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.

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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!

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Questions

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1. The tendency to resist changes in motion is called what?

A. Friction

B. Acceleration

C. Momentum

D. Inertia

2. What is gravity and how does it influence orbits?

A. Gravity is the attraction between masses; it provides the centripetal force that keeps planets in orbit

B. Gravity is the magnetic pull between magnets

C. Gravity increases orbital speed by itself

D. Gravity is a force that only acts on Earth

3. Which statement describes Newton's Third Law?

A. Gravity is the force of attraction between objects.

B. For every action, there is an equal and opposite reaction.

C. The total energy in a system is always increasing.

D. Potential energy only depends on position.

4. What are the four components of soil?

A. Minerals, organic matter, water, and air.

B. Sand, silt, clay, organic matter.

C. Minerals, water, air, sunlight.

D. Organic matter, water, air, rocks.

5. Which energy form increases with height above the ground for a given mass and gravity?

A. Kinetic energy

B. Mechanical energy

C. Chemical potential energy

D. Gravitational potential energy

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6. The height of a transverse wave from the rest position to the crest describes which property?

A. Wavelength

B. Amplitude

C. Frequency

D. Trough

7. Which term best fits a material that does not allow electrons to move easily?

A. Electrical Conductor

B. Magnetic Material

C. Semiconductor

D. Electrical Insulator

8. What is a circuit?

A. A circuit is a device that stores charge.

B. A circuit is a component that converts energy to heat only.

C. A circuit is a closed loop that allows current to flow through a conductor and components.

D. A circuit is a single resistor connected to a battery.

9. What is the flow of electric charges through a wire or conductor called?

A. Electric current

B. Voltage

C. Resistance

D. Power

10. What do the terms porosity and permeability describe in soils?

A. Porosity is the amount of open space in a rock or soil; permeability is the ability of a material to transmit fluids.

B. Porosity is the color of soil; permeability is its texture.

C. Porosity is how well a rock resists weathering; permeability is rigidity.

D. Porosity is rainfall rate; permeability is wind speed.

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Answers

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

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Explanations

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1. The tendency to resist changes in motion is called what?

A. Friction

B. Acceleration

C. Momentum

D. Inertia

Inertia is the tendency of an object to resist changes in its motion. This means an object at rest tends to stay at rest and an object moving at a certain speed and direction tends to keep moving that way unless something else (a force) changes it. Mass plays a big role here—the more mass something has, the more inertia it has, so it's harder to start moving or to stop once it's moving. Friction is a force that opposes motion between surfaces. Acceleration is how quickly velocity changes. Momentum is the amount of motion an object has, equal to mass times velocity. The concept of inertia specifically describes that resistance to change in motion, which is why it's the best fit for this question.

2. What is gravity and how does it influence orbits?

A. Gravity is the attraction between masses; it provides the centripetal force that keeps planets in orbit

B. Gravity is the magnetic pull between magnets

C. Gravity increases orbital speed by itself

D. Gravity is a force that only acts on Earth

Gravity is the attraction between masses. It pulls objects toward each other, and when a body like a planet or satellite moves around a much larger body, gravity pulls it inward. This inward pull acts as the centripetal force that continuously bends the path from a straight line into a curved one, so the object stays in orbit instead of flying off into space. The orbit exists because the forward motion of the object and the inward pull of gravity balance in a way that keeps the path circular or elliptical. Gravity doesn't by itself speed things up; it provides the inward acceleration needed for the curved trajectory. And gravity acts on all masses, not just Earth.

3. Which statement describes Newton's Third Law?

A. Gravity is the force of attraction between objects.

B. For every action, there is an equal and opposite reaction.

C. The total energy in a system is always increasing.

D. Potential energy only depends on position.

When two objects interact, forces come in equal and opposite pairs acting on the two objects involved. This is Newton's Third Law. The forces are the same in strength but opposite in direction, and they act on different bodies, so they don't cancel each other out. For example, when you push against a wall, the wall pushes back on you with the same force in the opposite direction. Similarly, when you walk, friction with the ground pushes you forward, while you push backward on the ground. In a rocket, gas is expelled backward and the rocket is pushed forward with the same force in the opposite direction. These action–reaction pairs explain a lot of everyday motion and why forces balance differently depending on the masses involved. Other statements describe gravity or energy, which are separate concepts, not the way forces interact in pairs.

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4. What are the four components of soil?

A. Minerals, organic matter, water, and air.

B. Sand, silt, clay, organic matter.

C. Minerals, water, air, sunlight.

D. Organic matter, water, air, rocks.

Soil is made up of four essential parts that determine its health and how well plants can grow: minerals, organic matter, water, and air. Minerals come from broken-down rock and provide the nutrients plants need to build tissues and carry out metabolism. Organic matter is decomposed plant and animal material that adds nutrients and helps soil hold together and retain water. Water fills the tiny spaces between soil particles and dissolves nutrients so roots can absorb them. Air sits in the other pore spaces and supplies oxygen for roots and soil organisms, which is just as important as water for healthy root function. The other options mix in things that aren't considered components of soil in this sense. Sunlight isn't part of the soil itself, rocks are larger materials not a basic component, and describing soil by texture (sand, silt, clay) refers to particle sizes rather than the four fundamental parts of soil.

5. Which energy form increases with height above the ground for a given mass and gravity?

A. Kinetic energy

B. Mechanical energy

C. Chemical potential energy

D. Gravitational potential energy

Gravitational potential energy is the energy stored because of an object's height in a gravitational field. For a given mass and constant gravity, this energy is m g h, where h is how high the object is above the reference point. Since m and g are fixed, gravitational potential energy increases directly as height increases. Kinetic energy depends on speed, not height, so raising the mass without changing its motion doesn't increase KE. Chemical potential energy relates to the arrangement of atoms and bonds, not position in a gravitational field. Mechanical energy is the total energy (sum of kinetic and potential); it isn't a single form that must rise with height, even though the gravitational potential part does.

6. The height of a transverse wave from the rest position to the crest describes which property?

A. Wavelength

B. Amplitude

C. Frequency

D. Trough

Amplitude is the maximum distance the medium moves from its rest position. In a transverse wave, the rest position is the horizontal equilibrium line, the crest is the highest point, and the trough is the lowest. The height from the rest position up to the crest is the amplitude, which measures how large the wave's displacement is. Wavelength, on the other hand, is the distance between adjacent crests (or troughs), and frequency is how many cycles occur per second. A trough is simply the lowest point of the wave, not a measure of height.

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7. Which term best fits a material that does not allow electrons to move easily?

A. Electrical Conductor

B. Magnetic Material

C. Semiconductor

D. Electrical Insulator

The main idea here is how easily electrons can move through a material—that's what electrical conductivity measures. A material that does not allow electrons to move easily is an electrical insulator. In insulators, the electrons are tightly bound to atoms, and there's a large energy gap between the states that would let electrons move freely and those that would require energy to cross. So under normal conditions, very little current can flow. That's why insulators like rubber, glass, or plastic are used to coat wires and protect you from electric shocks. The other options don't fit this description: a conductor has lots of free electrons and conducts electricity readily; a magnetic material relates to magnetic properties rather than how easily electrons move; a semiconductor conducts electricity, but its conductivity lies between a conductor and an insulator and can be controlled by temperature, impurities, or light, so it's not characterized by movement being highly restricted.

8. What is a circuit?

A. A circuit is a device that stores charge.

B. A circuit is a component that converts energy to heat only.

C. A circuit is a closed loop that allows current to flow through a conductor and components.

D. A circuit is a single resistor connected to a battery.

A circuit is a closed loop that allows electric current to flow from a power source through conductors and components and back to the source. The loop must be continuous, because current only moves when there is a complete path; if a switch is open or a wire is broken, the current stops. This idea helps explain why energy can be delivered to lights, motors, sensors, or other devices—the energy is carried around the loop and used by the components along the way. Storing charge isn't what defines a circuit (storage happens in devices like capacitors, which are parts of circuits but not the definition itself). And a circuit isn't limited to converting energy to heat; it can power many different loads. A simple setup with a battery and a resistor is indeed a basic circuit, but the essential concept is the complete loop that allows current to flow through the entire path.

9. What is the flow of electric charges through a wire or conductor called?

A. Electric current

B. Voltage

C. Resistance

D. Power

Electric current is the flow of electric charges through a wire or conductor. It describes how many charges pass a point in a given time, and is measured in amperes. A voltage source provides the push that drives this movement, so current tells us how much charge is actually flowing. Resistance would slow that flow, and power tells us how quickly energy is being transferred as the current moves.

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10. What do the terms porosity and permeability describe in soils?

A. Porosity is the amount of open space in a rock or soil; permeability is the ability of a material to transmit fluids.

B. Porosity is the color of soil; permeability is its texture.

C. Porosity is how well a rock resists weathering; permeability is rigidity.

D. Porosity is rainfall rate; permeability is wind speed.

Porosity and permeability describe how soils hold and move water. Porosity is the fraction of the soil's total volume that is open space, which tells you how much water the soil can store. Permeability is the ability of the soil to transmit fluids, which depends on how connected those open spaces are and how large they are. So a soil can have lots of pore spaces (high porosity) but water might not flow through it easily if the pores aren't well connected (low permeability). Conversely, a soil with well-connected, larger pores tends to allow water to move through it quickly (high permeability). This is why sand often drains quickly (high permeability) while clay can hold water but not allow it to flow easily (low permeability). These ideas are separate from color or texture, and from environmental factors like rainfall or wind speed.

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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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