National Achievement Survey (Cycle 3)

CLASS III

Achievement Highlights

2014

Educational Survey Division
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Contents

Background

Coverage of Class III Cycle 3 study:

- **34** States/ UTs (except Lakshadweep)
- **298** Districts
- **7,046** Schools
- **1,04,374** Students

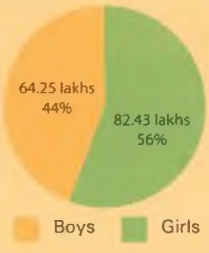
With the enactment of 'The Right of Children to Free and Compulsory Education' (RTE) Act 2009, government is obligated in ensuring eight years of quality education for all children in the age group 6-14 years. Over the past decade or so since the beginning of the Sarva Shikha Abhiyan (SSA) programme, there has been a significant increase in the number of schools and in the enrolment of children in government schools, most notably a large proportion of children from amongst Scheduled Castes, Scheduled Tribes, Muslims and girls have joined the schooling system. Most of these children are also first-generation learners, coupled with the fact that they also come from very impoverished socio-economic backgrounds, which present unique challenges for the education system to adequately support the diverse learning needs of students. While high enrolment and diverse classrooms are a sign of healthy inclusion and participation in the education system, it is equally important that all children receive a good quality education. One of the key indicators of quality education is to understand whether children's learning achievement is improving over time in an equitable manner.

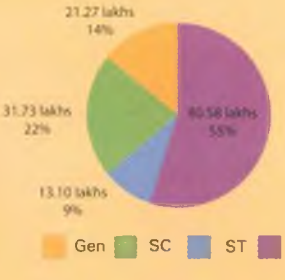
To monitor improvement in children's learning levels and to periodically assess the health of the government education system as a whole, the National Council of Educational Research and Training (NCERT) has been periodically conducting National Achievement Surveys (NAS) since 2001, for Class III, V and VIII. The NAS report gives a national and state-level picture, rather than scores for individual students, schools or districts. The purpose of these assessments is to obtain an overall picture of what students in specific classes know and can do and to use these findings to identify gaps and diagnose areas that need improvement. This information can then be used to impact policies and interventions for improving children's learning under the SSA programme.

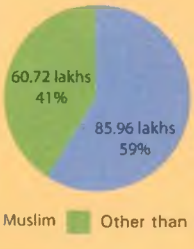
Who has joined elementary schools in the past 5 years?

(Between 2007-08 and 2012-13)

Total enrolment increased by **146.68 lakhs,** distributed as follows:







Source:
District Information System for Education (DISE), NUEPA, New Delhi

Cycles of National Achievement Surveys conducted under SSA

This report summarises the findings of the NAS Class III (Cycle 3) conducted in 2013. Some important key features of this survey are highlighted below:

Key Features of the Class III (Cycle 3) study:

- Assessed student abilities in **Language** (listening, recognition of words and reading comprehension) and in **Mathematics** (numbers, basic operations, measurement, data handling, patterns, money and geometry)
- For the first time, uses international technique of **Item Response Theory** (IRT) for Class III assessments, which measures the true ability of students to respond correctly to different levels of difficulty in tests, allows comparison of scores over time and increases the efficiency, accuracy and usefulness of results
- Conducted tests through **child-friendly manner** like reading questions aloud so children would feel at ease and answer comfortably
- Involved rigorous training and monitoring of field investigators to ensure **quality of data** through standardized test administration
- Standardized tests were administered in **16 languages** of instruction across the country

Overall Findings

"Overall, Class III children in 34 states/UTs were able to answer **64%** of **language** items correctly and **66%** of **mathematics** questions correctly.

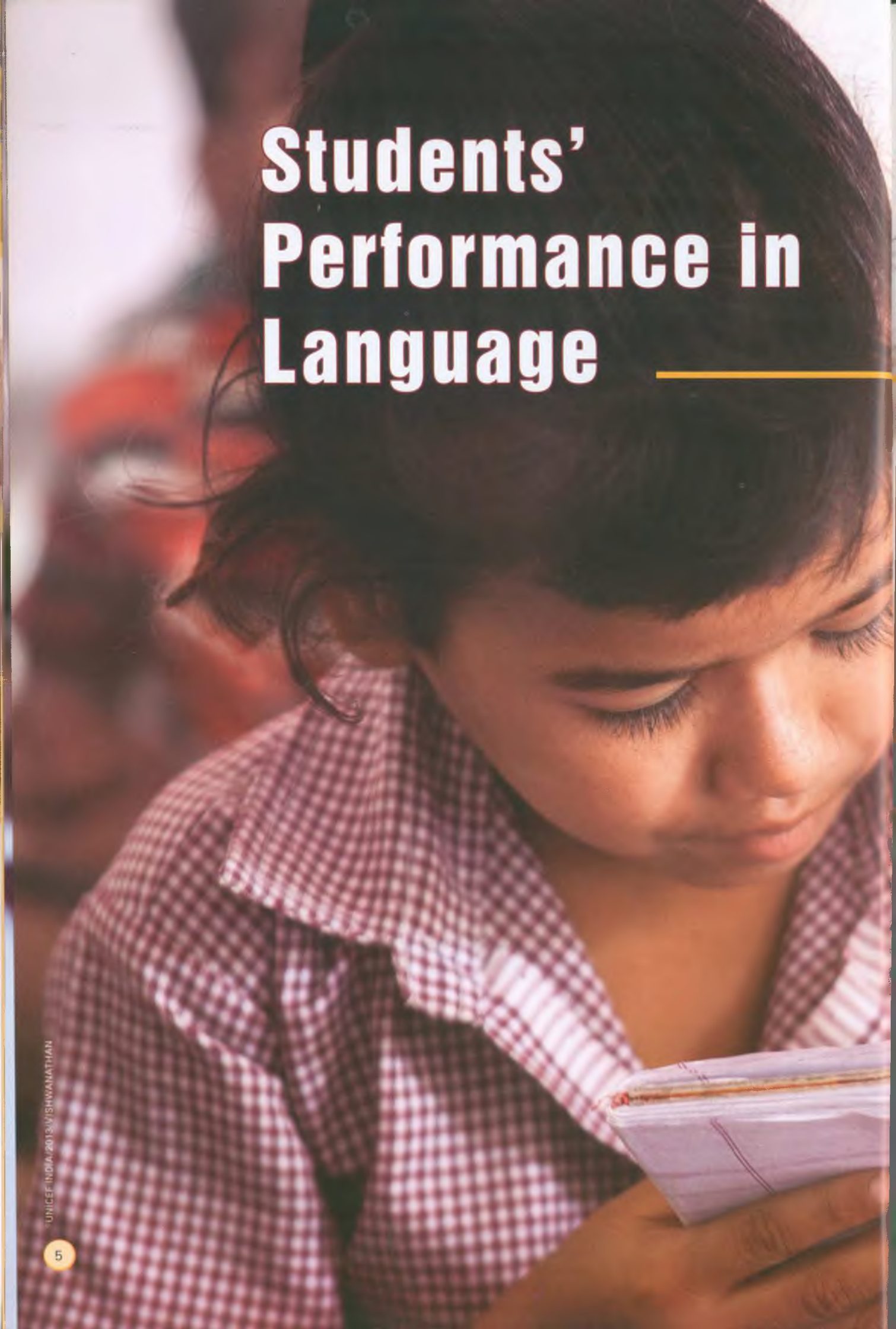
Performance in Language

State/UT	Percentage
Daman & Diu	74
Dadra & Nagar Haveli	73
Mizoram	73
Puducherry	73
Tripura	73
Goa	71
Sikkim	71
Tamil Nadu	71
Karnataka	70
Kerala	70
Maharashtra	70
Manipur	69
West Bengal	69
Gujarat	67
A & N Islands	66
Himachal Pradesh	65
Meghalaya	65
Nagaland	65
Andhra Pradesh	64
National Average	**64**
Assam	63
Punjab	63
Uttar Pradesh	63
Odisha	62
Delhi	61
Arunachal Pradesh	60
Chandigarh	59
Jharkhand	58
Madhya Pradesh	58
Rajasthan	58
Haryana	57
Uttarakhand	57
Jammu and Kashmir	56
Bihar	53
Chhattisgarh	51

Performance in Mathematics

State/UT	Percentage
Daman & Diu	77
Puducherry	75
Dadra & Nagar Haveli	74
Tamil Nadu	74
Karnataka	73
Manipur	71
Mizoram	71
Punjab	71
Kerala	70
Tripura	70
Andhra Pradesh	69
Gujarat	69
Himachal Pradesh	69
Maharashtra	69
A & N Islands	68
Sikkim	68
Uttar Pradesh	68
West Bengal	67
Assam	66
Goa	66
National Average	**66**
Jharkhand	65
Nagaland	65
Madhya Pradesh	64
Meghalaya	63
Delhi	63
Odisha	63
Arunachal Pradesh	62
Haryana	62
Uttarakhand	62
Jammu and Kashmir	61
Rajasthan	61
Chandigarh	60
Bihar	57
Chhattisgarh	53

Students' Performance in Language



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The ability to understand a simple text is a skill that is fundamental to learning. Without acquiring basic language skills in the primary classes, children have difficulty succeeding in school as they move on to higher grades, as well as in coping with other subjects.

To gauge students' language development, students were assessed on their skills in:

1. **Listening comprehension** (using multiple choice questions based on a passage read aloud by the investigator),
2. **Word recognition** (by matching the picture provided to the correct word from two given options),
3. **Reading comprehension** (by being asked to read a calendar/paragraph/advertisement and then locate specific information or draw conclusions)

Average Scores in Language

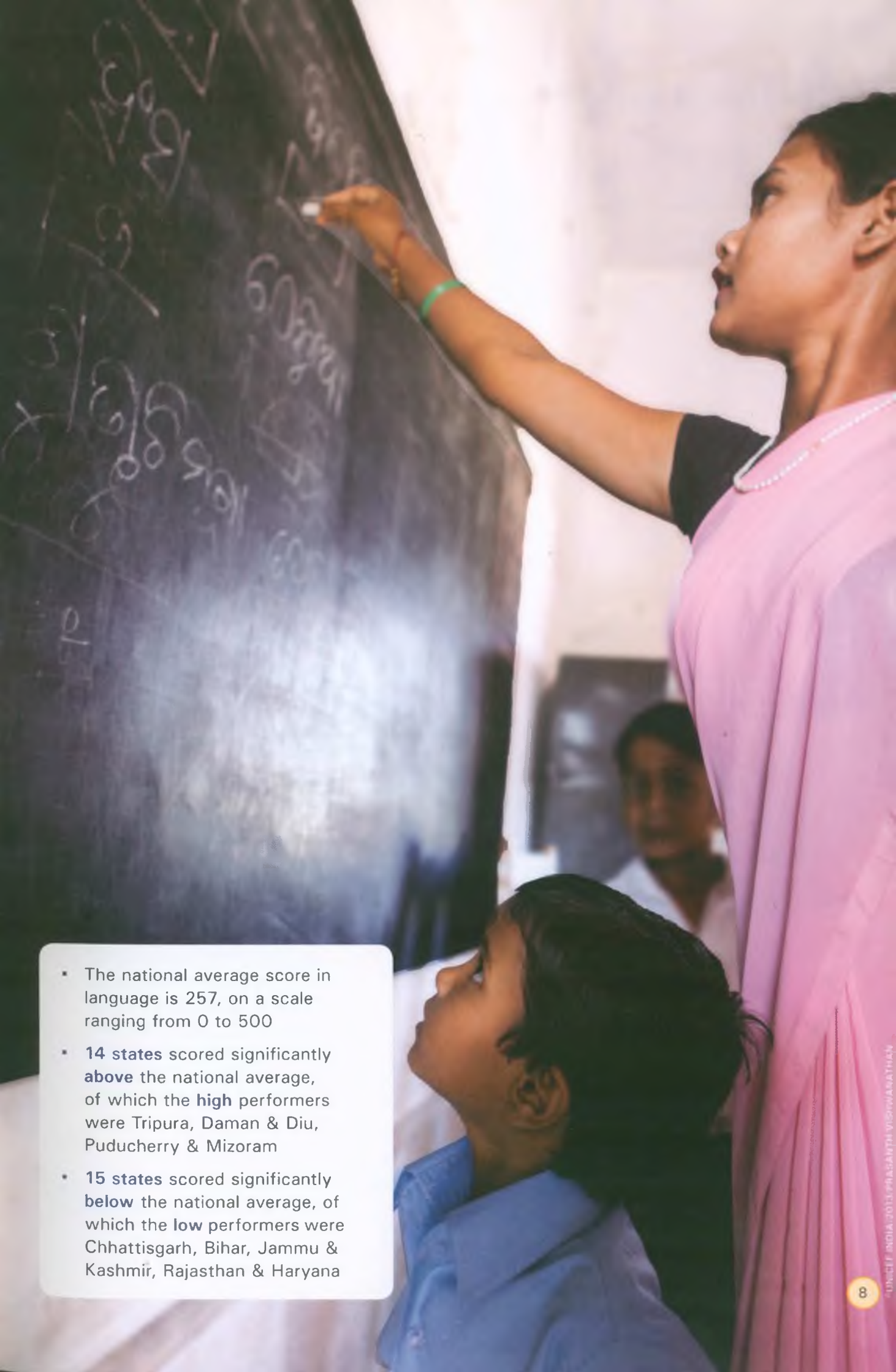
State's Average is significantly **ABOVE** the National Average (States/UTs: 14)

State's Average is significantly **BELOW** the National Average (States/UTs: 15)

No. significant difference in average score than National Average (States/UTs: 5)

UT not included in the Report (UT: 1)

State/UT	Average Score
Tripura	281
Daman & Diu	280
Puducherry	280
Mizoram	278
Dadra & Nagar Haveli	274
Goa	274
Sikkim	274
Tamil Nadu	274
Kerala	273
Maharashtra	271
West Bengal	271
Karnataka	267
Manipur	267
A & N Islands	262
Gujarat	262
National Average	**257**
Himachal Pradesh	256
Nagaland	255
Andhra Pradesh	253
Assam	253
Delhi	253
Meghalaya	252
Uttar Pradesh	252
Odisha	250
Punjab	249
Arunachal Pradesh	247
Chandigarh	243
Jharkhand	242
Madhya Pradesh	239
Uttarakhand	239
Haryana	238
Rajasthan	238
Jammu & Kashmir	232
Bihar	227
Chhattisgarh	226

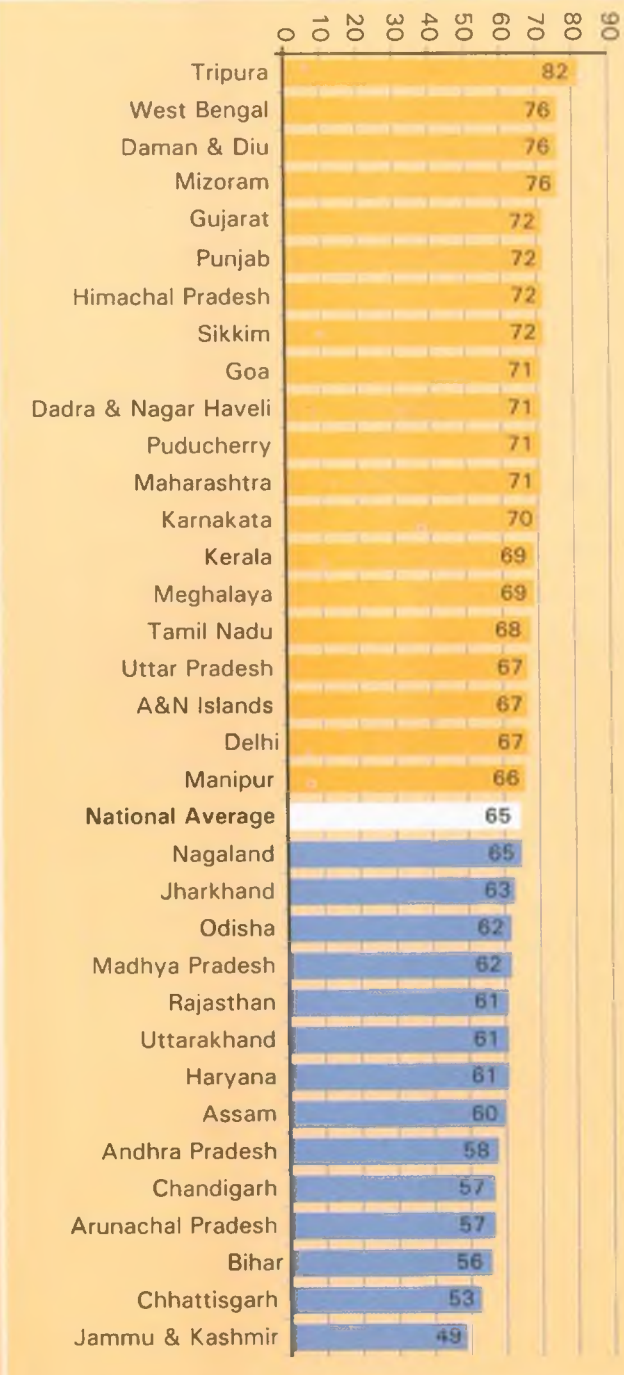


- The national average score in language is 257, on a scale ranging from 0 to 500
- **14 states** scored significantly **above** the national average, of which the **high** performers were Tripura, Daman & Diu, Puducherry & Mizoram
- **15 states** scored significantly **below** the national average, of which the **low** performers were Chhattisgarh, Bihar, Jammu & Kashmir, Rajasthan & Haryana

Ability-wise Performance in Language

Listening

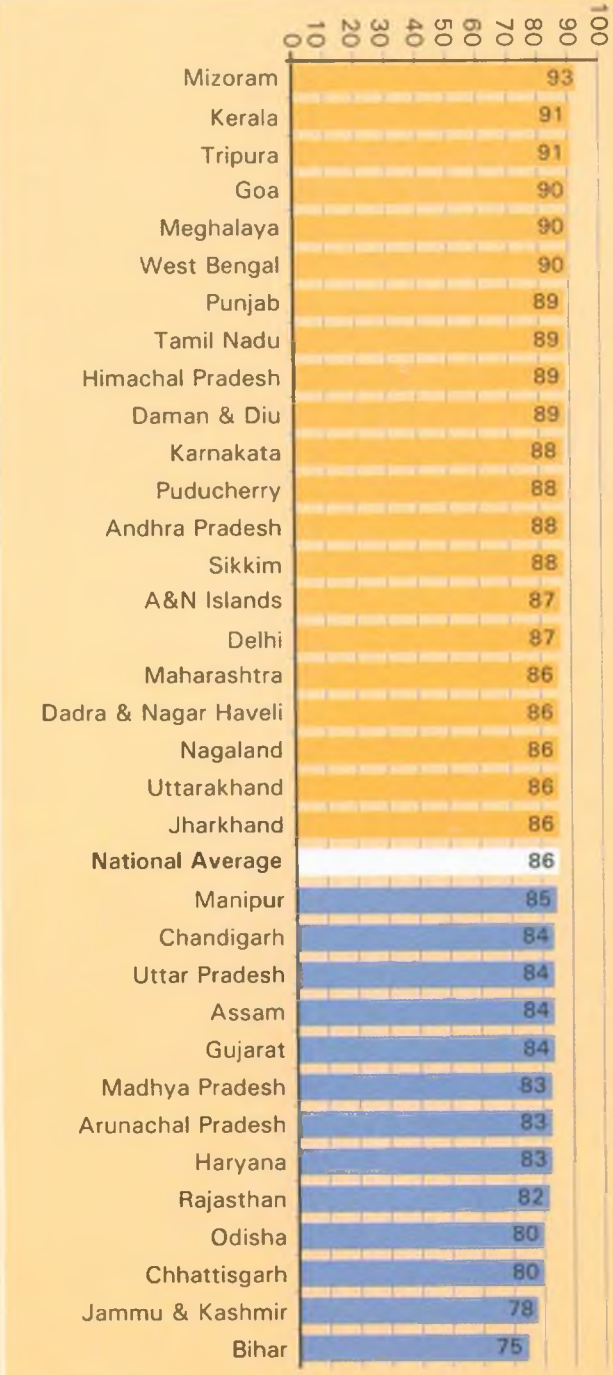
Overall, **65%** of Class III students were able to listen to a passage with understanding



Students had to attempt six questions with three options based on the passage read to them by the Field Investigator

Word Recognition

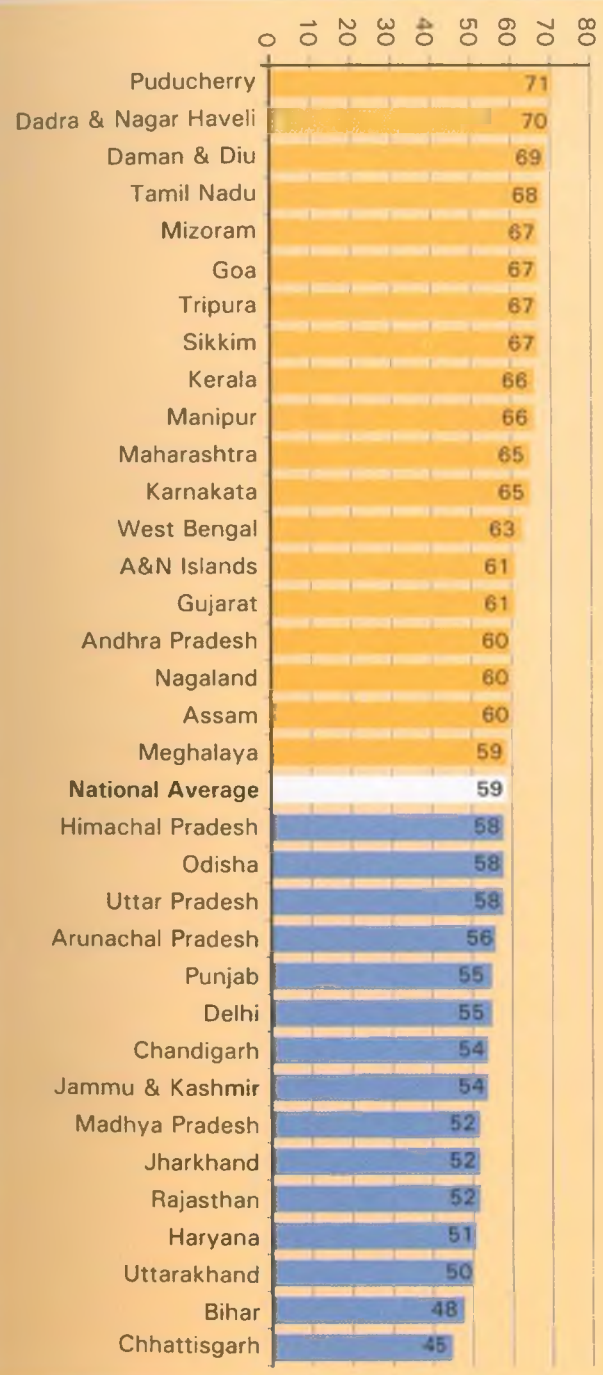
Overall, **86%** of Class III students were able to recognize words



Students had to match the pictures to the correct word from the given two options

Reading Comprehension

Overall, 59% of Class III students were able to read a passage with understanding



Students had to locate information, interpret/ grasp ideas and infer/evaluate from the given text

Sample Item: Reading Comprehension

Percent Correct 50%

Read the following passage and encircle the answers of the questions.

You must have seen butterflies. Do you know where a butterfly comes from? The mother butterfly lays an egg on a leaf or plant. A small caterpillar comes out of the egg.

The caterpillar eats leaves and grows bigger. Then the caterpillar attaches itself to a leaf and makes a large cocoon. This is a kind of shell that protects it from other animals. Inside the cocoon it grows wings and legs. Finally, the cocoon opens and the new beautiful butterfly comes out. It slowly opens its wings and then it flies away.

Cocoon is a kind of

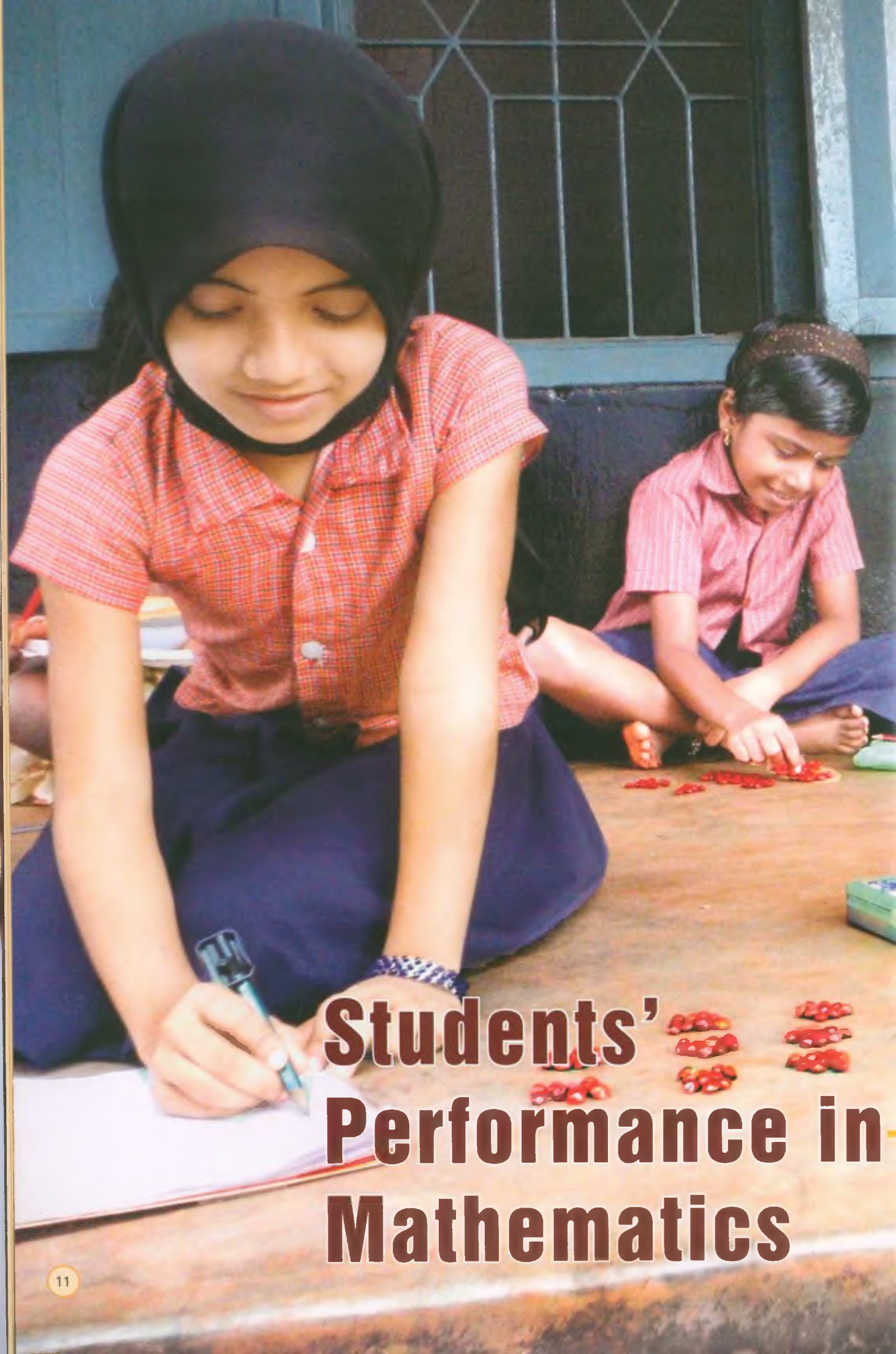
1. Plant.
2. Shell.
3. Butterfly.

Sample Item: Word Recognition

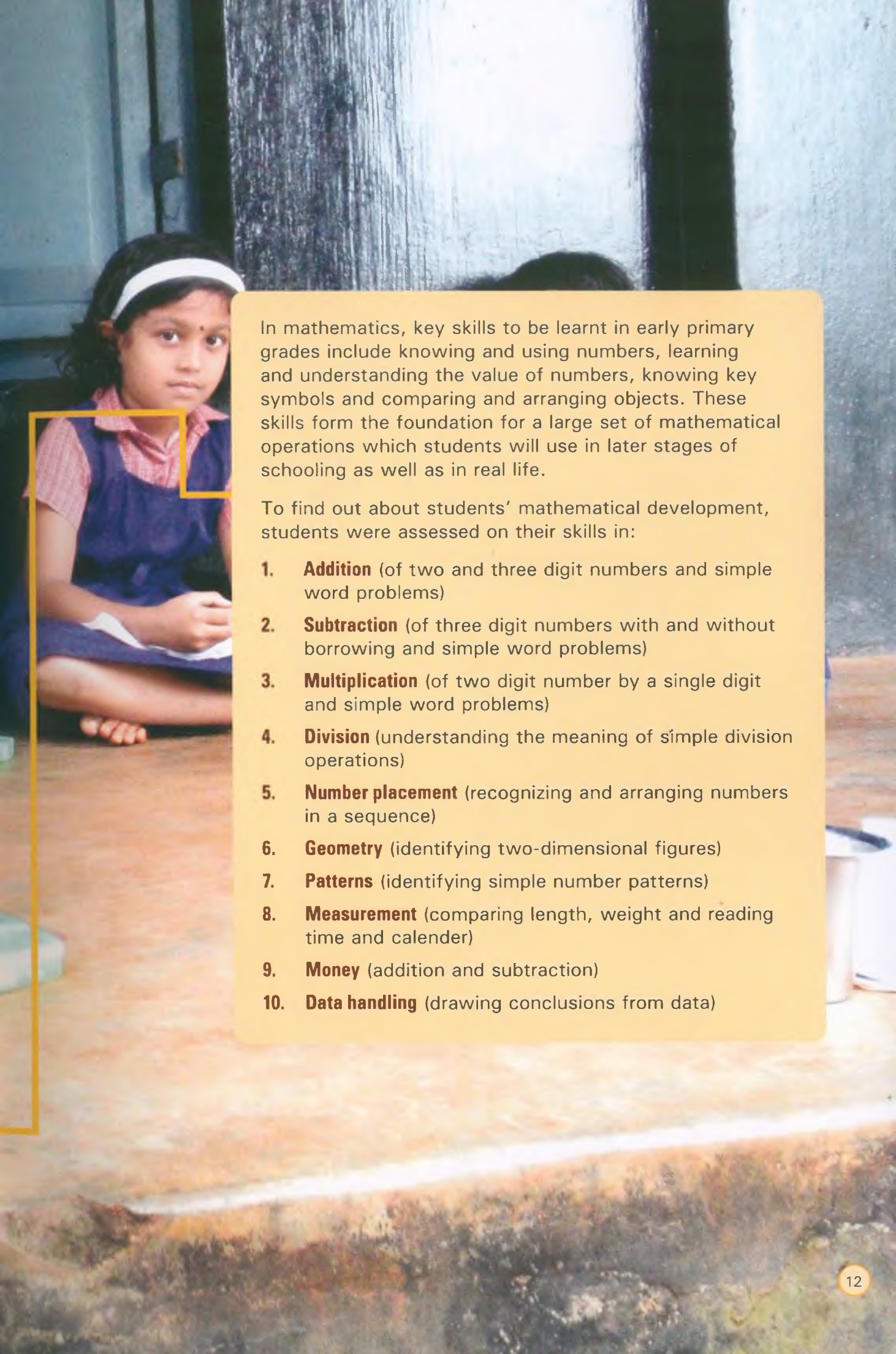
Percent Correct 85%

Look at the pictures and recognise the correct word for the picture. Then encircle the correct answer.

1.Table
2.Chair



Students' Performance in Mathematics



In mathematics, key skills to be learnt in early primary grades include knowing and using numbers, learning and understanding the value of numbers, knowing key symbols and comparing and arranging objects. These skills form the foundation for a large set of mathematical operations which students will use in later stages of schooling as well as in real life.

To find out about students' mathematical development, students were assessed on their skills in:

1. **Addition** (of two and three digit numbers and simple word problems)
2. **Subtraction** (of three digit numbers with and without borrowing and simple word problems)
3. **Multiplication** (of two digit number by a single digit and simple word problems)
4. **Division** (understanding the meaning of simple division operations)
5. **Number placement** (recognizing and arranging numbers in a sequence)
6. **Geometry** (identifying two-dimensional figures)
7. **Patterns** (identifying simple number patterns)
8. **Measurement** (comparing length, weight and reading time and calender)
9. **Money** (addition and subtraction)
10. **Data handling** (drawing conclusions from data)

Average Scores in Mathematics

State's Average is significantly **ABOVE** the National Average (States/UTs:14)

State's Average is significantly **BELOW** the National Average (States/UTs: 12)

No. significant difference in average score than National Average (States/UTs: 8)

UT not included in the Report (UT: 1)

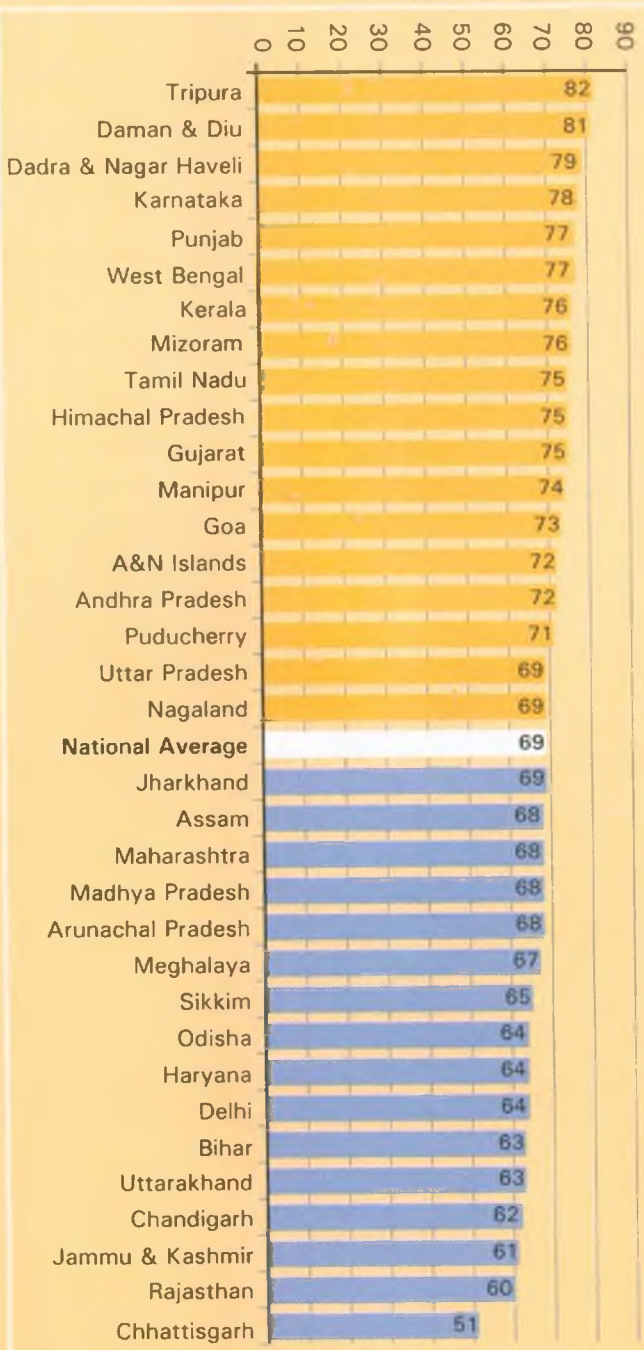
State/UT	Average Score
Daman & Diu	279
Puducherry	271
Tamil Nadu	271
Dadra & Nagar Haveli	267
Karnataka	265
Mizoram	265
Kerala	264
Manipur	263
Maharashtra	262
Tripura	262
Andhra Pradesh	259
Himachal Pradesh	258
Punjab	258
Sikkim	257
Uttar Pradesh	257
A & N Islands	255
Gujarat	255
West Bengal	255
National Average	**252**
Assam	249
Jharkhand	249
Nagaland	249
Goa	248
Arunachal Pradesh	245
Delhi	244
Madhya Pradesh	243
Uttarakhand	243
Meghalaya	241
Odisha	241
Chandigarh	240
Jammu & Kashmir	240
Haryana	238
Rajasthan	236
Bihar	230
Chhattisgarh	222

- The national average score in mathematics is 252, on a scale ranging from 0 to 500
- **14 states** scored significantly **above** the national average, of which the **high** performance was in Daman & Diu, Tamil Nadu, Puducherry, Karnataka and D&N Haveli
- **12 states** scored significantly **below** the national average, of which the **low** performers were Chhattisgarh, Bihar, Rajasthan, Haryana and Jammu & Kashmir

Ability-wise performance in Mathematics

Performance of Students in Addition

Overall, 69% of Class III students were able to solve problems based on Addition



Sample Item:
Addition

Percent Correct 74%

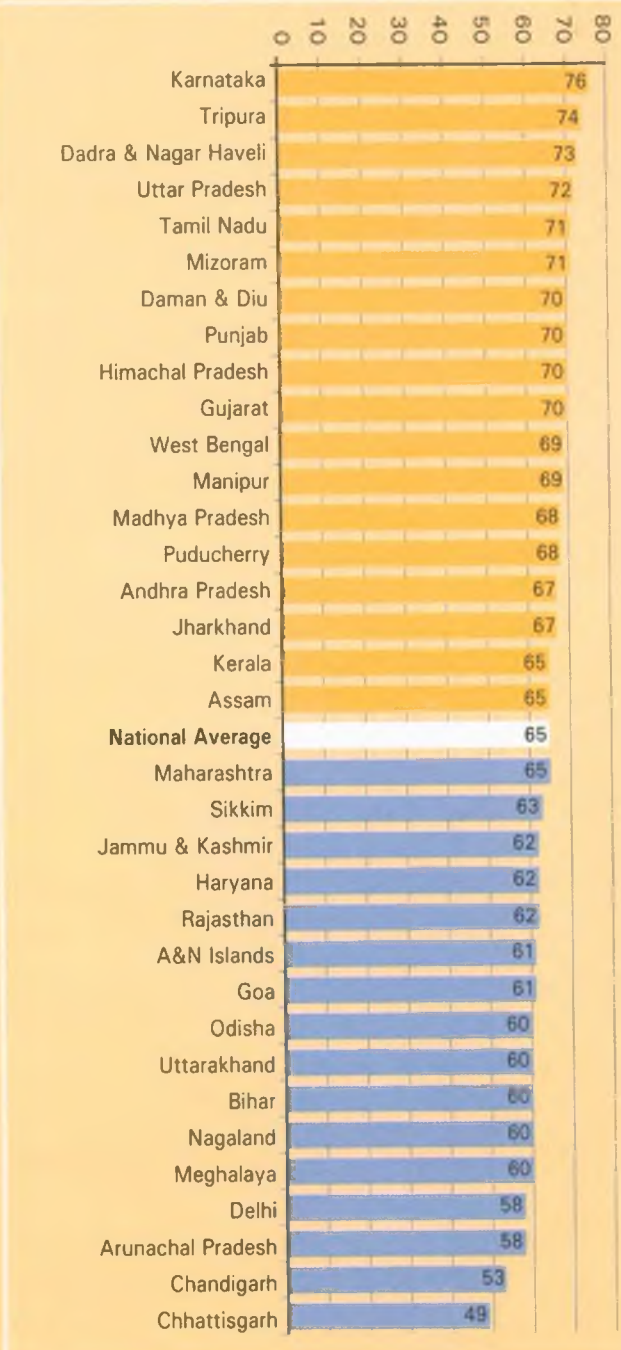
Add

46
+ 37
?

We get : ☐ 73
☐ 83
☐ 713

Performance of Students in Subtraction

Overall, 65% of Class III students were able to solve problems based on Subtraction



Sample Item:
Subtraction

Percent Correct 54%

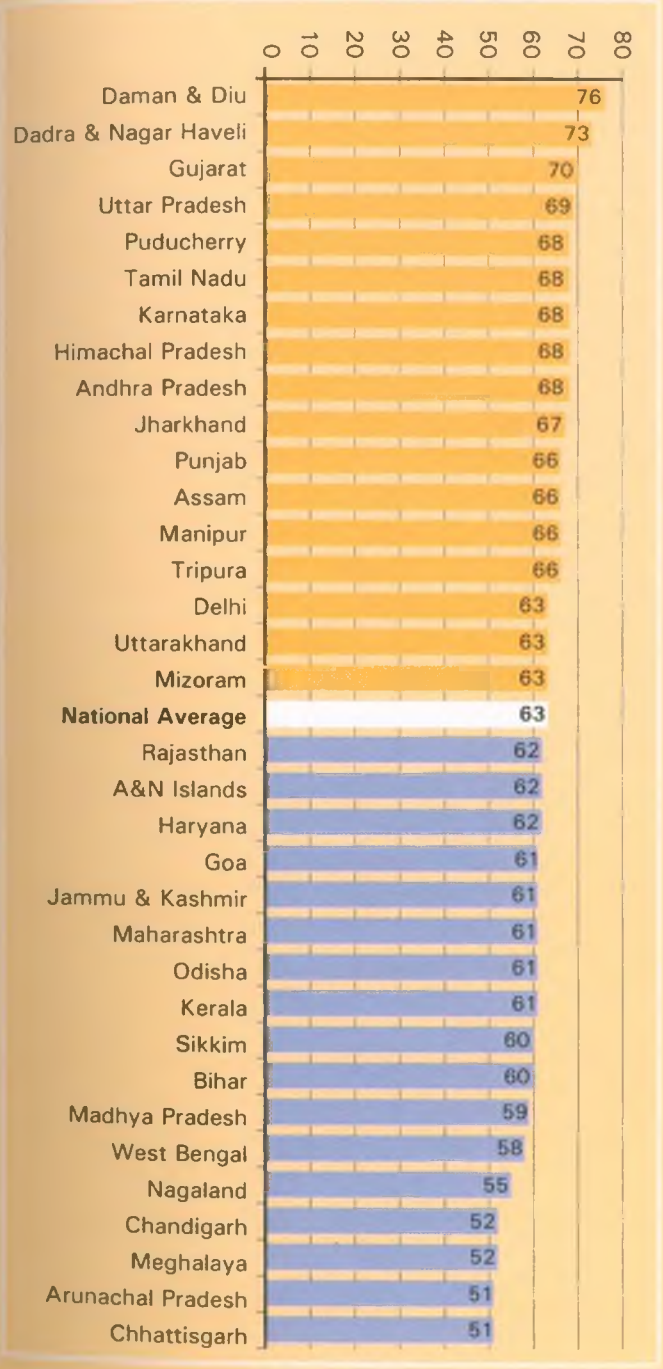
Subtract

213
– 142
?

We get : ☐ 71
☐ 171
☐ 355

Performance of Students in Multiplication

Overall, 63% of Class III students were able to solve problems based on Multiplication



Sample Item:
Multiplication

Percent Correct 70%

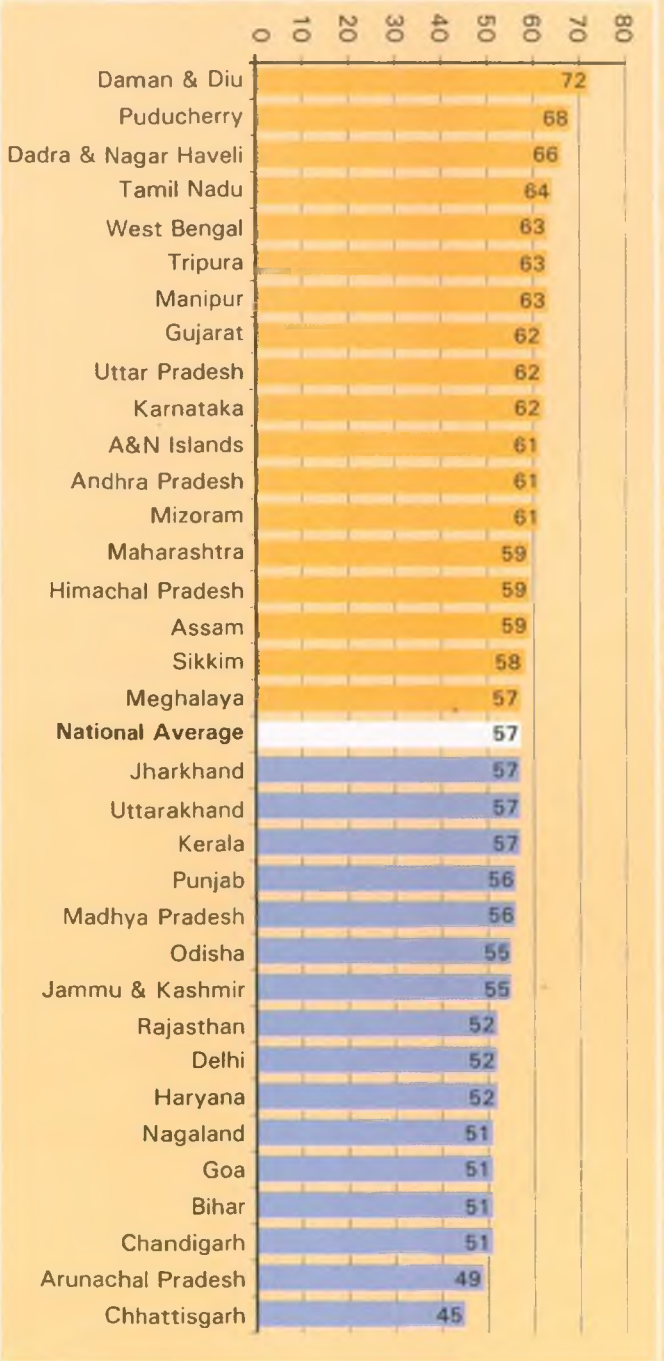
Multiply

24
x 5
?

We get : ☐ 29
☐ 120
☐ 1020

Performance of Students in Division

Overall, 57% of Class III students were able to solve problems based on Division



Sample Item:
Division

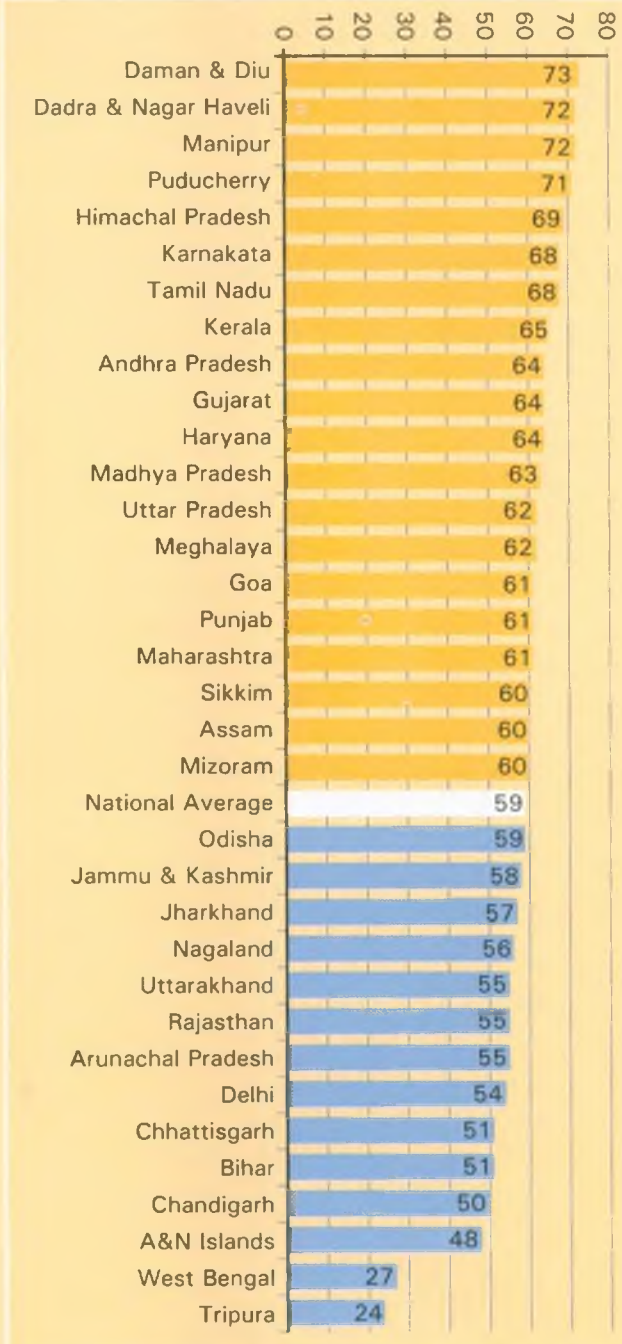
Percent Correct 58%

56 Students form seven equal groups. How many students are in each group?

We get :
☐ 6
☐ 7
☐ 8

Performance of Students in Place Value

Overall, 59% of Class III students were able to solve problems based on Place Value



Sample Item:
Place Value

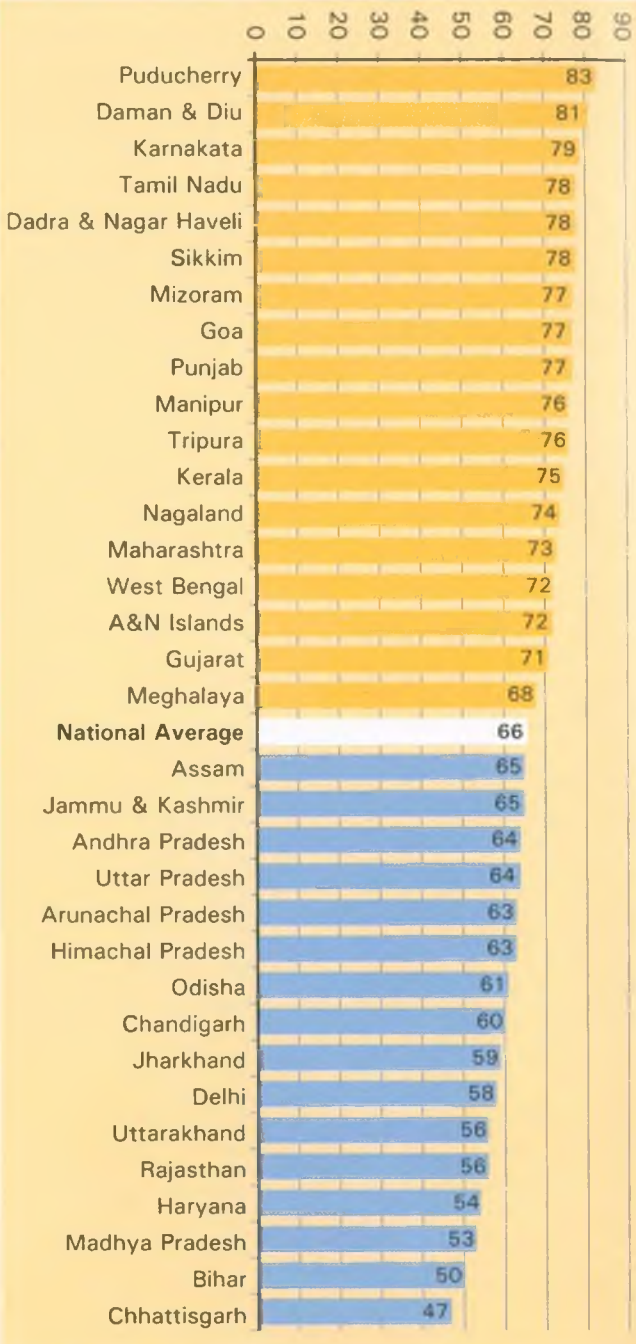
Percent Correct
43%

Which is the largest three digit number using 2, 3 and 4 only once ?

- ☐ 234
- ☐ 432
- ☐ 444

Performance of Students in Geometry

Overall, 66% of Class III students were able to solve problems based on Shapes

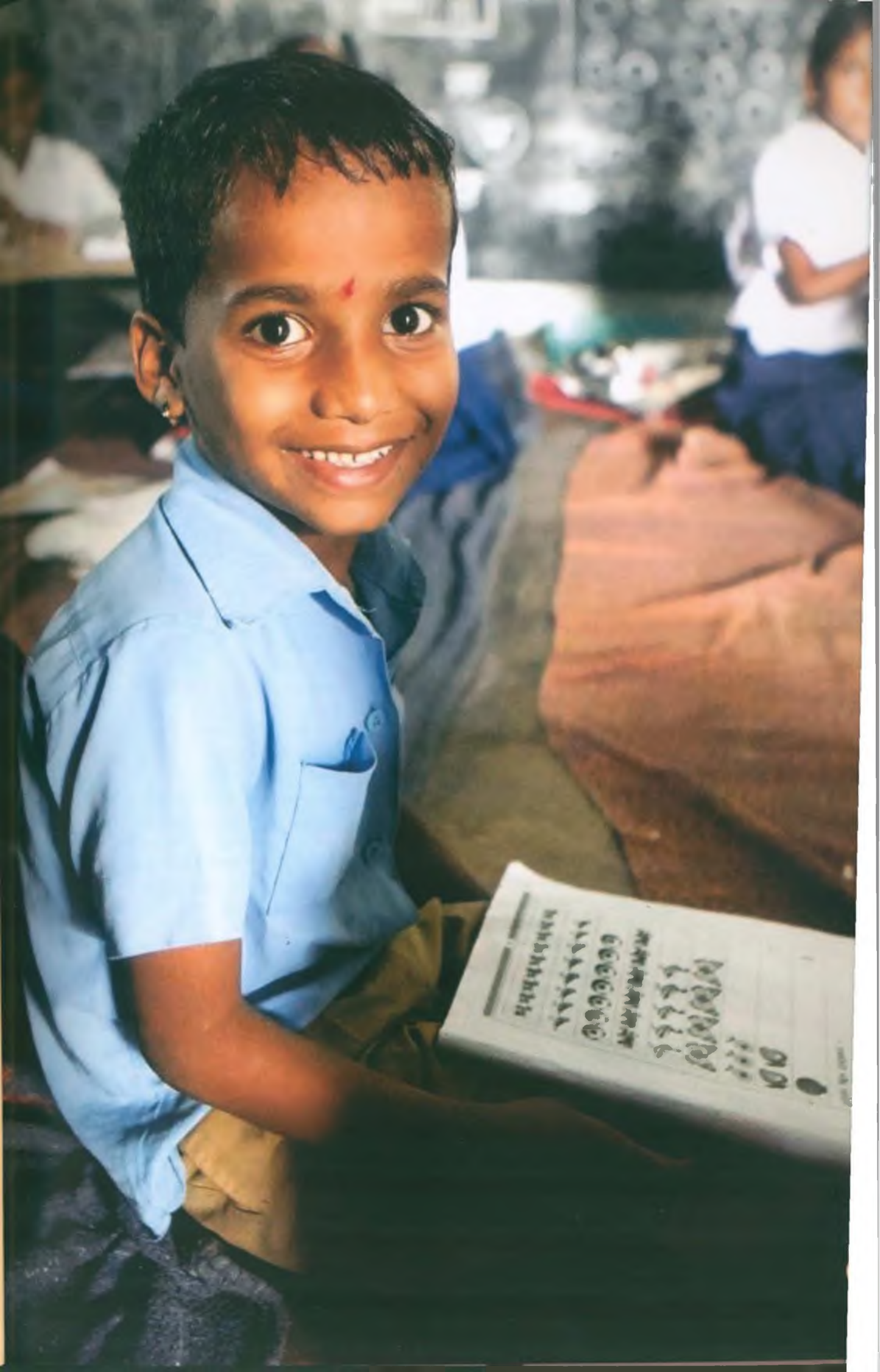


Sample Item:
Geometry

Percent Correct
67%

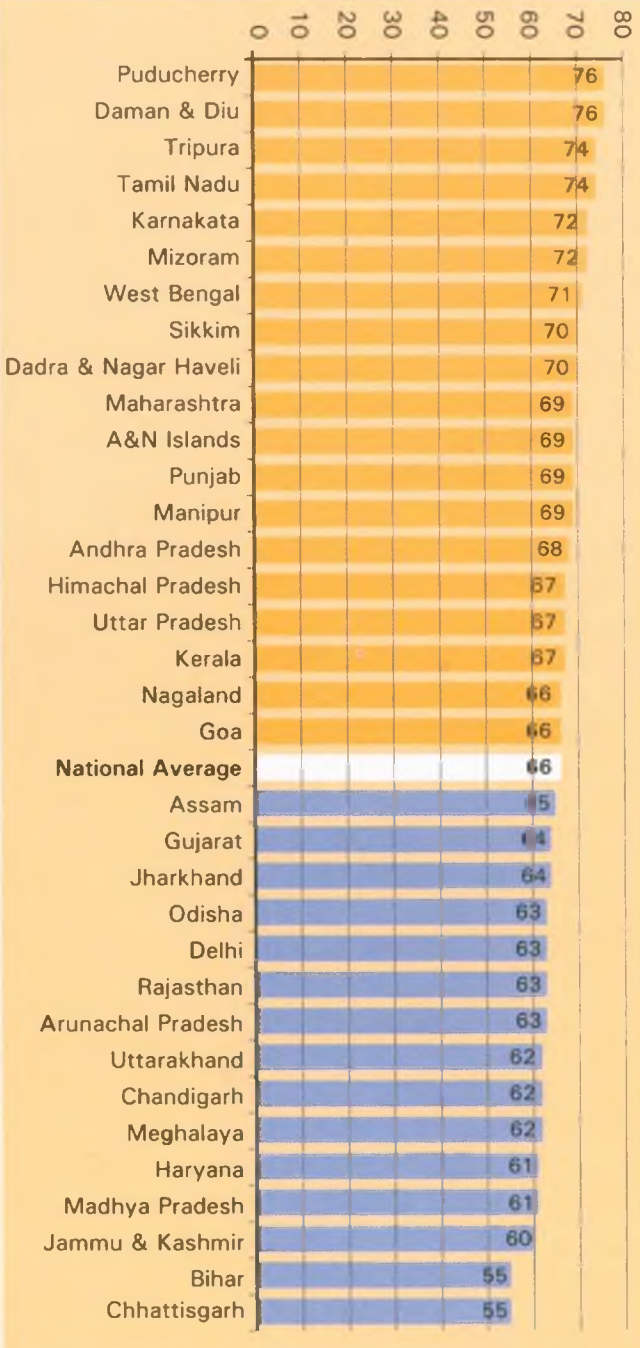
Which of the following shape is not shown in the figure below?

- ☐ Rectangle
- ☐ Triangle
- ☐ Circle



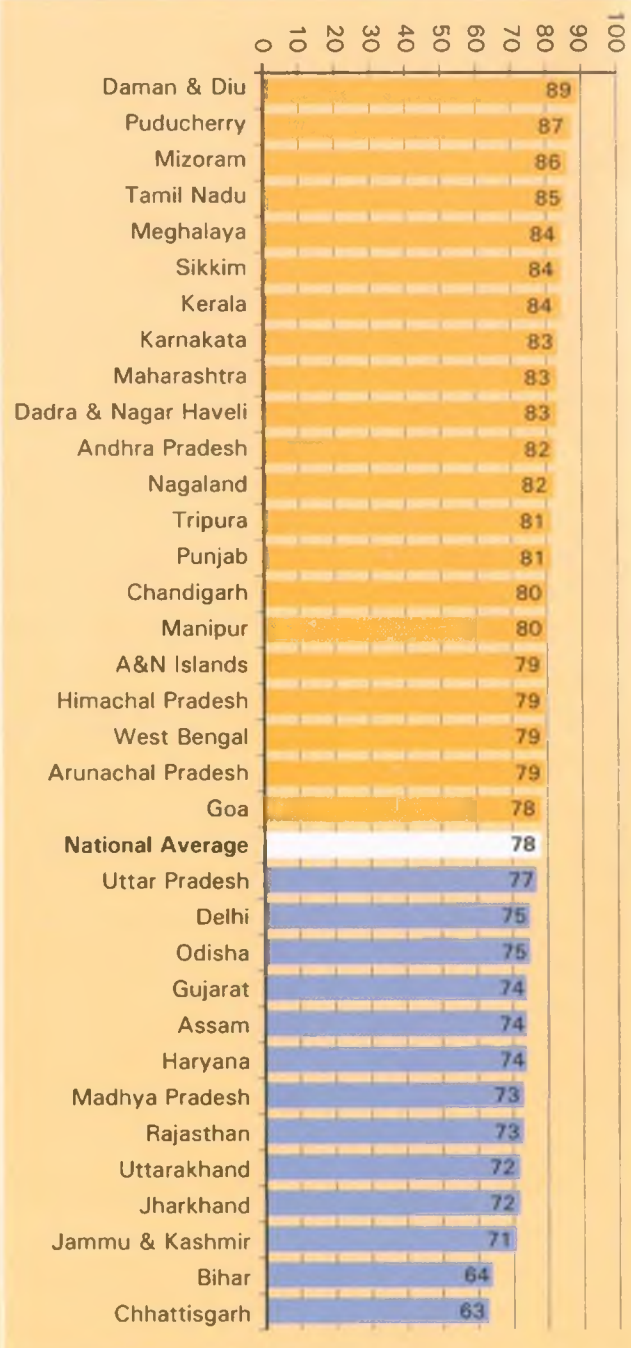
Performance of Students in Measurement

Overall, 66% of Class III students were able to solve problems related to Measurement



Performance of Students in Money

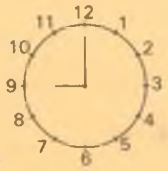
Overall, 78% of Class III students were able to solve problems related to Money



Sample Item:
Measurement

Percent Correct
85%

What is the time by this watch ?



- ☐ 9 o'clock
- ☐ 10 o'clock
- ☐ 12 o'clock

Sample Item:
Money

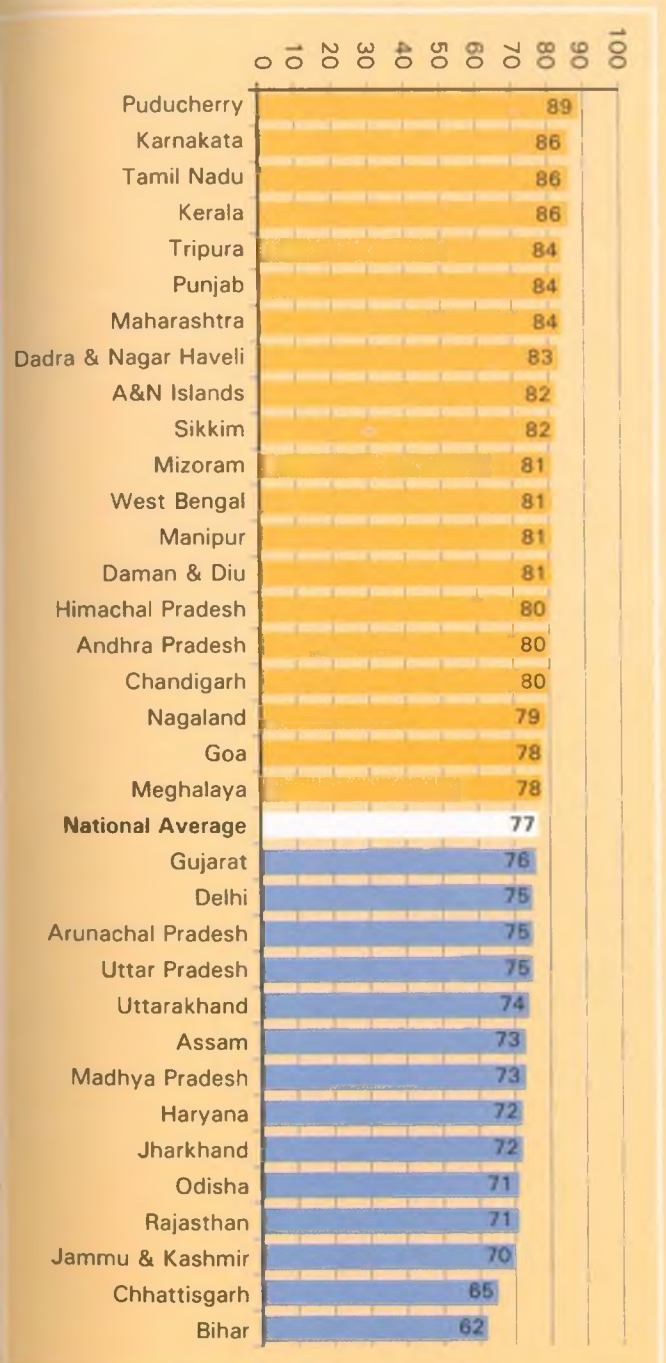
Percent Correct
75%

Your mother gave you Rs. 50. She gave the money in three notes. Which of the following shows the notes she gave?

- ☐ 
- ☐ 
- ☐ 

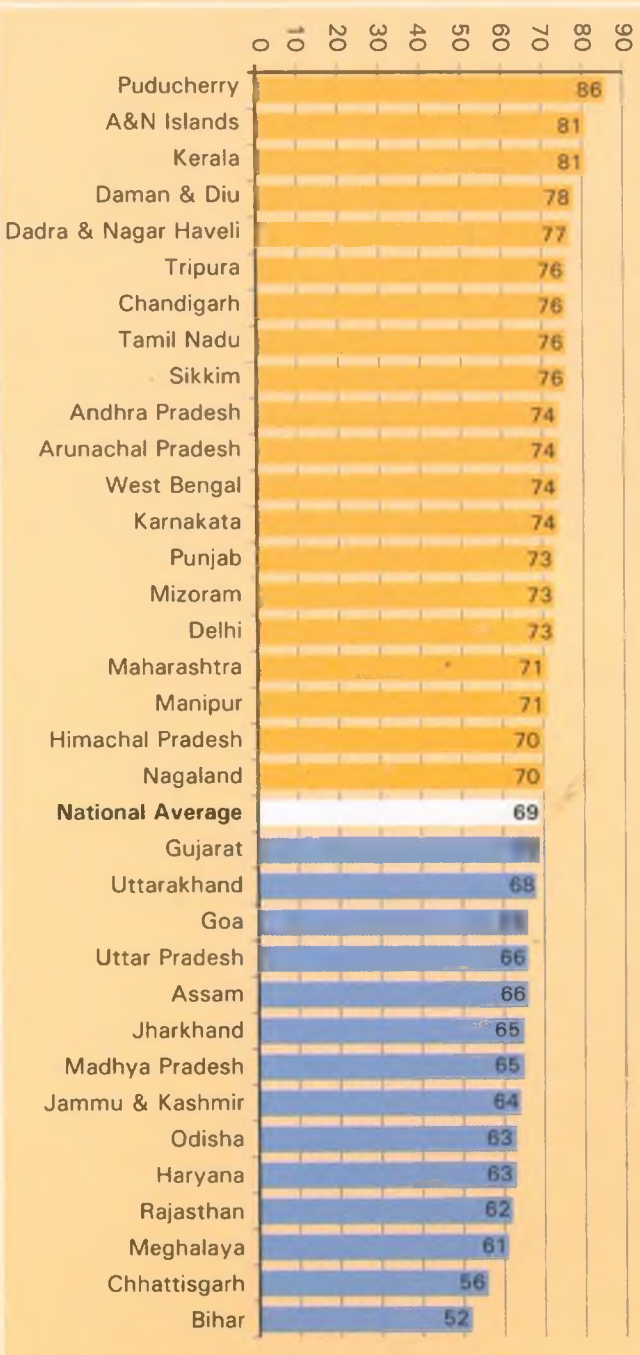
Performance of Students in Data Handling

Overall, **77%** of Class III students were able to solve problems on Data Handling



Performance of Students in Patterns

Overall, **69%** of Class III students were able to solve problems on Patterns



Sample Item:
Data Handling

Percent Correct **73%**

The chart below shows the number of books sold to class 3 students. In which month were the least number of books sold ?

- ☐ August
- ☐ November
- ☐ December

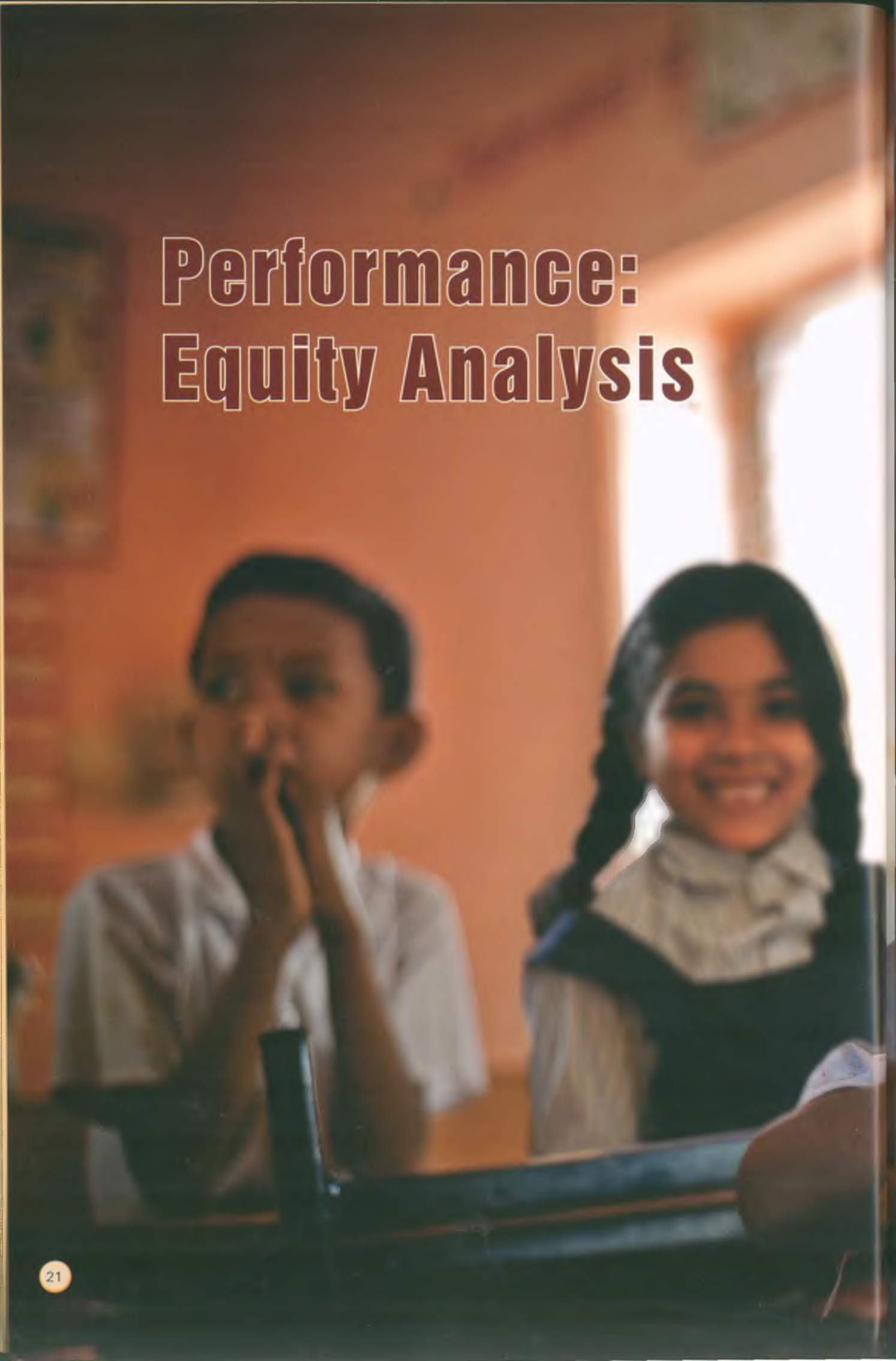
Sample Item:
Patterns

Percent Correct **66%**

Observe the number given below. What comes after 130?

100, 110, 120, 130, _ _ _ _ ?

- ☐ 120
- ☐ 135
- ☐ 140



Performance: Equity Analysis

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Performance by Gender

Language

- Girls students are doing significantly better (States/UTs: 2)
- Boys students are doing significantly better (State:1)
- No significant difference between Boys and Girls students (States/UTs: 31)
- UT not included in the Report (UT:1)

State/UT	Boys Avg (SE)	Girls Avg (SE)
A & N Islands	261 (3.0)	264 (3.6)
Andhra Pradesh	252 (2.9)	255 (2.7)
Arunachal Pradesh	247 (2.9)	247 (3.9)
Assam	254 (2.4)	251 (2.1)
Bihar	228 (2.8)	227 (2.6)
Chandigarh	241 (3.1)	245 (2.8)
Chhattisgarh	228 (3.1)	225 (2.2)
D & N Haveli	272 (3.7)	277 (3.1)
Daman & Diu	278 (10.0)	281 (12.0)
Delhi	250 (2.9)	256 (4.2)
Goa	272 (3.3)	276 (3.2)
Gujarat	261 (2.2)	263 (2.6)
Haryana	238 (3.4)	237 (2.5)
Himachal Pradesh	253 (2.5)	259 (2.6)
Jammu & Kashmir	231 (2.5)	233 (2.8)
Jharkhand	241 (3.2)	243 (2.9)
Karnataka	268 (3.3)	266 (3.3)

State/UT	Boys Avg (SE)	Girls Avg (SE)
Kerala	268 (2.1)	277 (2.6)
Madhya Pradesh	243 (2.5)	234 (2.5)
Maharashtra	270 (2.2)	273 (3.5)
Manipur	266 (4.1)	267 (3.9)
Meghalaya	251 (2.3)	253 (2.4)
Mizoram	278 (2.6)	277 (2.5)
Nagaland	251 (3.2)	257 (4.0)
Odisha	250 (2.5)	250 (2.4)
Puducherry	274 (3.6)	285 (3.0)
Punjab	248 (2.1)	250 (2.7)
Rajasthan	240 (2.8)	237 (2.8)
Sikkim	273 (2.5)	275 (2.5)
Tamil Nadu	272 (3.0)	277 (3.4)
Tripura	282 (2.6)	281 (2.7)
Uttar Pradesh	255 (2.5)	249 (2.6)
Uttarakhand	239 (4.1)	239 (3.4)
West Bengal	272 (3.1)	270 (3.2)

No significant difference between performance of boys and girls in language, except for Madhya Pradesh (boys higher), Kerala & Puducherry (girls higher)

National Average

Boys: 256 (0.6)

Girls: 258 (0.6)

Note: Standard Error has been given in parenthesis

Performance by Gender

Mathematics

- Girls students are doing significantly better (State: 1)
- Boys students are doing significantly better (States/UTs: None)
- No significant difference between Boys and Girls students (States/UTs: 33)
- UT not included in the Report (UT: 1)

State/UT	Boys Avg (SE)	Girls Avg (SE)
A & N Islands	254 (3.0)	257 (3.4)
Andhra Pradesh	260 (2.8)	259 (2.3)
Arunachal Pradesh	245 (3.1)	245 (3.0)
Assam	249 (2.5)	249 (2.7)
Bihar	231 (3.4)	230 (3.7)
Chandigarh	241 (3.1)	239 (3.0)
Chhattisgarh	223 (2.3)	221 (3.8)
D & N Haveli	266 (3.0)	268 (2.5)
Daman & Diu	278 (6.8)	279 (4.6)
Delhi	245 (4.3)	244 (3.4)
Goa	247 (3.1)	249 (3.0)
Gujarat	255 (2.4)	254 (3.1)
Haryana	242 (2.8)	235 (3.2)
Himachal Pradesh	258 (3.3)	259 (2.7)
Jammu & Kashmir	240 (3.2)	241 (3.0)
Jharkhand	247 (3.4)	251 (3.2)
Karnataka	265 (2.6)	265 (3.1)

State/UT	Boys Avg (SE)	Girls Avg (SE)
Kerala	261 (2.2)	268 (1.9)
Madhya Pradesh	246 (2.6)	241 (3.4)
Maharashtra	262 (2.0)	262 (3.6)
Manipur	261 (3.1)	264 (3.3)
Meghalaya	243 (2.3)	240 (1.9)
Mizoram	266 (2.5)	264 (2.5)
Nagaland	249 (3.1)	248 (4.0)
Odisha	242 (3.1)	240 (2.7)
Puducherry	268 (3.0)	275 (2.5)
Punjab	257 (2.7)	260 (2.4)
Rajasthan	236 (3.2)	235 (2.6)
Sikkim	258 (2.5)	256 (2.5)
Tamil Nadu	271 (3.2)	270 (3.8)
Tripura	263 (2.4)	260 (3.5)
Uttar Pradesh	259 (2.5)	256 (2.8)
Uttarakhand	247 (4.5)	240 (3.7)
West Bengal	256 (2.9)	255 (3.1)

No significant difference between the performance of boys and girls in mathematics, except for Kerala (girls higher)

National Average

Boys: 253 (0.5)

Girls: 252 (0.5)

Note: Standard Error has been given in parenthesis

Performance by Rural-Urban

Language

- Rural students are doing significantly better (States/UTs: 2)
- Urban students are doing significantly better (States/UTs: 7)
- No significant difference between Rural and Urban students (States/UTs: 25)
- UT not included in the Report (UT:1)

State/UT	Rural (SE)	Urban (SE)
A & N Islands	263 (3.0)	262 (7.6)
Andhra Pradesh	252 (2.5)	264 (6.4)
Arunachal Pradesh	245 (2.9)	254 (9.0)
Assam	253 (2.1)	251 (8.2)
Bihar	227 (2.5)	235 (10.2)
Chandigarh	246 (6.0)	243 (3.0)
Chhattisgarh	226 (2.5)	230 (6.8)
D & N Haveli	277 (2.7)	251 (12.6)
Daman & Diu	273 (7.5)	309 (13.4)
Delhi	252 (4.9)	254 (3.0)
Goa	273 (3.6)	275 (3.6)
Gujarat	262 (2.1)	263 (7.0)
Haryana	235 (2.5)	252 (6.1)
Himachal Pradesh	256 (2.1)	257 (10.0)
Jammu & Kashmir	231 (2.7)	258 (5.7)
Jharkhand	241 (3.0)	259 (7.6)
Karnataka	267 (3.5)	264 (4.8)

State/UT	Rural (SE)	Urban (SE)
Kerala	272 (2.3)	277 (4.3)
Madhya Pradesh	238 (2.1)	246 (8.8)
Maharashtra	273 (3.0)	264 (3.6)
Manipur	265 (3.8)	278 (14.2)
Meghalaya	253 (2.1)	250 (5.4)
Mizoram	274 (2.5)	289 (4.9)
Nagaland	256 (3.0)	249 (13.2)
Odisha	250 (2.1)	246 (6.4)
Puducherry	278 (4.3)	281 (3.8)
Punjab	247 (2.3)	256 (5.8)
Rajasthan	238 (2.4)	240 (12.3)
Sikkim	275 (2.4)	254 (13.9)
Tamil Nadu	275 (3.5)	272 (5.0)
Tripura	280 (2.5)	290 (3.8)
Uttar Pradesh	251 (2.4)	261 (8.9)
Uttarakhand	241 (3.8)	229 (6.2)
West Bengal	267 (3.4)	285 (3.9)

No significant difference in the performance of rural and urban students in language, except for Maharashtra and Dadra and Nagar Haveli (rural higher) and Jammu & Kashmir, Jharkhand, Mizoram, Tripura and Daman & Diu (urban higher)

National Average

Rural: 256 (0.6)

Urban: 260 (1.4)

Note: Standard Error has been given in parenthesis

Performance by Rural-Urban

Mathematics

- Rural students are doing significantly better (States/UTs: 2)
- Urban students are doing significantly better (States/UTs: 5)
- No significant difference between Rural and Urban students (States/UTs: 27)
- UT not included in the Report (UT: 1)

State/UT	Rural (SE)	Urban (SE)
A & N Islands	258 (3.1)	246 (7.5)
Andhra Pradesh	259 (2.2)	260 (7.2)
Arunachal Pradesh	243 (2.7)	253 (8.0)
Assam	249 (2.4)	253 (9.2)
Bihar	230 (3.4)	246 (9.6)
Chandigarh	244 (8.8)	239 (3.1)
Chhattisgarh	222 (2.6)	214 (7.0)
D & N Haveli	268 (2.1)	262 (12.7)
Daman & Diu	273 (3.9)	308 (5.8)
Delhi	244 (5.8)	244 (3.1)
Goa	249 (3.5)	248 (4.0)
Gujarat	255 (2.4)	253 (7.6)
Haryana	237 (3.5)	243 (8.9)
Himachal Pradesh	259 (2.8)	243 (13.2)
Jammu & Kashmir	240 (2.9)	250 (3.0)
Jharkhand	248 (3.3)	252 (8.7)
Karnataka	267 (3.0)	259 (4.5)

State/UT	Rural (SE)	Urban (SE)
Kerala	262 (2.0)	273 (4.9)
Madhya Pradesh	242 (2.7)	255 (5.1)
Maharashtra	266 (2.8)	248 (3.8)
Manipur	264 (3.1)	260 (6.7)
Meghalaya	242 (2.1)	236 (5.0)
Mizoram	264 (2.6)	270 (3.9)
Nagaland	253 (3.3)	228 (10.6)
Odisha	241 (2.8)	243 (8.3)
Puducherry	270 (4.2)	273 (2.6)
Punjab	256 (2.6)	268 (4.3)
Rajasthan	235 (2.4)	239 (13.8)
Sikkim	258 (2.4)	241 (17.0)
Tamil Nadu	271 (4.0)	268 (5.2)
Tripura	260 (3.1)	271 (5.2)
Uttar Pradesh	258 (2.5)	254 (8.6)
Uttarakhand	245 (3.9)	234 (7.2)
West Bengal	254 (3.2)	260 (4.9)

No significant difference between rural and urban children's performance in mathematics in 27 states/UTs

National Average

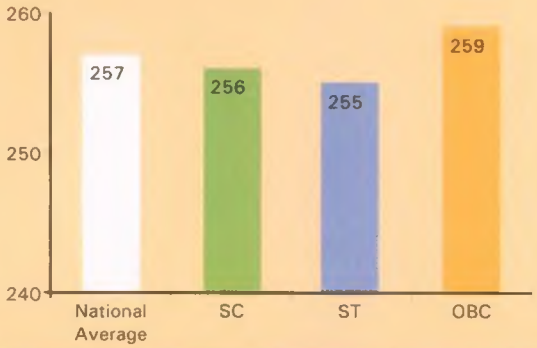
Rural: 252 (0.6)

Urban: 253 (1.3)

Note: Standard Error has been given in parenthesis

Performance by Social Group

Language



State/UT	SC	ST	OBC	Others
Andhra Pradesh	251 (3.0)	251 (6.8)	254 (3.3)	261 (4.8)
Arunachal Pradesh	285 (7.1)	249 (4.1)	253 (6.4)	239 (3.5)
Assam	252 (5.8)	260 (4.9)	253 (4.0)	251 (2.0)
Bihar	228 (4.0)	232 (7.9)	226 (2.6)	228 (5.6)
Chhattisgarh	216 (2.9)	226 (4.0)	228 (3.2)	247 (6.9)
Delhi	249 (3.7)	234 (12.4)	250 (8.6)	255 (3.0)
Goa	268 (5.0)	273 (5.7)	284 (5.0)	273 (3.2)
Gujarat	262 (4.0)	263 (4.3)	262 (2.3)	262 (4.1)
Haryana	237 (3.1)	239 (9.9)	238 (3.4)	238 (4.0)
Himachal Pradesh	251 (3.0)	263 (3.7)	262 (4.9)	256 (3.0)
Jammu & Kashmir	236 (6.7)	223 (6.6)	235 (7.1)	234 (3.3)
Jharkhand	243 (4.5)	236 (6.3)	246 (3.1)	244 (7.6)
Karnakata	268 (4.8)	266 (6.4)	264 (3.6)	272 (4.2)
Kerala	267 (3.1)	266 (11.6)	273 (2.7)	274 (3.0)
Madhya Pradesh	240 (4.1)	233 (3.5)	241 (2.5)	246 (4.5)
Maharashtra	265 (3.2)	271 (7.0)	273 (3.3)	272 (2.8)
Manipur	289 (19.2)	260 (5.2)	267 (5.1)	292 (14.2)
Meghalaya	224 (5.2)	252 (2.0)	266 (8.6)	297 (17.6)
Mizoram	258 (10.9)	279 (2.6)	275 (5.6)	268 (0.7)
Nagaland	266 (13.3)	252 (4.0)	256 (5.0)	272 (6.0)
Odisha	242 (4.6)	241 (3.2)	258 (2.9)	270 (5.8)
Punjab	247 (2.4)	275 (13.8)	252 (2.7)	254 (3.6)
Rajasthan	243 (4.5)	229 (4.8)	242 (3.3)	232 (4.0)
Sikkim	264 (4.6)	273 (2.9)	277 (2.8)	274 (4.7)
Tamil Nadu	275 (4.7)	283 (2.6)	273 (3.6)	276 (6.8)
Tripura	278 (4.2)	279 (3.7)	283 (2.9)	285 (4.5)
Uttar Pradesh	249 (3.1)	249 (10.9)	252 (3.0)	257 (3.5)
Uttarakhand	237 (4.3)	247 (12.3)	238 (4.2)	240 (5.7)
West Bengal	267 (5.1)	265 (10.3)	278 (5.6)	273 (3.1)
A&N Islands	292 (8.2)	235 (8.2)	265 (4.7)	266 (3.4)
Chandigarh	245 (3.7)	197 (16.3)	254 (10.7)	243 (2.8)
Puducherry	278 (3.6)	311 (19.7)	279 (3.5)	282 (5.8)
Dadra & Nagar Haveli	265 (16.1)	278 (2.7)	267 (10.0)	250 (12.9)
Daman & Diu	260 (17.0)	270 (7.9)	288 (8.5)	281 (21.7)
National Average (Social Group)	**256 (1.3)**	**255 (1.4)**	**259 (0.9)**	**261 (1.2)**

Mathematics

State/UT	SC	ST	OBC	Others
Andhra Pradesh	260 (3.3)	256 (6.4)	258 (3.0)	262 (4.7)
Arunachal Pradesh	254 (22.5)	247 (4.0)	253 (9.7)	238 (3.3)
Assam	246 (6.0)	249 (5.1)	245 (5.1)	252 (2.6)
Bihar	232 (4.4)	226 (14.8)	231 (3.7)	226 (5.8)
Chhattisgarh	211 (3.8)	219 (4.8)	226 (3.9)	240 (9.0)
Delhi	235 (4.9)	221 (15.6)	239 (6.5)	247 (2.9)
Goa	244 (9.2)	254 (5.2)	252 (4.4)	247 (3.2)
Gujarat	255 (4.1)	254 (4.1)	253 (2.5)	265 (5.4)
Haryana	237 (3.9)	206 (26.5)	239 (3.2)	242 (5.3)
Himachal Pradesh	251 (4.2)	264 (6.0)	268 (4.1)	260 (3.7)
Jammu & Kashmir	242 (8.9)	227 (6.2)	244 (5.8)	243 (3.5)
Jharkhand	254 (4.8)	246 (6.9)	252 (3.2)	233 (6.2)
Karnakata	265 (3.9)	267 (4.8)	263 (3.3)	268 (3.8)
Kerala	261 (3.4)	248 (12.7)	265 (2.0)	266 (3.8)
Madhya Pradesh	245 (4.2)	236 (3.1)	247 (2.7)	258 (5.9)
Maharashtra	255 (3.1)	269 (6.5)	261 (3.9)	262 (2.5)
Manipur	246 (22.3)	259 (3.8)	267 (5.7)	272 (6.9)
Meghalaya	232 (6.9)	243 (1.8)	232 (8.0)	265 (36.3)
Mizoram	265 (7.7)	265 (2.5)	268 (8.8)	238 (1.9)
Nagaland	262 (17.8)	247 (4.0)	253 (6.4)	250 (4.2)
Odisha	240 (4.3)	230 (4.7)	248 (3.1)	255 (5.4)
Punjab	256 (2.6)	295 (11.8)	260 (3.2)	264 (3.7)
Rajasthan	241 (3.9)	229 (5.9)	238 (3.2)	227 (4.9)
Sikkim	245 (4.3)	256 (3.1)	261 (2.6)	257 (4.6)
Tamil Nadu	268 (3.7)	289 (8.8)	270 (4.1)	271 (7.2)
Tripura	258 (4.3)	257 (5.5)	266 (3.1)	265 (3.4)
Uttar Pradesh	256 (3.1)	255 (6.9)	255 (2.7)	266 (4.6)
Uttarakhand	243 (4.9)	250 (16.2)	237 (5.1)	246 (6.0)
West Bengal	255 (5.0)	237 (6.0)	262 (3.7)	256 (3.1)
A&N Islands	267 (15.4)	235 (9.8)	260 (4.1)	257 (3.4)
Chandigarh	241 (3.4)	220 (13.7)	248 (6.4)	240 (3.0)
Puducherry	267 (4.0)	297 (6.3)	271 (2.8)	280 (5.8)
Dadra & Nagar Haveli	272 (12.3)	270 (2.3)	261 (7.9)	248 (8.8)
Daman & Diu	282 (8.9)	268 (9.3)	281 (6.2)	282 (9.9)
National Average (Social Group)	**251 (1.5)**	**250 (1.6)**	**254 (0.8)**	**254 (1.4)**

Note: Standard Error has been given in parenthesis

Performance of Scheduled Caste (SC) Students in Language and Mathematics

(13 states where SC population is above national average of 16.63%*)

State/UT	% of SC Population*	Language	Mathematics
Chandigarh	18.86	245	241
Delhi	16.75	249	235
Haryana	20.17	237	237
Himachal Pradesh	25.19	251	251
Karnataka	17.15	268	265
Odisha	17.13	242	240
Punjab	31.94	247	256
Rajasthan	17.83	243	241
Tamil Nadu	20.01	275	268
Tripura	17.83	278	258
Uttar Pradesh	20.70	249	256
Uttarakhand	18.76	237	243
West Bengal	23.51	267	255
National Average	8.61	256	251

- In Karnataka, Tamil Nadu, Tripura and West Bengal, students' performance in language and mathematics is **more** than the national average
- In Chandigarh, Delhi, Haryana, Odisha, Rajasthan and Uttarakhand, students' performance in language and mathematics is **less** than the national average
- In Himachal Pradesh, Punjab and Uttar Pradesh, students performance is lower than the national average in language, but higher than the national average in mathematics

Below national average (SC)

Equal or more than national average (SC)

Performance of Scheduled Tribe (ST) Students in Language and Mathematics

(18 states where ST population is above national average of 8.61%*)

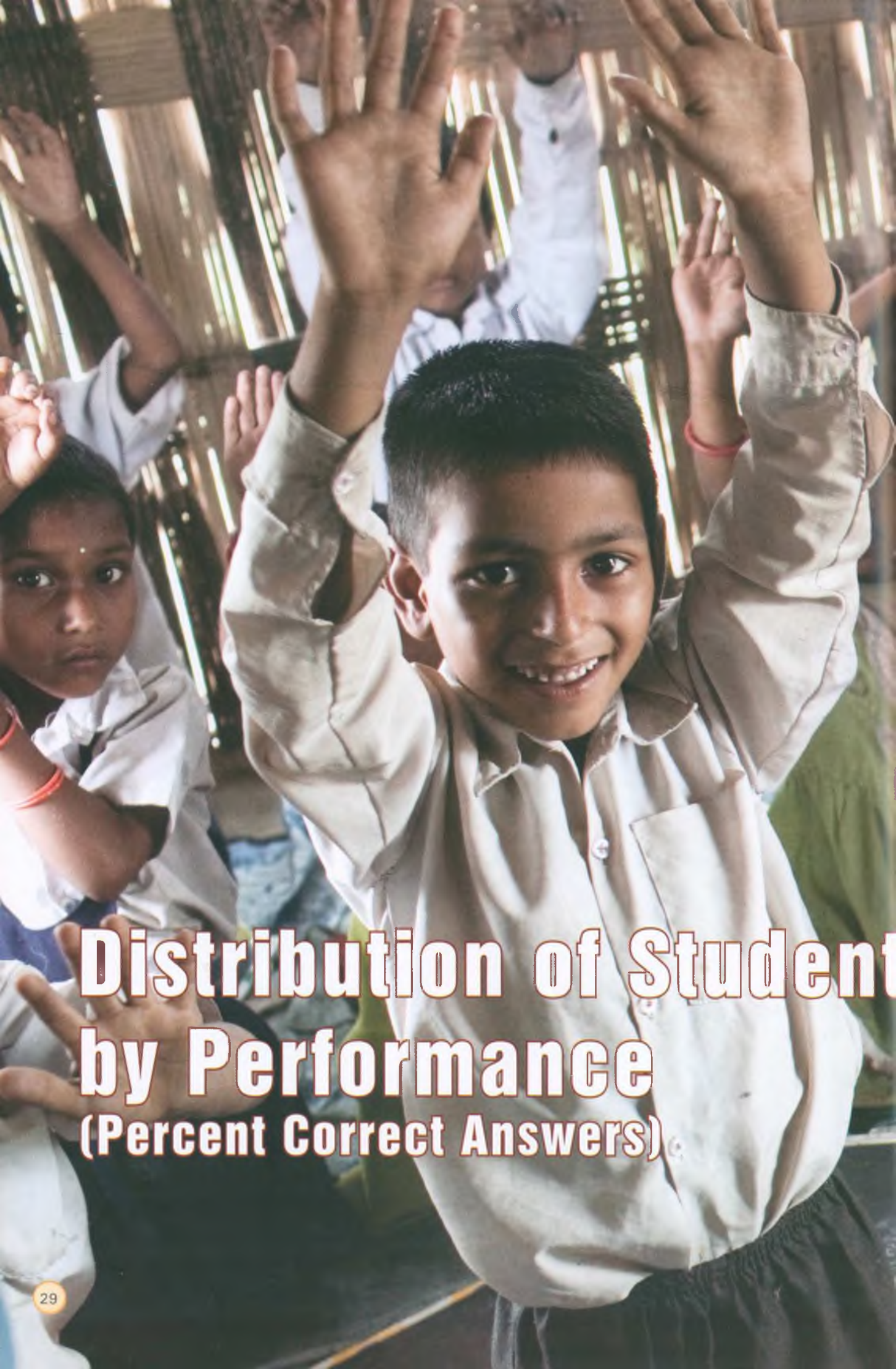
State/UT	% of ST Population*	Language	Mathematics
Arunachal Pradesh	68.79	249	247
Assam	12.45	260	249
Chhattisgarh	30.62	226	219
D & N Haveli	51.95	278	270
Goa	10.23	273	254
Gujarat	14.75	263	254
Jammu & Kashmir	11.91	223	227
Jharkhand	26.21	236	246
Madhya Pradesh	21.09	233	236
Maharashtra	9.35	271	269
Manipur	35.12	260	259
Meghalaya	86.15	252	243
Mizoram	94.43	279	265
Nagaland	86.48	252	247
Odisha	22.85	241	230
Rajasthan	13.48	229	229
Sikkim	33.80	273	256
Tripura	31.76	279	257
National Average	16.63	255	250

- In Dadra & Nagar Haveli, Goa, Gujarat, Maharashtra, Manipur, Mizoram, Sikkim and Tripura, students' performance is **more** than the national average in both language and mathematics
- In Arunachal Pradesh, Chhattisgarh, Jammu and Kashmir, Jharkhand, Madhya Pradesh, Meghalaya, Nagaland, Odisha and Rajasthan, students' performance is **less** than the national average in both language and mathematics
- Performance of students in Assam is lower than the national average in mathematics but higher than the national average in language

Below national average (ST)

Equal or more than national average (ST)

* *Source: Primary Census Abstract for Total population, Scheduled Castes and Scheduled Tribes, 2011, Office of the Registrar General & Census Commissioner, India*



Distribution of Student by Performance
(Percent Correct Answers)

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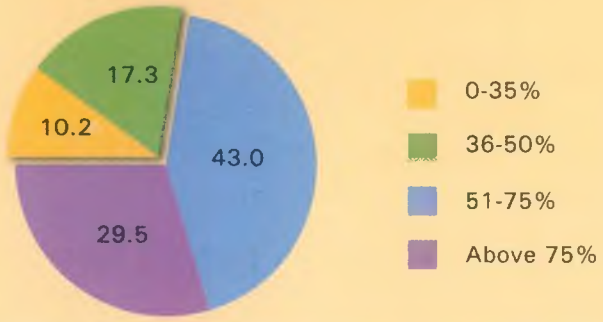
Distribution of students by correct responses

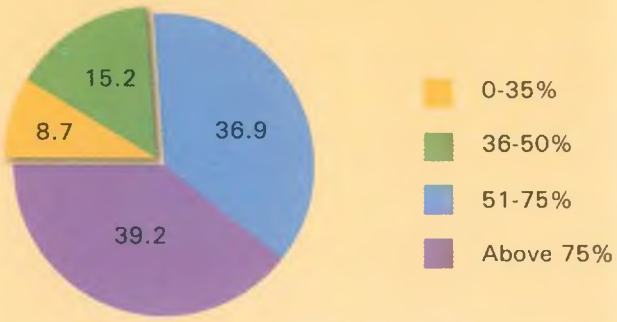
Language (Percent students)



About 30% students answered more than 75% questions correctly, while only 10% students were below 35%

State/UT	Range of correct answers (Language)			
	0-35%	36-50%	51-75%	Above 75%
A&N Islands	6.7	16.9	45.3	31.0
Andhra Pradesh	8.3	18.7	45.8	27.1
Arunachal Pradesh	13.1	22.3	42.2	22.4
Assam	8.2	18.0	48.9	25.0
Bihar	24.0	20.4	39.5	16.1
Chandigarh	13.0	23.1	44.2	19.7
Chhattisgarh	24.1	26.4	38.1	11.4
Dadra & Nagar Haveli	3.2	8.0	42.6	46.2
Daman & Diu	1.1	10.5	39.9	48.5
Delhi	13.0	19.2	43.5	24.3
Goa	3.4	10.5	43.3	42.8
Gujarat	5.9	13.9	46.5	33.7
Haryana	15.1	25.9	41.2	17.9
Himachal Pradesh	8.7	16.1	45.9	29.2
Jammu & Kashmir	20.7	22.5	36.8	20.0
Jharkhand	15.4	20.7	43.6	20.3
Karnakata	4.5	10.6	43.1	41.8
Kerala	6.4	12.2	37.7	43.7
Madhya Pradesh	12.5	23.8	47.7	16.1
Maharashtra	5.2	11.7	42.5	40.6
Manipur	7.2	11.9	42.7	38.3
Meghalaya	5.8	18.8	45.7	29.7
Mizoram	3.4	8.8	40.1	47.7
Nagaland	6.8	18.4	45.2	29.6
Odisha	11.9	19.2	42.3	26.6
Puducherry	2.9	11.6	36.5	49.0
Punjab	7.8	18.1	50.8	23.3
Rajasthan	15.2	22.9	43.3	18.7
Sikkim	4.0	12.1	41.4	42.5
Tamil Nadu	3.8	11.2	42.4	42.6
Tripura	2.5	9.1	41.6	46.9
Uttar Pradesh	10.5	18.4	44.6	26.6
Uttarakhand	17.2	22.3	41.6	18.9
West Bengal	6.2	12.8	42.2	38.8
National Average	**10.2**	**17.3**	**43.0**	**29.5**

Mathematics (Percent students)



39% students answered more than 75% questions correctly, while only 9% students answered below 35%

State/UT	Range of correct answers (Mathematics)			
	0-35%	36-50%	51-75%	Above 75%
A&N Islands	6.4	13.1	39.9	40.6
Andhra Pradesh	5.6	14.0	36.3	44.1
Arunachal Pradesh	9.8	20.1	39.9	30.2
Assam	8.4	17.3	35.1	39.2
Bihar	21.7	17.3	30.8	30.2
Chandigarh	9.5	20.4	46.9	23.2
Chhattisgarh	22.9	26.0	32.5	18.7
Dadra & Nagar Haveli	2.7	6.9	34.5	55.9
Daman & Diu	1.1	7.2	27.4	64.4
Delhi	12.2	17.7	36.2	33.9
Goa	7.3	14.4	42.3	36.0
Gujarat	6.0	12.0	36.9	45.1
Haryana	11.8	20.2	35.9	32.2
Himachal Pradesh	7.5	12.6	32.9	47.0
Jammu & Kashmir	15.1	17.0	35.7	32.2
Jharkhand	11.9	14.3	34.2	39.6
Karnakata	3.3	9.9	32.0	54.8
Kerala	5.2	12.2	35.6	47.0
Madhya Pradesh	9.9	17.2	39.9	33.1
Maharashtra	4.9	14.6	38.5	42.0
Manipur	7.0	11.8	29.9	51.2
Meghalaya	6.7	20.6	42.9	29.9
Mizoram	3.8	10.2	39.1	46.8
Nagaland	7.2	15.9	42.4	34.4
Odisha	11.3	20.0	35.8	33.0
Puducherry	1.8	8.7	34.4	55.2
Punjab	3.4	11.0	39.8	45.8
Rajasthan	12.2	18.5	40.4	29.0
Sikkim	4.6	14.1	41.7	39.7
Tamil Nadu	2.7	10.2	33.1	54.0
Tripura	4.6	8.0	41.4	46.1
Uttar Pradesh	8.1	12.2	34.4	45.3
Uttarakhand	11.5	18.9	36.6	33.0
West Bengal	7.4	13.2	38.9	40.5
National Average	**8.7**	**15.2**	**36.9**	**39.2**

Language

- In 15 states/UTs more than 30% students were in the 75% and above range
- The majority of students scored between 51-75% in language
- In 13 states more than 10% students were in 0-35% range
- The percentage of students who scored below 35% marks in language is highest in Bihar and Chhattisgarh

Mathematics

- In 17 states/UTs more than 40% students were in 75% and above range
- Nearly 24% students obtained less than 50% marks in Mathematics
- In Bihar and Chhattisgarh, about 23% students scored less than 35%, whereas in Puducherry and Daman & Diu less than 2% students secured below 35% in Mathematics
- In Karnataka, Maharashtra, Mizoram, Punjab, Sikkim, Tamil Nadu and Tripura less than 5% students were in 0-35% range

Percentile Scores in Language

State/UTs	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile	Range 75-25	Range 90-10
A & N Islands	197	230	263	297	322	67	125
Andhra Pradesh	188	222	251	288	319	66	131
Arunachal Pradesh	180	212	245	284	313	73	133
Assam	196	227	251	283	307	56	111
Bihar	153	190	231	268	295	78	142
Chandigarh	180	211	240	280	305	69	125
Chhattisgarh	176	193	227	255	286	62	110
Dadra & Nagar Haveli	217	242	277	308	332	66	115
Daman & Diu	224	244	282	313	340	69	116
Delhi	186	223	256	290	312	67	126
Goa	218	239	274	307	334	69	117
Gujarat	198	231	265	296	324	65	127
Haryana	176	203	235	274	303	71	127
Himachal Pradesh	191	225	261	290	316	64	125
Jammu & Kashmir	166	194	232	269	298	75	132
Jharkhand	178	210	242	279	302	68	124
Karnataka	203	234	272	301	323	66	120
Kerala	198	237	279	311	334	74	137
Madhya Pradesh	181	211	237	271	293	59	111
Maharashtra	206	237	276	305	332	68	126
Manipur	190	231	270	308	336	78	146
Meghalaya	199	225	247	282	309	56	110
Mizoram	224	246	279	309	337	63	113
Nagaland	190	223	250	288	320	65	130
Odisha	181	215	248	287	321	72	139
Puducherry	215	243	283	316	344	73	130
Punjab	188	222	249	281	303	59	115
Rajasthan	174	197	238	277	304	79	130
Sikkim	213	239	277	306	334	68	121
Tamil Nadu	213	240	278	308	333	68	121
Tripura	225	253	286	312	332	59	107
Uttar Pradesh	185	223	255	286	311	64	127
Uttarakhand	174	203	236	277	304	74	129
West Bengal	203	235	279	308	331	73	128
National	**194**	**224**	**258**	**292**	**318**	**68**	**24**

Note : Ranges may not agree due to rounding.

- In States like Tripura, Meghalaya, Assam, Madhya Pradesh and Mizoram, the student scores in language are more concentrated over a narrow range, i.e. the performance of different students within the states is more homogenous
- In states like Manipur, Bihar, Odisha, Kerala and Arunachal Pradesh, the language scores are more widely spread out, i.e. the performance of different students within the states is more heterogeneous

Percentile Scores

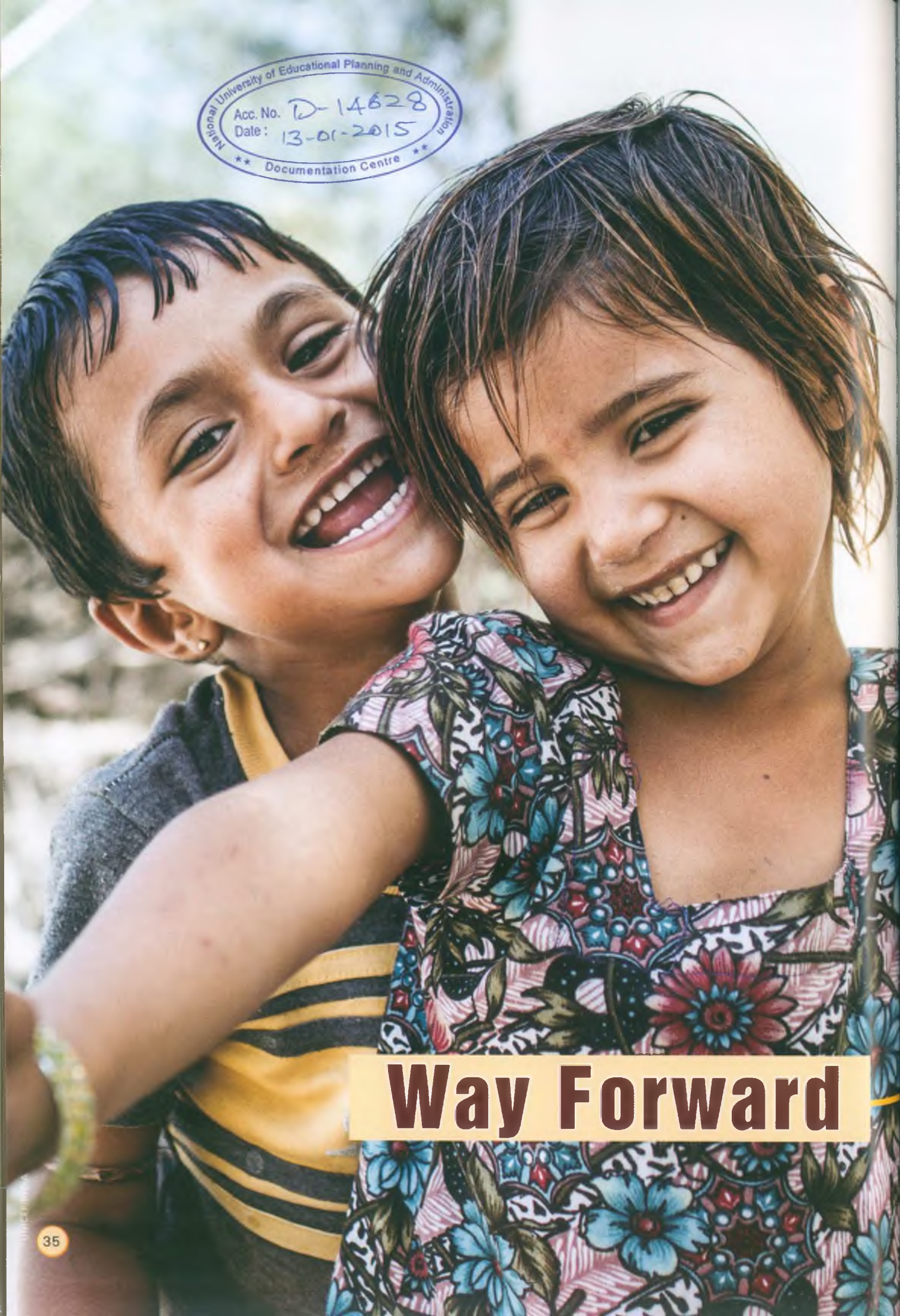
It is the score on a test below which a given percentage of student scores fall. In order to give information about the performance of low, middle and high performing students, results are computed at five key percentile points (10th, 25th, 50th, 75th and 90th).

Percentile Scores in Mathematics

State/UTs	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile	Range 75-25	Range 90-10
A & N Islands	189	227	256	286	314	59	125
Andhra Pradesh	191	228	261	291	322	63	131
Arunachal Pradesh	182	217	240	280	305	63	123
Assam	182	222	248	283	311	61	129
Bihar	144	186	231	275	305	89	161
Chandigarh	183	219	236	272	292	53	109
Chhattisgarh	173	184	224	252	283	69	109
Dadra & Nagar Haveli	218	236	272	294	319	59	101
Daman & Diu	227	260	278	302	329	43	102
Delhi	181	216	238	279	310	62	128
Goa	185	225	247	280	302	55	117
Gujarat	188	228	259	285	313	57	125
Haryana	179	200	234	275	305	75	126
Himachal Pradesh	184	227	263	295	326	68	142
Jammu & Kashmir	177	204	238	277	305	73	128
Jharkhand	181	221	252	285	314	64	133
Karnataka	203	231	271	299	321	68	118
Kerala	196	230	270	296	325	65	129
Madhya Pradesh	182	217	238	275	304	58	123
Maharashtra	200	229	266	294	320	65	120
Manipur	190	229	271	297	325	69	135
Meghalaya	186	218	233	271	297	53	111
Mizoram	213	232	268	297	323	65	109
Nagaland	184	225	249	280	306	55	122
Odisha	180	204	234	278	310	74	130
Puducherry	223	239	273	300	325	61	102
Punjab	202	230	262	287	315	57	112
Rajasthan	174	199	233	273	296	73	122
Sikkim	194	228	259	288	316	60	121
Tamil Nadu	213	234	274	305	331	71	118
Tripura	208	233	269	289	311	56	103
Uttar Pradesh	188	228	262	292	322	64	134
Uttarakhand	179	213	239	281	309	68	129
West Bengal	190	228	261	286	311	58	121
National	**190**	**222**	**253**	**285**	**312**	**63**	**122**

Note : Ranges may not agree due to rounding.

- In States/UTs like Dadra & Nagar Haveli, Daman & Diu, Puducherry and Tripura student scores in mathematics are more concentrated over a narrow range, i.e. the performance of different students within the states is more homogenous
- In states like Bihar, Himachal Pradesh, Manipur, Uttar Pradesh and Jharkhand, the mathematics scores are more widely spread out, i.e. the performance of different students within the states is more heterogeneous



Way Forward

Learning in early primary grades lays the foundation for effective learning in one's life. The NAS Class III (Cycle 3) reveals that the average score of children is 64% and 66% in Language and Mathematics respectively and more than two-thirds of children are scoring above 50%. However, improvement is needed especially in abilities such as listening and reading with comprehension, as well as understanding place value, subtraction and division.

Large-scale assessments by themselves cannot result in quality improvement, unless the system is ready to reflect on the findings and use them for improving the quality of teaching and learning processes. Thus each state needs to carefully analyse the current learning levels of their children and understand the gap areas as well as the reasons for low learning. This information could then be used to redesign interventions such as teacher training, curriculum and textbook design and on-site teacher support, so as to improve children's learning. This also has implications for performance of schools, their monitoring and the roles and responsibilities of teacher/school/ support institutions like BRCs/DIETs/SCERTs. It is also important to disseminate the NAS findings in an easily understandable manner and to discuss them with all relevant stakeholders, especially teachers, teacher support institutions and educational functionaries, to build their capacity to understand and reflect on the findings and take appropriate action thereafter.

The purpose of such large-scale assessments will only be fulfilled when the findings reach back to the classroom and result in improvement in children's learning. There are various things that teachers can do at their level, in light of the findings of the NAS study. The study reveals that in Language, children are performing relatively better in word recognition but are facing difficulty when it comes to listening and reading with understanding and answering questions related to the text. Thus, teachers could provide more opportunities during the teaching-learning process for children to both read and listen to a wide variety of reading materials. Children should then be given the opportunity to explain the meaning of the text in their own words, discuss with their peers, ask questions, express the meaning creatively through drawing or acting out, etc. Similarly in mathematics, children seem to be doing quite well on practical application questions related to money and data handling, but seem to be struggling with topics like place value, subtraction and division. Perhaps teachers can spend more time in relating these concepts to practical examples from children's everyday lives and surroundings and use locally available materials such as sticks, stones, beans to help children understand better abstract concepts of addition, subtraction, division etc. Ultimately, it would be most useful if teachers themselves can regularly assess their own students and identify which children require additional support on specific topics. Such simple efforts by teachers would have a huge impact in enhancing children's learning.

While NAS provides a broad snapshot of national and state-level trends, states are encouraged to undertake state-specific large-scale assessments in order to obtain a more nuanced picture of how specific districts and blocks are performing. This would help to design appropriate interventions to improve children's learning. Tracking improvements in learning over time can help assess the impact of specific quality-related interventions and help policy and decision makers to take evidence-based decisions.

Appendix: A Note on Methodology

In the year 2000, the programme of National Achievement Surveys (NAS), originally conceived by NCERT as an independent project, was incorporated into the Government's flagship project Sarva Shiksha Abhiyan. NCERT is responsible for planning, developing tools, conducting the surveys and reporting the results under SSA by the Ministry of Human Resource Development (MHRD).

NAS Class III (Cycle-3) is the latest survey in which information was gathered from a sample comprising 1,04,374 students in 7,046 schools across 34 States and Union Territories (UTs). The subjects covered were Language and Mathematics.

Introduction of Best Practices in Assessment

In NAS Cycle 3, an approach known as 'Item Response Theory' (IRT) was used, in addition to the classical approach. In classical approach, also known as Classical Test Theory (CTT) the outcomes are reported simply as the proportion or percentage of correct answers.

IRT has been used keeping in line with the best practice of major international surveys such as Programme for International Student Assessment (PISA), Progress in International Reading Literacy Study (PIRLS) and Trends in International Mathematics and Science Studies (TIMSS). IRT uses mathematical models that assume a statistical connection between the difficulty level of the test item, the ability of the student and the probability of that student being successful on a particular item. For example, students with higher ability scores are more likely to succeed on any item than their peers of lower ability.

IRT has many **advantages** over the classical test theory such as :

- IRT measures the true ability of students regardless of different levels of difficulty of tests, by calculating the probability of a student to respond to an item correctly.
- IRT analysis places students and test items on the same numerical scale. It provides us to create meaningful 'maps' of item difficulty and student ability.
- In IRT, the difficulty parameter for an item does not depend on the group of test takers.
- In IRT multiple test booklets may be used to increase measurement points in any subject and these can also be linked.
- IRT make it possible to compare scores from tests used in different NAS cycles or state test scores over time, which may help in monitoring progress in the system over time.
- When IRT is used appropriately, it can increase the efficiency, accuracy or usefulness of a wide variety of measurement processes.

Another important point of deviation from the previous two surveys was related to test construction and administration. It was felt that since Class III children are too young to read questions on their own and respond the MCQs on their own, it does not indicate a true measure of their ability. Therefore, an element of scaffolding was introduced where-in the field administrator read out the MCQ items loud to the child. The element of scaffolding introduced was standardized to reduce inter variability amongst the field investigators.

Achievement tests were designed to assess the core contents of curricular areas which required a large number of items to be tested. At the same time, assigning a large number of items to each student may affect the quality of their responses. For this purpose, multiple booklets having common/anchor items were developed, which could then be linked together. It helps in limiting the number of items administered to each student.

Development of Tools

For collecting the information for the survey, subject tests and three questionnaires were developed.

Questionnaires

For this survey, three questionnaires were developed to collect information on a) schools, b) teachers and c) pupils and their backgrounds.

Tests

For any large survey, the tools employed need to be simple, understandable, valid and reliable. The first exercise, hence, was to collect the syllabi and the textbooks of Language and Mathematics from all the states/UTs. These were then analysed from the point of view of the content areas covered and abilities acquired. The common core content was identified for developing the tests. Based on the analysis, assessment frameworks were developed in both subjects. The frameworks described the content areas and abilities covered in the tests, the number and type of items used for testing and other details of the exercise.

Development of subject-specific tools

In language, listening, recognition of the correct word for picture and reading comprehension abilities were tested. The work for the test development was guided by the framework developed for the language test. For development of the tests, two sub-groups were formed, one for English and the other for Hindi. Thus two master copies were prepared which were then translated to 16 languages. For generating items, examples from various sources including National Assessment of Educational Progress (NAEP) and Early Grade Reading Assessment (EGRA) were referred. The items developed were piloted to ensure

the functionality of the items. Finally, two forms were prepared both in English and in Hindi, each with 25 items.

In mathematics, key content areas such as knowing and using number names, learning and understanding the values of numbers (including basic operations),measurement, data handling, money, geometry and patterns were included. The work was guided by the assessment framework for the Mathematics. For development of items, NCERT textbooks and examples from international sources such as NAEP and TIMSS were consulted and discussed. The Working Group drafted more than 100 items. All these items were peer reviewed. These items were piloted and finally 50 items were considered for two test forms with 30 items out of which there were 10 anchor items. The final two test forms were then translated into 16 languages.

Sample Design

The target population for the survey was all Class III children studying in government, local body and government-aided schools. In general, the sample design for each state/UT involved a three-stage design which used a combination of two stage probability sampling methods. In the first stage, districts were selected using Probability Proportional to Size (PPS) sampling principles. In the second stage, the requisite number of schools was selected in the chosen districts by PPS principle. In the third stage, the required numbers of students in each school were selected using the Systematic Random Sampling method. In schools where Class III had multiple sections, an extra stage of selection was added with one section being sampled at random.

For sampling frame the flash statistics of 8th AISES (2009) was used. The survey was intended to cover all 35 states and UTs, but Lakshadweep did not participate in this endeavour.

Administration of Tools

In conducting NAS Class III survey, NCERT took the help of state agencies like SCERTs and SIEs to coordinate survey activities in the states/ UTs. Each participating state designated a state coordinator who had the responsibility of implementing the NAS in his/her state/UT in accordance with the NAS guidelines. Further, each state coordinator collaborated with the district coordinators for conducting the main achievement survey. In this survey, state coordinators, associate state coordinators and district coordinators were trained by ESD faculty on how to collect data in the field. Besides, hands on experiences were provided to them. In each selected district, approximately 10 to 12 teams of field investigators were appointed. Each team comprising of two field investigators were given rigorous training about selection of section and students in the sampled schools and administration of tools.

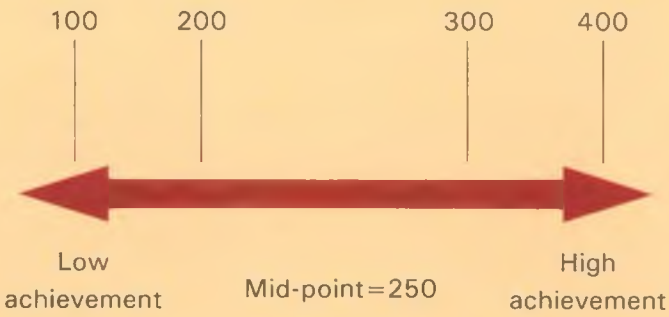
During the test administration, sampled students responded on test booklets itself. Later on, student responses were transferred to a separate response sheet by the field investigator. The response sheets were then dispatched by the state coordinator to NCERT for scoring and analysis.

Monitoring

Monitoring of administration of tools was done at the state and district levels on a sample basis i.e., 5-10 schools in a district. Besides, NCERT/RIE faculty also monitored the activities in some districts to ensure the quality of data.

Data Management and Analysis

The work of data entry was outsourced to a computer agency for transfer of data from paper forms to electronic format. Data entry plan and data analysis plan were developed ESD keeping in mind the objectives of the study. Data entry plan was provided to the agency for undertaking the assigned task in a systematic manner. The data entry agency provided soft copy of the data entered to the Division. The project team checked and verified the quality of the data and resolved problems of mismatching files. Cleaned files were used for analysis. Data analysis was carried out by using both Classical Test Theory (CTT) and IRT model. In IRT analysis 2 PL model was used, scores were adjusted on a scale of 0-500 with 250 as mean and 50 as Standard Deviation.



Reporting

In this report, performance on tests items are reported using 'scale scores' calculated using IRT and also percent correct obtained during IRT analysis. Most importantly, the scale has been fixed so that results from future surveys can be reported on the same scale. It also provide adequate linking procedures through common items. It means, a score of, say, 270 today will be equivalent to a score of 270 in future surveys, even though the items used are not the same. This is obviously an advantage over using percentage correct scores, where there is no rationale for assuming that a score of 70% in one test will be equivalent to a score of 70% in another test, administered on two different occasions.

Why are assessments vital for improving the quality of education over time?

Education assessments provide a health check on how well a system is performing. Findings from any educational assessment need to be fed back to generate further improvements as in the diagram below.

With multiple assessments and using special techniques it is possible to compare whether learning is improving over time.

There is too much testing! What is the difference between examinations and large scale assessments?

An examination is a formal assessment of learning that is designed to assess how well an individual student understands a particular curriculum. High stake tests and formal examinations generally occur at the end of key phases of education. This kind of testing is for a specific purpose. For example a high stake test would be one that determines whether a student progresses between grades.

There are many kinds of educational assessments of varying scales from classroom analysis to international comparability. India's NAS is a low stake sample based assessment conducted on a representative sample across the country. The NAS measures typical levels of achievement i.e. what students know and can do at different levels of ability.

NAS allows comparisons to be made between groups and monitor trends over time. If used well, this information is helpful for planning and quality improvement interventions.