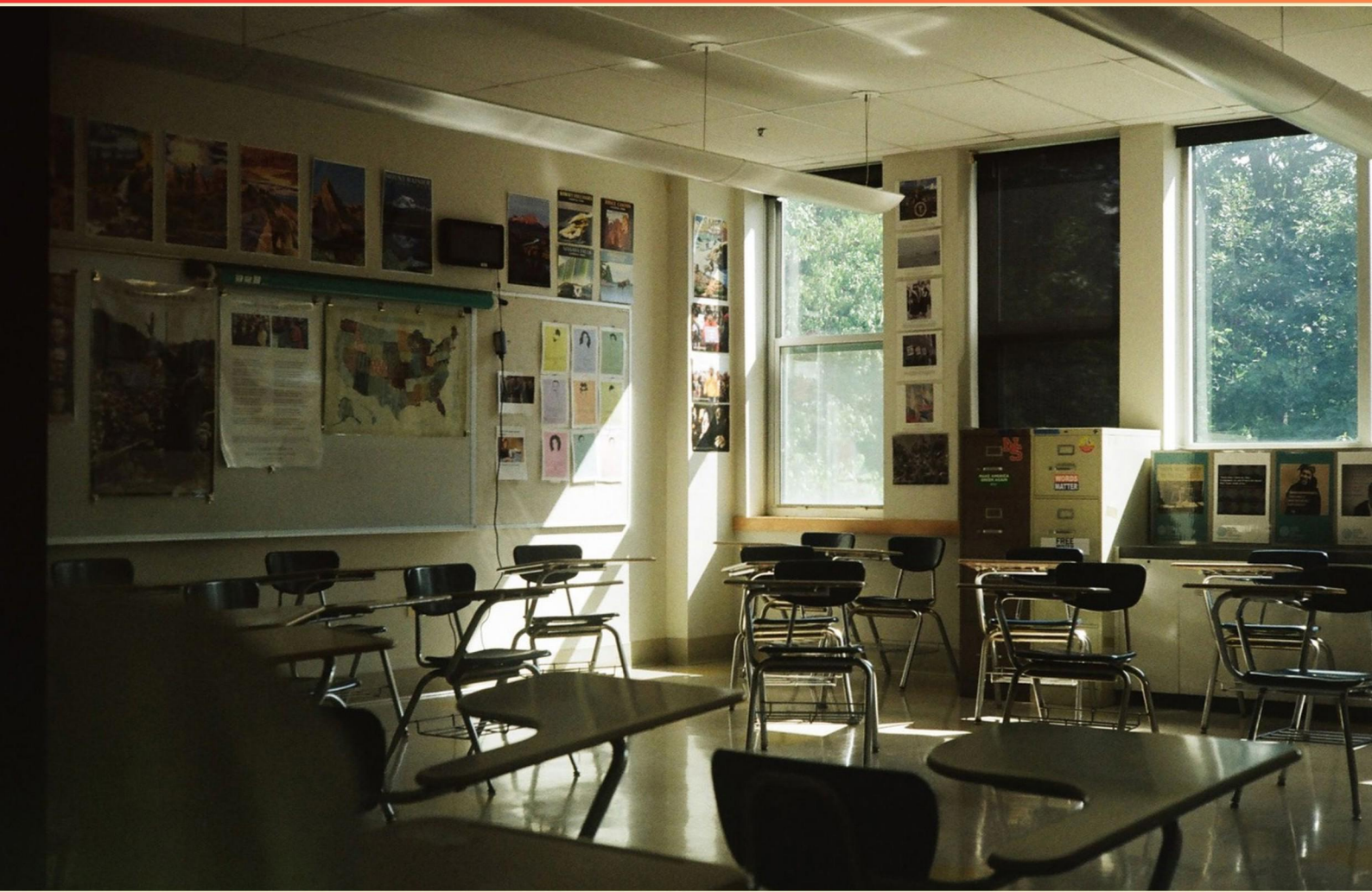


GEORGIA HIGH SCHOOL PHYSICAL SCIENCE EOC PRACTICE TEST (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR
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. What characterizes an exothermic reaction?**
 - A. A chemical reaction that absorbs energy (feels hot)
 - B. A chemical reaction that releases energy (feels cold)
 - C. A process that only changes state
 - D. A reaction that consumes energy but does not change temperature
- 2. What is the relationship for wavelength in terms of speed and frequency?**
 - A. $\text{Wavelength} = \text{Frequency} / \text{Speed of Light}$
 - B. Wavelength is independent of frequency
 - C. $\text{Wavelength} = \text{Speed of Light} * \text{Frequency}$
 - D. $\text{Wavelength} = \text{Speed of Light} / \text{Frequency}$
- 3. Which mode of heat transfer requires a material medium?**
 - A. Conduction
 - B. Radiation
 - C. Convection
 - D. All modes require a medium
- 4. A net force that causes motion is called...**
 - A. Friction
 - B. Balanced Forces
 - C. Unbalanced Forces
 - D. Normal Force
- 5. The atomic number indicates the atom's identity and equals the number of what?**
 - A. Protons
 - B. Neutrons
 - C. Electrons
 - D. Isotopes
- 6. Which statement best describes Newton's third law?**
 - A. Every action is accompanied by an equal and opposite reaction.
 - B. Gravity is the only force between objects.
 - C. Mass creates momentum without velocity.
 - D. Inertia causes an object at rest to remain at rest.

7. What describes synthesis in chemical reactions?

- A. Two elements combine. $A + B = AB$
- B. A compound splits. $AB = A + B$
- C. Two elements exchange electrons to form ions.
- D. A substance changes phase without chemical change.

8. Which statement describes a pro of nuclear energy (fission)?

- A. Little Air Pollution
- B. High Fuel Costs
- C. Large Greenhouse Gas Emissions
- D. Waste Disposal Issues

9. Half-life is defined as the time it takes for half of the atoms in a radioactive material to decay.

- A. The Rate of Decay
- B. The Energy Released Per Decay
- C. Time It Takes For Half Of The Atoms In A Radioactive Material To Decay
- D. Time For All Atoms To Decay

10. Which description matches a quark?

- A. A neutral particle in the nucleus.
- B. A particle larger than an atom.
- C. Charged particle that is smaller than a proton.
- D. A force carrier in atoms.

Answers

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

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Explanations

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1. What characterizes an exothermic reaction?

- A. A chemical reaction that absorbs energy (feels hot)
- B. A chemical reaction that releases energy (feels cold)**
- C. A process that only changes state
- D. A reaction that consumes energy but does not change temperature

An exothermic reaction releases energy to the surroundings, usually as heat. Because energy leaves the system, the surrounding environment warms up—you can often feel the heat, and sometimes you'll even see light or flames. This is the opposite of an endothermic process, where energy is absorbed from the surroundings, making things feel cooler. So the defining feature is heat released to the surroundings, not heat absorption.

2. What is the relationship for wavelength in terms of speed and frequency?

- A. Wavelength = Frequency / Speed of Light
- B. Wavelength is independent of frequency
- C. Wavelength = Speed of Light * Frequency
- D. Wavelength = Speed of Light / Frequency**

Wavelength is determined by how fast the wave travels and how often its cycles occur. For any wave, speed v equals frequency f times wavelength λ , written as $v = f\lambda$. Solving for wavelength gives $\lambda = v / f$. In the case of light, v is the speed of light c , so $\lambda = c / f$. This means increasing the frequency makes the wavelength shorter, and decreasing the frequency makes it longer. The division by frequency is the correct way to relate wavelength to speed, because it matches the units (meters = (meters per second) $\div$ (per second)) and the observed inverse relationship between frequency and wavelength.

3. Which mode of heat transfer requires a material medium?

- A. Conduction**
- B. Radiation
- C. Convection
- D. All modes require a medium

Conduction is the transfer of heat through direct interactions between particles within a material. It requires a material medium because energy moves by collisions and vibrations from one molecule or atom to its neighbors (and, in metals, by free electrons). If there's no matter at all, such as in a vacuum, conduction can't occur. Radiation, by contrast, travels as electromagnetic waves and can happen across empty space, so it doesn't require a medium. Convection involves the bulk movement of a fluid, which is also a material medium, but the defining feature here is that conduction relies on those particle interactions within matter to transfer energy.

4. A net force that causes motion is called...

- A. Friction
- B. Balanced Forces
- C. Unbalanced Forces**
- D. Normal Force

When several forces act on an object, you combine them to get the net force. A nonzero net force changes the object's motion; it causes acceleration according to $F_{\text{net}} = m a$. The net force that causes motion is called an unbalanced force. For example, pushing a cart with more force than the opposing friction produces a net forward force and the cart speeds up; if the forward push exactly balances friction, the net force is zero and the cart moves at a constant velocity or stays at rest. Friction is one of the forces that can oppose motion, not the net force by itself. Balanced forces produce no change in motion, and the normal force is a contact force that supports weight, not the force driving motion.

5. The atomic number indicates the atom's identity and equals the number of what?

- A. Protons**
- B. Neutrons
- C. Electrons
- D. Isotopes

The key idea is that the atomic number is the number of protons in the nucleus, and that count uniquely identifies the element on the periodic table. Protons define the element's identity, so changing this number would create a different element. Neutrons can vary between isotopes of the same element, affecting mass but not the element's identity. Electrons can vary in charged states, but the atomic number remains tied to protons. Therefore, the atomic number equals the number of protons.

6. Which statement best describes Newton's third law?

- A. Every action is accompanied by an equal and opposite reaction.**
- B. Gravity is the only force between objects.
- C. Mass creates momentum without velocity.
- D. Inertia causes an object at rest to remain at rest.

Forces come in pairs that oppose each other when two objects interact. This is Newton's third law: the force one object exerts on a second is met with an equal in magnitude, opposite in direction force by the second on the first. These action-reaction forces act on different objects, so they don't cancel each other out even though they are equal and opposite. A common example is pushing against a wall—the wall pushes back with the same strength in the opposite direction, even though you and the wall are separate objects. The other statements don't fit because gravity isn't the only force between objects; there are many contact forces like friction and normal forces. Momentum is mass times velocity, so mass alone doesn't create momentum without motion. Inertia is about resisting changes in motion and is described by Newton's first law, not the action-reaction pairing.

7. What describes synthesis in chemical reactions?

- A. Two elements combine. $A + B = AB$**
- B. A compound splits. $AB = A + B$
- C. Two elements exchange electrons to form ions.
- D. A substance changes phase without chemical change.

Synthesis is when two elements or simpler substances join to form one compound. That idea is captured by the statement that two elements combine to form a single product. A common example is sodium reacting with chlorine to form sodium chloride, illustrating two substances coming together to make one new substance. This differs from decomposition, where a compound breaks apart into simpler substances. It also differs from reactions where elements exchange electrons to form ions (a redox or displacement type reaction), which involves electron transfer rather than simply building one product from two reactants. Finally, changing phase without chemical change is a physical change, not a chemical reaction, so it doesn't describe synthesis.

8. Which statement describes a pro of nuclear energy (fission)?

- A. Little Air Pollution**
- B. High Fuel Costs
- C. Large Greenhouse Gas Emissions
- D. Waste Disposal Issues

Fission-powered plants produce electricity with very little air pollution. The energy comes from splitting uranium nuclei inside a reactor, which heats water to make steam that drives turbines. Since there's no combustion involved, the usual air pollutants associated with burning fossil fuels—like sulfur dioxide, nitrogen oxides, and particulate matter—are not released in significant amounts during normal operation. That keeps the air much cleaner compared with coal or oil plants. The other statements describe drawbacks or challenges—such as costs tied to fuel, greenhouse gas emissions, and waste disposal concerns—which aren't the operational air-pollution advantages of nuclear fission.

9. Half-life is defined as the time it takes for half of the atoms in a radioactive material to decay.

- A. The Rate of Decay
- B. The Energy Released Per Decay
- C. Time It Takes For Half Of The Atoms In A Radioactive Material To Decay**
- D. Time For All Atoms To Decay

Half-life is a measure of time for a fixed portion of a radioactive sample to decay. For any given isotope, after one half-life interval has passed, half the original undecayed atoms remain. That's why the statement "the time it takes for half of the atoms in a radioactive material to decay" is the defining description of half-life. This time constant is intrinsic to the isotope and does not depend on how much material you start with. The rate of decay, or activity, is how many decays occur each second, and it changes as the number of undecayed atoms decreases. The energy released per decay is the energy per individual decay event, a property of the decay process itself, not a measure of how long it takes for half the atoms to decay. And the idea of all atoms decaying in a finite time conflicts with exponential decay, which approaches zero remaining undecayed atoms but never reaches zero in a finite interval. The relationship can be summarized by $N(t) = N_0 \times (1/2)^{(t/T_{\text{half}})}$, illustrating how the number of undecayed atoms halves every half-life period.

10. Which description matches a quark?

- A. A neutral particle in the nucleus.
- B. A particle larger than an atom.
- C. Charged particle that is smaller than a proton.**
- D. A force carrier in atoms.

Quarks are the tiny building blocks that combine to form protons and neutrons inside the nucleus. They are much smaller than a proton and carry fractional electric charge, either $+2/3$ or $-1/3$. Because of that, describing a quark as a charged particle that is smaller than a proton is accurate and precise. The other descriptions don't fit: a neutral particle in the nucleus would describe a neutron, which is made of quarks but is not a single quark itself; quarks are not larger than an atom; and a force carrier in atoms is something like a photon or a gluon, not a quark.

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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://gahighschoolphysicalscieoc.examzify.com>

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

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