

# Ontario Grade 9 Science Class Practice Exam (Sample)

## Study Guide



**Everything you need from our exam experts!**

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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 is direct current?**

- A. A flow of electrons in multiple directions**
- B. A flow of electrons in no particular direction**
- C. A flow of electrons in one direction through an electric current**
- D. A static flow of electrons**

**2. What characteristic defines an element?**

- A. A mixture of several substances**
- B. A substance that can be broken down into simpler substances by chemical means**
- C. A pure substance that cannot be broken down into simpler chemical substances**
- D. A compound made of two or more elements**

**3. What role do decomposers play in an ecosystem?**

- A. They produce food through photosynthesis**
- B. They break down dead organic matter and recycle nutrients**
- C. They compete with producers for resources**
- D. They provide energy to primary consumers**

**4. What describes static electricity?**

- A. The flow of electrons in a circuit**
- B. A consistent flow of electrical current**
- C. A temporary imbalance of charge on an object's surface**
- D. The electrical potential energy in an object**

**5. What is a wave?**

- A. A disturbance that transfers energy through space or matter**
- B. A single static point in a medium**
- C. A type of particle in motion**
- D. An object with fixed dimensions**

**6. What is retrograde motion?**

- A. A large cloud of dust and gas.**
- B. The movement of planets in a backward (westward) direction relative to the stars.**
- C. A small body moving in the solar system.**
- D. The mass of an atom.**

**7. What is indicated by an atom's mass number?**

- A. The total number of electrons and neutrons**
- B. The total number of electrons and protons**
- C. The number of protons in its nucleus**
- D. The total number of protons and neutrons in its nucleus**

**8. What feature characterizes an insulator?**

- A. It allows electricity to pass through it easily**
- B. It converts electrical energy into mechanical energy**
- C. It does not easily allow the movement of electrons through it**
- D. It conducts heat but not electricity**

**9. What is electrical resistance measured in?**

- A. Volts**
- B. Watts**
- C. Ohms**
- D. Amperes**

**10. What is the purpose of grounding an object?**

- A. To give it a positive electric charge**
- B. To ensure it can hold more electrons**
- C. To connect it to a large body capable of removing an electric charge**
- D. To isolate it from its surrounding environment**

## **Answers**

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

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## **Explanations**

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## 1. What is direct current?

- A. A flow of electrons in multiple directions
- B. A flow of electrons in no particular direction
- C. A flow of electrons in one direction through an electric current**
- D. A static flow of electrons

Direct current (DC) is a type of electrical current that flows in one direction through an electric circuit. This means that the direction of the electron flow remains constant and does not change. Option A is incorrect because it implies that DC flows in multiple directions, while DC only flows in one direction. Option B is incorrect because it implies that DC has no particular direction, while DC always flows in one specific direction. Option D is incorrect because it uses the term "static flow," which is not a valid term for an electrical current.

## 2. What characteristic defines an element?

- A. A mixture of several substances
- B. A substance that can be broken down into simpler substances by chemical means
- C. A pure substance that cannot be broken down into simpler chemical substances**
- D. A compound made of two or more elements

An element is defined as a pure substance that cannot be broken down into simpler chemical substances. This means that options A, B, and D are all incorrect. Option A describes a mixture, which is a combination of two or more substances that are not chemically combined. Option B describes a compound, which is a substance made of two or more elements that are chemically combined. Option D also describes a compound, but it specifies that the compound is made of two or more elements, which is not the case for all compounds. Therefore, the only option that accurately describes an element is option C, a pure substance that cannot be broken down into simpler chemical substances.

### 3. What role do decomposers play in an ecosystem?

- A. They produce food through photosynthesis
- B. They break down dead organic matter and recycle nutrients**
- C. They compete with producers for resources
- D. They provide energy to primary consumers

Decomposers play a crucial role in ecosystems by breaking down dead organic matter, such as fallen leaves, dead plants, and animal remains. This process of decomposition is essential because it recycles nutrients back into the soil, making them available for plants and other producers to use. When decomposers, which include organisms like bacteria, fungi, and certain insects, break down this organic matter, they facilitate the flow of energy and matter through the ecosystem, thus maintaining its health and stability. The recycling of nutrients by decomposers supports plant life, which is foundational for maintaining food chains and ecosystems. Without decomposers, dead material would accumulate and essential nutrients would be trapped in that matter, leading to a reduction in soil fertility and negatively impacting the entire ecosystem. In essence, decomposers are vital for nutrient cycling, which sustains the productivity of the ecosystem.

### 4. What describes static electricity?

- A. The flow of electrons in a circuit
- B. A consistent flow of electrical current
- C. A temporary imbalance of charge on an object's surface**
- D. The electrical potential energy in an object

Static electricity refers to a temporary imbalance of charge on an object's surface. This means that there is a build-up of either negative or positive charge on the surface of an object, which can cause the object to attract or repel other objects. Option A, the flow of electrons in a circuit, is incorrect because static electricity does not involve the flow of electrons; it is a stationary charge. Option B, a consistent flow of electrical current, is also incorrect because as mentioned before, static electricity does not involve the flow of electrons. Option D, the electrical potential energy in an object, is incorrect because static electricity refers to the imbalance of charge, not the potential energy. Therefore, the best answer to describe static electricity is option C.

## 5. What is a wave?

- A. A disturbance that transfers energy through space or matter**
- B. A single static point in a medium**
- C. A type of particle in motion**
- D. An object with fixed dimensions**

A wave is fundamentally defined as a disturbance that transfers energy through space or matter. This can be understood through various examples, such as sound waves traveling through air, water waves spreading across a surface, or light waves moving through empty space. In each case, there is a transfer of energy from one point to another without the physical transport of matter itself. For instance, when you drop a stone into a pond, the ripples that form are the wave disturbances moving outward, transferring energy from the point of disturbance across the water. The other options do not accurately describe what a wave is. A single static point in a medium does not convey energy nor represent a dynamic phenomenon like a wave. Similarly, while particles can exhibit wave-like properties in quantum mechanics, they are not themselves defined as waves. Finally, an object with fixed dimensions does not embody the dynamic nature of a wave and does not involve energy transfer within a medium. Thus, defining a wave in terms of disturbance and energy transfer encompasses its essential characteristics.

## 6. What is retrograde motion?

- A. A large cloud of dust and gas.**
- B. The movement of planets in a backward (westward) direction relative to the stars.**
- C. A small body moving in the solar system.**
- D. The mass of an atom.**

Retrograde motion refers specifically to the apparent backward (westward) movement of planets in the sky, as observed from Earth's perspective. It is a result of the differing orbital speeds and paths of Earth and the planets, and does not refer to a specific type of body or object like a cloud of dust and gas (A), small body (C), or the mass of an atom (D). Therefore, these options are incorrect in relation to the question about retrograde motion.

## 7. What is indicated by an atom's mass number?

- A. The total number of electrons and neutrons**
- B. The total number of electrons and protons**
- C. The number of protons in its nucleus**
- D. The total number of protons and neutrons in its nucleus**

An atom's mass number, also known as atomic mass, is the sum of the number of protons and neutrons in its nucleus. This means that both A and B are incorrect, as they only account for part of the mass number. C is also incorrect because it only refers to the number of protons, but neglects to include the mass of the neutrons. Therefore, D is the correct option as it includes both protons and neutrons, making it the total mass of the atom.

## 8. What feature characterizes an insulator?

- A. It allows electricity to pass through it easily
- B. It converts electrical energy into mechanical energy
- C. It does not easily allow the movement of electrons through it**
- D. It conducts heat but not electricity

Insulators are materials that do not easily allow the movement of electrons through them, which means they do not conduct electricity. This is because they have tightly bound electrons which do not have enough energy to move freely within the material. This is why option A, which suggests that insulators allow electricity to pass through easily, is incorrect. Option B is incorrect because insulators do not convert electrical energy into mechanical energy. Similarly, option D is incorrect because insulators do not conduct electricity, so they cannot conduct heat through the movement of electrons.

## 9. What is electrical resistance measured in?

- A. Volts
- B. Watts
- C. Ohms**
- D. Amperes

Electrical resistance, symbol  $R$ , is defined as the ratio of voltage to current for a given material or component. It is measured in units of Ohms ( $\Omega$ ), as represented by option C. Option A, volts, is the unit for measuring electrical potential difference or voltage. Option B, watts, is the unit for measuring power. Option D, amperes, is the unit for measuring electric current. None of these units are used to measure electrical resistance. Therefore, the correct answer is C Ohms.

## 10. What is the purpose of grounding an object?

- A. To give it a positive electric charge
- B. To ensure it can hold more electrons
- C. To connect it to a large body capable of removing an electric charge**
- D. To isolate it from its surrounding environment

Grounding an object involves connecting it to a large body, such as the Earth, that can easily absorb and remove electric charges. This helps to prevent dangerous buildup of excess charges that can cause damage or pose a safety hazard. Options A and B are incorrect because grounding does not involve adding or storing electric charges, but rather removing them. Option D is incorrect as grounding actually involves connecting an object, rather than isolating it. It is important to ground objects to ensure their safety and prevent potential hazards caused by electric charges.

# 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](mailto:hello@examzify.com).**

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

**<https://grade-9-science-ontario.examzify.com>**

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

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