to friends and relations.

Poetry.

About six short and attractive poems of not more than 10-20 lines each should be read during the year. The main aim should, however, be the enjoyment of rhythm and an appreciation of word pictures in the poem and not a detailed study of language. Care must, therefore, be taken in choosing poems appropriate to the interests and maturity of the group. A few suggestions are :—

- April showers—James Stepher.
- Some One—Walter De La Mare.
- Day—Sir Cecil Spring Rice.
- The Rainbow—Christina Rossetti.
- My Shadow—R. L. Stevenson.

Vocabulary.

About 400 words from the list appended should be taught.

CLASS VIII

Listening and Speaking.

As in previous years, the sentence structures should be taught orally first. More advanced experiences of the type suggested for class VII may be attempted. The following additional exercises are suggested and are to be practised within the limits of the structures and the vocabulary already learnt.

1. Practice in Direct and Indirect forms of narration.
2. Practice in the use of connectives.
3. Simple conversation.
4. Answering questions prompted by reading matter.
5. Retelling of incidents and descriptions of characters from the stories.

It is desirable to organise much of the oral work as group activities aiming at promoting team-work and a healthy spirit of competition.

Reading.

Reader III containing about 150 pages of language material specified for the class should be used for intensive study. Two Supplementary Readers of about 50 pages each and of the same level of difficulty as the reader for class VII should be introduced in this class. Pupils may also be encouraged to read standard books specially simplified and abridged for children. One period in the week may be set aside for library reading and suitable assignment be advised for making the reading purposeful.

Writing.

The various exercises suggested for class VII may be given to this class in a more advanced form, besides the following may be tried too :—

1. *Free composition*: Children may be encouraged to write a page or two on easy and interesting topics within their experience. Care should be taken not to set them stereotyped subjects. Here are few suggestions of suitable themes:

- (a) The street in which I live.
- (b) What mother does every morning.
- (c) One day, as I was coming from school I noticed smoke coming from my neighbour's window.....
- (d) That is the Postman's knock. He gives you a parcel. It is heavy.....

2. Easy passages may be selected for silent reading by class and a few questions set to test comprehension.

Poetry.

About 8 short and attractive poems should be included in the Reader and should be taught for enjoyment and appreciation of rhythm and word-pictures. Good recitation of the poems should be encouraged. A few suggestions are :

- Bed in Summer—R. L. Stevenson.
- A Happy Boy—R. L. Stevenson.
- The Every Man—Christina Rossetti.
- The Sands of Dee—Charles Kingsley.
- God Made Them All—Cecil Alexander.
- This Native Land—Thomas Daires.
- Rain in Summer—Longfellow.

Vocabulary.

About 400 words from the list appended should be added.

Appendix I

The following is the list of graded structures for classes VI, VII and VIII. Teachers are advised to establish these patterns orally first before proceeding to the text. It would be useful to follow the order suggested though there need be no rigidity about it. The question pattern, for instance, is to be taught as a structure later in the first year but simple question may be used by the teacher as a device even in the earlier lessons. So also could the teacher use her discretion in introducing following. The featives and expressions.

Good morning.	Yes.
Good afternoon.	No.
Good evening.	Thanking you.
Good night.	Stand up.
Come here.	Sit down.
Go back to your place.	Listen.
I'm sorry.	Silence.
Good.	Together.
Again.	No.

A list of 1500 essential words is being appended (Appendix II) and care should be taken in seeing that the context vocabulary introduced during the first three years is from within the list.

CLASS VI

Note : Structures used to lead up to a new structure are placed brackets.

No.	Teaching Point	Example
1.	This That is	This is A (A and S are names of pupils). That is B.
2.	Names of objects	This is a pen. That is a book. That is a pen. This is a book.
3.	My, your	This is my pen. That is your pen. This is your book. That is my book.
4.	His, her	This is his book. That is her book. This is her pen. That is his pen.
5.	His name is.. My name is.. Your name is..	(This is A) His name is A. (This is B) Her name is B. My name is C. Your name is D.
6.	I am.. You are.. He is.. She is..	(a) (My name is C). I am C. (Your name is D). You are D. (His name is A). He is A. (Her name is B). She is B. (b) I am a man. You are a boy. He is a boy. She is a girl. Rama is a boy. Sita is a girl.

<i>No.</i>	<i>Teaching Point</i>	<i>Example</i>
7.	It	(This is a book). It is my book. (That is a bag). It is your bag. (That is pen). It is his pen.
8.	An	This is an eye. It is my eye.
9.	Here, there	A is here. B is there. This pen is here. That pen is there. My book is here. That pen is there. My book is here. Your book is there. I am here. He is there.
10.	On, in	This pen is in the bag. My book is on your table. (This is my bag). It is on this table.
11.	Present continuous tense	I am walking. You are walking. He is jumping. She is writing.
12.	To, from	A is walking from that table. B is walking to this desk. A is walking from my table to that desk. B is walking to my table from that desk.
13.	Me, you, him, her	He is walking to me. I am walking to you. I am walking to him. You are walking to her. He is walking from you to me. You are walking from him to her.
14.	Go, come	He is going there. She is coming here. He is going to this desk. I am going to her. He is coming to me. He is going from that table to that door.
15.	Subject, Verb, Object	I am opening a box. You are shutting that box. I am throwing a ball. You are catching my ball.
16.	Subject, Verb, Object- extension	I am throwing my ball to you. He is throwing my ball to me.
17.	Give, take	I am giving this book to you. You are taking this book from me. He is giving my pen to you. You are taking my pen from him.
18.	Put on, take off, in, from	I am putting my pen on the table. You are putting your pen in your bag. He is taking his pen from his box. He is taking his bag off the table.

<i>No.</i>	<i>Teaching Point</i>	<i>Example</i>
19.	These, those, are	(This is a book). This is a book. These are books. (That is a desk). Those are desks. These are my books. These are your books. These boys are here. Those boys are there. I am giving these books to you. He is putting those books in his bag.
20.	And	(A is here, B is here). A and B are here. (This book and this pen are on the table). I am putting your book and my pen here.
21.	Our, their, your	(This is my pen This is your pen). These are your pens. (That is my desk. That is her book) Those are our desks. (That is his book. That is her book). Those are their books. (This is your pen. That is your pen). These are your pens. I am putting your pen here. You are putting their pens there.
22.	(a) We, they, you (Plural) (b) They (Plural of 'it')	(These are our books). They are on the table. (These are our books). They are on the table.
23.	(a) Use, them, you (Plural) (b) Them (Plural of 'it')	We are giving these books to them. They are taking these books from us. We are giving our books to you. (Plural) (These are our books). We are giving them to you.
24.	Over, under, between	I am throwing this ball over your head. My book is under your desk. Your pen is between my book and my bag.
25.	The (when only one object of a kind is present)	This is a wall and that is a wall. This is the floor. This is a picture and that is a picture. This is the blackboard. I am a teacher. Mr. X is the Headmaster.
26.	Adjectives	This book is red. This is a red book and this is a red book. This is the blue book. The red book is on the table. He is putting the book on the table.
27.	Preposition phrase	This book on the table is red. The book in my bag is blue.
28.	(a) Its (b) their (plural of its)	This is a book. This is its cover. Its cover is green. These are books. Their pages are white.

<i>No.</i>	<i>Teaching Point</i>	<i>Example</i>
29.	Now	This book is on the table now. I am putting it in my bag now.
30.	Was, were	(This book is on the table now. I am putting it in my bag now). It was on the table. It is in my bag now.
31.	Will be	(This book is in my bag). It will be on the table. (I am putting it on the table now). It will be under the table now.
32.	Today, tomorrow, yesterday, days of week.	Today is Tuesday. Tomorrow will be Wednesday. Yesterday was Monday. We are in our classroom today. We were in the playground yesterday. We shall be in the playground tomorrow.
33.	Future simple	I shall walk to the door. (I am walking to the door now). We shall bring our books tomorrow.
34.	Past simple	(I am going to the door. I am going to the table now). I went to the door. I put my red book in my bag.
35.	To school, home	We came to school yesterday. We went home yesterday.
36.	Inverted questions with verb "to be" positive answers.	Is this a book? Yes, it is a book. Am I a man? Yes, you are a man. Was the book on the table? Yes, it was on the table.
37.	Specific questions what? where? what colour?	What is this? What is that? It is a book. Where is my pen? It is in your bag. What colour is this bag? It is red.
38.	Questions—Present Continuous Tense.	Is he walking? Yes, he is walking. Am I going to the door? Yes, you are going to the door. Are you throwing your ball? Yes, I am throwing my ball. What are you throwing? I am throwing my ball. Where is he going? He is going to the door. Where is he putting the book? He is putting on the table.
39.	Future, Interrogative	Will he come tomorrow? Yes, he will come tomorrow. Where will he come? He will come here. When will he come? He will come tomorrow. What will he bring? He will bring a book. Shall I give this book to you? Yes, you will give it to me. What shall I give to you? You will give a book to me. When shall I give the book to you? You will give it to me tomorrow.

<i>Number</i>	<i>Teaching Point</i>	<i>Example</i>
40.	Past, Simple, Interrogative	Did he come here? Yes, he came here. What did he give to you? He gave a book to me. Where did he put the book? He put it on the table. When did he come here? He came here yesterday. Where did he go to? He went to the door.
41.	Questions with "do"	What is he doing? He is walking. What will he do? He will open his box. What did he do? He opened his box.
42.	Short Positive Answers	(Is this a book?) Yes, it is. (Are you a man?) Yes I am. (Am I a boy?) Yes you are. (Are you girls?) Yes, we are. (Are those pens?) Yes they are. (Is he A?) Yes he is. (Is he writing?) Yes, he is. (Am I putting the book on the table?) Yes, you are. (Are they walking from the door to the tale?) Yes, they are. (Will he come here tomorrow?) Yes, he will. (Shall I throw the ball to him?) Yes, you will. (Will you give the book to me tomorrow? Yes, I shall/will. (Did he come here yesterday?) Yes, he did.
43.	Specific Questions, no inversions	Who is coming? A is Which book is on the table? The green book is. Which is your book? This is my book. Whose book is on the table? My book is.
44.		(This is my book). This is A's book. (The green book is my book). The red book is this boy's book. The green books are these boys' books. The girls' books are here. The man's book is red. The men's books are green.
45.	Or	Are you opening the box or the bag. Is A or B opening the box. He will come today or tomorrow. He gave me a red book or a blue book. A or B will put the books on the table. Will you or he come tomorrow? Which book is on the table? The red one or the blue one? Is he walking or running?
46.	Up, down	Is he walking up the stairs? He is coming down the stairs.
47.	Numbers	I am holding three books. He put eight books on the table.
48.	At	(a) He is at the door. She is at the table. (This is a clock). Its big hand is at twelve. Its alarm hand is at three. (b) A is at home. B is at school.

<i>No.</i>	<i>Teaching Point.</i>	<i>Example</i>
49.	With, together	I am with A. A is with me. We are together. A and I are with B and C. We four are together. I am putting my books and my bag together. A is going to school with B. They are going to school together.
50.	Full negative answers	(Is this a book?) No, it is not a book. (Was the book on the table?) No, it was not on the table. (Were those boys A and B?) No, they were not A and B. (Are you taking my book off the table?) No, I am not taking your book off the table. (Will you give your book to A?) No, I shall not give my book to A. (Did A go to school yesterday?) No, he did not go to school yesterday.
51.	Short negatives	(Is A a boy?) No, he isn't. (Am I walking?) No, you are not. (Are our books in the bag?) No, they aren't. (Are we at the door?) You aren't. (Are you holding my bag?) No, I'm not. (Was B here?) No, he wasn't. (Were you here?) No, I wasn't. (Will he come tomorrow?) No, he won't. (Will you come tomorrow?) No, I won't. Shall I come here? No, you won't. (Shall we go to school?) No, you will not. (Did he take his book). No, he didn't. (Did you run to school). No, you didn't. (Did they come to school?) No, they didn't.
52.	Negative statements (Not an answer to a question).	The book is not on the table. It is on the floor. The boys were not at school yesterday. I am not reading your book. You are not going to school. He will not give me my book. They will not take their bags. I did not go to school. You did not give me a book.
53.	but	My book is on the table now but it was on the floor. My book is not in my bag now, but it was there. I did not go there yesterday but A went there. I did not go there yesterday but I went to Madras. She will not come on Tuesday but she will come on Friday. She will not come tomorrow but I will.
54.	Saying	He is saying, 'That is a book'. You are saying, 'Today is Monday'. He is saying, 'We will come tomorrow.' I shall say, 'That is my pen.' You will say, 'No, it is my pen.' He will say, 'Your pen is in that bag.'

No. Teaching Point

Example

I said, 'My name is A.'
I said, 'I went to school yesterday.'
He said, 'My father will come tomorrow.'

55. Have, had.

- (a) I have two hands.
You have two eyes.
We have brown eyes.
They have long legs.
He has brown eyes.
- (b) I have two sisters.
A has a friend.
We have a father and mother.
- (c) I have a book.
You have a bag.
He has a red pen.
This book has a red cover.
He has a book in his hand.
- (d) I had a red book in my hand (Now I have a blue book).
He had a new pen yesterday.
You had your pen in your bag.

56. Interrogative of Have
Positive answer

Have I two hands? Yes, you have two hands.
Yes, you have.

Has he a mother? Yes, he has a mother.

Yes, he has.

Have you a book? Yes I have a book.

Yes, I have.

Had you a new pen yesterday? Yes, I had a new pen. Yes, I had.

Had they their books? Yes, they had their books.
Yes, they had.

Negative answers

Has he a mother? No, he has not a mother. No, he hasn't.

Have you a book? I have not a book.

No, I haven't.

Had you a new pen? No, I had not a new pen.

No, I hadn't.

57. Mass nouns

This is rice.

(a) after is

This is water.

This is milk. It is white.

(b) before is

Rice is white.

Milk is white.

(c) after adjectives

This is fresh milk.

This is white rice.

(d) after other verbs

The boys are eating rice.

We shall drink milk.

We drank water.

<i>Number</i>	<i>Teaching Point</i>	<i>Example</i>
58.	any, some	I am putting some pens in the box.
(a)	With countable nouns	Are you putting any pens in the box? Is A putting any pens in the box? No, he is not putting any pens in the box. Will B put any pen in the box? No, he will not put any pens in the box. He will not put some books in the box. B took some books from the table. Did B take any books from the table? Yes he took some books from the table. No, he did not (didn't) take any book from the desk.
(b)	any, some with uncountable nouns	(This is a cup. This is water) I am putting some water in this cup. Is A putting any water in this cup ? No, he isn't putting any water in your cup. He is putting some water in your cup. B will put some rice in his bag. Will B put any rice in my bag ? No, he will not put any rice in your bag. C gave milk to the boy. Did C give any milk to the boy? Yes, he gave some milk to the boy. No, he did not give any milk to the boy.
(c)	as pronouns	A hasn't water but B has some. B has some water but A han't any.
59.	There is, there are, there was, there were.	
(a)	with countable	(This is a box. This is a pen) There is a pen in the box.
(b)	with uncountable nouns	There is blackboard in this room. (There is a cup. This is water). There is some water in this cup.
(c)	Is there———?	Is there a pen in that box ? Yes, there is. Is there any water in that cup ? Yes, there is. No, there isn't.
(d)	There was	There was some water in the cup, but there isn't any now.
(e)	There are, were	Are there any pens in the bag ? There were some pens in the bag, but there aren't any now.
(f)	Where, there, was there	Were there any boys in the room ? Yes there were. Was there a teacher in the room ? No, there wasn't.
(g)	There will be	There aren't any books on the table now but there will be.
(h)	will there be	Will there be any rice in this bag tomorrow ? Yes, there will. No, there won't.

<i>Number</i>	<i>Teaching Point</i>	<i>Example</i>
60.	of	<p>(a) This is the clock. These are its hands These are the hands of the clock. This is the cover of the book. This is the lid of the box. The cover is part of the book.</p> <p>(b) This is a cup of water. That is a bag of rice. There is a bag of rice under the table. I am taking the bag of the rice to that room. This is a box of matches. This is a bag of books. He is putting the bag of books on the table.</p> <p>(c) This is a map of India. This is a picture of Gandhiji. There is a picture of Gandhiji in our room. Is there a picture of Gandhiji in your room ?</p>
61.	Habitual Present	<p>(a) (I came to school yesterday. I came to school today. I shall come to school tomorrow). I come to school every day. You come to school every day. He comes to school every day. We come to school every day. They come to school every day.</p>
62.	Every	<p>(A has a pen, B has a pen, C has a pen) Every boy in this class has a pen. I gave a book to A. I gave a book to B. etc. I gave a book to every boy in this row.</p>
63.	Interrogative and negative of the Habitual Present.	<p>Do you come to school every day ? Yes, I do. No, I don't. Does A come to school every day ? Yes, he does. No, he doesn't. When do you come to school ? I come to school every morning.</p> <p>(b) What do you eat every day. I eat rice every day. Where does A go every day? He goes to school every day.</p>
64.	Can, Cannot can't (a) statement	<p>I can open this box. I cannot open this box. I haven't a key. He cannot write. He hasn't a pen. I am giving a pen to him. Now we can write. I can read but he can't. Can you give me some rice ?</p>
	(b) Interrogative	Yes, I can. No, I can't.
65.	a (one)...another one....the other one....another	<p>(a) This is a book. This is another book. This is another book.</p> <p>(b) (Two objects of the same kind.)</p>

<i>Number</i>	<i>Teaching Point</i>	<i>Example</i>
	one....the others	These are two books on the table ; one book is blue, the other is red. He is holding one book. I am holding the other.
		(c) (Several objects) One boy is here the others are in the class room.
	some....the other	Some boys are here the other are in the play ground. Some books are on the table, others are on the desk, others are on the floor.
66.	Each	(A has a pen. B has a pen. C has a pen) Each boy in the class has a pen.
67.	All the, both the	All the boys in this class have pens. Both the boys in this class have pens. I am putting all the pencils in this box. I am putting both the pencils in this box.
68.	All both (before a verb)	They are all running. They are both reading
69.	All his, all my etc.	He is eating all his rice. I am putting all my books in this bag
70.	(a) first, next, second, third etc.	Sunday is the first day of the week. January is the first month of the year. A is the first boy in this row. Monday is the next day of the week. B is the next boy in the row. He is the small boy. This is the next etc.
	(b) List.	Saturday is the last day of the week. December is the last month of the year. This is the last page of the book.
71.	Before, after	Sunday comes before Monday. January comes before February. A comes to school before B (A comes to school at half-past nine. B comes to school at ten O'clock). Tuesday comes after Monday. February comes after January. B comes to school after A.

Graded Structures for Class VII

1. Change of position of adverbial :—

(a) Time

Yesterday he came at 10 O'clock.
Now we are ready.
On Tuesday he will be here.

(b) Place

In my bag you will find a pencil.
At school we play cricket every day.

<i>Number</i>	<i>Teaching Point</i>	<i>Example</i>
2.	Imperatives	Come here.
	(a) Positive	Go to the door. Open the door. Shut the window.
	(b) Negative	Don't talk. Dont' shut the window.
3.	Time adverbs	Don't shut the window.
	Always	I always get up at 6 O'clock. He is always first. Is he always last ?
	Sometimes	He sometimes comes before me. I am somethimes first. Are you sometimes last.
	Never	She never does her home work. He is never here. Is he never last ?
	Often	He often comes here. They are often night. Is he often late ?
4.	Possessive Pronouns (mine, yours, his, her, ours, theirs)	Your book is red, mine is blue. My book is here, yours is there. Our school is small, theirs is big.
5.	By (near)	He is by the window. My house is by the river.
	Against	Your chair is against the wall. He is putting his bicycle against the tree.
6.	Standing, sitting, sleeping, lying.	He is standing by the window. The dog is sleeping in the garden. Your coat is lying in the table.
7.	Modification of S. V. O. I. O. to S. V. I. O. O. (give, get, send, by, sell)	I am giving you a book. He sent me a present. Will you get me an orange ? We bought them some books. She sold him her bicycle.
8.	By 1. (author) 2. (means)	That is a play by Shakespeare. 'David Copperfield' is by Dickens. We went by bus.
9.	Measures, yard of, piece, of, lot of	She bought a yard of silk This is a piece of work. He has a lot of money. There are a lot of books here.
10.	A lot of—affirmative many— interrogative. Not many— negative.	There are a lot of books on my tables. Are there many books on this table ? No, there aren't many. There is a lot of water in the glass.

<i>Number Teaching Point</i>	<i>Example</i>
11. A lot of—affirmative much —interrogative not much— negative.	Is there much water in this bottle ? No, there isn't much.
12. How much ? How many? A little, a few.	How much money have you ? How many books have you ? I have a little. I have a few.
13. One (Pronoun)	This is blue, that one is red. He has a yellow pencil, I have a green one. Which orange will you have ? This one or that one?
14. More than	There is more water in this glass than in that one. There is more chalk in this box than in that one.
Less than	I have less money than you. This tree has less branches than that one.
Fewer than	There are fewer girls than boys in that picture.
15. Most	Of all Indian cities Calcutta has most inha- bitants.
Least	A has the least money of the boys.
Fewest	This has the fewest branches of all these threes.
16. Again	He wrote the word again.
17. Once, twice, three times, etc. a (every)	I knocked once. I drink milk twice a day.
18. How many times ? How often ?	How many times did you knock ? How often do you drink milk ?
19. Comparatives	A is taller than B. D is elder than E.
20. Superlatives (of)	A is the tallest of these boys.
21. Superlatives (in)	A is the tallest boy in the class.
22. What	What a big tree : (that is :) What big trees : (those are :)
23. More beautiful etc.	This exercise is more difficult than that one. This tree is more beautiful than that one.
24. As,.....as	A is as tall as B. B is not as tall as C.
25. Better, worse	This orange is better than that one. Small pox is worse than typhoid.
26. What.....like	What is your sister like ?

<i>Number</i>	<i>Teachnig Point</i>	<i>Example</i>
27.	How.....adj ?	How tall are you ? How old is he ?
28.	Expressions of measurement	He is 5 feet tall. She is 14 years old.
29.	Very	He is very tall. She is not very old.
30.	What.....doing	What are you doing ?
31.	Look at	A is looking at (a picture) C is listening to B.
32.	With	A is writing with a pen. We see with our eyes.
33.	Verbs of perception :— Like, know, understanding, remember, forget, want	Children like bananas. A knows B We understand this work. I remember your name. I forgot my book. He wants a pencil.
34.	Very much not at all	She likes oranges very much. She doesn't know him at all.
35.	Very well not at all	I know him very well. She doesn't know him at all.
36.	Whom	Whom did you see ? Whom did you give it to ?
37.	Adverbs of manner	How writes slowly.
38.	How	How does he write ? How does a horse run ?
39.	Comparative degree	A horse can run more quickly than a man. A writes more slowly than B.
40.	Superlative degree of adverb	A runs the most quickly. B writes the most slowly.
41.	Better (adv)	An eagle flies better than a peacock.
42.	Like (adj)	A is like B.
43.	For	This book is for you. A drinks milk for breakfast. A gave 2 rupees for the book.
44.	Same (as)	Your book and mine are the same colour. Your book is the same colour as mine.
45.	Have (meals, food)	A is having his breakfast. B has a glass of milk every day. Do you have tea for breakfast ? C doesn't have tea every day.

<i>Number</i>	<i>Teaching Point</i>	<i>Example</i>
46.	Make	A tailor makes clothes. The carpenter is making a chair.
47.	Start, finish	This class starts at 9 o'clock. It finished at 10 o'clock.
48.	For	It lasts for an hour. It was at my friend's house for 2 hours.
49.	Have been	A has been here for a week.
50.	Still	I am still here. B is still writing.
51.	Since	A has been here since Monday.
52.	Present perfect continuous	A has been reading for half an hour. B has been living here for 3 years. A has been reading since 10 o'clock. B has been living here since 1955.
53.	Just already	A has just come. B has already finished.
54.	Yet	A has not come yet. Have you finished yet ?
55.	Come go (to)	A comes to school to study. B went to the hospital to see his sister.
56.	How long ? since when ?	How long has A been here ? Since when has A been here ? How long has A been waiting ? Since when has A been waiting.
57.	Either	Either A or B will go. Write either in pencil or in ink.
58.	Neither	Neither A or B has come. It is neither on the chair nor on the table.
59.	Because	I am reading this book because I like it. A went to the hospital because his sister was there.
60.	Why	Why did A go to the hospital ?
61.	Round along through across	A ran round the tree. A walked along the road. A cycled through the village. A swam across the river.
62.	It is	It is not. It is cold. It is running.
63.	It is (difficult, easy)	It is difficult to write poetry. It is easy to add 2 and 2.

<i>Number</i>	<i>Teaching Point</i>	<i>Example</i>
64.	Indirect speech Present tense-say, know	A says that he is going. A says that she likes milk. A says that they will do it. A says that he has finished.
	Personal pronouns possessive adjs.	A says that he did it etc. A says that his book is on the table. A says that his sister is here. A says that their friends have gone, etc.
65.	tell, ask, about	A is telling about his visit to Calcutta.
66.	tell, know, that	A is telling B that his friend is here. A knows that B is coming.
67.	until	A will wait until B comes. A waited until B came.
68.	while	While A is writing, B is reading. While A wrote, B read.

Graded Structures for Class VIII

1. Negative Questions

Isn't that my book ?
No, it isn't.
Hasn't he come?
No, he hasn't.
Won't A come tomorrow ?
Yes, he will.
Didn't you sing yesterday ?
Yes, I did.
2. Question Tags

He is here, isn't he ? Yes, he is.
He was there, wasn't he ? Yes, he was.
He will come tomorrow. (Won't he ?)
Yes, he will.
He has come, hasn't he ? Yes, he has.
He came yesterday, didn't he ? Yes, he did.

(negative) He isn't here, is he ? No, he isn't.
3. Past continuous

I was working all the morning yesterday.
I was working from ten o'clock till one o'clock.
I was working for three hours.

till I was working till you came.

while (a) I was reading while you were cooking.
You were cooking while I was reading.
(b) While I was reading you cooked the dinner.
You cooked the dinner while I was reading.
5. simple present (indicating future)

I shall sit here when he comes.
When he comes I shall sit here.

when, after I shall write to you after you go there.
After you go there I shall write to you.
I shall finish my work before you come here.

<i>Number</i>	<i>Teaching Point</i>	<i>Example</i>
6.	Present Perfect (indicating future) when, after	I shall write a letter when I have read my book. I shall play tennis after I have finished my work. I shall not write a letter when I have read my book. I shall not play tennis after I have finished my work.
7.	Present perfect (habit) when, before, after	(a) When I have eaten my food, I always wash my hands. Do you ever go before you have finished your work? No, I never go before I have finished my work. Yes, I sometimes go before I have finished my work. (b) Have you ever gone before you have finished your work? No, I have never gone before I have finished my work. Yes, I have sometimes gone before I have finished my work.
8.	Past perfect, when after, before	I went for a walk, when (after) I had eaten my dinner.
9.	By (future perfect)	By yesterday I had read 10 pages. By now I have read 2 pages. By tomorrow I shall have read 30 pages.
10.	Perhaps	Perhaps he is in his room; perhaps he is not. I don't know.
11.	If	If he comes I shall give him the book. If he does not come tomorrow I shall go. If he does not come tomorrow I shall not go.
12.	Reported Speech says	(i) A says she is reading book. (ii) A says (that) she read a book on Saturday. (iii) A says (that) she will read a book tomorrow. (iv) A says (that) she has read that book.
13.	Said	A said that she had read that book. A said that she would read a book. A said that she would read a book tomorrow. A told me that she was reading a book.
14.is asking	He is asking which book fell off the table. He is asking me what time it is.
15.	Asked	A asked B who would come on Monday. A asked B what time it was.
16.	Reported speech questions (Yes/No) is asking	A is asking me if I am reading a book. A is asking me if I shall come on Monday. A is asking me if I drank the milk.
17.	Asked	A asked B if he had read the book. A asked B if he had seen the picture. (substitute whether for if and practise the same).

<i>Number</i>	<i>Teaching Point</i>	<i>Example</i>
18.	Reported speech questions is asking	A is asking B what he is putting on the table. A is asking B when she would come. A is asking B where she is putting the book.
19.	Asked	A asked B when she would come. A asked B what she had given her mother. A asked B where she was putting the book.
20.	Questions with if & whether	He is asking whether she will come if he goes. He asked whether she would come if he went.
21.	Change of person	(i) I said that I was writing. I said that you were writing. I said that he was writing. (ii) You said that you were writing. You said that I was writing. You said that he was writing. (iii) He said that he was writing. He said that I was writing. He said you were writing.
22.	If & whether	I asked you if I was late. You asked me if you were late. He asked me if he was late, etc.
23.	Reported speech commands	R told me to jump. I told you to put the book on the table. You told me to show you my book. You told me to run to him.
	Adverbs of time and place	A said (that) who was reading then. B said (that) he would wait there.
24.	Now/then, here/there, this/ that	C said that she like that desk.
25.	Yesterday/the day before, tomorrow/the next day	G said that he had come that day, that I had come the day before and that M would come the next day.
26.	Except	They were all there except K.
27.	Want to	He wants to go to the station. He wanted to go to the station. He will want to go to the station. He has wanted to go to the station. He doesn't want to read that book.
28.	Need to	He needs to work harder. He will read to work harder. He will have to come tomorrow. (repeat with negatives).
29.	To have to	He has to go to the shop. He had to go to the shop. He will have to come tomorrow. (Repeat with negatives).

<i>Number</i>	<i>Teaching Point</i>	<i>Example</i>
30.	To try to	He is trying to mend the lock. He tries to work hard. He will try to come.
31.	To wait	He is waiting to see you. He has been waiting to see you. He waited to see you.
32.	Come to see, go to buy	He came to see me. He went to buy some milk.
33.	How to V	He knows how to read. He learnt how to swim. He showed me how to do it. He told me how to do it.
34.	What to V	I do not know what to do. I do not know where to go. I do not know when to stop.
35.	SV adj. to V	I am glad to do this. I am sorry to say this. I am afraid to go there.
36.	To be able to	I was able to go there yesterday. He will be able to come tomorrow.
37.	Good to Bad to	This fruit is good to eat. This water is bad to drink.
38.	Have (O to V)	He has some paper to write with. He has some books to read. Will you give me something to do? I haven't anything to wear.
39.	Too (Adj. V)	He is too busy to go. This is too heavy to lift.
40.	SV-ing form	I like drawing. I enjoy singing. I like playing with my friends.
41.	They are going—ing	They are going fishing. She is going shopping. Drawing is pleasant. Swimming is a good exercise.
42.	Going to (future) to school, to work, to Church, to market	He is going to write this afternoon. He went to school.
43.	Omission of article home	I am going home. My mother is at home.

<i>Number</i>	<i>Teaching Point</i>	<i>Example</i>
44.	Without	(i) He went to London without his wife. (ii) She went without asking me.
45.	Who	The boy who is reading a book is my friend.
46.	Which (rel) as subject	(i) The mango which is on the table is no ripe. (ii) The picture which you showed me is very beautiful. (Repeat with that)
47.	Whom	The man whom you saw is my brother.
48.	Where	The place where I live is beautiful.
49.	When	The day when school opens is busy.

APPENDIX II

List of Words

GROUPS	No. OF WORDS
1. I, you, he, she, it, we, they, me, us, them, him, her	12
2. My, our, your his, its, their (her)	6
3. Some, any, all, both, other, another, each, every	8
4. What, where, which, when, who, whose	6
5. Here, there, now, then, today, tomorrow, yesterday, yes, no, not, to- gether	11
6. A, an, the	3
7. And, or, but	3
8. This, that, these, those	4
9. On, in, to, into, from, over, under, between, at, with, of, before, after, up, down, out, (out of), near, off	18
10. Red, blue, green, white, black, yellow, brown	7
11. Big, large, small, tall, short, long, new, old, young, left, right, wrong, good, bad, fat, thin, hot, cold, dirty, clean	20
12. First, second, third, fourth, fifth, twentieth, last, next	8
13. Number—One, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty	21
14. Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday	7
15. January, February, March, April, May, June, July, August, September, October, November, December	12
16. Be—is, are, am, was, were, will, shall, (will be, shall be), has, have, had (will have, shall have), Do, does, did, (will do, shall do), can, cannot (can't)	16
17. Sit, stand, go, come, walk, run, jump, read(er), write, open, shut, eat, drink, throw, catch, hold, say, tell, play, work, get, take, give, part, touch, see, hear teach(er), learn, add, count, buy, sell (seller), climb, bring, wash, show, sleep, draw(er), fill, call, fall, boil, burn, pour (put on, put out, take out, take off, get up)	51
18. Boy, girl, child, man, woman, father, mother, son daughter, brother, sister, uncle, aunt, family friend	15
(teacher) pupil	1
Mr. Mrs., Miss	3
Home, house, room, wall, door, window, roof, floor, mat, box, lid, lamp, cup, pot, glass, basket, watch, brush, comb, jug, look, key, bottle, fire, corner	25
School, table, desk, chair, class (class-room), blackboard, chalk, map, pen, nib, pin, pencil, book, (book-seller), cover, paper, page, note- book, bag ink (inkpot), Clock (O'clock), fan, almirah, picture, les- son, ground (play ground), bell, seat, (Reader), (Drawer)	27

Name, head, hair, eye, ear, nose, mouth, tooth (teeth) face, arm, hand, leg, foot, (feet)	13
Day, night, morning, evening, noon, after-noon, home, minute, week, month, year (good-morning) (Good-evening), (Good-afternoon), (Good-night)	10
Time, present, past, future, half, quarter	6
Cap, coat, shirt, shirts, pocket, shoes, button, frock, blouse	9
City, village (villager), garden, (gardner), will, hill, country	6
Water, rice, tea (tea-pot), milk, (milk-man), bread, fruit, mango, apple, orange, banana, grape	11
Tree, plant, flower, rose	4
Cat, dog, cow, (ox), (Oxen), horse, mouse, goat, cock, hen, bird	10
Sun, moon, star, sky	4
Ball (football), hat, toy, doll, rupee, holiday colour, shop, bazar, race, song, thread, needle, matches	14
Sir, madam	2
India, English	2
NOTE.—Some of the words in sections 11, 12, 17 and 18 can be read both as Nouns and Verbs.	
19. Mine, yours, hers, (his) ours, theirs	5
One (everyone, anyone, someone), Self (myself, himself, yourself)	1
20. Many, much, more, most, little, less, least, few (fewer) fewest	8
21. Either, neither, because, till (until), while, than, same as as	8
22. Alone, along, age, again, also, always, already, away, far, early, late, else, never, often, once, twice, sometime, soon, still, yet, just (adv. adj) only, very, ill (adv. adj.) (close to) well (adv.) loudly, quickly (slowly) (neatly) please	26
23. When, why, how, (How much, how many, how often, how deep)	3
24. Thirty, forty, fifty, sixty, seventy, eighty, ninety, hundred, thousand, dozen	10
25. About, across, against, above, below, behind, by, for, since, through, round	11
26. Better, best, worse, worst, older, oldest, (elder eldest), (Younger, youngest), beautiful (more beautiful, most beautiful), blind, ugly, dead, gentle, kind, cruel, (ill), dark, odd, even, high low, deep, hard, soft, heavy, light, hungry, thirsty, strong, weak, wise, foolish, difficult, easy, empty, full, tired, great, true, false, glad, sorry, honest, holy, wide, narrow, proud, fertile, rich, poor, sad, happy, dry, wet, brave, noble, sweet, wild, dear (two meanings) cheap, neat, clever (present), absent, quick slow, angry (ready) just	63
27. Ask, bake, bathe, been, begin, beat, become, belong, bite, blow, break, breathe, build, carry, change, choose (clean), close, cry, compare, cross, cut, dig, die, dine, divide, drop, enjoy, enter, fail, fetch, feel fight, find, finish, flow, forget, grow, hang, help, hide, hope, join, keep, kick, kill, knock, know, laugh, leave, lie, like, live, listen, look, love, lose, make (march) meet, more multiply, obey, pass, reach, ride, ring, reply, remember, rise, return, row, send, shout, set, shine, sow, speak, spin, spit, spell, start, smile, small, stay, stop, study, subtract, sweep, swim, tell, taste, travel, thank, think turn, use understand, want, wait, wear, weigh, weep, wake up	109
*pay, pick, plough, pray, (lease), pull, push, receive.	

28. Baby, cousin, nephew, niece, husband, wife, grandfather (mother, son, daughter), parent.	
Hut, ceiling, cot, bed, pillow, radio, knife, scissors, spoon, plate, smoke, broom	8
Bench, stool, hall, gate, veranda, office, chart, shelf, library, almirah, register (time-table)	11
Student, principal, clerk, peon	4
29. Body, forehead, chin, cheek, lip, tongue, neck, shoulder, finger, thumb, wrist, knee, ankle, tow, skin, blood, bone, back, front	19
30. Game, hockey, (football), cricket	3
Metre, Kilometre, gram, kilogram, litre	5
Breakfast, lunch, meal, (dinner)	3
Socks, cloth, clothes, soap, towel, trousers, sandals, purse, (ring, ear-ring), mirror, umbrella	11
Arithmetic, Algebra, Geometry, History, Science	5
Donkey, monkey, crow, sparrow, fish, animal, snake, tail, wing, egg, nest, hole, sheep, bull (bullock) buffalo (fly)	15
God, temple, church, (prayer)	3
North, South, East, West	4
Summer, Winter, autumn, Spring	4
Road, street, land (mother land), field, path, river, stream, bank, bridge, pond, sand, stone, sea, brick coal, wood, air, wind, cloud, rain, market, tap (Sun rise) (Sun set)	22
Loaf, vegetable, salt, sugar, (Sugar-cane), butter oil, biscuits, cake, sweat, flour, food ice-cream (ice)	11
Grass, leaf, seed, root, stem, branch, bush, pear, potato	9
Car, cart, bicycle, motor, cycle, bus (bus-stop), tonga (Tonga-stand), boat, ship, lorry, train, wheel, aeroplane	12
Metal, iron, gold, silver, brass, copper.	
Cotton, wool, silk, leather	4
Card, letter, envelope, stamp, address, parcel	6
Date, midnight fortnight, (second)	3
Railway, Station, platform, engine, ticket	5
Lady, (gentleman), doctor, farmer (farm), tailor, barber, washerman, sweeper, master, (Headmaster), Servant nurse, Postman (Post, post-ter, post-box), (Post-office), Policeman (police), carpenter, merchant, person, people, guest, crowd, (traveller) baker, (watchman), (waterman) (Shopkeeper)	18
Cinema, hospital (building), bath (bath-room), (breath), line, (row) noise, kite, string, flag; word, world, stick, place, part, pair, piece, price, poem (poet) (Joy) money, medicine, age, lot, capital, story, nail, mistake, news (newspaper), thing (nothing, anything, everything, something), question, answer	28

NOTE.—some of the words in sections 26, 27 and 28 can be used both as Nouns and verbs.

31. None	1
32. Although (though), if, unless, whether, otherwise, so, therefore	7
33. Among (around), beside, besides, during, except, forwards, underneath, beyond, within, without, on account of	11

34. At last, almost, as usual, anyway, ahead, altogether, ever, (even), enough, forward, (backward), further, however, infact, inside, immediately, indeed, instead, indoors, out of, doors, outside, perhaps, quite, of course, rather, seldom, thus, too, (whenever), (wherever), (upstairs), certainly, chiefly, generally, hardly, lately, suddenly (and other adverbs ending in ly formed from words in section 2—34)	32
35. Able, active, affectionate, afraid, alive, ashamed	6
Bitter, bright, broad, busy	4
Calm, clear, cool, (cheerful), complete, convenient, correct	8
Deaf, different, distant, dim, double, drawn, dull dumb	3
Eager, equal, evil	14
Fast, fair, faint, famous, fine, fierce, fit, flat, faithful, former, fond, fresh, foreign, free	4
Grand, grey, grateful, guilty	6
Handsome, hasty, hallow, huge, humble, human	4
Idle, important, innocent, intelligent	1
Jealous	5
Lame, late, lazy, lonely, loose	7
Mad, mean, merry, main mild, miserable, modern	5
Native, naughty, necessary, nice, normal	1
Ordinary	13
Perfect, pink, plain, pleasant, plural, polite, popular, possible, pretty, previous, pure, proper punctual	1
Quiet	6
Raw, real, responsible, ripe, rough, rude	17
Safe, selfish, separate, several, sick, simple, silly, sharp, shy, smooth, special, straight, strict, strange, single (singular), sure, silent	4
Tame, thick, tidy, tiny	1
Vast	3
Warm, wicked, whole	8
36. Being, could, may, might, must, might, should, would	13
Act, accept, admire, admit, advise, afford, agree, appear, (arise), arrange, arive, allow, attack, attend	9
Bear, bag, believe, behave, bid, bend, bless, borrow, bother	15
Cheer, Check, chase, clap, choose, collect, conquer, cost, consist, congratulate, consult, consider, continue, contain, cure	19
Defeat, defend, deal, delay, deliver, decide, depend desire, destroy, dine, dictate, discover, disturb, dream, drive, drown, disappoint, describe, determine	10
Earn, end, education, elect, establish, escape, excite expect, explain, examine	7
Feed, fear, fold, follow, fix, form, frighten	7
Gain, gather, greet, grind, govern, guard, guess	8
Harm, happen, hate, hiss, honour, hope, hunt, hurt	5
Imagine, improve, implore, invite, introduce	2
Kiss, knit	6
Lead, leap, lay, let, lift, lend	7
Mend, mind, measure, (jean), manage, marry miss, mix	3
Need, nod, notice	4
Offer, order, owe, own	

Paint, park, peep, perform, point, prefer practise, promise, press, prove, praise, pretend, print, pronounce, prepare, punish, protect	17
Quarrel, quench	2
Refuse, remain, remind, repeat, request, revise, roam, roar, rob, rub, ride, respect	12
Sail, save, seem, serve, score, shake, sink, sheet, spread, (spring), steal, store, strike, succeed, suffer, swing	15
Tear, test, tie, toss, translate, treat, trust, try	1
Waste, wave, win, (wind), wish, wander, wonder, whisper, worship	9
37. Birth, life, death; pleasure, pain, sorrow, trouble(fair), festival; top, bottom; circle, centre; weather, season; quality, quantity, crop, harness; welcome, goodbye, farewell; danger, confort, picnic, excursion; haste, hurry; duty, truth, luck, mercy, pity, habit, sight; plenty, shade, shadow; voice, sound, heat; law, plough, force; paisa, coin cash, fund, idea, message; shape, size, figure	53
Religion; reason; condition, favour, manners, examples, fault, excuse, chance, fun; job; direction; share, millions, plan, outline, interest (—ing); remainder; sheet; framer, surprise; wire(less) way, wages; wealth proverb; sigh (tear) matter, mud; edge, middle; value	32
Subject—mathematics, physics, chemistry, geography, music (drawing), (painting), globe, language, grammar, sentence, fee, drama, dictionary, tale, novel, magazine, eassay, text-book, (course), chapter, author, section, term, result, marks, reward, prize, plus, minus hobby	29
Heart, chest, stomach, lung, limb, elbow, jaw, waist, heel, sole	10
Zoo, lion, elephant, (bear), deer, (peacock), duck, swan, frog, team, captain, match, referee, umpire, whistle, goal, side, rest, refreshment, challenge	17
Army, (air-force), Navy, soldier, battle, war, enemy, drum, weapon, sword, gun, tent, peace	12
Journey, voyage, carriage, compartment, passenger, queue, (booking-window), signal, jeep, scooter, rickshaw, luggage, load, porter, rush, petrol, horn (two meanings), waiting hall (ticket-collector)	16
King, queen, prince (ess), palace, throne, President, Prime Minister, (Chief Minister), State	8
In-law (Father, mother, brother, sister) (Step-father, mother, brother, sister), priest, judge, host, hero, fool, guardian, relative, neighbour, inhabitant, chief Secretary, male, female, companion, couple customer, partly, jump, company, nation, public	22
College, University	2
Tour, inn, hotel, cottage, hostel, prison, fountain, stall, tank, lane, circus, chimney, kitchen, ladder, steps, stairs, pole (north & south Poles) pump, axe, hammer, cupboard, furniture	25
Earth, lake, mountain, ocean, valley, desert, coast, Island, continent, habour, port, (hill station), scene, (scenery), horizon, snow, storm, breeze, lightning, thunder, Nature	20
Feast, dish, lime-juice, curds, cheese, nuts, honey, coffee, meat, soup, appetite	11
Health, (illness), dirt, dust, cough, fever, patient, Disease, tempera- ture, drain, latrine	10
Sari, waist, stockings, paste, powder, ribbon, sleave	7
Camera, photograph, album	

NOTE.—Some of the words listed in each of the sections 33, 34, 35, 36 can be used in other sections as well in their original forms or as derived and modified from them.

DRAWING & PAINTING

CLASS VI

Object Drawing :

Drawing of simple common objects in different positions. The objects should be kept in front of the students. Correctness of shape and proportion is of more importance than extreme neatness of line.

Geometrical Form-Drawing :

Drawing from dictation of objects based on square, circle, triangle, oblong, ellipse, oval etc.

Drawing & Painting:

Drawing and painting of home, school, street, incidents and scenes described in reading lessons.

Colour:

Complementary colours.

Design :

Decoration on actual objects, such as book covers, napkins, etc.

Clay Modelling :

Simple natural and common objects based on geometrical forms. Group of figures to tell a favourite incident or scene.

Paper Work :

Constructing natural and man-made objects based on geometrical solids.

Arrangement & Selection :

Discuss with pupils colour scheme for a room and placing of furniture in a room.

Note :—Student should not be asked to copy a picture from a book or blackboard as it weakens his native sense of originality and design.

Material:

Same material as in Class V.

CLASS VII

Object Drawing :

Drawing of a simple object in different positions. The object should be kept in front of the pupils-correctness of shape and proportion is of more importance than extreme neatness of line.

Geometrical Form Drawing :

Drawing, from dictation, of objects based on cone, cylinder, cube, pyramid, etc.

Drawing & Painting From Imagination :

Of topics such as life cycle of a plant or insect, school life, places of worship, activities of local people, flag day, school day, fairs, etc. .

Colour :

Split complementary colours.

Design :

Decoration on actual objects, such as cover papers, pots, etc.

Clay Modelling :

Planning and building houses.

Paper Work :

Objects based on geometrical solids, such as trees, houses, bridges etc.

Selection and Arrangement :

Discuss with children selection and arrangement of things they use everyday such as rug clothes, furniture, houses, gardens etc.

Note :—Student should not be asked to copy a picture from a book or blackboard as it weakens his native sense of originality and design.

Material :

Same material as in Class V & VI.

CLASS VIII**Object Drawing :**

Drawing in pencil the group of objects placed in front of pupils. Correctness of shape and proportion is of more importance than extreme neatness of line.

Geometrical form-Drawing :

Drawing, from dictation of objects based on geometrical form.

Drawing and Painting :

Drawing and painting of natural and man-made objects as observed by each individual pupil. Drawing and painting from imagination of topics with which children are familiar. It may include, places, people, festivals, seasons, occupations, recreation, transportation, communication, etc.

Colour :

Triad colours.

Design :

Decoration on actual objects, designing greeting cards and posters.

Clay Modelling :

Modelling of scenes and people.

Paper Work :

Patterns for common objects of daily use.

Selection and Arrangement :

Have a "Beauty Spot" in the class room. Let pupils select and arrange art and craft work brought by them from their homes. They should judge sizes, shapes, colours, etc. This should be an activity carried on and discussed by the whole class. Pupils can take turns arranging things as the class decides. Make pupils responsible for keeping school beautiful.

Note :—Pupil should not be asked to copy a picture from a book or blackboard as it weakens his native sense of originality and design.

Material :

Same material as in class VII.

MUSIC

Elements of classical music, i.e. Cwargyan, Raggyan, Layagyan, Talagyan and also the necessary elementary Theory and History.

Only those children, who have special aptitude and talent should be taken.

Marks.—

75 for Practical and 25 for Theory.

Vocal Music.—

Details of lessons in each class :

(i) Practical

(a) Class VI.—(A) Folk songs—2, one in Dadra and one in Kaharwa.

(B) Ragas—Sarang Brindabani and Khamj—one song in each preferably Bhajans.

(C) National Song-1.

(D) Talas-Kaharwa and Dadra-elementary knowledge Detailed knowledge of previous Tala, viz. Tin Tala and theka to be followed.

(b) Class VII.—(A) Folk Songs-2.

(B) Ragas-Alahiya Bilawal and Kafi—one song in each preferably Bhajans, One Lakshan Geet, One Swaramalika.

(C) National Songs-2.

(D) Shudha Sargam-Alankars-3 previous alankars on Kafi and 3 more Alankars on Bilawala.

(E) Talas-Alankars in Dadra and Kaharwa and details thereof.
Jhaptal elementary.
Theka to be followed.

(c) Class VIII.—(A) Folk Songs-2.

(B) Raga-Yaman, Bhairava and Bhairavi-1 song in each preferably Bhajans.
One easy Swar Bistar in each Rag
One Lakshan Geet,
One Swaramalika.

(C) National Anthem-2 (Jana Gana Mana and Vande Mataram).

(ii) Theory.—

(a) Class VI.—(A) Elementary definition of following terms-Nad, Swar (Shudha and Komal), Sangeet, Laya

(B) Raga Vivaran of Sarang and Khamaj.

(C) Description of Tin Tal.

(b) **Class VII.**—(A) Elementary definitions of Saptaka (Mandra, Madhya and Tar), Aroha, Avaroha, Sthayee, Antara, Alankar.

(B) Description of Dadra and Kaharwa.

(C) Rag Vivaran of Abhiya Bilawal and Kafi.

(c) **Class VIII.**—(A) Definition of Lakshan Geet, Swaramalika, Matra, Vibhag, Avartan, Sam, Khali, Thah, Dwigun, Vadi, Samvadi and Pakar.

Note.—1. Instruments required: (Harmonium is rigidly excluded)

(a) Tanpura is essential and Shruti Box.

(b) Esraj, Violin or Dilruba for accompaniment.

(d) Tabla pair.

2. Tabla player is essential for such Institutions that are having Music as a regular subject.

3. There should be 2 periods at least in a week per section per week for a class of 12 students and 10 students for vocal and Instrumental Music respectively.

4. **Instrumental Music.**—Students may offer any of the following instruments instead of vocal music in Classes VII & VIII.

(a) Sitar (b) Esraj or Dilruba, (c) Violin, (d) Flute and (E) Tabla.

Practical

(Classes VII and VIII combined)—

Sitar (i) Proper stroke of Mizrab (Da Ra Dir) Knowledge of Chikari String (Jhala). Masit Khani Gat in the Ragas prescribed for Vocal Music with two Toras.

(ii) Scale exercises (elementary) 6.

(iii) Knowledge of the Talas prescribed for Vocal Music in these classes and detailed knowledge of the Tala.

Violin, Dilruba and Esraj.—(i) Correct way of bowing.

(ii) Scale exercises (elementary) 6.

(iii) Knowledge of the Talas prescribed for Vocal Music in these classes.

(iv) Easy songs on the Ragas prescribed for Vocal Music in these classes.

Flute.—(i) Correct way of blowing.

(ii) Production of Correct notes.

(iii) Easy songs on the Ragas prescribed for vocal music in these classes.

Note.—Students of bow and wind instrument should have the knowledge of playing National Anthem (Jana Gana Mana).

Tabla.—(i) Proper production of different elementary Bols of Tabla and Dagga (Banya).

(ii) Combinations of different Bols, particularly with both the hands.

- (iii) Thekas of the following Talas, viz. Dadra, Kaharwa, Jhaptal and Tin Tal.
- (iv) At least 2 Tukras in Tin Tal and Jhaptal, 2 Laggies in Kaharwa and Dadra.
- (v) Elementary knowledge of accompaniment.

Theory

- (i) Elementary description and History of each instrument.
- (ii) Techniques of different instruments.
- (iii) Theory as stated for Vocal Music of these classes.

DANCING

Students may offer any one of the following types of dance; "KATHAK", "MANIPURI", "BHARATNATYAM" and "KATHAKALI", according to their natural taste and physical fitness.

75. marks for the practical and 25. marks for the theory.

Detailed course for KATHAK-Dance.

CLASS VI

Practical.

Preliminary physical exercises to make the body supple.

1. A. ANKLE movements.
B. Trunk movements.
2. A. Walking with rhythm.
B. Skipping.*
C. clapping to music and dance.
3. A. Basic steps, "TATKAR" only two variations of raya viz., 'Thai' and DUGON only.
B. Two easy "TUKRAS".

Theory.

Definition of the following terms:—

1. A. NATYA., NRITYA and NRITTYA.
B. Laya., Matra and TAL.
2. Elementary history of Kathak dance.

CLASS VII

Practical.

1. A. Arm movement.
B. Neck movements.
2. A. Basic Steps "TATKAR" in Thai, DUGUN and CHOWGUN.
B. Two simple TATKAR in KAHARAVA and DADRA only.
C. Two simple varieties in TATKAR.
3. A. Racitation of all the TATKAR and TUKRAS learnt, while marking Taal with the hands, showing MATRAS, khali, Bhari and sam.

Theory.

Definition of the following terms :—

1. THEK., KHALI., BHARI., SAM., TATKAR and TUKRA.
2. MUDRA., BHAVA., VILAMBIT, MADHYA and DRUTA.

CLASS VIII**PRACTICAL.**

1. A. Wrist movements.
B. Shoulder movements.
2. A. TATKAR with hand movements.
B. Five Tukras with the movements of—Trunk, and Neck.
C. Recitation of TATKAR and TUKRAS in the DUGUN and CHOWGUN.
D. TATKAR with two TUKRAS in JHAMPTAL.

Theory

1. Definition of “TANDAVA” and “LASHYA”.
2. History in general of Kathak dance.
3. Revision of all the practical and theoretical lessons learnt in class VI and VII.

HAND WORK

CLASS VI

Age Group: 10-12 years.

Material.

Paper, card board, paper pulp. China Clay and paper pulp. Mild steel wire, soft soap, wood, plaster. *Tools:* Foot rules, compasses. Scissors, needles, knives, saw, hammer, square, smoothing plane.

Job or work to be done.

Making of card board trays, waste paper baskets, vases etc. Simple book binding, blotting paper pad, Plastic casting in metal trays. Mild steel wire frames and skeltons and making toys by applying paper pulp or clay mixed with paper pulp. Simple practice in cutting and planning of wood and making of simple articles with the help of hammer and nails. Soap carving.

Training of particular faculty.

By this time the child can easily handle the tools and other soft material. In these classes the start, conceiving new ideas and in order to give practical shape to his ideas, should be allowed to use carpenter's tools.

Educational Value.

The child at this stage starts writing descriptions and essays. Simple exercises to make animals, birds but, homes give him lot of practice to retain in memory whatever he observes. Book binding creates love for books and aesthetic sense. He makes articles for his own use and this learns economy, respect for labour. He learns something about various types of timber wood, colours and colours combination.

CLASSES VII & VIII

Age Group : 12-14 years.

Material.

Wood (kail and plywood) paper pulp. Tin sheets. Leather, Card-Board, *Tools:* Jack Plane, square, chesils, screw drivers, marking gauge, saw hammers, mallets Drills, Rampi, Punch, Fret. Throughing Tools needles etc. Saw machine, Hack Saw.

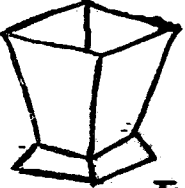
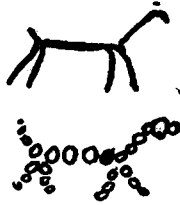
Training for Faculty.

Making of wooden articles with simple joints or halved joints and simple marter and tennon joints. Paper Machine, Trays, Cases and Electric lamps. Book Binding, Albums, files etc. simple articles of leather like cases and purposes, vases of tin sheet, simple plaster-casting.

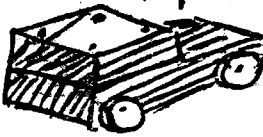
Educational value.

Some foundation for the engineering line is laid through these exercises. It helps in determining the real apptitude of the child.

Illustrations for Class VI



Toy car

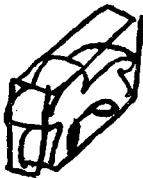
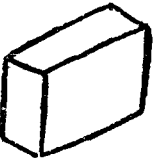


WALL BRACKET

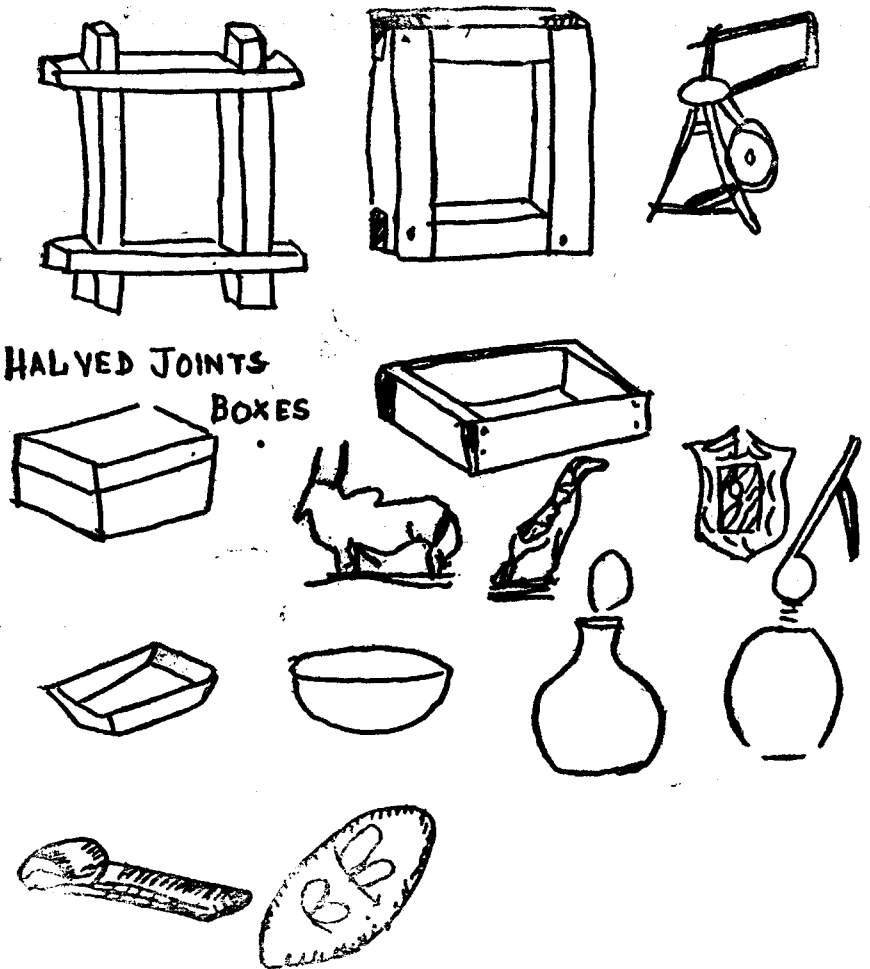
WRITING TABLET



Toy glider.



Illustrations for Classes VII and VIII



Note: In addition to the activities detailed above the following hand works should be introduced in the schools in accordance with the age of the child and the facilities available.

1. Leather work.
2. Soft toys (stuffed and otherwise).
3. Ruffia making.
4. Fret work.

5. Chalk making.
6. Boot polish making.
7. Ink making.
8. Soap making.
9. Candle making.
10. Cosmetics.
11. Photo-frame making.
12. Cutting and Tailoring.

SPINNING AND WEAVING

CLASS VI

Only half an hour should be given to carding and spinning and remaining time should be devoted to weaving.

“Sutra Yagia” should be introduced, if possible.

(a) Carding with Madhyam Pinjan

Spinning on Takli and Charkha Takli : One day per week

Charkha : Four days per week

Working days : 100

Average house of spinning and weaving work: 1 hour daily.

Average speed on Takli: 40 rounds per half an hour

Average speed on Charkha: 80 rounds per half an hour

Carding and Pooni making: 5 Tolas per hour

Average Production at the end of the year: 2 Ghundhis on

Taklies and 6 Ghundhis on Charkha

Quantity of yarn to be required.

Count: 18-20

Strength: 60 per cent

Evenness: 60 per cent

Wastage: 10 per cent

Weaving: nil

PROCESSES :—

1. Continuation of work prescribed for class IV-V.

2. (a) Joining ends (b) Warping:—Old system i.e. by walking and drum system (c) spreading and distributing (d) Sizing (e) Double Wrap weaving (f) Dying of yarn.

3. At the end of the year the speed should be as follows:—

(a) Doubling: 80 rounds per hour (b) Reeling half hank per hour (c) Joining ends: 100 per hour (d) Warping and sizing both in 3 hours.

4. Amount of work

(a) 12 yards of cloth for the whole class (b) Doubling: 5 hanks for every 10 students (d) Duree 4'×6' one for each student (c) Asan 3'×3' for whole class.

Theoretical knowledge required in connection with craft work.

(a) To find out the strength and evenness of yarn.

(b) Selection of yarn for weaving (c) To know the history of spinning.

(d) Sources of spinning and changes which occurred from time to time.

Knowledge of Magan Charkha and Ambar Charkha (e) The knowledge of the processes of Ginning, Carding and Spinning (f) Study of various kinds of cotton (g) Knowledge of different types of yarn (h) To visit the places where hand-made cloth is prepared. (j) To introduce 'Sutra Yagia' and to take part in it (k) Simple calculation of the speed, number and rate of spinning etc. (l) Storing the raw material and the implements of spinning and carding (m) Knowledge about wastage and uses of waste yarn (n) Knowledge of the different types of looms and their parts.

CLASS VII

Sutra Yagia should be continued. Spinning on Yarvade Charkha.

(a) Carding with Madhyam Pinjan

Standard of work.

Working days : 200

Average hour of work : 1 hour daily

Average speed on charkha : 100 rounds per half hour.

Carding and Pooni making : 6 Tolas per hour.

Average production at the end of the year : 10 Ghundhis.

Count of yarn to be required : 18-20

Weaving :—

1. Processes : same as in class VI.

2. Speed (a) Doubling : 100 rounds per hour.

(b) Reeling, joining ends, warping and sizing same as in class VI.

(c) Doubling warp weaving (with filled *bobblies*) $1\frac{1}{2}$ feet per hour.

3. Amount of work :—

(a) Cloth 18 yards for the whole class (b) Durree one for the whole class $4' \times 6'$.

Theoretical knowledge required in connection with craft work.

(a) Fitting of yarvada charkha (b) to know the defects of charkha.

(c) To find out the number of twist in one inch yarn (charts of twists).

(d) Simple knowledge of wool spinning (on takli and charkha).

(e) To sort out different types of yarn and find out the cost.

To circulate the different number of the yarn, keeping in view the evenness, strength and wastage of the yarn.

5. Loom filing.

CLASS VIII

Spinning:—(i) Spinning Sutra Yagia
(ii) Making of mats for carding

Speed:—90 rounds half an hour on charkha

2. Processes: continuation of work of class VII

3. Speed.

3. (a) Doubling 120 rounds per hour (b) Double warp weaving 2 feet (with filled bobbing) per hour (c) Reeling $1\frac{1}{2}$ gundies per hour (d) Joining ends 150 per hour (e) Warping and sizing both in 3 hours.

4. Amount of work:

(a) Doubling of 6 ghundies (b) Double sharp weaving 24 yards for the whole class (c) one design dari for the whole class.

Theoretical knowledge required in connection with the craft work.

1. (a) Quantity and quality of yarn required for different kinds of cloth.

2. Practice of marking proper well shaped kukri.

(a) Reeling (b) To make kukri for warping.

3. History of cotton industry of Khadi.

4. Study of Cotton mills 5. Loom fitting.

(b) Repairing of loom (c) Drawing of various parts of the loom

(d) Knowledge of loom and weaving implements (e) various looms and their efficiency (f) Dying (g) Designing with colours.

Requirement of raw material and implements**CLASS VII**

1. Cotton with seeds	1 md. 5 seers
2. Handgins	5
3. Dunkies	10
4. Panipatra, Hatta & Salayi	30
5. Takulies	30
6. Attarn	30
7. Charkhas	30
8. Local Charkhas	6
9. Assan Addass	4(3' × 4')
10. Dari Addas	2(6ft × 8ft).

11. Loom	one yard weight plus 4 tables looms
12. File	2
13. Pulas	1
14. Hammer	2
15. Nail Puller	1
16. Balance with weight 1 ch. to 5 seers	1
17. Balance with weight	1

CLASS VII

1. Cotton	1 md. 5 seers
2. Mandgins	5
3. Cunkies	10
4. Panipatra, Hatta Salayi	30
5. Takulies	30
6. Attarn	30
7. Charkhas	30
8. Local charkhas	6
9. Assan Addas	34 (3' × 4')
10. Dari Addas	2(2' × 8')
11. Winders	4
12. Loom	2 one yard weight
13. File	2
14. Pulas	1
15. Hammer	1
16. Nail Puller	1
17. Balance with weight 1 ch. to 5 seers	1
18. Balance with weight 1/16 total to 40 Tolas	1

CLASS VIII

1. Cotton with seeds	1 md. 30 seers
2. Mandgins	5
3. Dunkies	10

4. Panipatra, Hatta and Salayi	30
5. Takulies	30
6. Attarn	30
7. Charkhas	30
8. Local Charkhas	30
9. Assan Addas	34 (3' × 4')
10. Dari Abbas	3 (6' × 4')
11. Winders	4
12. Loom	2 (one yard weight)
13. Pulas	1
14. Hammer	1
15. Nail Puller	1
16. Balance with weight 1 ch. to 5 seers	1
17. Balance with weight 1/16 tola to 40 tolas	1

WOOD WORK

General Instructions as regards the method of teaching of the Class and workshop tools

1. The children should be free to make use of any tool they like.
2. The technique should not be taught separately, by prescribing exercises, but the children should learn the technique while working on meaningful problems-utilitarian objects.
3. The models given for the different grades are simply suggestive. The class teacher is free to choose any model with the help of the students. This will largely depend upon the environment of the school, the socio-economic conditions of the students and the industrial surroundings and the correlated aspect of the day to day learning.
4. If the theory is taught with the practice it will bear fruit. There will be several problems which will arise during practical work having a theoretical aspect; and instead of teaching them separately, if they could be taught on the spot, the learning would be more effective.
5. In the first two classes i.e. VI & VII if soft wood such as Kail and Diyar are used, it would be advantageous to learning. The use of hard wood such as Sheesham and C. P. Teak should be made in class VIII.
6. In each group the number of students should not be normally more than 12 at a time.
7. Each work bench should be fitted with two bench vices.
8. Proper Almirahs should be provided for the storage of tools.
9. A separate work-room should be provided for wood-work class.
10. The minimum tools given in each grade should be provided in the workshop, and it should be noted that each student will be provided with a set of tools prescribed by the teacher.

CLASS VI

Suggested models :—

1. Ateran, 2. Pareta, 3. Foot rule, 4. Sand paper block, 5. Simple Blotter 6. Ruler, 7. Khurpi handle, 8. Childrens' bats.

Elementary knowledge of the following tools should be used in their day to day work.

1. Folding Rule, 2. Try Square, 3. Marking of berel, 4. Steel of Framing Squar, 5. Making Gauge, 6. Jack Plane, 7. Hand Saw, 8. Chisel (Firner), 9. Clan Hammer, 10. Pincer, 11. Screw Driver, 12. Hand Drill, 13. Combination vice and 14. File.

Hardware Fittings :

Nails and Screws.

Geometrical Drawing:

The knowledge of scale reading: Half, Quarter, Eights, Sixteenths and laying out simple shapes: triangles, quadrilaterals etc.

Theory:

1. The kinds of trees round about the school and village.
2. The uses of timber in our daily living.
3. Process of cutting, sharing and felling of trees.
4. Recognition of local trees by seeing their leaves.
5. Hard and soft woods.

CLASS VII**Suggested Models:**

1. Takhati, 2. Pen Stand, 3. Taklicase (simple), 4. Peg stand, 5. Mathani 6. Gollok, 7. Masale Dani, 8. Sea Tray (Simple).

Elementary knowledge of the following tools should be given and these should be used in day to day work.

1. Back Saw and Tenon Saw, 2. Smoothing Plane, 3. Chisel (Berel, Edge Firmer), 4. Warrington Hammer, 5. Cabinet Screw Driver, 6. Troist Gimlet, 7. Plain Brace, 8. Mallet, 9. Mortise Gange, 10. Oil Stones.

Hardware Fittings

1. Kinds of nails and screws and their proper use.
2. Sand paper and glue preparation.
3. Hinges and door fittings.

Geometrical Drawing

1. Simple lay-outs of rectangular objects.
2. Reading simple drawings.
3. Simple plane drawing and isometric drawing.

Theory

1. Important timbers of India and their use. The regions in which they grow.
2. How tree grows—the principal parts of a tree.
3. Cutting and stacking of timbers.
4. Splits and Shrinkage in wood.
5. The effects of weather on wood.

Joints:

1. Butt Joint, 2. Plan lap Joint, 3. Half lap splice, 4. End half lap, 5. Cross half lap, 6. Middle Half lap.

CLASS VIII**Suggested Models:**

1. Dress Hanger, 2. Towe Stand, 3. Gharonchi, 4. Picture Frame, 5. Small Chowki, 6. Kharaon, 7. Table Lamp, 8. Book shelf, 9. Time piececase, 10. Fret work.

Elementary knowledge of the following tools should be given and these should be in the day to day work.

1. Bow Saw, 2. Plough Plane, 3. Compass Plane, 4. Joiner cramp, 5. Mortise chisel, 6. Exterior Hammer, 7. Saw sets, 8. Ginder, 9. Mitre Black, 10. Mitre shooting board.

Hardware Fittings :

1 Fitting of metal fastenings such as glass movements, but hinges and half and staple etc.

Geometrical Drawing:

1. Circumference of circle C.
2. Finding areas of geometrical figure: Rectangle, Triangle, Parallelogram and circle.
3. Use of formula :—

$$\text{Rectangle} = l \times w$$

$$\text{Triangle } A = \frac{1}{2} Bh.$$

$$\text{Parallogram} = A = Bh.$$

$$\text{Circle } A = \pi r^2$$

4. Use of ruler, compasses and protector.
5. Measuring angles, drawing angles with ruler and protector, bisecting an angle, drawing a perpendicular, reading and making scale drawing.

Theory

1. Cross sections of wood.
2. Seasoning of wood—steam seasoning, air seasoning and stock piling.
3. Advantages of seasoned wood. Defects of timber and diseases.
4. Methods of saving wood from Climatic effects (Polishes—paints and wood preservers).
5. Study of climatic regions of India where timbers are grown and their socio-economic effects.
6. The knowledge of planning, estimating, price settling and marketing.

Joints :

1. Dado joints, 2. Stopped Dado, 3. Dovetailed Dado, 4. End Dado or Box Corner, 5. Mitred end half lap, 6. Rabbed joint.

Sharpening of Tools :

1. Preparation of Diamond point bit from wire nail.
2. Sharpening of cutting tools such as chisels, cutter planes and saws.

Painting and Polishing

(1) Methods of staining, polishing, varnishing and painting. The knowledge for painting and their prices.

CLAYWORK AND POTTERY

CLASS VI

Practical.

1. Making two piece moulds.
2. Drying and finishing.
3. Modelling in the round of animal and human figures, with as much attention to form, proportion, finish, etc., as possible.
4. Shaping and firing small bricks in the indigenous method and constructing a small house using plumb line spirit level, trowel, squate and the masonry tools.
5. Making pots by the processes like thumping, dabbing, etc., of the village potters (the pupils should visit a potter's house to study the processes).
6. Constructing a small kiln of the indigenous type and biscuiting therein of pots.
7. Use of thermometers and other things to measure temperature.
8. Biscuit firing of modellings coiled and slab works in reducing atmosphere with paddy husk.
9. Training of the sense of touch ability to give some idea of mere touch, the temperature of different objects, those of the atmosphere at different times of the day, kiln, etc. by mere touch.
10. Decoration with press moulded shapes.
11. Combination of various decorative processes.
12. Examination of pots by their rings or sounds.
13. Making designs from the study of animals and human forms.
14. Making, working or drawings for objects of different constructional designs.
15. Visiting some village potter's house to study his materials and methods as well as his mode of life and the economic values of his industry.
16. Some projects for all the pupils to work out together in a co-operative way.

Theoretical.

1. Study of shapes and decorations of pots of the past by visiting museums if possible and through illustrations in books.
2. Artificial drying putting the pot upside down and other measures against irregular drying, sponging, sandpapering etc. for finishings.

3. Characteristics of handmake clay pottery compared with machine made porcelain pottery.

4. Study of animals and human body in connection with making designs.

5. Ventilation, atmospheric action on sandline mortar, Directions and compass, estimate of bricks and other materials and cost etc., in connection with construction of house.

6. Carbon, Carbon dioxide.

7. How coal is formed in coal mine, uses of coal fireclay and refractories.

8. Oxidising and reducing atmosphere in firing.

9. Heat energy, other forms of energy.

10. Conduction, convection, radiation and simple laws of heat.

11. Methods of measuring temperature—Thermometers, Seger Cone etc., relation between Centigrade and Fahrenheit.

12. Boiling points of liquids and melting points of solids.

13. Fitness of decoration with shapes, over-decoration and why it is bad.

14. Study of various kinds of fuel—common, wood, charcoal spirits, kerosine.

15. Various sorts of making utensils and their methods in short.

CLASS VII

Practical.

1. Experiments on shrinkage of different clays to determine the percentage of linear contraction of bodies.

2. Simple analysis of clay or determination of percentage of clay substance and free silica.

3. Collection of local potteries and organising an exhibition of those potteries along with other collection and works of the pupils.

4. Throwing.

5. Turning.

6. Relief modelling.

7. Making geographical models, model of a village, relief map, etc.

8. Construction of a simple updraught kiln and to make ground and elevation plans.

9. Charging a kiln and biscuit firing.

10. Porosity and tongue test—to calculate the porosity of different biscuit.—fired bodies.

11. Graphical representation—drawing a graph showing the relation between shrinkage and silica or water content of clays.
12. Some projects for all the pupils to work out together in a co-operative way.

Theoretical.

1. Drying shrinkage, firing shrinkage, cause of shrinkage, how to prevent expansion, co-efficient of expansion, per cent linear contraction and what it means—simple laws of heat.
2. Chief mineralogical constituents of clay.
3. Alumina, Silica, Felsper and their study.
4. Mechanical mixture and chemical compound.
5. Mechanism of the Potter's Wheel.
6. Centripetal and centrifugal force, momentum.
7. Graph paper and how it can be used for various purposes.
8. Geographical definitions of valley, island, strait, delta, table and peninsula, etc.—stories of some lands of which geographical relief modelling is made and study of the village or other subjects of which models are prepared.
9. Maturing point of a body—what happens in case of under firing or overfiring.
10. The stages in firing (a) smoking or steaming stage (b) decomposition stage (c) dehydration stage (d) oxidisation stage (e) vitrification stage.
11. Some typical types of furnaces and their use in industry.
12. Porosity and its calculation.
13. History of Pottery in India.
14. Costing account.

CLASS VIII

Practical.

1. Throwing on the wheel, pots of fairly big sizes and complicated shapes.
2. Preparing the glaze.
3. Making a few experiments to study the functions and behaviour of the constituents of the glaze.
4. Applying the glaze.
5. Making saggars, props and stilts.
6. Charging the kiln.
7. Glaze firing with wood or coal.

8. Trying some of the techniques of the village potters.
9. Some projects for all the pupils to work out together in a cooperative way.

Theoretical.

1. Constituents of a simple glaze and their functions.
2. Chemistry of glaze making.
3. Calculation for glaze making.
4. Different methods of applying the glaze-dipping, pouring spraying etc., and other peculiarities.
5. Fuels, calorific values, combustion.
6. Salt glaze and how it is made;
7. General history of the different branches of ceramic industry.
8. Co-operative and how the industry of pottery can be developed on co-operative basis.
9. Cottage industry versus machine industry.
10. Simple book keeping.
11. Study of the famous works of pottery in India in particular another lands in general.
12. Writing detailed technical notes with drawings of the methods of the village potters, all the technical terms for tools, materials, processes, etc., used by them.

GARDENING AND AGRICULTURE

CLASS VI

Weather and Climate.

Weather and climate control the activities of agriculture and growth of plants. Differences in these account for differences in the growth and productivity of the same type of plants or varieties of plants in different localities.

The teacher will stress the point that the calendar of garden operations should be adjusted according to the conditions of weather and climate.

Weather refers to short periods i.e. a particular hour, day, week or month. Climate is generalised weather conditions carefully studied over a long period of time. Weather is dependent upon the temperature, humidity, pressure of the air, direction of the air, direction of the wind. Children may be made familiar with instruments like thermometer, barometer, wind vane and rain gauge used for measuring temperature pressure, direction of wind and the amount of rain fall.

Unfavourable climatic conditions and plant life:—(a) Heavy rain causes failure of germination, damping off, lodging of crops, dropping of flowers, rotting and damage of. (b) Strong wind causes blowing of seeds, lodging of crops, dropping flowers seeds and fruits. (c) Hail storm causes severe damage of crops. (d) Frost results in burning of foliage of different kinds of crops specially potato, brinjals, chilli, arhar, mustard and peas etc. (e) Hot and cold winds cause damage at every stage and to losy part of the plants.

Plant Life.

Propagation-plants can be multiplied by seed and by vegetative propagation such as bulbils, tubers, rhizoms, suckers, layering, cuttings, grafting etc.

(1) Seed is an inactive stage of a plant. Correct temperature, even moisture supply and sufficient air develops young seedlings.

(2) Vegetative propagation (a) Bulbils and bulbs can be reproduced by digging them up when dormant and taking off small bulbils or bulba formed around the mother plant. They should be planted separately e.g. lilies, narscisus, garlic, onion, etc. (b) Tuber—The tuber can be used as a whole or cut into several pieces each having an eye (growth bud) which develops a young plant e.g. potato, dahlia etc.

The teacher should take the children to the local nurseries to show them the various propagated plants and should try to develop some plants by this method.

Soils.—Distribution of soils in India—Black cotton soil, Red Soil, Sandy soil, Alluvial soil.

Collection of samples of soils for school museum by the children.

Manures.—(i) Green manuring—Turning down of green standing crop and its thorough decompositions like Sanai, leguminous crops, Dhencha etc. Importance of green manuring adds organic matter, improves the physical conditions of the soil and assists in the conservation of Nitrogen. Selection of crop for green manuring (a) Quick growing crop (b) Succulent (c) Cheap (d) Easily grown (e) Luxuriant in growth.

Children may be taken to some nearby farm for observing process of green manuring and they should apply green manure on the school farm.

(ii) Municipal manure includes sewage sludge and town refuse.

(iii) Inorganic manure (Chemical fertilizers)—used to make up for the deficiency of essential elements like Nitrogen, Phosphorous and Potash in the soil by artificial means.

Samples of these fertilizers may be shown and specimens kept in the school museum. The children may be shown plants with yellow leaves to show the nitrogen deficiency; plants well developed, but with lesser number of fruits to show the deficiency of phosphorous and under developed or stunted plants with fruits not having good colour, size shape to show potash deficiency.

Kinds of fertilizers—(a) Nitrogenous fertilizers to meet the deficiency of Nitrogen in the soil (b) Phosphatic fertilizers to meet the deficiency of Phosphorous and (c) Potash fertilizers to meet the deficiency of potash.

Irrigation.—Simple description of the important irrigation projects of India—Bhakra Nangal, Hirakud, Damodar Valley, Tungbhadra etc.

Crop Production.

(a) **Field crops:** Cultivation of crops (i) By seeds (Broadcasting and dibbling etc.) like maize, bajra, wheat, gram etc. (ii) By seedlings like paddy. Crop rotation and its advantage—Regulation of crops with such a succession for a number of years as to get a good out turn with the least injury to the fertility of soil on a particular plot of land, control of insects and diseases, reduction of weeds, better use of soil, livestock, machinery and labour throughout the year. Rotation of field and vegetable crops may be practised on the school farm. (b) **Fruit gardening** (i) Familiarity with common tropical and sub tropical fruit plants and fruits. (ii) Site of successful orchard climate, soil nearness to the market, transportation, labour etc. (iii) Common draw backs in Indian fruit gardening—neglect of orchard, close planting, excess of irrigation, insufficient and ill balanced manuring etc. (c) **Vegetable gardening** (i) Cultivation and study of Cole crops like cauliflower, cabbage, knolkhol under the heads climate, soil, manure, time of sowing, method of sowing, seed rate, hoeing, weeding, earthing, harvesting, yield etc. (ii) Raising of seeds from cole crops—Promising plants true to their variety are selected allowed to develop young shoots which ultimately bear flowers and pods. Sometimes selected plants are transferred in a well prepared bed under special care of hoeing, weeding, irrigation. (d) **Ornamental gardening.** (i) Work of class V to continue. (ii) Raising of some annuals like Portulaca, Tithonia, Clarkia, Pansy, Linum, Helichrysum.

Insect and pest.—(i) Life history of important insects—Butterfly, Moth, Grasshopper, Termite, Stem-borer and Cotton ball worm. (ii) Pest-serve damage of crops by insects.

Tools and Implements.—Besides the tools and implements used upto class V the following should also be used in Class VI, VII and VIII according to the particular requirements of the age group.

Iron plough, Panjab plough, Secateur, Hedge shear, Gardener's knife, Garden hoe, Garden saw, Budding knife, Grafting knife, Sword, Kanpur cultivator, Winnower, Spray gun, Dust gun, Lawn mover and other implements of the locality.

The tools and implements should be used by the children and they should know their names, proper use, repair and maintenance. The children may visit leading agricultural farms to observe improved implements used in various processes of agriculture.

Record and Measurement.—Keeping of agricultural records and accounts. Children will also keep records of different agricultural operations performed at the farm.

CLASS VII

Weather and Climate.

Detailed account of the instruments used for measuring weather may be given and children should make use of the instruments, for recording weather. They should keep daily record of weather in the following form:—

Date	Temperature Max., Minim.	Humidity	Direction of wind	Nature of the sky	Air pressure
Amount of rain fall	Dew if any	Mist if any	Hail if any	Frost if any	

Study of weather forecast from daily newspapers.

Plant life :

(a) *Kinds of fruits*:—(i) Simple e.g. mango, guava etc. (ii) Aggrete e.g. anar (iii) Composite e.g. mulberries and pine apple etc.

(b) Seeds and seedling.

Seed:—Good and bad; parts of a seed cot, hilum, micropyle, embryo. Conditions necessary for germination—temperature, moisture and air.

(c) *Propagation*:—(i) *Cuttings*—These are made from shoots that are still actively growing and are taken from hardy shrubs or half ripe wood. When the shoots have finished growth but are not yet matured or hard, cuttings are made generally, of the current year's growth like Roses, Bougain Villea, etc. Each cutting should be of about-9" length, possessing a couple of very prominent eyes and should be inserted in the well-prepared soil at an angle of 60°.

(ii) *Layring*—It means bringing an active shoot of a plant into contact with the well prepared soil with the object of allowing it from roots. Such shoots are slit with an upward cut in order to induce the formation of roots at the injured part. This injured part must be covered with soil and kept moist, e.g. Bougain Villea, Strawberry, Begonia, Jasmine.

(iii) *Grafting*—A graft is the union of parts of two plants (scion and stock) in such a manner that they will grow together to form one plant like mango, guava etc.

(iv) *Budding*—Budding is a form of grafting where bud is detached from scion with a portion of its surrounding bark and is brought in contact with the cambium layer of a suitable under stock e.g. roses, citrus plants etc.

Importance of vegetative propagation, selection of scion and stock, time and ways of propagation, care and maintenance of propagated plants.

The teacher should give demonstration of each process in different kinds of plants. The teacher should instruct the children for handling the various horticultural implements involved in propagation like cutting, budding, grafting etc. carefully. The children should develop at least one citrus plant from budding rose from cutting Bougain villea from layring and Mango from grafting.

Soil.—(a) *Erosion*—The removal of soil by wind or water. Its kinds, (i) Water erosion. (ii) Wind erosion. Disadvantages; Loss of fertility and productivity; sometimes crops die away because roots are exposed, texture changes and there is loss of agricultural land.

Control of erosion—Growing of forest, grass, field-crops and use of wind breaks etc.

(b) *Mulch*—Preservation of moisture in the soil. Its advantages helps in decaying organic matter, improves soil fertility and soil texture, makes soil temperature better, controls insect, pests, protects from hot and cold climate and helps in cultivation. Children will observe these benefits. Methods of mulching: Cultural processes like ploughing, roling, hoeing, paper mulching, straw mulching etc.

Manures.

Importance and need of nitrogen to the plants. Percentage of nitrogen in fertilizers like Sodium nitrate, Ammonium sulphate, Calcium nitrate etc. Calculation of quantity of different nitrogenous fertilizers required per acre according to their percentage composition.

The children should realise the importance and need of nitrogen for plants and the need of nitrogenous fertilizers for them. Plants with yellow leaves indicate deficiency in nitrogen. Application of nitrogenous fertilizers darkens the colour of the leaves and makes the plant healthy.

Amount of different nitrogenous fertilizers for common crops like wheat, cotton, sugarcane etc. Time, rate, mode of application, effect on crops and soil, bad effects of their mishandling, should be taught. Some idea may be given about oil cakes (Khali).

The children will actually apply nitrogenous fertilizers to different crops and plants particularly to those studied in detail.

Drainage.

A process of removing superfluous water from the soil and sub-soil region.

Types of drainage, open, closed, trench and tile system.

Advantages.—(i) Develops root growth, (ii) Improves soil temperature. (iii) Gives better soil texture. (iv) Allows land to be worked just after rains.

Crop production.

(a) *Field crops*.—(i) Common rotations of the crops of the locality. Points necessary in preparing the scheme of rotation—leguminous crops should be followed by non-leguminous ones, deep rooted plants should be sown after shallow rooted plants, fodder crops should be encouraged, nearness or remoteness of the city should be kept in view should leave fallow land and should make continuous use of land, labour and machinery etc.

The teacher should tell the children the chief rotation of crops of the locality.

(ii) *Mixed cropping*.—to grow more than one crop in the same field at a time e.g., wheat and gram, barley and pea etc.

The teacher will tell the children the mixed crops usually adopted in the locality and their importance.

(iii) Cultivation of a few important field crops like Jwar, Moong, Jau, Sarson, Berseem, Rajaka etc. Recognition of maturity in crops.

(b) *Fruit gardening*.—Cultivation of common fruit plants like Banana, Papaya and Guava under the heads climate, soil, raising young seedlings, time of planting, method of planting, manuring, irrigation, flowering and fruiting.

Work of class VI to continue.

(c) *Vegetable gardening*.—Detailed study of tomatoes, tuber and cole crops under the heads climate, soil, manurial requirement, time and method of sowing, seed rate, irrigation, intercultural operations like hoeing weeding, earthing, harvesting and marketing.

(d) *Ornamental gardening*.—Raising of plants from cutting, budding, layering and grafting. Preservation of bulbs. Raising of some annuals like Dahlia, Brachy-cone, Salvia, Portulaca, Daisy etc.

Insect and pests.

(i) Classification of insects on the basis of the nature of damage to the crops—sucking, chewing, biting and lapping.

(ii) Recognition of common local crop insects found in maize, cotton, brinjal sugarcane, wheat, cauliflower crops.

(iii) Control measures of insects,—(a) Mechanical (b) Chemical (c) Cultural (d) Biological (e) Legal. Familiarity with common insecticides (stomach poison, contact poison and fumigants).

(iv) The teacher will show the specimen of common harmful insects to the children who may collect and preserve some.

Agricultural Economics.

(1) The children will keep daily record of different agricultural operations performed at the farm and maintain agriculture accounts.

(2) Types of farming in India such as collective farming, co-operative farming, individual farming and state farming. Their merits and demerits. (3) Sub-division and fragmentation of holdings, their disadvantages and consolidation as their remedy.

Animal husbandry and dairy farming.

(a) Characteristics of a good animal. (b) Study of different breeds of cow and buffalo found in India such as Nagori, Montgomri, Tharparker, Gir, Sahiwal and Murrah buffalo. (c) Judging of milch and draught animals. (d) Selection of a good ox, cow, buffalo, and a goat by their general appearance, construction of their head, body and hind portion in case of milch animals and hump, breast, sheeth in the case of ox. (e) Improvement in their breeds through healthy diets, better care and artificial insemination. (f) Some common diseases of ox, cow, buffalo and goat, knowledge of preventive and remedial measures to check them. (i) Milk production.—(i) simple idea of milk and milk products such as curd, cream, butter, ghee etc. (ii) the testing of purity of milk, butter and ghee, (iii) preparation and preservation of dairy products knowledge of butter churner; separator and lactometer. (h) Cattle Breeding.—(i) Care of common animals such as ox, cow, bull, buffalo, goat and sheep and their young ones. (ii) Preparation and preservation of their feeds. Food values of different green fodders for dairy animals. (iii) Housing of cattle,—site of cattle shed and paddock, their requirements, care and maintenance.

Bee keeping.

(a) Varieties of bees—solitary and social bees; races of clustering bees living in colonies and in open air. (b) Various stages in the development of the bee—eggs, larva, pupa and adult. Duties of workers. Division of labour. Parts played by queen and drones. Period of life of worker, queen and drone. Parts of the body of the bee and their functions. (c) Natural enemies of bees—ants, birds, frogs, mice, wasps spiders etc. (d) The organisation of a bee colony—why bees live in colonies, size of the nest, three types of individuals in a colony—queen, worker and drone. (e) Combs—their material and construction, combcells their sizes and uses; colour of combs their arrangements. (f) Honey sources and colour. (g) The place of the honey bee in the fertilization of flowers. Value of bees to cultivators.

CLASS VIII

Plant life.

(1) Reproduction is multiplication of plants (a) sexual reproduction (by seed), (b) asexual reproduction (vegetatively).

(2) Trees and forests—their importance to agriculture.**Soils.**

(a) Reclamation is improvement of soils for agricultural operation. (b) Methods of reclamation. Summer cultivation and ploughing at the different depths, control of weeds, control of disease of plants and insect pests, use of manure, use of improved ploughs: application of green manure, checking of erosion.

Manures.

Phosphorous and Potash as fertilizers. The children should realise importance of phosphate and potash fertilizers to the plant and their application. They ensure good flowering, early maturity, good colour, size, shape and quality of the fruit. Their time, rate and method of application on different Rabi and Kharif crops and adverse effects of their mishandling.

The children should apply these fertilizers to the common crops and plants raised on the farm.

Drainage.

(a) Preparation of open and closed drains by children, their effects and utility. (b) Advantages and disadvantages of surface and underground drainage.

Crop production.

(a) Field crops.—(i) Preparation of one and two year scheme of rotation—One year scheme—Maize, potato and tobacco. Two year scheme—Sanai, potato, butter gard, maize, cauliflower and onion.

(ii) Cultivation and study of some recommended varieties of wheat, cotton, paddy, sugarcane keeping in view the soil, climate, preparation, manure, seed rate, time and method of sowing, irrigation, hoeing, weeding, time of harvesting, yield, marketing, insects and diseases and their control and selection and storage of crops.

(b) Fruit gardening.—Cultivation of grafted and budded fruit trees like mango and zuzuphus (Ber), raising of young stock by grafting, time and method of transplanting, manuring, irrigation, hoeing and weeding flowering and fruiting.

(c) Vegetable gardening.—Seed raising from root crops. Root crowns are selected from healthy root crops placed in the soil. Young plants develop which ultimately bear flowers and pods. Seeds are collected and preserved in fumigated pots. Work of class VII regarding vegetable gardening to continue.

(d) Ornamental gardening.—Lawn making, preparation of soil, levelling of soil, mixing of compost or night soil or screened stable manure, levelling and dressing, use of seeds and grass cuttings or roots, watering, rolling, weeding, mowing.

Raising of some annuals like Cineraria, Carnations, Stocks, Chrysanthomum.

Work of class VII to continue.

Agricultural Economics.

(a) Keeping of agricultural records and accounts to continue.

(b) Improvement in agriculture through co-operative marketing, co-operative credit societies, cattle shows and exhibitions. Demonstration and experimental farms and their functions. The children will be taken out on excursions for gaining up-to-date information regarding these. The children may be apprised of the different methods of storage and preservation of farm products.

(c) Storing and preservation of different farm products such as seeds, green vegetable and food grains.

Cold storage system and other food grains and vegetable stores owned by government and private agencies employing different preservation and preventive devices may be shown to the children if possible.

Different preventive measures adopted for storing food grains on large and small scale, use of different insecticides like gammaxane, D.D.T. etc.

(d) Suitable site for an agricultural farm.—Good roads, better means of transportation, meanness of local market etc.

Animal husbandry and dairy farming.

(a) Cattle Breeding—Its importance (1) heavy milch cows (2) improved bulls (3) good draught animals. Selection of cattle for breeding purpose—(i) high producing ability for butter, fat and milk. (ii) satisfactory body confirmation or type (iii) resistance to disease and (iv) easy milking.

Type of breeding.

(1) Line breeding—largely of the same family and blood lines. It enables a concentration of characteristics of a particular strain and undesirable characteristics of weakness can largely be eliminated from the herd (2) Cross breeding—mating of almost entirely unrelated animals. It produces all kinds of variations in the second succeeding generation. Selection of bulls for breeding purposes proven bulls, unproven bulls and artificial insemination sources. A proven bull is one which has enough heifers of producing age. An unproven is judged from its own characteristics by observation.

(b) *Dairy animals and their common diseases*:—(1) Cowpox, characterised by reddish eruptions usually on the tests and udder, developing yellow pus. Cleanliness and washing with Boric acid solution. (2) Foot rot—redness of the flesh just above the hoof resulting in lameness. Washing of hoof with disinfectants like phenyl and alum. (3) Mouth rot—swelling in the flesh of cheek within the mouth, accumulation of pus which spreads down the throat and goes in the stomach. Use of alum and borax in the mouth. Stables and utensils should be disinfected. (4) Dysentery—Dark foul smelling faeces, dull appetite and loss of weight. Use of Kharia mitti and country liquor.

Bee Keeping.

(1) Modern methods of bee keeping. (2) Advantages of bee keeping. (3) Collection of honey, its uses and nutritive value; tests of pure honey (4) Collection of wax, detecting adulteration in purchasing wax, commercial uses of wax. (5) Prevention of bee diseases.

CARDBOARD MODELLING AND BOOK CRAFT

CLASS VI

Practical.

1. (a) Orthographic projections (plan and elevations).
(b) Execution of models.
1. Sliding box with advance techniques.
2. Hexagonal tray.
3. Hexagonal box.
4. Round box.
5. Folding graph frames.
6. Case of writing pad.
7. Blotting pads with advance techniques.
8. Rectangular box.
9. Paper rack. •
10. Ink stand.

(c) Decorational work :

1. Preparation of mount papers continued.
 2. Lino cutting and printing.
 3. Stencelling.
- (d)
1. Preparation of paste continued.
 2. Preparation of Glue continued.

2. Informational content :

Mother Tongue.

1. Maintenance of daily diary and record.
2. Reading of books on paper-card-book craft. etc.
3. To discuss the utility of models by organizing the debates and writing short essays.

Social Studies.

1. Migration of paper from China to India.
2. Development of paper industry from hand made paper to machine made paper.
3. Centres of hand made paper in India.

General Science.

1. Solubility of a substance in water dilute concentrated and saturated.



Maths.

1. Wider application of ratio and proportion.
2. Percentage, profit and loss in connection with the models prepared in the class.
3. Book keeping in connection with craft account.
4. Use of graph paper in connection with the different records like sale record and progress record.

Art.

1. Sketch of model.
2. Shading of the model.
3. Paper cutting.
4. Printing with lino and stencil.

3.. Material required.

In addition to the previously mentioned the following things will be required.

Stencil knife. Linocutter, stencil paper, varnish and glue.

CLASS VII**Practical.**

1. (a) Orthographic projections continued (plan and elevation).

(b) Execution of models.

1. Paper rack.
2. Folding photograph frames with advance techniques.
3. Ornamental box.
4. Dressing box.
5. Time piece case.
6. Table calendar.
7. First aid box.
8. Binding the note book.
9. Binding the exercise book.
10. Binding the register.
11. Simple book binding.

(c) Decorational work.

In addition to the previously mentioned technique, blind tooling can be introduced.

(d) Preparation of adhesive continued.

2. Informational contents.

(a) *Mother tongue.*

1. Maintenance of daily record and diary continued.
2. Reading programme on the craft to be continued.

(b) Social studies.

1. Historical development of book binding in different ages-preserving religious manuscripts in different times.
2. Decoration of books.
3. Showing cardboard, paper and calico industries on the map of India.

(c) General Science.

1. Change of state, evaporation and clouds etc.
2. Mixture and compound.

(d) Maths.

1. Advanced book keeping.
2. Construction of hexagon and parallelogram.
3. Calculation of volume of rectangular and round box.
4. Area of the four walls.

(e) Arts.

1. Drawing the sketch of model and other objects of interest.
2. Shading with pencil.
3. Lino printing and stencilling.

B. Material required.

In addition of the previously mentioned, the following things will be used:

Standing press, napping press, cutting press, cobblers knife, edging knife, paring knife, pannel saw, awl and spring divider.

CLASS VIII**Practical.**

1. (a) Orthographic projections continued (Plan and elevation).
- (b) Execution of models :
 1. Revision of the work done in the class VI & VII.
 2. Attache case.
 3. Two or three extra models prepared by the students, according to their own taste.
 4. Book binding.
 - (i) Stitch binding.
 - (ii) Tap binding.
 - (iii) Loose-binding.

These techniques will be practised in the following bindings:

1. Quarter bound.
2. Half
3. Full bound