

# Washington Comprehensive Assessment of Science (WCAS) Practice Test (Sample)

## Study Guide



**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

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- 1. What term is used for having two different alleles for a trait?**
  - A. Homozygous**
  - B. Recessive**
  - C. Alleles**
  - D. Heterozygous**
  
- 2. What is the term for changing from a liquid to a gas?**
  - A. Condensation**
  - B. Freezing**
  - C. Vaporization / Evaporation**
  - D. Melting**
  
- 3. Which of the following landforms is created by living organisms?**
  - A. Coral reefs**
  - B. Mountain ranges**
  - C. Volcanic islands**
  - D. Deserts**
  
- 4. What kind of reproduction results in offspring that are similar but genetically different from their parents?**
  - A. Asexual Reproduction**
  - B. Binary Fission**
  - C. Sexual Reproduction**
  - D. Cloning**
  
- 5. Which process would most directly depend on DNA?**
  - A. Photosynthesis**
  - B. Cellular respiration**
  - C. Protein synthesis**
  - D. Fermentation**

- 6. What term describes organisms that derive energy by eating producers?**
- A. Decomposers**
  - B. Photosynthesizers**
  - C. Consumers**
  - D. Producers**
- 7. How is density calculated?**
- A. Volume divided by mass**
  - B. Mass divided by volume**
  - C. Mass plus volume**
  - D. Mass minus volume**
- 8. What is formed when tissues work together in the body?**
- A. Cells**
  - B. Organs**
  - C. Organ Systems**
  - D. Species**
- 9. What does transforming energy refer to?**
- A. Storing energy for future use**
  - B. TRANSFORMING energy from one form to another**
  - C. Measuring energy output**
  - D. Increasing energy absorption**
- 10. In the context of waves, what does 'transmit' mean?**
- A. To absorb energy**
  - B. To bounce back off a surface**
  - C. To move through a medium**
  - D. To change direction**

## Answers

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

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## **Explanations**

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**1. What term is used for having two different alleles for a trait?**

**A. Homozygous**

**B. Recessive**

**C. Alleles**

**D. Heterozygous**

The term used for having two different alleles for a trait is "heterozygous." In genetics, an individual is considered heterozygous when they possess one dominant allele and one recessive allele for a given trait. This genetic condition enables a diverse expression of characteristics since the dominant allele can mask the presence of the recessive allele. For example, if we consider a trait like flower color, if one allele codes for purple flowers and the other for white flowers, the plant will typically exhibit the purple color, showcasing the dominant trait. The term "homozygous," on the other hand, refers to having two identical alleles for a trait, which does not fit the definition of having different alleles. "Recessive" describes the relationship between alleles in which the effect of one allele is masked by the presence of a dominant allele, and "alleles" are simply different versions of a gene that can exist at a specific locus on a chromosome. Thus, "heterozygous" accurately describes the condition of possessing two distinct alleles for a given trait.

**2. What is the term for changing from a liquid to a gas?**

**A. Condensation**

**B. Freezing**

**C. Vaporization / Evaporation**

**D. Melting**

The term for changing from a liquid to a gas is vaporization, which encompasses the process of evaporation. This occurs when molecules in a liquid gain enough energy to transition into the gaseous state. It can happen at any temperature, although it is more rapid at higher temperatures. Evaporation, which is a type of vaporization, specifically refers to the process that occurs at the surface of a liquid as it changes into gas, often at temperatures below the boiling point. Understanding this process is essential because it plays a critical role in various natural phenomena, such as the water cycle, where water from bodies of water evaporates into the atmosphere and eventually condenses into clouds. The distinction between vaporization and evaporation is important in scientific contexts, and recognizing these terms helps in understanding broader topics related to temperature, pressure, and phase changes in matter.

**3. Which of the following landforms is created by living organisms?**

**A. Coral reefs**

**B. Mountain ranges**

**C. Volcanic islands**

**D. Deserts**

Coral reefs are structures formed primarily by living organisms, particularly corals. These marine animals secrete calcium carbonate, which accumulates over time to build large, complex structures that provide habitat for a wide variety of marine life. The process is a collaborative effort among various organisms, including corals, algae, and sponges, contributing to the biodiversity found within these ecosystems. In contrast, mountain ranges are typically formed through geological processes such as tectonic plate movements, volcanic activity, or erosion, and are not the direct result of biological activity. Volcanic islands arise from volcanic eruptions and the accumulation of lava, while deserts are shaped by climatic conditions and erosion rather than by living organisms. Therefore, coral reefs stand out as the landform created by the activities of living organisms.

**4. What kind of reproduction results in offspring that are similar but genetically different from their parents?**

**A. Asexual Reproduction**

**B. Binary Fission**

**C. Sexual Reproduction**

**D. Cloning**

Sexual reproduction results in offspring that are similar but genetically different from their parents due to the combination of genetic material from two distinct parents. In this process, gametes (sperm and egg cells) come together during fertilization, contributing half of the genetic information from each parent. This mixing of genetic traits leads to increased variability in the offspring, allowing for unique combinations of traits that may enhance survival and adaptability in changing environments. In contrast, asexual reproduction produces offspring that are genetically identical clones of the parent organism. Methods such as binary fission (common in single-celled organisms) and cloning involve replicating the parent's genetic material without the introduction of genetic variance, resulting in offspring that lack the genetic diversity observed in sexually reproduced organisms. This genetic similarity in asexual reproduction can limit adaptability to environmental changes since the offspring do not inherit different combinations of genes from two parents.

## 5. Which process would most directly depend on DNA?

- A. Photosynthesis
- B. Cellular respiration
- C. Protein synthesis**
- D. Fermentation

The process that most directly depends on DNA is protein synthesis. DNA, or deoxyribonucleic acid, contains the genetic instructions that guide the synthesis of proteins, which are essential for various cellular functions and structures within an organism. During protein synthesis, the information encoded in DNA is first transcribed into messenger RNA (mRNA). This mRNA then travels from the nucleus to the ribosomes, where it serves as a template for the assembly of amino acids into a specific protein through a process called translation. Therefore, without DNA, the instructions to create proteins would be unavailable, making it the crucial determinant in this process. In contrast, while processes such as photosynthesis and cellular respiration are essential for energy production and overall cell function, they do not directly hinge upon the DNA sequence for their operation. Fermentation, a metabolic process that occurs in the absence of oxygen, also relies on enzymes and substrates but does not involve DNA in the way that protein synthesis fundamentally does. Thus, protein synthesis is the most DNA-dependent process among the choices given.

## 6. What term describes organisms that derive energy by eating producers?

- A. Decomposers
- B. Photosynthesizers
- C. Consumers**
- D. Producers

The term that describes organisms that derive energy by eating producers is "consumers." Consumers are a fundamental component of ecosystems, as they rely on other organisms, particularly producers, for their energy and nutritional needs. Producers, such as plants and certain algae, generate their own energy through photosynthesis, converting sunlight into chemical energy. Consumers, on the other hand, cannot produce their own food and must obtain it by consuming these producers or other consumers in the food chain. In the ecosystem, consumers play various roles, such as herbivores that eat plants (the primary producers) and carnivores that eat other animals. This relationship is crucial for energy transfer within the food web, as it illustrates how energy flows from the sun through producers and then to various levels of consumers. This interaction helps maintain the balance of ecosystems, as each group of organisms contributes to the cycle of energy and nutrients. Understanding the role of consumers in this context emphasizes the interconnectedness of life and the importance of each group in sustaining the health of an ecosystem.

## 7. How is density calculated?

- A. Volume divided by mass
- B. Mass divided by volume**
- C. Mass plus volume
- D. Mass minus volume

Density is defined as the amount of mass contained in a unit volume of a substance. To calculate density, the formula used is mass divided by volume. This means that if you take the mass of an object and divide it by its volume, you arrive at the density of that object. Understanding density is crucial in various scientific applications, such as identifying substances, understanding buoyancy, and calculating other physical properties. The formula is typically expressed as:  $\text{Density} = \text{Mass} / \text{Volume}$ . This implies that if you have a greater mass but a smaller volume, the density will be higher, while a smaller mass or larger volume will yield a lower density. This concept is essential across different scientific fields, including physics, chemistry, and engineering.

## 8. What is formed when tissues work together in the body?

- A. Cells
- B. Organs**
- C. Organ Systems
- D. Species

When tissues work together in the body, they form organs. This is a fundamental concept in biology, where the organization of living systems is hierarchical. Tissues, which are groups of similar cells that perform a specific function, collaborate to create organs, each of which has a distinct role within the body. For example, the heart is made up of different types of tissues, including muscle tissue and connective tissue, all working together to pump blood. In contrast, cells are the basic building blocks of life and do not represent the collaboration of multiple tissues. Organ systems consist of multiple organs that work together for a common purpose, while species refers to groups of similar organisms that can breed and produce fertile offspring, which is not related to the organizational structure of the body's systems. Thus, it is through this collaboration of tissues that organs are formed, making the choice of organs the correct response.

## 9. What does transforming energy refer to?

- A. Storing energy for future use
- B. TRANSFORMING energy from one form to another**
- C. Measuring energy output
- D. Increasing energy absorption

Transforming energy refers to the process of changing energy from one form to another. This concept is fundamental in understanding how energy operates in different systems and processes. For example, when burned, chemical energy in food can be transformed into kinetic energy, allowing organisms to move. Similarly, a power plant converts the chemical energy in coal into electrical energy that can be used by homes and businesses. In contrast, storing energy for future use relates more to energy management than to transformation. Measuring energy output focuses on quantifying energy rather than changing its form. Increasing energy absorption does not reflect the concept of transformation, as it describes an increase in energy intake rather than a change in energy type. Thus, transforming energy encompasses the essential idea of energy conversion, which is crucial for various scientific and practical applications.

**10. In the context of waves, what does 'transmit' mean?**

- A. To absorb energy**
- B. To bounce back off a surface**
- C. To move through a medium**
- D. To change direction**

The term 'transmit' in the context of waves refers to the process by which a wave moves through a medium. This can involve various types of waves, such as sound waves traveling through air, light waves passing through glass, or seismic waves moving through the Earth. When a wave transmits, it maintains its energy and information as it travels, allowing the wave to reach a different location. This distinct process is crucial to understanding how waves interact with different materials and environments. For example, when light waves enter water from air, they transmit through the water but can also undergo refraction, changing direction. However, the key concept of transmission remains that the wave is effectively moving through the medium, enabling communication of energy or information across distances. This is a fundamental concept in wave physics and is essential for various applications in science and technology, such as communication, medical imaging, and environmental monitoring.

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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](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://wcas.examzify.com>**

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