

TEAS 7 SCIENTIFIC REASONING 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. Why is homeostasis considered a negative feedback mechanism?**
 - A. It amplifies fluctuations to reach a new state.
 - B. It counters deviations from a set point to maintain stability.
 - C. It requires external observation to function.
 - D. It accelerates all bodily processes equally.
- 2. Diffusion is the movement of solutes from high to low concentration; osmosis is diffusion of water across a semipermeable membrane.**
 - A. Diffusion is movement of solutes from high to low concentration; osmosis is diffusion of water across a semipermeable membrane.
 - B. Diffusion requires energy; osmosis does not.
 - C. Osmosis can occur without a membrane.
 - D. Diffusion exclusively occurs in solids.
- 3. Which term refers to a change of state without chemical change?**
 - A. A chemical reaction
 - B. Oxidation
 - C. Phase change
 - D. Hydrolysis
- 4. Which phase change is described as liquid turning into gas?**
 - A. Condensation
 - B. Sublimation
 - C. Deposition
 - D. Evaporation
- 5. Which experimental design principle helps ensure that each participant has an equal chance of being assigned to any group?**
 - A. Random assignment
 - B. Blinding
 - C. Double-blinding
 - D. Stratification

6. What best describes an enzyme's active site?

- A. The region where products are released
- B. The region of an enzyme where substrates bind to form the enzyme-substrate complex
- C. The region that determines the enzyme's temperature stability
- D. The region where cofactors bind permanently

7. First step of the scientific method?

- A. Form a hypothesis
- B. State the problem/Ask a question
- C. Conduct an experiment
- D. Analyze data

8. Which term means farther from the trunk of the body?

- A. Proximal
- B. Distal
- C. Dorsal
- D. Anterior

9. Which statement best describes the pancreas's role in regulating blood sugar?

- A. It stores bile to digest fats
- B. It regulates blood sugar via insulin and glucagon
- C. It filters toxins from the blood
- D. It digests proteins in the stomach

10. What is the difference between ionic bonds and covalent bonds?

- A. Ionic bonds involve transfer of electrons creating charged ions; covalent bonds involve sharing electrons.
- B. Ionic bonds involve sharing electrons; covalent bonds involve transfer of electrons.
- C. Both involve electron transfer
- D. Both involve electron sharing

Answers

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

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Explanations

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1. Why is homeostasis considered a negative feedback mechanism?

- A. It amplifies fluctuations to reach a new state.
- B. It counters deviations from a set point to maintain stability.**
- C. It requires external observation to function.
- D. It accelerates all bodily processes equally.

Negative feedback in homeostasis keeps the body's internal conditions stable by counteracting deviations from a set point. When a monitored value drifts away from its normal value, sensors detect the change and a control system triggers responses that work in the opposite direction to bring the condition back toward the set point. This opposing action reduces the original error and restores balance. For example, when body temperature rises, cooling mechanisms like sweating and vasodilation push it back toward normal; when blood glucose climbs after eating, insulin helps lower it toward the set point. External observation isn't required for this process, and the goal isn't to accelerate all processes, but to maintain stability by correcting deviations.

2. Diffusion is the movement of solutes from high to low concentration; osmosis is diffusion of water across a semipermeable membrane.

- A. Diffusion is movement of solutes from high to low concentration; osmosis is diffusion of water across a semipermeable membrane.**
- B. Diffusion requires energy; osmosis does not.
- C. Osmosis can occur without a membrane.
- D. Diffusion exclusively occurs in solids.

Diffusion moves particles from areas of higher concentration to areas of lower concentration, driven by random molecular motion. Osmosis is the specific case where water diffuses across a selectively permeable membrane from the side with lower solute concentration to the side with higher solute concentration. This statement matches that distinction: diffusion is described as moving from high to low concentration, and osmosis as water diffusion across a semipermeable membrane. Both processes are passive and require no energy input. The other choices misstate key points: diffusion isn't energy-dependent, osmosis requires a membrane, and diffusion occurs in gases and liquids as well as solids.

3. Which term refers to a change of state without chemical change?

- A. A chemical reaction
- B. Oxidation
- C. Phase change**
- D. Hydrolysis

Phase change is a change of state without changing the chemical identity of the substance. When a solid becomes a liquid or a liquid becomes a gas (or the reverse), energy is used to rearrange how the molecules are arranged and move, but the molecules themselves stay the same. There's no new substance formed, just a different form of the same material—for example, ice melting into liquid water or water boiling into steam. Other terms describe chemical changes, where bonds are broken and new substances are produced, such as oxidation (electron transfer) or hydrolysis (reaction with water breaking bonds).

4. Which phase change is described as liquid turning into gas?

- A. Condensation
- B. Sublimation
- C. Deposition
- D. Evaporation**

Liquid turning into gas is evaporation. In this process, molecules at the surface gain enough energy to overcome the attractive forces holding them in the liquid and escape into the air as vapor. Evaporation can occur at any temperature below the liquid's boiling point and tends to cool the remaining liquid because the highest-energy molecules leave first. This is different from boiling, which happens throughout the liquid at a specific temperature when vapor pressure matches the surrounding pressure. Condensation is the reverse (gas to liquid), sublimation is solid to gas, and deposition is gas to solid. An everyday example is a puddle gradually drying up as it evaporates.

5. Which experimental design principle helps ensure that each participant has an equal chance of being assigned to any group?

- A. Random assignment**
- B. Blinding
- C. Double-blinding
- D. Stratification

Random assignment ensures each participant has the same chance of ending up in any group, which helps create comparable groups at the start of an experiment. By giving everyone an equal opportunity for assignment—think of a coin flip, a random number, or a shuffled list—you minimize selection bias and other preexisting differences that could influence outcomes. If groups start out similar, any differences observed after the intervention are more likely due to the treatment itself rather than who happened to be in each group. Blinding, on the other hand, hides group membership from participants to reduce expectancy or reporting biases, but it doesn't affect how participants are assigned. Double-blinding extends this concealment to researchers collecting outcomes. Stratification involves dividing participants into subgroups based on certain characteristics and then randomizing within those subgroups to ensure balanced representation across groups; it helps balance known factors but is not the mechanism that guarantees equal assignment probabilities across the entire sample.

6. What best describes an enzyme's active site?

- A. The region where products are released
- B. The region of an enzyme where substrates bind to form the enzyme-substrate complex**
- C. The region that determines the enzyme's temperature stability
- D. The region where cofactors bind permanently

The active site is the specific pocket on an enzyme where the substrate fits and binds to form the enzyme-substrate complex. Its shape and chemical environment are tailored to recognize and hold the substrate(s) so the chemical reaction can occur, often by stabilizing the transition state and lowering the activation energy. After the reaction, the products are released and the enzyme is ready to catalyze more substrate. This describes why the active site is defined by substrate binding and complex formation. The idea that products are released defines a later step, not the binding event itself. Temperature stability relates to the overall protein structure, not just the binding site. Cofactors may bind in various ways and aren't universally permanently bound at the active site.

7. First step of the scientific method?

- A. Form a hypothesis
- B. State the problem/Ask a question**
- C. Conduct an experiment
- D. Analyze data

The first step is identifying the question or problem you want to answer. Having a clear question sets the purpose of the investigation and tells you what you're trying to learn, what observations to make, and what data will matter. With a well-defined question, you can gather relevant information and start thinking about possible explanations. After you've stated the problem, you typically move on to formulating a hypothesis to test, then design and perform experiments, and finally analyze the data to see if the results support your idea. Without a defined question, the subsequent steps lack direction, so starting with stating the problem or asking a question is essential.

8. Which term means farther from the trunk of the body?

- A. Proximal
- B. Distal**
- C. Dorsal
- D. Anterior

In anatomy, distance from where a limb attaches to the body is described with proximal and distal. Farther from the trunk is distal. This term is used to indicate positions away from the body's attachment point, such as the fingers being distal to the shoulder or the wrist distal to the elbow. Proximal means closer to the trunk. Dorsal refers to the back side, and anterior refers to the front. So distal is the term that means farther from the trunk.

9. Which statement best describes the pancreas's role in regulating blood sugar?

- A. It stores bile to digest fats
- B. It regulates blood sugar via insulin and glucagon**
- C. It filters toxins from the blood
- D. It digests proteins in the stomach

The key idea is that the pancreas helps regulate blood sugar through two hormones with opposite effects: insulin and glucagon. Insulin is released when blood glucose is high (such as after a meal) and promotes glucose uptake into body cells, especially in muscle and fat tissue, while signaling the liver to store excess glucose as glycogen. This lowers the amount of glucose circulating in the blood. Glucagon is released when blood glucose is low (such as during fasting) and signals the liver to break down glycogen and to manufacture new glucose, raising blood sugar. Other statements don't fit this regulatory role: storing bile is a liver/gallbladder function, not pancreatic regulation of blood sugar; filtering toxins from the blood is a liver/kidneys function; and while the pancreas does produce digestive enzymes, they operate in the small intestine rather than digesting proteins in the stomach.

10. What is the difference between ionic bonds and covalent bonds?

- A. Ionic bonds involve transfer of electrons creating charged ions; covalent bonds involve sharing electrons.**
- B. Ionic bonds involve sharing electrons; covalent bonds involve transfer of electrons.
- C. Both involve electron transfer
- D. Both involve electron sharing

The essential idea is how atoms satisfy their need for a full outer shell. Ionic bonding happens when one atom donates electrons to another, creating positively and negatively charged ions that are held together by their opposite charges. Covalent bonding happens when atoms share electron pairs so each atom can count the shared electrons toward its own shell, forming molecules. This fundamental difference leads to distinct properties: ionic compounds form crystalline lattices with high melting points and often conduct electricity when melted or dissolved, while covalent compounds consist of discrete molecules, usually have lower melting points, and generally do not conduct electricity.

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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://teas7scientificreasoning.examzify.com>

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

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