North Carolina Grade 8 End-of-Grade (EOG) Science Practice Test (Sample)

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

Table of Contents

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

1. Which statement about index fossils is true?

A. They are fossils used to determine the color of rocks.

B. They are fossils created by meteor impacts.

C. They are fossils used to define and identify geologic periods.

D. They are fossils found only in igneous rocks.

2. Tigers and household cats differ greatly in size primarily due to what?

A. Biochemical makeup

B. Behavioral makeup

C. Genetics

D. Habitat size

3. Which evidence supports the theory of plate tectonics?

A. Matching coastlines, identical rock formations and fossils across continents, fit of the continents, ocean-floor magnetic stripes, and earthquake/volcano patterns along plate boundaries

B. The color of rocks on the Moon

C. Seasonal weather patterns across continents

D. Desert distributions across continents

4. What is a problem with using wind turbines to produce energy?

A. Wind turbines occupy only a small area of land.

B. Wind turbines are efficient only in certain areas.

C. Wind energy produces a large amount of energy.

D. Wind turbines create a large amount of pollution.

5. Why is protein an important part of a healthy diet?

A. It is needed to change glucose to energy.

B. It is needed to store nutrients.

C. It is needed to repair tissues.

D. It is needed to produce water.

6. Which career would a student studying biotechnology most likely pursue?

A. Agricultural Research

B. Electrical Engineering

C. Astronomy

D. Geology

7. If a predator is removed from an ecosystem, what is the most likely effect on the prey population?

A. The Population Will Shrink.

B. The Population Will Stay the Same.

C. The Population of the Prey Will Become Extinct.

D. The Population of the Prey Will Increase.

8. What is the main role of producers in an ecosystem's energy pyramid?

A. To convert light energy into chemical energy via photosynthesis, forming the base of the food chain

B. To decompose dead matter

C. To consume other organisms for energy

D. To recycle water

9. What does the Law of Conservation of Matter state?

A. Matter can be created in chemical reactions

B. Matter can be destroyed in a chemical reaction

C. Energy is conserved but matter is not

D. Matter is conserved; atoms are rearranged but not created or destroyed

10. Which statement best describes erosion in the context of rocks and water?

A. It transports and wears down rocks, often by water or wind.

B. It occurs only on land and never in water.

C. It changes the chemical composition of rocks.

D. It rapidly forms sedimentary rocks.

Answers

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

Explanations

1. Which statement about index fossils is true?

A. They are fossils used to determine the color of rocks.

B. They are fossils created by meteor impacts.

C. They are fossils used to define and identify geologic periods.

D. They are fossils found only in igneous rocks.

Index fossils are fossils that serve as time markers for Earth's history. They come from organisms that lived for a relatively short period, were widespread across large areas, and are easy to recognize. Because of these traits, they let scientists define the boundaries of geologic periods and identify the ages of rock layers in different places. For instance, finding a distinctive ammonite in a rock layer can indicate a specific slice of time, and the same fossil across different regions helps correlate those layers. This is why the statement that index fossils are used to define and identify geologic periods is true. They aren't used to determine rock color, they aren't fossils formed by meteor impacts, and they're typically found in sedimentary rocks, not only in igneous rocks.

2. Tigers and household cats differ greatly in size primarily due to what?

A. Biochemical makeup

B. Behavioral makeup

C. Genetics

D. Habitat size

Size differences between tigers and house cats come from genetics—the inherited instructions in their DNA that determine how big an animal can grow, how bones develop, and how much muscle and tissue are built. Over long periods of evolution, these genetic factors have produced tigers as large wild cats and kept domestic cats much smaller. Environment and resources can influence growth to some extent, but they can't override the genetic limits that set a species' typical size. Biochemical makeup isn't what creates such a large size gap, since both have similar chemistry and the difference lies in how growth is directed by genes. Behavior relates to how animals live or hunt, not to their maximum size. Habitat size can affect access to food, but the inherent size difference comes from genetics.

3. Which evidence supports the theory of plate tectonics?

A. Matching coastlines, identical rock formations and fossils across continents, fit of the continents, ocean-floor magnetic stripes, and earthquake/volcano patterns along plate boundaries

B. The color of rocks on the Moon

C. Seasonal weather patterns across continents

D. Desert distributions across continents

Evidence that plate tectonics is true comes from several clues that fit together, showing how Earth's crust moves. When you put continents together, their coastlines line up like puzzle pieces, and you can find matching rock formations and fossils on continents that are now far apart. This suggests those landmasses were once connected. Ocean-floor magnetic stripes reveal patterns of sea-floor spreading at mid-ocean ridges, with magnetic minerals recording reversals of Earth's field over time. Along with this, earthquakes and volcanoes tend to occur along the edges of tectonic plates, marking plate boundaries. Taken together, these kinds of evidence build a consistent picture that Earth's outer shell is made of moving plates. The other options don't provide relevant evidence for plate tectonics. The color of rocks on the Moon doesn't relate to Earth's crust movements, seasonal weather patterns aren't about how continents move, and desert distributions reflect climate and geography rather than evidence of plate motion.

4. What is a problem with using wind turbines to produce energy?

A. Wind turbines occupy only a small area of land.

B. Wind turbines are efficient only in certain areas.

C. Wind energy produces a large amount of energy.

D. Wind turbines create a large amount of pollution.

The main idea here is that wind energy depends on how much wind is available. Wind turbines generate electricity best when wind is strong and fairly steady. In places where wind is weak or highly variable, the turbines don't produce much energy, so relying on wind power can be unreliable. That's why the best description of a problem with using wind turbines is that their efficiency depends on location—some areas are much more suitable for producing power than others. The other statements aren't the core drawback: wind farms don't inherently produce a large amount of pollution, and while land use and other factors matter, the key limitation most often discussed is the variability and dependence on wind resources.

5. Why is protein an important part of a healthy diet?

A. It is needed to change glucose to energy.

B. It is needed to store nutrients.

C. It is needed to repair tissues.

D. It is needed to produce water.

Proteins supply the amino acids used to build and repair the body's tissues. When you grow, heal from injuries, or work out, your muscles, skin, and other organs need these building blocks to stay healthy and function well. Proteins also help make enzymes, hormones, and antibodies, which support digestion, signaling, and immunity. The other ideas aren't the main job of protein: turning glucose into energy is mainly the role of carbohydrates and fats, storage is handled by fats and stored carbohydrate (glycogen), and producing water comes from general metabolic reactions, not from protein's primary purpose. So repairing and maintaining tissues is why protein is important in a healthy diet.

6. Which career would a student studying biotechnology most likely pursue?

A. Agricultural Research

B. Electrical Engineering

C. Astronomy

D. Geology

Biotechnology is about using living systems and biological methods to create useful products and solutions. A student studying biotechnology would most likely pursue agricultural research because biotech tools are routinely used to improve crops and farming—things like developing disease-resistant varieties, increasing yields, or making plants that tolerate drought or pests. The other fields—electrical engineering, astronomy, and geology—focus on circuits and machines, space, or Earth materials, and don't primarily rely on biotech techniques.

7. If a predator is removed from an ecosystem, what is the most likely effect on the prey population?

A. The Population Will Shrink.

B. The Population Will Stay the Same.

C. The Population of the Prey Will Become Extinct.

D. The Population of the Prey Will Increase.

When predators are present, they help keep prey numbers in balance by removing individuals. If the predator is removed, fewer prey are killed, so more individuals survive to reproduce. With lower predation, the prey population is free to grow, at least until other limits like food or space slow it down. So the most likely outcome is an increase in the prey population, at least in the short term, because the main pressure keeping those numbers down has been removed.

8. What is the main role of producers in an ecosystem's energy pyramid?

A. To convert light energy into chemical energy via photosynthesis, forming the base of the food chain

B. To decompose dead matter

C. To consume other organisms for energy

D. To recycle water

Producers capture light energy from the sun and store it as chemical energy through photosynthesis, forming the base of the energy pyramid. They build organic molecules like glucose that provide the starting energy for all other organisms in the ecosystem. As energy moves up the pyramid through feeding, most of it is lost as heat at each transfer, so the base needs to supply enough energy for everyone else. Decomposers break down dead material and recycle nutrients, but they don't create the initial energy source. Consumers obtain energy by eating others, not by producing it. Recycl ing water belongs to the water cycle, not the energy pyramid. So the producers' role is to convert sunlight into chemical energy that starts and sustains the whole energy flow.

9. What does the Law of Conservation of Matter state?

A. Matter can be created in chemical reactions

B. Matter can be destroyed in a chemical reaction

C. Energy is conserved but matter is not

D. Matter is conserved; atoms are rearranged but not created or destroyed

The main idea being tested is that matter is conserved in chemical reactions. In these processes, atoms are rearranged to form new substances, but the total amount of matter stays the same in a closed system. That means the total number and type of atoms before a reaction equal the total after the reaction, just connected in different ways. So the best statement is that matter is conserved; atoms are rearranged but not created or destroyed. This helps explain why, in a sealed container, the mass before and after a reaction remains the same—even though the substances involved look different. The other ideas—matter being created or destroyed, or only energy being conserved—don't fit with what we observe in ordinary chemical changes.

10. Which statement best describes erosion in the context of rocks and water?

A. It transports and wears down rocks, often by water or wind.

B. It occurs only on land and never in water.

C. It changes the chemical composition of rocks.

D. It rapidly forms sedimentary rocks.

Erosion is the process of wearing away and moving rock or soil by natural forces such as water or wind. In rocks and water, this means running water or waves can pick up particles and transport them away, while at the same time wearing surfaces down. That dual idea—both transporting material and wearing it away—is why this description fits best. Erosion isn't primarily about changing the rock's chemical makeup—that's chemical weathering. It also isn't about quickly forming rocks; sediments produced by erosion must first be deposited and then cemented or compacted over time to become sedimentary rocks. And erosion certainly can occur in water, not just on land, as seen in rivers carving valleys or coastlines weathering away shorelines.

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://ncgrade8eogscience.examzify.com

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