

SCIENCE STEM PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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 does Bar- mean?

- A. Place or surface features
- B. Ice or cold
- C. Weight or pressure
- D. Earthquake or shaking

2. In natural selection, what happens to allele frequencies over generations when certain traits confer a survival advantage?

- A. They shift toward the favored trait.
- B. They remain completely unchanged.
- C. They repeatedly reverse each generation.
- D. They disappear entirely immediately.

3. Which formula represents kinetic energy?

- A. $PE = mgh$
- B. $PE = \frac{1}{2} mv^2$
- C. $KE = \frac{1}{2} mv^2$
- D. $KE = mgh$

4. Which sequence lists the planets in correct order from the Sun outward, including Pluto as a dwarf planet?

- A. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune (Pluto as a dwarf planet).
- B. Mercury, Earth, Venus, Mars, Jupiter, Saturn, Uranus, Neptune.
- C. Mercury, Venus, Earth, Mars, Uranus, Jupiter, Saturn, Neptune.
- D. Earth, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune.

5. Which prefix refers to the liver?

- A. -lysis
- B. Hepato-
- C. -itis
- D. Post-

- 6. Tele- means which of the following?**
- A. Inside or internal
 - B. Far or distant
 - C. Outside or external
 - D. Across or beyond
- 7. Which of the following is an example of qualitative data?**
- A. Mass of the substance.
 - B. Temperature of the water.
 - C. Number of molecules in a sample.
 - D. Color and texture of the sample.
- 8. The prefix Bi- means which of the following?**
- A. Not or without
 - B. Movement
 - C. Two
 - D. Three
- 9. The prefix Geo- is associated with which concept?**
- A. Water
 - B. Light
 - C. Earth
 - D. Heat
- 10. Which word derives from genea- and refers to ancestral line?**
- A. Genotype
 - B. Genealogy
 - C. Geography
 - D. Generation

Answers

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

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Explanations

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1. What does Bar- mean?

- A. Place or surface features
- B. Ice or cold
- C. Weight or pressure**
- D. Earthquake or shaking

Bar- (often seen as baro-) signals weight or pressure. The root comes from a Greek word meaning weight, and it appears in terms like barometer and barometric pressure, which describe how air and other substances exert force per unit area. Since pressure is essentially the force due to weight spread over an area, this prefix is tied to weight/pressure, not to cold, location, or shaking. For that reason, the meaning that fits best is weight or pressure.

2. In natural selection, what happens to allele frequencies over generations when certain traits confer a survival advantage?

- A. They shift toward the favored trait.
- B. They remain completely unchanged.**
- C. They repeatedly reverse each generation.
- D. They disappear entirely immediately.

Allele frequencies shift across generations when some traits confer a survival or reproductive advantage. Those advantageous alleles are carried by individuals who tend to survive longer and produce more offspring, so their genetic variants are passed on more often. Over many generations, the frequency of the alleles linked to the favored trait increases in the population, so the population becomes more like the advantageous trait. If the advantage persists, the favored allele can become common or even fixed. Variation that doesn't affect fitness, or situations with multiple comparable advantages, can slow or complicate this change.

3. Which formula represents kinetic energy?

- A. $PE = mgh$
- B. $PE = \frac{1}{2} mv^2$
- C. $KE = \frac{1}{2} mv^2$**
- D. $KE = mgh$

Kinetic energy is the energy of motion, quantified by $KE = \frac{1}{2} m v^2$. This shows that energy depends on both mass and speed, and because velocity is squared, speeding up has a bigger effect on energy than simply adding mass. The other formulas describe potential energy rather than motion. mgh is gravitational potential energy—energy due to an object's height in a gravitational field. A form that looks like kinetic energy but is labeled as potential energy ($PE = \frac{1}{2} mv^2$) is still describing motion energy, but labeling it as potential confuses the type of stored energy. The mixed form $KE = mgh$ combines two different concepts, which isn't a correct universal expression for kinetic energy. For a quick check, a 2 kg object moving at 3 m/s has $KE = \frac{1}{2} \times 2 \times 3^2 = 9 \text{ J}$, illustrating how velocity drives kinetic energy.

4. Which sequence lists the planets in correct order from the Sun outward, including Pluto as a dwarf planet?

A. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune (Pluto as a dwarf planet).

B. Mercury, Earth, Venus, Mars, Jupiter, Saturn, Uranus, Neptune.

C. Mercury, Venus, Earth, Mars, Uranus, Jupiter, Saturn, Neptune.

D. Earth, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune.

The main idea is the order of the planets by distance from the Sun. From closest to farthest, the planets go Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune. Pluto is no longer considered a major planet, but it is still a dwarf planet located beyond Neptune. So the sequence that shows both the correct inner-to-outer order and Pluto as a dwarf planet is Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune (Pluto as a dwarf planet). The other options mix up the order—Earth before Venus, Uranus before Jupiter, or starting with Earth instead of Mercury—so they don't match the true arrangement.

5. Which prefix refers to the liver?

A. -lysis

B. Hepato-

C. -itis

D. Post-

Prefixes that name a body part help you spot which organ is involved. The liver-specific prefix is hepato-, coming from the combining form hepato-/hepat/o, and it appears in terms like hepatology or hepatitis, which refer to the liver. The other options aren't about location: -lysis means breaking down, -itis means inflammation, and post- means after. So hepato- is the correct prefix for the liver.

6. Tele- means which of the following?

A. Inside or internal

B. Far or distant

C. Outside or external

D. Across or beyond

Tele- means far or distant. It comes from Greek tēle, meaning distance, and shows up in words like telescope (looking at something far away), telephone (sound carried over a distance), and television (images sent over distance). This distance-focused meaning is what makes tele- the correct choice. The other ideas describe location or direction differently: inside or internal points to prefixes like intra- or endo-; outside or external points to exo- or ecto-; across or beyond is better captured by prefixes such as trans- or ultra-.

7. Which of the following is an example of qualitative data?

- A. Mass of the substance.
- B. Temperature of the water.
- C. Number of molecules in a sample.
- D. Color and texture of the sample.**

Qualitative data describe qualities or characteristics that you describe with words rather than numbers. They capture how something looks, feels, or behaves, such as color, texture, shape, or odor. In this case, describing the sample by its color and texture is a qualitative description because it conveys appearance and feel without measuring or counting. Mass, temperature, and the number of molecules are all numerical measurements. Mass is measured in units like grams, temperature in degrees, and the number of molecules is a count. These are quantitative data because they assign a numeric value to the property. So color and texture fit the idea of qualitative data, while the other options represent quantitative data.

8. The prefix Bi- means which of the following?

- A. Not or without
- B. Movement
- C. Two**
- D. Three

Bi- signals two. It's used in words to show there are two parts or occurrences, like bicycle with two wheels or bilingual involving two languages. The other ideas don't fit because they point to something else: a prefix meaning not or without would be un-/non-, movement isn't tied to a single standard prefix here, and three is shown by tri-, as in triangle. So the meaning of Bi- is two.

9. The prefix Geo- is associated with which concept?

- A. Water
- B. Light
- C. Earth**
- D. Heat

Geo- signals a relationship to the Earth. It comes from the Greek ge, meaning Earth, and shows up in words like geography, geology, and geothermal, all pointing to the planet—its surface, interior, and processes. That's why the concept associated with this prefix is Earth. The other options are connected to different things: hydro- relates to water, photo- or luc- to light, and thermo- or calor- to heat. So geo- uniquely identifies Earth.

10. Which word derives from genea- and refers to ancestral line?

- A. Genotype
- B. Genealogy**
- C. Geography
- D. Generation

Understanding this hinges on recognizing Greek roots for family history. genea- means descent or lineage, and adding -logy (study of) gives genealogy—the study or record of a family's ancestral line. That makes genealogy the term that specifically refers to tracing ancestry. The other words have different roots and meanings: genotype refers to an organism's genetic composition, geography deals with the Earth's surfaces, and generation comes from a root meaning to produce, not the study of family descent.

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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://sciencestems.examzify.com>

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

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