

BIOLOGY AND EARTH SCIENCE – FORCES, MAGNETISM, MOON PHASES, MICROBIOMES, AND ECOSYSTEMS 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. What term describes a group of the same type of organism living in the same area?**
 - A. Organisms
 - B. Cells
 - C. Microbiome
 - D. Population
- 2. An object experiences a net force of 3 N for 4 seconds. What is the impulse delivered?**
 - A. 8 N s
 - B. 10 N s
 - C. 9 N s
 - D. 12 N s
- 3. Which term describes a moon phase in which the Moon is not visible from Earth?**
 - A. Full Moon
 - B. Quarter Moon
 - C. New Moon
 - D. Moon Phase
- 4. Which term describes when two or more populations use the same resource, such as the same food source?**
 - A. Energy
 - B. Competition
 - C. Molecule
 - D. Change
- 5. Which term describes a molecule that organisms can use to release energy?**
 - A. Energy
 - B. Molecule
 - C. Energy storage molecule
 - D. Change

6. Which term describes the Moon's event when it is completely dark as it passes through Earth's shadow?
- A. New Moon
 - B. Moon Phase
 - C. Orbit
 - D. Lunar Eclipse
7. To push objects away from each other is to what?
- A. Attract
 - B. Draw
 - C. Repel
 - D. Pull
8. If a constant net force is applied to two blocks, with masses m and $2m$, how do their accelerations compare?
- A. The lighter block has twice the acceleration of the heavier block.
 - B. They have the same acceleration.
 - C. The heavier block has twice the acceleration.
 - D. Acceleration is independent of mass.
9. What is something that can be changed and may be measured?
- A. Variable
 - B. Constant
 - C. Parameter
 - D. Property
10. Which term describes a moon phase that looks like more than half a circle from Earth?
- A. Full Moon
 - B. Gibbous Moon
 - C. New Moon
 - D. Moon Phase

Answers

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

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Explanations

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1. What term describes a group of the same type of organism living in the same area?

- A. Organisms
- B. Cells
- C. Microbiome
- D. Population**

A population is a group of the same species living in the same area. This framing lets us study how many individuals are present, how crowded they are, and how the group changes over time in that space. It's different from an individual organism (one living thing) and from cells (the basic units of life). It's also distinct from a microbiome, which is all the microorganisms in an environment and may include many different species rather than just one. For example, a school of fish or a stand of oak trees in a meadow each forms a population of that species in that area.

2. An object experiences a net force of 3 N for 4 seconds. What is the impulse delivered?

- A. 8 N s
- B. 10 N s
- C. 9 N s
- D. 12 N s**

Impulse is the change in momentum, and when a net force is constant, it equals the force multiplied by the time it acts. With a 3 N force acting for 4 seconds, the impulse is $3\text{ N} \times 4\text{ s} = 12\text{ N}\cdot\text{s}$. That impulse is the amount by which the object's momentum changes in the force's direction. If the force weren't constant, you'd add up $F\text{ dt}$ over the interval, but here multiplication suffices.

3. Which term describes a moon phase in which the Moon is not visible from Earth?

- A. Full Moon
- B. Quarter Moon
- C. New Moon**
- D. Moon Phase

At the start of the lunar cycle, the Moon sits between the Earth and the Sun, so the side that is lit by the Sun faces away from us. That means nothing of the sunlight-facing side is visible from Earth, making the Moon effectively invisible in the sky. This phase is called the New Moon, and it's why you don't see the Moon at night during this time. As the Moon continues its orbit, we begin to see more of the illuminated side in the following phases, moving toward crescent, first quarter, and so on. By contrast, a Full Moon appears fully lit because the Earth is between the Sun and the Moon, and a Quarter Moon is a half-illuminated phase visible in the evening. "Moon Phase" is a general term for any phase, not a specific one.

4. Which term describes when two or more populations use the same resource, such as the same food source?

- A. Energy
- B. Competition**
- C. Molecule
- D. Change

When two or more populations rely on the same resource, they experience competition. Competition happens because the resource is limited, so each population tries to access what it needs, reducing the amount available for others. This interaction can slow growth, survival, or reproductive success for the populations involved. Over time, organisms may shift to reduce overlap in resource use (resource partitioning) or, if the resource remains scarce, one population may be dampened more than the other (competitive exclusion). For example, two herbivore species that eat the same grass will compete more as grass becomes scarce, since each species has to share a limited food supply. Energy, while crucial for life, describes the capacity to do work rather than how populations interact over a shared resource. A molecule is a chemical unit, and change is a broad process not specific to the interaction between populations over resources.

5. Which term describes a molecule that organisms can use to release energy?

- A. Energy
- B. Molecule
- C. Energy storage molecule**
- D. Change

Energy in biology is stored in chemical bonds within molecules that organisms can tap to do work. The best term is energy storage molecule because it names a molecule that holds usable energy and can release it during metabolism to power cellular processes. Energy is a property, not a substance; a molecule is a general term and doesn't specify the role of storing or releasing energy; change has no relevance to describing a molecule that provides energy. Classic examples include ATP, which stores energy in its phosphate bonds and releases it when a phosphate group is removed, and glucose, which stores chemical energy that is released when it is oxidized.

6. Which term describes the Moon's event when it is completely dark as it passes through Earth's shadow?

- A. New Moon
- B. Moon Phase
- C. Orbit
- D. Lunar Eclipse**

This question tests understanding of what happens when the Moon moves into Earth's shadow. The Moon shines by sunlight, and during a full Moon the Sun, Earth, and Moon line up. When the Moon passes into Earth's shadow, it can be blocked from direct sunlight; if the entire Moon sits within the dark inner part of the shadow (the umbra), it appears completely dark for a period. That event is a lunar eclipse, specifically a total lunar eclipse. The other terms describe different ideas: a New Moon is when the Moon is between the Sun and Earth and not normally visible; Moon phase refers to the changing appearance over the cycle; orbit is simply the Moon's path around Earth.

7. To push objects away from each other is to what?

- A. Attract
- B. Draw
- C. Repel**
- D. Pull

Pushing objects away from each other is a repulsive force. Repel means a force that pushes two objects apart. This happens, for example, with like magnetic poles and with like electric charges. In contrast, attract or draw describe forces that pull objects toward each other, bringing them closer, and pull can be toward a thing rather than away. So the action of pushing apart is best described by repel.

8. If a constant net force is applied to two blocks, with masses m and $2m$, how do their accelerations compare?

- A. The lighter block has twice the acceleration of the heavier block.**
- B. They have the same acceleration.
- C. The heavier block has twice the acceleration.
- D. Acceleration is independent of mass.

For a given net force, acceleration is inversely proportional to mass ($F = ma$). So the lighter block with mass m has acceleration $a_1 = F/m$, while the heavier block with mass $2m$ has $a_2 = F/(2m) = (1/2)F/m$. Therefore the lighter block accelerates twice as much as the heavier one. Intuitively, a fixed push changes a lighter object's velocity more quickly than a heavier one.

9. What is something that can be changed and may be measured?

- A. Variable**
- B. Constant
- C. Parameter
- D. Property

The main idea here is identifying something that you can change and also measure. A variable fits this best because it is any quantity that can take on different values and be quantified. In experiments, you often manipulate one variable (the thing you change) and observe how it affects another variable you measure. A constant, by contrast, stays the same within a given setup, so it isn't something you change in the experiment. A parameter defines the behavior of a model or system and is usually held fixed while you study changes elsewhere. A property describes a characteristic of an object or material and can be measured, but it isn't inherently the thing you're changing to explore effects, as a variable is.

10. Which term describes a moon phase that looks like more than half a circle from Earth?

A. Full Moon

B. Gibbous Moon

C. New Moon

D. Moon Phase

Moon phase terminology depends on how much of the Moon's near side is lit as seen from Earth. A phase that looks like more than half of the Moon is illuminated is called a gibbous Moon. This occurs after the first quarter and before the full Moon, as more of the Moon's sunlit side becomes visible. A full Moon would appear fully illuminated, not just more than half. A new Moon is when the near side is dark and not visible, and "Moon Phase" is a general label rather than a specific illuminated fraction.

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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://bioearthsciforcesmagnetism.examzify.com>

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

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