

NES EARTH AND SPACE SCIENCE (307) PRACTICE TEST (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

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THE FULL VERSION STUDY GUIDE**

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. Origin of asteroids: What caused the gap between Mars and Jupiter?**
 - A. The creation of Jupiter led to no planets forming in the gap between Mars and Jupiter
 - B. Neptune's gravity cleared it
 - C. A large collision formed the belt
 - D. The Sun's radiation prevented accretion
- 2. Which statement best describes ENSO?**
 - A. A long-term cooling trend in the Southern Ocean.
 - B. Recurring climate pattern involving changes in the temperature of waters in the central and eastern tropical Pacific Ocean.
 - C. A periodic cycling of Atlantic hurricane activity.
 - D. A seasonal monsoon variation in Asia.
- 3. Which method is used to obtain direct data about Earth's interior by collecting rock samples?**
 - A. Seismic waves are studied to see how they travel through Earth.
 - B. Measuring magnetic field
 - C. Drilling into the Earth to obtain rock samples
 - D. Observing surface distribution
- 4. What should researchers do with their results?**
 - A. Researchers should communicate whether the hypothesis was confirmed or countered.
 - B. Results should be kept confidential.
 - C. Peer review is not needed.
 - D. Data interpretation is optional.
- 5. What do weather maps display?**
 - A. Displays meteorological features in certain areas at certain times using symbols.
 - B. Only rainfall data.
 - C. Only temperature data.
 - D. Only wind data.

- 6. Which statement best describes how climate affects landscapes?**
- A. Climate only affects rock color.
 - B. Climate shapes landscapes by influencing vegetation and contributing to erosion through changes in precipitation and temperature.
 - C. Climate has no impact on erosion.
 - D. Climate only affects animal life.
- 7. During which era did the Cambrian explosion and the assembly of Pangaea occur?**
- A. Mesozoic
 - B. Cenozoic
 - C. Precambrian
 - D. Paleozoic
- 8. Which statement best describes the Hydrologic Cycle?**
- A. A cycle driven primarily by oxygen in the atmosphere.
 - B. A process that ignores evaporation.
 - C. A closed system of water that continuously moves from the ground to the atmosphere and back.
 - D. A one-way flow of water from rivers to oceans.
- 9. Which type of sedimentary rock is characterized by visible fragments or clasts such as sandstone and shale?**
- A. Organic
 - B. Chemical
 - C. Metamorphic
 - D. Clastic
- 10. What best defines the fossil record?**
- A. Group of fossils analyzed and arranged chronologically
 - B. History of life documented by fossils preserved in sedimentary rock
 - C. Fossils preserved only in volcanic rocks
 - D. A catalog of meteorite fossils

Answers

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1. A
2. B
3. C
4. A
5. A
6. B
7. D
8. C
9. D
10. B

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Explanations

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1. Origin of asteroids: What caused the gap between Mars and Jupiter?

- A. The creation of Jupiter led to no planets forming in the gap between Mars and Jupiter
- B. Neptune's gravity cleared it
- C. A large collision formed the belt
- D. The Sun's radiation prevented accretion

The key idea is that Jupiter's strong gravity disrupted the region between Mars and itself during the early formation of the solar system. As Jupiter formed, its gravity stirred up the orbits of nearby planetesimals, raising collision speeds and ejecting material from that zone. Gravitational resonances with Jupiter also destabilized orbits, so material couldn't peacefully accrete into a single rival planet. The result is a belt of many small bodies that never grew into a planet. Neptune's gravity isn't the main factor clearing that region; it's far away from the Mars–Jupiter gap. A single large collision isn't how the belt formed—it's leftover debris from a region that Jupiter's perturbations prevented from becoming a planet. The Sun's radiation alone wouldn't have been the dominant force clearing the area given the early disk dynamics.

2. Which statement best describes ENSO?

- A. A long-term cooling trend in the Southern Ocean.
- B. Recurring climate pattern involving changes in the temperature of waters in the central and eastern tropical Pacific Ocean.
- C. A periodic cycling of Atlantic hurricane activity.
- D. A seasonal monsoon variation in Asia.

ENSO describes a recurring interaction between the ocean and atmosphere in the tropical Pacific. It centers on fluctuations in sea surface temperature in the central and eastern parts of the tropical Pacific, which drive shifts in winds and rainfall that ripple around the globe. When those Pacific waters warm, the phase is El Niño; when they cool, it's La Niña. This coupled ocean-atmosphere pattern isn't a long-term trend or a regional monsoon cycle, but a repeating interannual variability that alters weather patterns worldwide.

3. Which method is used to obtain direct data about Earth's interior by collecting rock samples?

- A. Seismic waves are studied to see how they travel through Earth.
- B. Measuring magnetic field
- C. Drilling into the Earth to obtain rock samples
- D. Observing surface distribution

Direct sampling of the interior comes from actually drilling into the Earth to bring up rock from depth. This gives you real, physical material that can be analyzed in the lab for mineralogy, chemistry, age, and other properties, providing direct evidence about what lies beneath the surface. Other approaches—studying how seismic waves travel, measuring the magnetic field, or mapping surface rocks—tell us about the interior only by inference or indirect signals; they rely on models to interpret what the data imply about deep structure. Drilling is the only method that yields firsthand samples from depth, even though the deepest boreholes reach only a small fraction of the Earth's radius.

4. What should researchers do with their results?

- A. Researchers should communicate whether the hypothesis was confirmed or countered.
- B. Results should be kept confidential.
- C. Peer review is not needed.
- D. Data interpretation is optional.

When scientists finish a study, they share what they found and what it means. The key idea here is to clearly state whether the data supported the original hypothesis or contradicted it, and to explain what that implies. This openness lets others evaluate the evidence, reproduce the work, and build on it for future discoveries. Communicating results also includes noting uncertainties and limitations, so conclusions aren't overstated. Keeping results confidential blocks verification and slows scientific progress. Assuming peer review is not needed removes an important check on methods and interpretation, which can let flawed conclusions slip through. Treating data interpretation as optional leaves readers without the essential link between what was observed and what it means for the hypothesis and broader science.

5. What do weather maps display?

- A. Displays meteorological features in certain areas at certain times using symbols.
- B. Only rainfall data.
- C. Only temperature data.
- D. Only wind data.

Weather maps show how air and weather conditions are arranged over a region at a specific time, using standard symbols to convey the information quickly. They don't just show one type of data; they bring together multiple meteorological features such as pressure patterns (isobars), fronts, precipitation, cloud cover, temperature, and wind (direction and speed) in one view. That combination allows you to see how these elements interact and what the weather is doing or likely to do. Choosing only rainfall, or only temperature, or only wind, misses the broader picture that weather maps provide. On a single map you might see pressure lines, fronts, precipitation symbols, and wind barbs all at once, giving a complete snapshot of the weather situation.

6. Which statement best describes how climate affects landscapes?

- A. Climate only affects rock color.
- B. Climate shapes landscapes by influencing vegetation and contributing to erosion through changes in precipitation and temperature.
- C. Climate has no impact on erosion.
- D. Climate only affects animal life.

Climate drives how landscapes form by controlling the amount and type of vegetation, the amount of water available, and temperature patterns that cause weathering and movement of material. The best statement captures that climate shapes landscapes through its effects on vegetation and erosion, which come from changes in precipitation and temperature. Vegetation, influenced by climate, helps hold soil in place and influences soil development, while different climates produce different erosion rates—more rainfall or intense storms can move more sediment and carve channels, and temperature affects processes like freeze-thaw cracking that break rocks apart. The result is landforms that reflect the prevalent climate, from desert surfaces sculpted by wind and scarce vegetation to lush valleys shaped by abundant water and active weathering. The other options miss the broader, interaction-rich way climate influences both living cover and the physical breakdown and transport of rock, so they don't accurately describe how landscapes are shaped.

7. During which era did the Cambrian explosion and the assembly of Pangaea occur?

- A. Mesozoic
- B. Cenozoic
- C. Precambrian
- D. Paleozoic**

The timing of two big Earth-history events falls within the Paleozoic Era. The Cambrian explosion, a rapid diversification of animal life, happened in the early Paleozoic (the Cambrian period). Later in the Paleozoic, the continents collided and formed Pangaea, culminating in the late Paleozoic (Carboniferous to Permian). Because both events occur during the Paleozoic, that era is the correct answer. The Precambrian is earlier than the Cambrian, while the Mesozoic and Cenozoic come after the Paleozoic.

8. Which statement best describes the Hydrologic Cycle?

- A. A cycle driven primarily by oxygen in the atmosphere.
- B. A process that ignores evaporation.
- C. A closed system of water that continuously moves from the ground to the atmosphere and back.**
- D. A one-way flow of water from rivers to oceans.

The hydrologic cycle is a closed loop of water moving through the atmosphere, land, and oceans. Solar energy drives evaporation from bodies of water and transpiration from plants, lifting water into the air where it condenses into clouds. Precipitation returns water to the surface, feeding rivers, lakes, soils, and groundwater, and gravity helps pull it back toward Earth's surface and oceans. This continuous movement keeps water in a cycle rather than letting it disappear from the system, making it a closed system of water that flows between ground and atmosphere and back again. This isn't about oxygen driving the process, and evaporation is a central part of the cycle, not something to be ignored. It's not simply a one-way flow from rivers to oceans; water constantly returns to land and air through precipitation and other pathways, completing the loop.

9. Which type of sedimentary rock is characterized by visible fragments or clasts such as sandstone and shale?

- A. Organic
- B. Chemical
- C. Metamorphic
- D. Clastic**

Think about how sedimentary rocks form. When rocks break down into pieces and those pieces are transported, deposited, and then compacted and cemented, they become clastic (detrital) sedimentary rocks. The clue here is "visible fragments or clasts." Sandstone and shale are classic examples, since sandstone is made up of sand-sized grains and shale consists of smaller fragments of clay and silt that originate from weathered rocks. This distinguishes them from chemical rocks, which form by minerals precipitating from solution and usually lack visible clasts, and from organic/biochemical rocks, which come from accumulated plant or animal remains, or from metamorphic rocks, which are transformed by heat and pressure rather than formed from loose fragments. So the described rock type is clastic.

10. What best defines the fossil record?

- A. Group of fossils analyzed and arranged chronologically
- B. History of life documented by fossils preserved in sedimentary rock**
- C. Fossils preserved only in volcanic rocks
- D. A catalog of meteorite fossils

The fossil record is the history of life documented by fossils preserved in sedimentary rock. Sedimentary rocks form in layers as particles settle and burial protects remains from decay, so over long timescales these layers accumulate and preserve fossils that can be read like a timeline of past organisms. This layering also allows scientists to compare fossils from different locations and link them to relative ages of the rocks. The other ideas aren't as accurate because simply grouping fossils chronologically describes how we study the record, not what the record itself is. Fossils in volcanic rocks are not the primary source for most of life's history—volcanic processes can destroy or alter fossils and don't typically preserve long, continuous histories. A catalog of meteorite fossils doesn't reflect life on Earth at all; meteorites pertain to space rocks, not Earth's biological history.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://nes307.examzify.com>

We wish you the very best on your exam journey. You've got this!

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