GUJTEST

GUJARAT TET-1
ENGLISH MEDIUM SERIES

BOOK 07

Mathematics & EVS Pedagogy

Principles, classroom applications and explained practice

- Separate Mathematics and Environmental Studies sections
- Teaching methods, assessment and remedial cases
- Printed mathematical notation and explained practice

First Edition · November 2026

Topic-wise study with explained practice
and solved earlier examination questions.

GUJTEST

Concepts · Worked Examples · Solved Questions

gujtest.com

Contents

01 Mathematics: Nature, Aims and Evidence	5–8
02 Representations and Place-value Learning	9–11
03 Mathematics in the Curriculum and Children's Meaning Making	12–16
04 Mathematical Language and Representations	17–20
05 Mathematics Teaching Methods: Reasoning and Use	21–26
06 Mathematical Activities, Teaching Aids and Resources	27–31
07 Teaching Number Sense, Counting and Place Value	32–36
08 Teaching the Four Operations and Algorithms	37–41
09 Teaching Fractions Through Equal Wholes and Parts	42–45
10 Teaching Measurement: Quantity, Unit and Tool	46–50
11 Teaching Geometry and Spatial Thinking	51–55
12 Teaching Patterns, Data and Mathematical Reasoning	56–60
13 Problem Solving, Reasoning and Multiple Strategies	61–64
14 Formal and Informal Assessment in Mathematics	65–69
15 Mathematical Errors, Diagnosis and Remedial Teaching	70–73
16 Inclusive Mathematics, Anxiety and Lesson Planning	74–78

GUJTEST

CHAPTER 01

Mathematics: Nature, Aims and Evidence

Mathematics as a way of reasoning

Mathematics concerns relationships, quantities, patterns and structures. In primary education, numeracy matters, but education should also help children explain, compare, estimate, justify and solve problems. The learner's reasoning is important evidence, alongside the final answer.

A correct answer obtained by copying does not demonstrate the same understanding as an independently explained solution. Conversely, an arithmetic slip can occur within a sound strategy. The teacher should identify what the response actually shows before deciding the next step.

Aims made observable

Broad aim	Observable classroom performance
Number understanding	Explain how ten ones can be regrouped as one ten.
Reasoning	Justify why a method works for the given conditions.
Problem solving	Choose and check a suitable strategy.
Communication	Connect a drawing, words and symbols.

GUJTEST

Broad aim	Observable classroom performance
Confidence	Attempt a meaningful challenge and revise with support.

Multiple methods and their conditions

For 28 + 17, a learner may add 20 + 10 and 8 + 7, or bridge through 30 by splitting 17 into 2 and 15. Ask the child to explain what each number represents. Comparing valid methods can reveal structure and flexibility. It does not mean that every method is valid or that efficiency never matters.

Before formalising an algorithm, connect it with the quantities involved. After learners understand a method, practice can improve fluency. Repetition without understanding and understanding without sufficient practice are different concerns; teaching should respond to the evidence.

A classroom decision

A child answers a story problem by adding all visible numbers. Instead of immediately giving another page of addition, ask the child to represent the situation with counters or a drawing. Can the learner identify the starting quantity, the change and what is being asked? The difficulty may involve interpreting the situation rather than carrying out addition.

Key points

- Attend to mathematical meaning and reasoning, not only answer matching.
- Invite explanations and compare valid strategies.
- Diagnose the difficulty before choosing further practice.

GUJTEST

Questions from earlier examinations

The following questions were asked in earlier examinations on the topics explained above. Wording is adapted; year, medium, set and original number identify each item.

CTET December 2018 · Paper I · Set I · English/Hindi main paper · Q 31. Reworded; final key checked.

1. Which focus should not dominate primary mathematics assessment at the expense of understanding?

A. Conceptual understanding

B. Mathematical language

C. Precision of the final answer alone

D. Reasoning

Answer: C. The key warns against reducing assessment to a precise final response. Accuracy remains valuable, but explanation, representation and strategy also provide evidence.

Gujarat TET-I 2025 · English · Set A · Q 106. Reworded; translated where needed; final key checked.

2. Which feature supports an accessible view of mathematics in the earlier item?

A. Complex calculation as its only feature

B. Its usefulness in everyday life

C. The absence of any scientific connection

D. The absence of reasoning in proof

Answer: B. Everyday contexts can make a mathematical relationship meaningful. Their usefulness does not prove that no pupil will experience difficulty; the teacher still needs appropriate explanations and support.

GUJTEST

Original Practice with Explanations

1. A correct copied answer establishes what?

A. The copied answer matches, while independent understanding remains to be checked.

B. Complete conceptual mastery.

C. No need for further evidence.

D. A proof that all strategies are equal.

Answer: A. The origin and explanation of a response matter when judging learning.

2. Why ask children to compare two valid addition methods?

A. To declare every possible method correct.

B. To remove all practice.

C. To assess handwriting alone.

D. To examine relationships, reasoning and suitable choices.

Answer: D. Comparison helps learners explain why a method works and when it is useful.

3. A child adds every number in a story problem. Which first step is most diagnostic?

A. Assign unrelated sums only.

B. Assume a permanent inability.

C. Reward speed without examining meaning.

D. Ask the child to represent and explain the situation.

Answer: D. Representation can reveal whether the issue concerns the situation or the calculation.

GUJTEST