

GMAS 8TH GRADE SCIENCE 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. If a circuit has a break that prevents current from flowing, this circuit is called what?**
 - A. Closed circuit
 - B. Short circuit
 - C. Open circuit
 - D. Series circuit

- 2. Which law states that an object at rest or in uniform motion in a straight line unless acted upon by an external force?**
 - A. Newton's Second Law
 - B. Newton's First Law
 - C. Law of Gravity
 - D. Law of Conservation of Energy

- 3. Mass is neither created nor destroyed/ same before and after reaction**
 - A. Nucleus
 - B. Conservation of mass
 - C. Electron
 - D. Atom

- 4. Energy is defined as what?**
 - A. The rate of performing work
 - B. The ability to cause change (do work)
 - C. The force that moves objects
 - D. The energy of motion only

- 5. Which statement best describes how energy changes in a simple machine?**
 - A. It disappears from the system.
 - B. It changes into sound energy.
 - C. It increases the total energy in the universe.
 - D. It changes form between potential and kinetic energy but the total amount stays the same.

- 6. High frequency electromagnetic waves with short wavelengths are called?**
- A. X-rays
 - B. Infrared
 - C. Visible Light
 - D. Radio Waves
- 7. What is the term for the process that forms sedimentary rocks by cementing and compressing sediments?**
- A. Metamorphism under high heat and pressure
 - B. Melting sediments into magma
 - C. Lithification (cementing and compression) of sediments
 - D. Weathering of rocks into sediment
- 8. Energy stored in chemical bonds is called what?**
- A. Kinetic energy
 - B. Chemical potential energy
 - C. Gravitational potential energy
 - D. Mechanical energy
- 9. Which circuit contains two or more branches for current to move through?**
- A. Series circuit
 - B. Parallel circuit
 - C. Open circuit
 - D. Mixed circuit
- 10. The gravitational force on an object is called what?**
- A. Mass
 - B. Friction
 - C. Weight
 - D. Force

Answers

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

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Explanations

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1. If a circuit has a break that prevents current from flowing, this circuit is called what?

- A. Closed circuit
- B. Short circuit
- C. Open circuit**
- D. Series circuit

Current can flow only if there is a complete loop from the power source, through the conductors and components, and back to the source. If there's a break in that path, the loop isn't complete, so no current can travel. This situation is called an open circuit. That's why devices in such a circuit stay off—the circuit isn't closed for electrons to move. In contrast, a closed circuit has a complete path for current, a short circuit creates a low-resistance bypass that can cause too much current, and a series circuit describes how components are arranged in a single path, not whether the circuit is interrupted.

2. Which law states that an object at rest or in uniform motion in a straight line unless acted upon by an external force?

- A. Newton's Second Law
- B. Newton's First Law**
- C. Law of Gravity
- D. Law of Conservation of Energy

Inertia is the tendency of objects to resist changes in their motion. An object at rest stays at rest, and an object moving in a straight line at constant speed keeps doing so unless a net external force acts on it. This is Newton's First Law, also known as the law of inertia. It helps explain why a puck on a smooth surface keeps gliding in a straight line until friction or another force slows it down or changes its direction. The other ideas describe different concepts: a force causing acceleration is Newton's Second Law; gravity is the attraction between masses; and conservation of energy is about energy staying the same in a system, not about motion persisting without a net force.

3. Mass is neither created nor destroyed/ same before and after reaction

- A. Nucleus
- B. Conservation of mass**
- C. Electron
- D. Atom

Mass is conserved in chemical reactions: the total amount of matter before a reaction is the same as after. Atoms are simply rearranged to form new substances, but they aren't created or destroyed, so the total mass doesn't change. This idea is called the conservation of mass. It's why chemical equations are balanced: the same number and kind of atoms appear on both sides, ensuring the mass is the same before and after. The other terms describe parts of matter—the nucleus, the electron, and the atom—but they don't express the rule that mass stays constant during a reaction.

4. Energy is defined as what?

- A. The rate of performing work
- B. The ability to cause change (do work)**
- C. The force that moves objects
- D. The energy of motion only

Energy is the ability to cause change, or to do work. When you apply a force to move something, you're using energy to produce that movement or other change. The amount of energy something has tells you how much work it can do or how much it can change things, now or later. The rate at which energy is used or transferred is called power, so saying "rate of performing work" describes power, not energy itself. Energy isn't just the force that moves objects; it's the capacity behind that force to cause motion or other changes. And energy isn't only motion energy; it includes many forms like potential energy, chemical energy, electrical energy, and more, all of which can be transformed from one form to another.

5. Which statement best describes how energy changes in a simple machine?

- A. It disappears from the system.
- B. It changes into sound energy.
- C. It increases the total energy in the universe.
- D. It changes form between potential and kinetic energy but the total amount stays the same.**

Energy in a simple machine is conserved and can move between stored energy and motion without creating or destroying it. As something moves through a simple machine, its energy can switch between potential energy (stored energy due to position) and kinetic energy (energy of motion). For example, an object at the top of a ramp has more potential energy, and as it slides down, that potential energy becomes kinetic energy while the total amount stays the same (ignoring friction). If friction or other losses are present, some energy still ends up as heat or sound, but the overall energy balance remains constant when all forms are counted.

6. High frequency electromagnetic waves with short wavelengths are called?

- A. X-rays**
- B. Infrared
- C. Visible Light
- D. Radio Waves

High frequency and short wavelength describe X-rays because electromagnetic waves in vacuum satisfy $c = f\lambda$, so increasing frequency means decreasing wavelength. On the spectrum, X-rays have much shorter wavelengths than visible light, infrared, or radio waves, placing them in the high-frequency, short-wavelength region. Their photons carry a lot of energy ($E = hf$), which explains their ability to penetrate matter and their use in imaging. Gamma rays have even higher frequency and shorter wavelengths, while radio waves have the opposite, with long wavelengths and low frequency.

7. What is the term for the process that forms sedimentary rocks by cementing and compressing sediments?

- A. Metamorphism under high heat and pressure
- B. Melting sediments into magma
- C. Lithification (cementing and compression) of sediments**
- D. Weathering of rocks into sediment

Lithification is the process that turns loose sediments into solid rock through cementing and compaction. As sediments are buried under successive layers, pressure compacts them, squeezing out air and water and bringing grains closer together. Minerals dissolved in groundwater then precipitate and act as a cement, binding the grains so they stick together and form solid sedimentary rock. Other options describe different processes: melting would create magma and igneous rocks, weathering breaks rocks into sediments, and metamorphism changes rocks through heat and pressure rather than cementing and compressing sediments.

8. Energy stored in chemical bonds is called what?

- A. Kinetic energy
- B. Chemical potential energy**
- C. Gravitational potential energy
- D. Mechanical energy

The main idea here is that chemical bonds store energy as chemical potential energy. This is a type of potential energy tied to how atoms are arranged and the bonds holding them together. It differs from kinetic energy, which is energy of motion, and from gravitational potential energy, which depends on height in a gravitational field. Mechanical energy describes the total energy of a system (the sum of kinetic and potential energies) rather than the specific energy stored in bonds. For example, fuels and foods contain chemical potential energy in their bonds, and when those bonds are broken and new ones form during reactions, that stored energy can be released as heat or used to do work.

9. Which circuit contains two or more branches for current to move through?

- A. Series circuit
- B. Parallel circuit**
- C. Open circuit
- D. Mixed circuit

Two or more branches for current to move through means there are multiple paths between the same two connection points. When that happens, the current can split and flow through each branch at the same time, which is the hallmark of a parallel circuit. In a parallel setup, the voltage across every branch is the same, and the total current is the sum of the currents in all branches. If one branch opens, the others can still carry current, which is another key feature. This contrasts with a series circuit, where there is only one path for current and it is the same through every component, and with an open circuit, where the path isn't complete and no current flows. So the configuration that contains two or more branches for current to move through is the parallel circuit.

10. The gravitational force on an object is called what?

- A. Mass
- B. Friction
- C. Weight**
- D. Force

Weight is the gravitational force acting on an object. It comes from the pull of a planet on the object's mass and is equal to mass times the local gravitational acceleration ($\text{weight} = m \times g$). Because gravity can change from one location to another, weight changes while mass stays the same. For example, a 10 kg mass weighs about 98 newtons on Earth, but much less on the Moon. Friction is a different force that resists motion between surfaces, and force is a general term for any push or pull, not specifically the gravity-driven pull on an object.

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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://gmas8thgradescience.examzify.com>

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

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