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

Study Guide

BY EXAMZIFY

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

1. **Ten people became sick with the flu after attending a school dance. What scenario could best explain how the people got sick?**

   A. contact with environmental sources

   B. contact with infected animals

   C. contact with a contaminated object

   D. contact with an infected person

2. **Which description best explains how sedimentary rocks form?**

   A. From molten rock that cools and solidifies

   B. From fragments of other rocks that are deposited and cemented together

   C. From rocks altered by heat and pressure

   D. From chemical precipitation only

3. **Which statement best explains nitrogen's role in the cycling of energy and matter?**

   A. Nitrogen Decreases Protein Production in Plants.

   B. Nitrogen Increases the Effectiveness of Photosynthesis.

   C. Nitrogen Increases Protein Production in Plants.

   D. Nitrogen Decreases the Effectiveness of Photosynthesis.

4. **Which would best allow a species to survive environmental changes?**

   A. Genetic Diversity

   B. Small Population

   C. Low Mutation Rate

   D. Similar Physical Features

5. **What is involved in creating genetically modified bacteria?**

   A. Allowing them to reproduce freely

   B. Changing their food source

   C. Using biotechnology techniques

   D. Growing them on selected plants

6. Which best describes how ice cores are important to the study of geologic history?

A. unconformities in deposition

B. index fossils in ice cores

C. evidence showing changes in atmospheric composition over time

D. Law of Superposition

7. How does a balanced chemical equation satisfy the Law of Conservation of Mass?

A. The Total Amount of Matter Stays the Same.

B. During a Chemical Reaction, Matter is Destroyed.

C. During a Chemical Reaction, One or More New Substances Are Formed.

D. During a Chemical Reaction, The Total Number of Atoms Increase.

8. Which statement best describes a positive environmental impact of agricultural biotechnology?

A. By Producing Crops That Are Virus Resistant.

B. By Reducing the Need for Countries to Import Food.

C. By Increasing the Use of Wind Farms That Produce Electricity.

D. By Making Robots to Replace Large Farm Machines.

9. What happens to population size and competition when living space is reduced?

A. The population expands and competition intensifies.

B. Competition strengthens while the population contracts.

C. The population increases as competition decreases.

D. Competition weakens and the population decreases.

10. Which best describes the characteristics of a river basin?

A. The land formed when rivers create estuaries and marshes

B. The land at the mouth of a river where water flows into the ocean

C. The land formed as a result of a river flooding

D. The land drained by a river and its tributaries

Answers

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

Explanations

1. Ten people became sick with the flu after attending a school dance. What scenario could best explain how the people got sick?

A. contact with environmental sources

B. contact with infected animals

C. contact with a contaminated object

D. contact with an infected person

Flu spreads mainly through close, person-to-person contact when someone who is sick talks, coughs, or sneezes, releasing respiratory droplets that others nearby can inhale. In a crowded event like a school dance, many people are in close proximity, making it easy for those droplets to reach multiple mouths or noses. That pattern fits the scenario of ten people becoming sick after attending the dance, because the illness is spreading directly from one infected person to others nearby. Environmental sources and contaminated objects can play a role in some illnesses, but they're less likely to explain a rapid outbreak among many people at a single event. A virus on a surface would require several steps (someone touching the surface, then touching their face) and often results in slower or more varied timing. Infected animals are not a typical source for a flu outbreak in a school setting, so that doesn't fit this situation well. So, the best explanation is that the illness spread through contact with an infected person, especially given the close, crowded conditions of the dance.

2. Which description best explains how sedimentary rocks form?

A. From molten rock that cools and solidifies

B. From fragments of other rocks that are deposited and cemented together

C. From rocks altered by heat and pressure

D. From chemical precipitation only

Sedimentary rocks form when pieces of other rocks and minerals are broken down, carried away by wind or water, and gradually settle in layers. Over time, these layers get buried, compacted, and cemented together by minerals in groundwater, turning loose sediment into solid rock. This deposition and cementation process is what makes sedimentary rocks distinct. That's why this description fits best: it emphasizes fragments being deposited and then cemented into rock. Other rock types come from different processes—igneous rocks form from molten rock that cools and hardens, and metamorphic rocks form when existing rocks are changed by heat and pressure. While some sedimentary rocks can form from chemical precipitation, the broader idea of sedimentary rock formation centers on deposition of fragments and their cementation.

3. Which statement best explains nitrogen's role in the cycling of energy and matter?

A. Nitrogen Decreases Protein Production in Plants.

B. Nitrogen Increases the Effectiveness of Photosynthesis.

C. Nitrogen Increases Protein Production in Plants.

D. Nitrogen Decreases the Effectiveness of Photosynthesis.

Nitrogen’s role centers on building proteins, which are made from amino acids containing nitrogen. Plants need nitrogen to synthesize these amino acids, and proteins then serve as enzymes, transport proteins, and structural components that promote growth and metabolism. When plants have more nitrogen, they can produce more proteins, which speeds up chemical reactions that release and use energy and support the creation of new biomass. This directly links to how energy flows through organisms and how matter is cycled, since enzymes and other proteins control the transformations of nutrients into usable forms and back into organic matter. While nitrogen is also involved in components like chlorophyll, claiming it universally increases photosynthesis is less precise than stating its fundamental role in protein production that enables growth and metabolic processes.

4. Which would best allow a species to survive environmental changes?

A. Genetic Diversity

B. Small Population

C. Low Mutation Rate

D. Similar Physical Features

Having a variety of genes in a population lets it respond to environmental changes. When conditions shift, some individuals will carry traits that help them cope—such as tolerating higher temperatures, finding new food sources, or resisting a disease. Those individuals are more likely to survive and reproduce, passing the helpful genes to their offspring, so the population as a whole becomes better suited to the new environment over time. Genetic diversity comes from new mutations, the mixing of genes during sexual reproduction, and gene flow between populations, all of which expand the range of possible traits. If a population is small, there’s less genetic variety to draw on, so it’s easier for a single threat to affect many individuals and push the population toward extinction. A low mutation rate means fewer new traits appear to help with new challenges, making adaptation harder. Having very similar physical features means there’s less variation for natural selection to act on when conditions change. In contrast, diverse genes provide multiple potential solutions to new problems, making survival more likely. Therefore, genetic diversity best enables survival under environmental changes.

5. What is involved in creating genetically modified bacteria?

A. Allowing them to reproduce freely

B. Changing their food source

C. Using biotechnology techniques

D. Growing them on selected plants

Creating genetically modified bacteria involves using biotechnology techniques to alter their DNA. Scientists insert or edit genes, often using a carrier molecule like a plasmid, and then use methods to identify and grow only the bacteria that carry the desired genetic change. This process is what changes the bacteria's traits, such as producing a useful protein or functioning in a new environment. Simply letting bacteria reproduce freely isn't about making targeted genetic changes. Changing what they eat doesn't modify their DNA, and growing bacteria on plants describes a different context not involved in making GM bacteria. So the essential idea is applying biotechnology tools to modify the bacteria's genetic material.

6. Which best describes how ice cores are important to the study of geologic history?

A. unconformities in deposition

B. index fossils in ice cores

C. evidence showing changes in atmospheric composition over time

D. Law of Superposition

Ice cores serve as time capsules of Earth's atmosphere. As snow piles up and compacts into ice over many years, tiny air bubbles get trapped in the layers. By digging and analyzing these layers, scientists can measure past concentrations of gases like CO_2 and methane and compare isotopes that tell us about ancient temperatures. This direct record of how the atmosphere changed over time is exactly what helps us understand past climates and, in turn, geologic history. That's why the best description is that ice cores provide evidence showing changes in atmospheric composition over time. Other ideas—like gaps in rock deposition, fossils in ice cores, or the Rule of Superposition—don't capture the core usefulness of ice cores, which is revealing the history of the atmosphere itself.

7. How does a balanced chemical equation satisfy the Law of Conservation of Mass?

A. The Total Amount of Matter Stays the Same.

B. During a Chemical Reaction, Matter is Destroyed.

C. During a Chemical Reaction, One or More New Substances Are Formed.

D. During a Chemical Reaction, The Total Number of Atoms Increase.

Balanced chemical equations show mass is conserved by counting atoms on both sides and making them equal. In a chemical change, atoms are rearranged to form new substances, but they aren't created or destroyed, so the total mass before the reaction equals the total mass after. When an equation is balanced, the same number of each type of atom sits on the left and the right, and because each atom has a specific mass, the overall mass remains the same. The idea that matter is destroyed or that atoms mysteriously increase would break this rule, while forming new substances is compatible with mass conservation as long as the total mass of reactants matches the total mass of products.

8. Which statement best describes a positive environmental impact of agricultural biotechnology?

A. By Producing Crops That Are Virus Resistant.

B. By Reducing the Need for Countries to Import Food.

C. By Increasing the Use of Wind Farms That Produce Electricity.

D. By Making Robots to Replace Large Farm Machines.

Biotechnology in agriculture can make crops grow more produce and be more resilient, which can reduce the environmental footprint by supporting more food to be produced locally. When a country can rely less on importing food because biotech improvements boost domestic production, energy and emissions used to transport, refrigerate, and distribute that food are lowered. That transportation and processing impact is a major environmental benefit of using agricultural biotechnology. The other ideas involve either a trait for disease resistance in crops or technologies unrelated to biotechnology in farming, such as wind energy or robotics. While virus-resistant crops are indeed helpful, the statement about reduced imports best captures a broad environmental advantage tied to growing more food domestically through biotech.

9. What happens to population size and competition when living space is reduced?

A. The population expands and competition intensifies.

B. Competition strengthens while the population contracts.

C. The population increases as competition decreases.

D. Competition weakens and the population decreases.

When living space is reduced, there's less room and fewer resources for organisms. That means more competition for food, water, shelter, and hiding places. With resources scarcer and space limited, not as many individuals can survive and reproduce, so the population tends to shrink to fit the smaller habitat. At the same time, the competition among individuals becomes stronger because everyone is vying for the same limited resources. That combination—stronger competition and a decreasing population—fits why this option is correct.

10. Which best describes the characteristics of a river basin?

A. The land formed when rivers create estuaries and marshes

B. The land at the mouth of a river where water flows into the ocean

C. The land formed as a result of a river flooding

D. The land drained by a river and its tributaries

A river basin is the land area from which all the water drains into one river and its tributaries. Imagine rainfall or melted snow in that area flowing downhill, gathering into smaller streams that feed the main river. The outer edge of the basin is formed by high ground that separates it from neighboring basins, so everything within that boundary eventually ends up in the same river system. That description—land drained by a river and its tributaries—captures the whole drainage area that feeds the river. The land at the mouth of a river refers to the estuary or delta where the river meets the sea, not the whole basin. The land formed by river flooding describes features like floodplains, which are created by repeated floods but don't define the entire drainage area.

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!