

Geography

Original practice in 16 topic units, with explanations, worked examples and answer guidance. Use alongside the prescribed texts and syllabus.



16 practice units

96 tasks with answer guidance

Name / नाम: _____

Original selected-topic practice. Use alongside school lessons and the prescribed textbook. The contents define this book's scope.

CBSE course 029 · 2026–27 · Selected practice, not a complete syllabus or official examination paper.

UNIT 01 / 16 · LEARN & TRY

Interior of the Earth: indirect evidence

Name: _____ Date: _____

Goal: Use seismic evidence to explain internal layering and avoid the liquid-mantle misconception.

Learn

Most of the Earth's interior cannot be observed directly, so its structure is inferred from evidence. Earthquake waves change speed and direction as they pass through different materials. S waves do not travel through liquids, while P waves travel through solids and liquids. Their arrival patterns and shadow zones help distinguish internal layers. Crust, mantle and core differ in composition and physical behaviour; the mantle is largely solid but can deform over long periods. Do not equate all subsurface material with liquid magma. Compare seismic inference with rock samples and density estimates, recognising that each source provides different access to depth. Work from a process to its spatial pattern, and then to a consequence. Label every diagram and attach units to numerical results. Distinguish a general explanation from a local example; several interacting factors usually explain a distribution better than one isolated cause.

Worked example

Worked reasoning: If S waves are absent along paths that would pass through a deep layer, a liquid layer is a supported explanation because S waves require rigidity. This alone does not identify every chemical element; combine it with P-wave behaviour and other evidence.

1. Why is the absence of S waves through a deep layer evidence about its physical state? [2 marks]

2. Why do accessible rock samples not fully reveal the composition of the core? [2 marks]

UNIT 01 · PRACTISE · 5–6

Interior of the Earth: indirect evidence

5. Original fictional evidence exercise: Several stations detect P waves but not S waves along paths crossing a deep region. Give an observation, an inference and a limitation. [4 marks]

6. Why should seismic evidence be combined with density or gravity estimates? [4 marks]

Explain one answer. Choose a question to revisit after a few days.

UNIT 01 · ANSWER GUIDANCE

Interior of the Earth: indirect evidence

1. S waves require shear rigidity, which liquids lack. Their inability to pass through the layer supports a liquid-state interpretation alongside other evidence.
2. They come from limited depths. Extrapolation to the core requires indirect evidence and models rather than assuming surface samples represent every layer.
3. A solid can deform slowly over geological timescales. The mantle is predominantly solid; long-term flow and local melting do not imply wholesale liquid state.
4. P waves pass through solids and liquids; S waves pass through solids but not liquids. Their different paths and arrival patterns constrain material state and boundaries when interpreted together.
5. Observation: the recorded arrivals differ by wave type. Inference: a liquid region may block S waves while transmitting P waves. Limitation: this does not alone identify exact composition, and station coverage and paths must be considered.
6. Each evidence type constrains different properties and has limits. Combining them tests whether an internal model fits both wave behaviour and mass-related observations rather than explaining one pattern in isolation.

Teaching note

A labelled cross-section is a model of evidence-based inference, not a view photographed directly.

Curriculum reference: https://cbseacademic.nic.in/web_material/CurriculumMain27/SecPart2/Geography_SecP2_2026-27.pdf

Selected practice; outcomes are publisher-defined. School practicals, projects and prescribed readings require separate preparation.