

## NATIONAL ACHIEVEMENT SURVEY – CLASS X CYCLE 2 (2017-18)

### STATE REPORT CARD

### GUJARAT

#### PARTICIPATION

2569

Participating  
School

100216

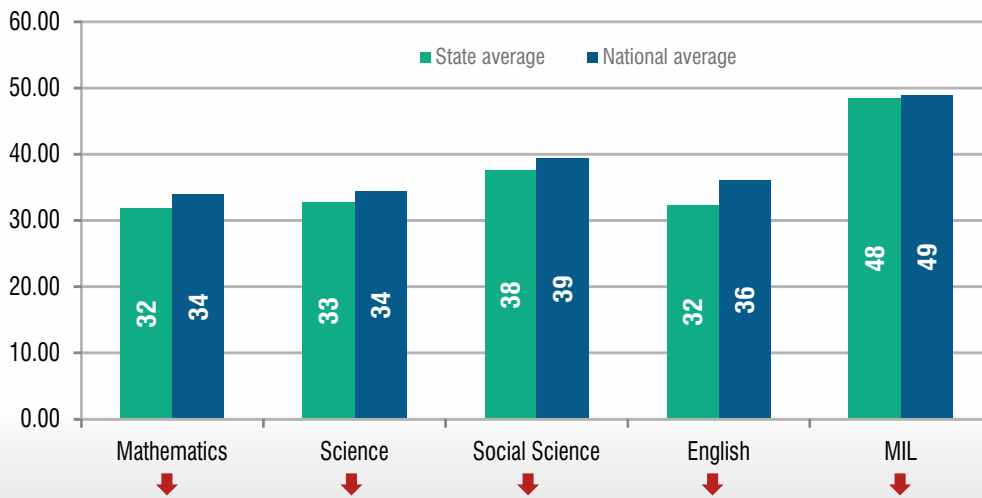
Participating  
Students

99%

School  
Response Rate

This State Report Card (SRC) of National Achievement Survey (NAS) Class X (Cycle 2) provides an overview of students' academic performance in the state. The NAS surveyed a representative sample of all school types in each state and measured students' performance in five subjects – Mathematics, Science, Social Science, English and Modern Indian Languages (MIL) – Reading Comprehension.

#### Performance of students in your state: Average Percent Correct



#### KEY

- State average score is significantly ABOVE National average score
- No significant difference between State and National average scores
- State average score is significantly BELOW National average score

#### Distribution of students by range (percent correct)

SUBJECTS		0 – 35 (%)	36 – 50 (%)	51 – 75 (%)	76 – 100 (%)
Mathematics	State	75	17	7	1
	National	67	20	11	2
Science	State	68	26	5	1
	National	62	27	10	1
Social Science	State	46	41	12	1
	National	44	38	17	1
English	State	72	20	7	1
	National	61	21	15	3
Modern Indian Language (MIL)	State	25	30	41	4
	National	27	27	39	7

### Performance by: LOCATION

Subjects	Rural (% Correct)	Urban (% Correct)	Significant Difference
Mathematics	31	34	↓
Science	32	34	↓
Social Science	37	39	↓
English	31	34	↓
MIL	47	51	↓

### Performance by: GENDER

Subjects	Girls (% Correct)	Boys (% Correct)	Significant Difference
Mathematics	32	32	↔
Science	33	32	↑
Social Science	38	37	↑
English	33	32	↔
MIL	51	46	↑

### Performance by: SOCIAL GROUP

Subjects	SC			ST			OBC		
	(% Correct)	Others (% Correct)	Significant Difference	(% Correct)	Others (% Correct)	Significant Difference	(% Correct)	Others (% Correct)	Significant Difference
Mathematics	31	35	↓	30	35	↓	31	35	↓
Science	32	35	↓	31	35	↓	32	35	↓
Social Science	37	40	↓	36	40	↓	37	40	↓
English	31	36	↓	31	36	↓	31	36	↓
MIL	48	52	↓	46	52	↓	48	52	↓

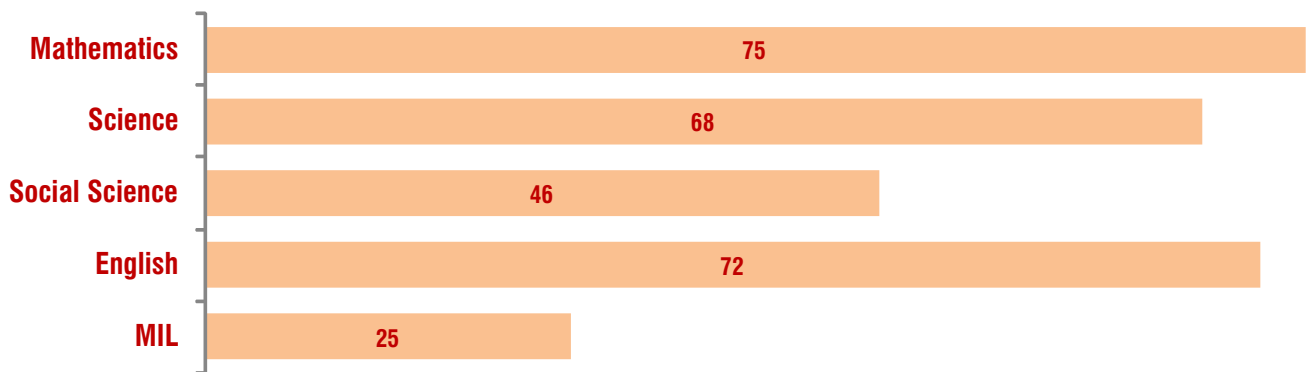
Student participation: **PERCENT**

State sample		
Group	Number of students	%
Girls	42884	43
Boys	57332	57

State sample		
Group	Number of students	%
Rural	66305	66
Urban	33911	34

Group	Number of students	%
SC	7626	8
ST	20963	21
OBC	48402	48
Others	23224	23

**MAXIMUM INTERVENTION REQUIRED** (% of Students score below 35%)



Skill-wise performance: **(ITEM % CORRECT)**

NAS Subjects	Skill 1 (% correct)	Skill 2 (% correct)	Skill 3 (% correct)
Mathematics	32	33	30
Science	36	30	34
Social Science	40	38	36
English	40	32	31
MIL	49	53	52

<b>Skill 1</b>	<b>Remembering:</b> Recognizing or recalling knowledge from memory.
<b>Skill 2</b>	<b>Understanding:</b> Constructing meaning from different types of functions be they written or graphic messages.
<b>Skill 3</b>	<b>Applying:</b> Carrying out or using a procedure through executing, or implementing.

**Performance of Students: CONTENT WISE**

Subjects	Content domain	State average (percent correct)	National average (percent correct)	Significant difference
<b>MATHEMATICS</b>	<b>Mathematics (overall)</b>	<b>32</b>	<b>34</b>	↓
	Algebra	32	35	↓
	Geometry	33	35	↓
	Mensuration	33	34	↓
	Trigonometry	31	37	↓
	Coordinate geometry	27	29	↓
	Number system	27	30	↓
	Statistics	31	33	↓
	Probability	36	35	↑
<b>SCIENCE</b>	<b>Science (overall)</b>	<b>33</b>	<b>34</b>	↓
	Food	36	35	↔
	Materials	30	33	↓
	The living world	37	38	↓
	Moving things, people and ideas	34	35	↓
	How things work	22	22	↑
	Natural phenomena	25	27	↓
	Natural resources	37	40	↓
<b>SOCIAL SCIENCE</b>	<b>Social science (overall)</b>	<b>38</b>	<b>39</b>	↓
	History	36	38	↓
	Geography	37	39	↓
	Economics	38	40	↓
	Political science	39	41	↓
<b>ENGLISH</b>	<b>English (overall)</b>	<b>32</b>	<b>36</b>	↓
	Reading comprehension	34	37	↓
	Language element	31	35	↓
<b>MODERN INDIAN LANGUAGE (MIL)</b>	<b>Modern Indian Language (overall)</b>	<b>48</b>	<b>49</b>	↔
	Reading comprehension	51	52	↓

What students know and can do: **MATHEMATICS** (Performance of the students at the **National level**)

More difficult

**20%**

of students answered this item correctly

If  $ax^2+bx+c=0$  has equal roots, then c is equal to

1.  $\frac{-b}{2a}$
2.  $\frac{b}{2a}$
3.  $\frac{-b^2}{4a}$
4.  $\frac{b^2}{4a}$

Skill: Skill 3 item  
Content Domain: Algebra

% Answers:  
1. 30.0%  
2. 25.1%  
3. 19.5%  
4. **19.8%**

If the  $n^{\text{th}}$  term of an A.P. is  $(3n + 1)$ , then its  $30^{\text{th}}$  term is

1. 31
2. 91
3. 90
4. 94

Skill: Skill 2 item  
Content Domain: Algebra

% Answers:  
1. 25.8%  
2. **32.0%**  
3. 27.8%  
4. 8.9%

**32%**

of students answered this item correctly

AOB is a sector of a circle of radius 4 cm subtending an angle of  $45^\circ$  at the centre 'O' of the circle. Area of the sector, in  $\text{cm}^2$ , is

1.  $\pi$
2.  $2\pi$
3.  $3\pi$
4.  $4\pi$

Skill: Skill 1 item  
Content Domain: Mensuration

% Answers:  
1. 17.4%  
2. **49.6%**  
3. 11.2%  
4. 17.5%

**50%**

of students answered this item correctly

If  $\Delta ABC \cong \Delta PQR$ , then which of the following is true?

1.  $B \leftrightarrow R$
2.  $C \leftrightarrow Q$
3.  $A \leftrightarrow R$
4.  $A \leftrightarrow P$

Skill: Skill 1 item  
Content Domain: Geometry

% Answers:  
1. 11.1%  
2. 13.2%  
3. 15.8%  
4. **56.5%**

**57%**

of students answered this item correctly

If  $\tan \theta = \frac{3}{4}$ , then  $\cot \theta$  is equal to

1.  $\frac{4}{3}$
2.  $\frac{3}{7}$
3.  $\frac{4}{7}$
4.  $\frac{7}{4}$

Skill: Skill 1 item  
Content Domain: Trigonometry

% Answers:  
1. **71.1%**  
2. 11.4%  
3. 9.2%  
4. 5.5%

**71%**

of students answered this item correctly

Less difficult

KEY

NAS items

This ladder shows the percentage of students answering selected NAS items correctly.

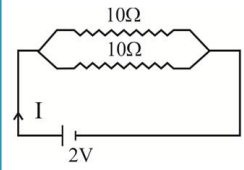
It provides a snapshot of what students know and can do in Mathematics.

What students know and can do: **SCIENCE** (Performance of the students at the **National level**)

More difficult

**18%**  
of students answered  
this item correctly

The current  $I$  in the circuit shown in the figure is



Skill: Skill 3 item  
Content Domain: Physics

1. 0.1A
2. 0.2A
3. 0.3A
4. 0.4A

- % Answers:
1. 20.2%
  2. 38.0%
  3. 17.9%
  4. **18.2%**

The image of an object formed by your eye lens on the retina is

1. erect and real
2. inverted and real
3. erect and virtual
4. inverted and virtual.

Skill: Skill 2 item  
Content Domain: Physics

- % Answers:
1. 33.1%
  2. **31.7%**
  3. 21.7%
  4. 10.9%

**32%**  
of students answered  
this item correctly

Packets of potato chips are filled with nitrogen gas in order to avoid

1. Rusting
2. Rancidity
3. Reduction
4. Decomposition

Skill: Skill 2 item  
Content Domain: Chemistry

- % Answers:
1. 11.3%
  2. **53.4%**
  3. 19.0%
  4. 14.1%

**53%**  
of students answered  
this item correctly

The unit of work is

1. joule
2. newton
3. newton / meter
4. watt

Skill: Skill 1 item  
Content Domain: Physics

- % Answers:
1. **61.5%**
  2. 12.0%
  3. 11.5%
  4. 12.4%

**62%**  
of students answered  
this item correctly

The fluid secreted in our mouth that mixes with food making it slippery and easy to swallow is

1. gastric juice
2. hormones
3. saliva
4. bile

Skill: Skill 1 item  
Content Domain: Biology

- % Answers:
1. 11.1%
  2. 10.0%
  3. **71.0%**
  4. 5.6%

**71%**  
of students answered  
this item correctly

Less difficult

**KEY** **NAS item**

This ladder shows the percentage of students answering selected NAS items correctly. It provides a snapshot of what students know and can do in Science.

# What students know and can do: SOCIAL SCIENCE (Performance of the students at the National level)

More difficult

**20%**  
of students answered  
this item correctly

The legislative powers for the Union List in India does not include

1. Foreign affairs
2. Banking
3. Defence
4. Police

Skill: Skill 1 item  
Content Domain: Political Science

% Answers:  
1. 43.6%  
2. 19.5%  
3. 14.6%  
4. **19.9%**

Observe the table regarding hypothetical data of educational achievement of rural population of a state is given below. Choose one option and fill in the blanks.

Educational Achievement of Rural Population of a State		
Category	Male (%)	Female (%)
Literacy rate for rural population	54	21
Literacy rate for children in age group 10-14 years	69	41
Percentage of rural children aged 10-14 attending school	64	34

Skill: Skill 2 item  
Content Domain: Economics

% Answers:  
1. **30.1%**  
2. 15.4%  
3. 14.6%  
4. 35.5%

- \_\_\_\_\_ of rural girls are not attending school
1. 66%
  2. 64%
  3. 54%
  4. 34%

**30%**  
of students answered  
this item correctly

Which of the following is NOT money?

1. Currency Notes
2. Deposits
3. Coins
4. Credit Card

Skill: Skill 2 item  
Content Domain: Economics

% Answers:  
1. 11.2%  
2. 29.9%  
3. 8.8%  
4. **47.4%**

**47%**  
of students answered  
this item correctly

Which of the following statement is incorrect?

1. People make deposits in banks
2. People take loans from banks
3. People receive interest from banks
4. People repay loans without interest

Skill: Skill 1 item  
Content Domain: Economics

% Answers:  
1. 10.7%  
2. 9.1%  
3. 17.2%  
4. **60.5%**

**61%**  
of students answered  
this item correctly

India is an example of which of the following system?

1. Monarchy
2. Autocracy
3. Democracy
4. Anarchy

Skill: Skill 1 item  
Content Domain: Political Science

% Answers:  
1. 8.4%  
2. 5.8%  
3. **79.6%**  
4. 4.3%

**80%**  
of students answered  
this item correctly

Less difficult

KEY

NAS  
items

This ladder shows the percentage of students answering selected NAS items correctly.

It provides a snapshot of what students know and can do in Social Science.

What students know and can do: **ENGLISH** (Performance of the students at the **National level**)

Read the chart given below and answer the following questions.

A school decided to celebrate Book Week. The chart below shows the schedule of activities planned. Study the chart carefully and answer the questions that follow.

DAY	CLASS / ACTIVITY IN SCHOOL	VENUE	CLASS / OUTDOOR ACTIVITIES
MONDAY	Class 1 - 2 : Designing bookmarks	Classrooms	Class 8 Visit to National Library
	Class 3 - 4 : Role play	Hall -1	
	Class 5 - 6 : My favourite book--talk	Library	
TUESDAY	Class 3 - 4 : Chain story telling	Auditorium	Class 5 - 6 Film : The Jungle Book
	Class 7 - 8 : Theatre workshop by Barry John	Hall -1	
WEDNESDAY	Class 1 - 2 : Meet the fairy tale characters	Auditorium	
	Class 3 - 4 : Show and tell	Hall -1	
	Class 5 - 6 : Poetry recitation	Hall -2	
	Class 7 - 8 : Designing a bookcover, by Santosh Rai	Art room	
THURSDAY	Class 7 - 8 : Quiz: conducted by Mandeep Kaur	Hall -2	Class 3 - 4 Visit to National Book Trust
	Class 9 -10 : Meet the author-- Ruskin Bond	Library	
FRIDAY	Class 5 - 6 : Book reading by students	Classrooms	



More difficult

**30%**

of students answered this item correctly

The school has invited \_\_\_\_\_ experts for different events.

1. Two
2. Six
3. Four
4. Five

**Skill: Skill 2 item**  
**Content Domain:**  
Reading Comprehension

% Answers:

1. 19.9%
2. 24.5%
3. **29.7%**
4. 21.5%

Which classes will go to see 'The Jungle Book' and when?

1. Class 7 and 8, Tuesday
2. Class 3 and 4, Wednesday
3. Class 9 and 10, Thursday
4. Class 5 and 6, Tuesday

**Skill: Skill 1 item**  
**Content Domain:**  
Reading Comprehension

% Answers:

1. 12.4%
2. 16.9%
3. 16.6%
4. **51.0%**

**51%**

of students answered this item correctly

On which day can the children meet Ruskin Bond?

1. Monday
2. Wednesday
3. Thursday
4. Friday

**Skill: Skill 1 item**  
**Content Domain:**  
Reading Comprehension

% Answers:

1. 13.3%
2. 10.8%
3. **62.4%**
4. 10.9%

**62%**

of students answered this item correctly

Less difficult

## SELECTED SCHOOL CHARACTERISTICS



**80%** of schools have a science laboratory.



**19%** of schools have a mathematics laboratory.



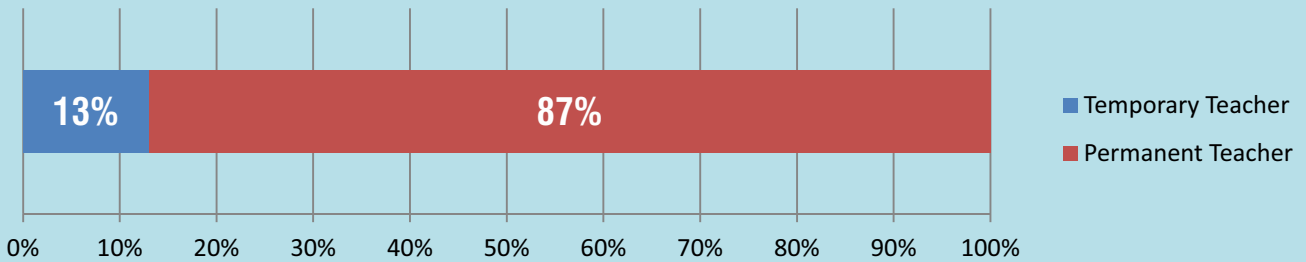
**90%** of schools have a library.

## SELECTED TEACHER CHARACTERISTICS

**41%** of teachers sometimes make use of projects for assessing Class X students.

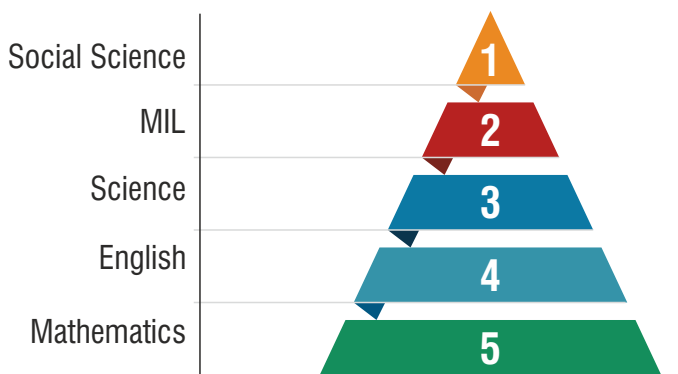
**72%** of teachers always make use of written tests or examinations.

### Employment Status



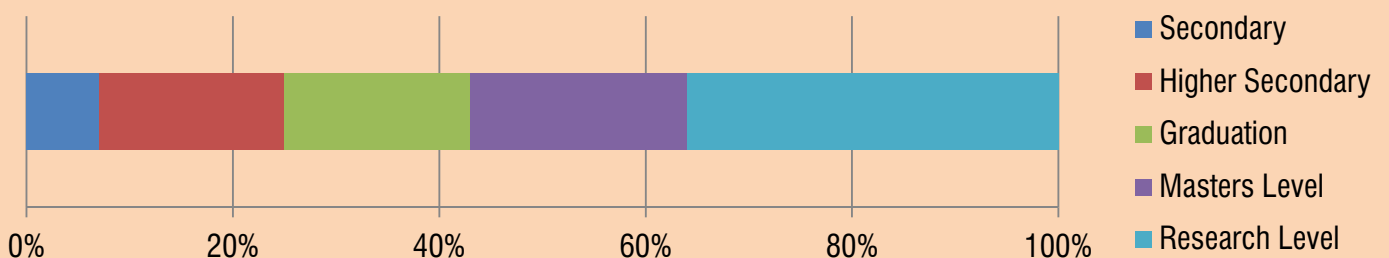
## SELECTED STUDENT CHARACTERISTICS IN YOUR STATE

### Student preference for subjects:



**27%** of students travel more than 5km to school.

### How far students wish to study



# CORE TEAM

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## MHRD

- Ms. Rina Ray, IAS, Secretary School, Education and Literacy (SE&L)
- Shri. Maneesh Garg, Joint Secretary, School Education and Literacy (SE&L)
- Ms. Nigar Fatima Husain, Director (RMSA-I)
- Ms. Nazli Jafari Shayin, Director (RMSA-II)
- Dr. Letha Ram Mohan, Chief Consultant, Quality and Innovation, (TSG)
- Mr. Muktar Alam, Sr. Consultant, Quality and Innovation, (TSG)

## NCERT

- Prof. Hrushikesh Senapaty, *Director*, NCERT
- Dr. Indrani Bhaduri, *Professor & Head*
- Dr. Sridhar Srivastava, *Professor*
- Dr. Veer Pal Singh, *Professor*
- Dr. A.D. Tewari, *Professor*
- Dr. Pratima Kumari, *Associate Professor*
- Dr. Sukhvinder, *Assistant Professor*
- Dr. Vishal D. Pajankar, *Assistant Professor*
- Dr. Satya Bhushan, *Assistant Professor*
- Dr. Gulfam, *Assistant Professor*
- Shri N. L. Srinivas, *Sr. System Analyst*
- Shri Md. Arif Sadiq, *Programmer*
- Shri Vishwa Bandhu, *Programmer*

## EXTERNAL

- World Bank, India

## STATE FUNCTIONARIES

- School Boards, CBSE, ICSE, State Directorate of Education, SCERTs, SIEs, Schools

विद्यया ऽ मृतमश्नुते



एन सी ई आर टी  
NCERT

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**NAS for Transforming School Education**