

PRE-IB GRADE 9 SCIENCE PRACTICE EXAM (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. **Odour refers to which characteristic of a substance?**
 - A. Weight
 - B. Odour is the characteristic smell of a substance.
 - C. Volume
 - D. Boiling point.
2. **One astronomical unit is approximately how many kilometers?**
 - A. 150,000 km
 - B. 150,000,000 km
 - C. 1,500,000,000 km
 - D. 15,000 km
3. **Which of the following are products of photosynthesis?**
 - A. Sugar and Oxygen
 - B. Water and Carbon Dioxide
 - C. Energy only
 - D. Nitrogen and Hydrogen
4. **Which statement best describes noble gases?**
 - A. The electrons in the outermost shell.
 - B. Family of nonreactive nonmetals found in group 18 of the periodic table.
 - C. A mixture of two or more metals.
 - D. A pure substance consisting of atoms with covalent bonds.
5. **Which symbol represents Helium?**
 - A. H
 - B. He
 - C. Li
 - D. Be
6. **How is the Astronomical Unit defined?**
 - A. The diameter of the Sun
 - B. The average distance between the Sun and Earth
 - C. The distance from Earth to the Moon
 - D. The distance light travels in a year

7. Which term describes an element with properties that fall between those of metals and nonmetals?

- A. Metalloid
- B. Metal
- C. Non metal
- D. Ionic bond

8. What is a battery?

- A. A single cell that stores chemical energy.
- B. A device made up of two or more cells, where electric potential increases for each cell present.
- C. A device that converts kinetic energy into electricity.
- D. A device that measures electrical current.

9. Which description correctly defines the Particle Theory of Matter?

- A. A model for chemical bonding only
- B. A theory that explains what matter is made of and how it behaves
- C. A method for separating mixtures
- D. A rule for balancing equations

10. Which of the following is an intensive property?

- A. Mass
- B. Volume
- C. Area
- D. Colour

Answers

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

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Explanations

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1. Odour refers to which characteristic of a substance?

- A. Weight
- B. Odour is the characteristic smell of a substance.**
- C. Volume
- D. Boiling point.

Odour is about the smell of a substance—the sensory property you notice when volatile molecules reach your nose. It comes from molecules evaporating from the substance and interacting with receptors in the olfactory system, giving each substance its characteristic scent. This is different from weight (how heavy it is), volume (how much space it occupies), or boiling point (the temperature at which a liquid boils). Odour can vary with concentration and conditions, and some substances are odourless, even though they have weight, volume, and other properties.

2. One astronomical unit is approximately how many kilometers?

- A. 150,000 km
- B. 150,000,000 km**
- C. 1,500,000,000 km
- D. 15,000 km

Distances in the solar system are often expressed in astronomical units to compare how far other objects are from the Sun relative to Earth's orbit. One astronomical unit is the average distance from Earth to the Sun, which is about 149.6 million kilometers. Rounded for ease, that's roughly 150 million kilometers. So the best answer is approximately 150,000,000 kilometers. The other numbers are far from the actual Earth–Sun distance: a few tens of thousands of kilometers is on the scale of Earth's diameter or the Moon's distance, and a distance around 1.5 billion kilometers would place you far beyond the outer planets.

3. Which of the following are products of photosynthesis?

- A. Sugar and Oxygen**
- B. Water and Carbon Dioxide
- C. Energy only
- D. Nitrogen and Hydrogen

Photosynthesis turns light energy into chemical energy stored in sugars, with oxygen released as a byproduct. In the chloroplasts, plants use light to drive reactions that combine carbon dioxide and water into glucose, a sugar, and release oxygen gas. That's why the products are sugar (glucose) and oxygen. The other options describe inputs (water and carbon dioxide) or energy in a non-chemical form, or substances not produced by this process. Overall, the equation is: $6\text{ CO}_2 + 6\text{ H}_2\text{O} + \text{light} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{ O}_2$.

4. Which statement best describes noble gases?

- A. The electrons in the outermost shell.
- B. Family of nonreactive nonmetals found in group 18 of the periodic table.**
- C. A mixture of two or more metals.
- D. A pure substance consisting of atoms with covalent bonds.

Noble gases are a group of elements whose outer electron shells are full, giving them great stability and making them very unreactive. This full valence shell means they don't easily gain, lose, or share electrons, so they don't form compounds under normal conditions. They sit in Group 18 of the periodic table, and their atoms are typically monatomic gases at room temperature. The statement that best describes them is that they are a family of nonreactive nonmetals found in group 18 of the periodic table, which captures both their lack of reactivity and their position on the table. The other ideas aren't right for this description: saying something about the outermost electrons alone doesn't define noble gases, calling them an alloy would describe a mixture of metals, and claiming they form covalent bonds goes against their usual behavior of not bonding readily.

5. Which symbol represents Helium?

- A. H
- B. He**
- C. Li
- D. Be

Elements are represented on the periodic table by short symbols, usually one or two letters, formed from their name. The first letter is always capitalized, and if there is a second letter it is lowercase. Helium's symbol is He, derived from its name. That's why helium is represented by He. For comparison, Hydrogen is H, Lithium is Li, and Beryllium is Be.

6. How is the Astronomical Unit defined?

- A. The diameter of the Sun
- B. The average distance between the Sun and Earth**
- C. The distance from Earth to the Moon
- D. The distance light travels in a year

The Astronomical Unit is a unit of length used for distances inside the solar system, defined as the average distance from the Earth to the Sun. This natural scale—because Earth's orbit sets the size of the solar system—lets us talk about planetary distances without writing huge numbers. It's about 149.6 million kilometers, and in modern terms is fixed as an exact value in meters. This is not the diameter of the Sun, nor the Earth-Moon distance, and it's not the distance light travels in a year (that would be a light-year, used for much larger, interstellar distances).

7. Which term describes an element with properties that fall between those of metals and nonmetals?

- A. Metalloid
- B. Metal
- C. Non metal
- D. Ionic bond

Metalloids are elements that have properties between metals and nonmetals. They sit along the border between the two groups on the periodic table, often forming a "staircase." These elements can be shiny like metals but are brittle like nonmetals, and many act as semiconductors, meaning their ability to conduct electricity can be adjusted by adding small amounts of other elements. This combination of characteristics makes metalloids the best descriptor for elements with intermediate properties, such as silicon and germanium. Metal describes elements that are typically highly conductive, malleable, and shiny. Nonmetal describes elements that are usually poor conductors and can be brittle or gaseous. An ionic bond is a type of chemical bond, not a term describing an element's properties.

8. What is a battery?

- A. A single cell that stores chemical energy.
- B. A device made up of two or more cells, where electric potential increases for each cell present.
- C. A device that converts kinetic energy into electricity.
- D. A device that measures electrical current.

A battery is a device that stores chemical energy and converts it into electrical energy. The key idea here is that a battery is made up of two or more electrochemical cells connected together. When you link cells, their voltages add up, so the total electric potential increases as you add more cells. That's why batteries are packs of several cells rather than just a single cell. Think of a single cell as the basic unit that can produce electricity, while a battery combines multiple of these units to deliver higher voltage. If cells were connected in parallel rather than in series, you'd increase capacity more than voltage, but in the typical battery setup the goal is to raise the overall potential difference by having multiple cells. The other options describe a single cell, a device that converts kinetic energy to electricity, or a device that measures current, which don't define a battery.

9. Which description correctly defines the Particle Theory of Matter?

- A. A model for chemical bonding only
- B. A theory that explains what matter is made of and how it behaves
- C. A method for separating mixtures
- D. A rule for balancing equations

Matter is made of tiny particles that are in constant motion and occupy space. The way these particles are arranged and how fast they move—which depends on energy and temperature—determines whether a substance is a solid, liquid, or gas, and explains changes in state, expansion, diffusion, and other behaviors of matter. This perspective shows what matter is made of and how it behaves in different conditions. It isn't just about chemical bonds, nor a method for separating mixtures, nor a rule for balancing equations—those are separate ideas in chemistry.

10. Which of the following is an intensive property?

- A. Mass
- B. Volume
- C. Area
- D. Colour**

Intensive properties describe the nature of a material, not how much of it you have. Color fits this because the color you observe is determined by the material's composition and how it interacts with light, and it stays the same whether you have a tiny drop or a large amount. In contrast, mass, volume, and area all grow when you have more material or a larger sample, so they are extensive properties. For example, doubling the amount of substance doubles its mass and volume, and typically increases the surface area as well. So color is the best answer because it does not depend on the amount of substance.

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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://preibgrade9science.examzify.com>

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

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