English Medium
Second Edition · November 2026

TET-II

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Revision & Reference

Recall, connect, apply and check preparation

- Subject-wise revision and worked examples
- Mixed checkpoints and earlier-examination review
- 150-question paper with explained answers

BOOK 09 | Mathematics-Science Series

Prepared by
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Revision & Reference

Gujarat TET-II · English Medium

Mathematics-Science Series · Book 09

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Examinations qualified
TET-1 (2025) | TET-2 (2023) | TAT (2023)

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Syllabus basis: Gujarat Education Department resolution of 8 October 2025, checked on 16 November 2026. Subject revision, selected historical questions and one original 150-question practice paper for the Mathematics-Science track.

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Preface

Dear learner,

Revision should connect a fact with its meaning, a rule with its conditions and a teaching method with the evidence it should produce. Read the subject explanations, try the checkpoints and then use the full paper to examine your preparation across sections.

This second edition uses the corrected teaching masters of Books 01–08. It retains the 150-question full paper and all 40 mixed historical review records, adds 12 subject-linked language records, corrects incomplete data and working, and adds 60 mixed chapter checkpoints. Traditional typefaces, normal word spacing, labelled diagrams and worked examples support careful reading.

Every checkpoint, historical item and full-paper explanation has an English Study link to relevant earlier teaching or to the reading passage that supplies the evidence. The reference gives this book's printed page number. A formula or principle should be applied to a changed example rather than memorising an answer letter.

The full paper has 25 Child Development and Pedagogy questions, 25 Gujarati–English questions together, 25 General Knowledge and Education questions, 25 Mathematics content questions, 15 Mathematics pedagogy questions, 25 Science content questions and 10 Science pedagogy questions. The practice allocation of 12 Gujarati and 13 English questions is editorial; it does not establish an official fixed split within the combined language section.

Attempt the full paper before opening its final answer chapter. Use the compact key first, then read the full correct alternative, explanation and relevant prior teaching. Distinguish a concept error, a missed condition, a calculation mistake and a language-access difficulty before deciding what to revise.

Read historical records in context. A past paper's age band, programme, office-holder order or terminology is not automatically a statement about the present. Definitions and conditions matter as much as a recalled name.

Ajay R Raval | GUJTEST

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CHAPTER 01

The Paper Map and a Purposeful Revision Routine

Section	Marks
Child Development and Pedagogy	25
Gujarati and English together	25
General knowledge, reasoning, teaching aptitude and education	25
Mathematics content	25
Mathematics pedagogy	15
Science content	25
Science pedagogy	10
Total	150

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Use evidence to decide what to revise

- After each practice set, distinguish a **concept error**, a calculation or language error, and a misread condition. Revise the rule that explains the error, then attempt a changed question.
- Check the **unit, scope and condition** before choosing an option. “Always”, “some”, “except” and “most appropriate” can change the task.
- Link a scientific fact to its function, a mathematical formula to its conditions, and a teaching method to the learning evidence it should produce.
- The practice paper later in this book contains 150 questions. Its Gujarati-English split is an editorial practice allocation within the combined 25 marks. It does not prescribe an official fixed language split.

CHAPTER 02

Child Development and Pedagogy: Key Distinctions

Growth, Development and Learning

- **Development** concerns changes in a person's functioning across life. It includes physical, cognitive, linguistic, emotional and social changes. Growth usually refers to measurable bodily changes such as height, mass and the size of organs.
- The words are related, but their meanings are not identical. A gain in height is growth; a growing ability to compare explanations is cognitive **development**.

Three ideas that must be separated

Idea	What it explains	Educational meaning
Growth	Quantitative bodily change	Materials, seating and physical activity must suit learners.
Development	Changes in capacities and functioning	A teacher considers reasoning, language, emotion and participation together.
Learning	A relatively lasting change associated with experience and practice	Provide meaningful experience, feedback and opportunities to use knowledge.

- A temporary change caused by fatigue, illness or a passing mood is not by itself evidence of learning. Similarly, a change resulting mainly from biological **maturation** should not automatically be credited to a teaching method.
- In real **development**, **maturation**, experience and social conditions interact; classroom performance rarely has a single cause.

Development and instruction

- A learner may know a rule verbally yet need practical experience to apply it. Instruction therefore begins by finding out what the learner can currently understand and do. An explanation that is too advanced may be repeated without being understood.
- An explanation that is too simple may fail to extend learning. The teacher selects tasks that connect present understanding with the next attainable step.
- **Observe a pattern over time.** One wrong answer does not establish a developmental difficulty.
- **Consider several domains.** A pupil may reason well but hesitate to explain in the school language.
- **Distinguish opportunity from capacity.** Lack of prior access to books or instruments is not proof of low ability.
- **Use development to plan support.** It is a guide to teaching, not a reason to permanently restrict a child.

For Standards 6-8, the educational question is how a pupil uses growing capacities in real learning: explaining an observation, working with a group, evaluating a claim and accepting feedback. Definitions become useful when they help a teacher decide what evidence to collect and what support to provide.

Domains of development: observe the whole learner

Development is multidimensional. The following domains are useful for observation, but **one classroom action can involve several domains together**. They are not separate boxes inside a child.

Type or idea	Meaning and example
Physical and motor	Changes in body and movement. A pupil learns to adjust hand pressure while using a compass; height growth alone does not establish this skill.
Cognitive	Attention, memory, concepts, reasoning and problem solving. Comparing two possible explanations for rusting involves cognitive **development**.

Type or idea	Meaning and example
Language	Understanding and producing meaningful speech and text. Explaining the steps of an experiment requires vocabulary and connected sentences.
Emotional	Recognising feelings and regulating responses. A pupil pauses after disappointment and asks for help instead of abandoning the task.
Social	Building relationships and participating with others. Sharing equipment, negotiating roles and considering another viewpoint are social achievements.
Moral	Reasoning about fairness, responsibility and consequences. Returning a lost instrument because its owner needs it shows more than knowledge of a school rule.

- Worked observation: A Standard 7 pupil knows an answer orally but cannot write it clearly in English. First separate the scientific concept from the language demand. Invite a diagram and an oral explanation, then support the written response.
- A weakness in one mode does not prove a general developmental delay.

From a definition to an educational judgement

- **A relatively lasting change:** learning is inferred from later performance, not merely from attention during an explanation. Check a comparable new task after a suitable interval.
- **Growth is quantitative; development is broader:** growth in hand size differs from improved coordination, planning or explanation. One performance can reflect several domains.
- **Reflex, maturation and learning differ:** withdrawing from a sharp stimulus is an unlearned reflex; biological readiness is not identical to a taught skill; using a learned measurement strategy is evidence of learning.
- **Development and learning interact:** instruction builds on current capacities and can extend them. Neither “wait for age alone” nor “teach every task identically at every age” follows from the principle.

146. Two areas were surveyed for different lengths of time. A fair comparison should first consider...

Answer: D. A comparable rate or equal observation period. Different observation durations affect the meaning of totals.

Study link: Worked example: An environment survey, p. 587.

147. The most important question about a new animation is...

Answer: B. What accurate understanding and evidence of learning does it support? Selection should serve a specific learning purpose.

Study link: Teaching aids, models, ICT and innovation, p. 588.

148. A test gives stable scores but asks only definitions when the goal is experimental design. It has a problem mainly with...

Answer: A. Validity for that intended purpose. Stable scores do not establish that the intended skill was assessed.

Study link: Assessment tools and the quality of evidence, p. 588.

149. Which question best probes a filtration exhibition?

Answer: C. Which impurities can this model remove, and why? The question asks for the mechanism and its limits.

Study link: Worked example: Assess the explanation, p. 591.

150. An instrument gives inconsistent readings before class. The teacher should first...

Answer: D. Check its condition and suitability before using its results. Reliable preparation requires checking apparatus and interpreting uncertainty.

Study link: Inconsistent readings before class, p. 592.

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