

# Biology Marking Period 2 Test Practice (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 is the energy required to start a chemical reaction called?**
  - A. Activation energy**
  - B. Kinetic energy**
  - C. Chemical energy**
  - D. Potential energy**
  
- 2. What is the relationship between enzymes and activation energy?**
  - A. They increase activation energy**
  - B. They have no effect on activation energy**
  - C. They decrease activation energy**
  - D. They create new products**
  
- 3. What is interspecific competition?**
  - A. Two members of the same species fight for same resources**
  - B. Two members of different species fight for same resources**
  - C. They never interact**
  - D. One species always dominates**
  
- 4. Enzymes work by lowering the activation energy. Which description best explains this mechanism?**
  - A. Increasing activation energy**
  - B. Breaking bonds without energy change**
  - C. Storing energy in bonds**
  - D. Lowering activation energy**
  
- 5. What is a nonpolar covalent bond?**
  - A. Electrons are transferred from one atom to another.**
  - B. Electrons are shared unequally due to different electronegativities.**
  - C. Electrons are shared in a polar covalent bond.**
  - D. Electrons are shared equally due to similar electronegativities.**

- 6. Which macromolecule is not primarily eaten for energy?**
- A. Lipids**
  - B. Carbohydrates**
  - C. Nucleic Acids**
  - D. Proteins**
- 7. The cecum is located between which two digestive organs?**
- A. Small intestine and large intestine**
  - B. Esophagus and stomach**
  - C. Stomach and small intestine**
  - D. Large intestine and rectum**
- 8. Which color represents hydrogen in common color conventions for atomic models?**
- A. Red**
  - B. White**
  - C. Blue**
  - D. Black**
- 9. Which characteristic is typical of a temperate deciduous forest biome?**
- A. Seasonal temperatures**
  - B. Deciduous trees**
  - C. Precipitation evenly spaced**
  - D. Migratory and hibernating fauna**
- 10. Why might the products have more energy than the reactants?**
- A. Because bonds are weaker and less stable**
  - B. Because energy is absorbed during product formation**
  - C. Because mass increases**
  - D. Because bonds are stronger, more stable, and release more energy**

## Answers

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

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## **Explanations**

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**1. What is the energy required to start a chemical reaction called?**

- A. Activation energy**
- B. Kinetic energy**
- C. Chemical energy**
- D. Potential energy**

Activation energy is the energy barrier that must be overcome for reactants to reach the transition state and form products. It represents the minimum energy input needed to break and rearrange bonds so the reaction can proceed. Temperature increases can supply more kinetic energy to molecules, helping more collisions overcome this barrier, and catalysts work by lowering the barrier itself. Kinetic energy is just the energy of motion and plays a role in whether collisions have enough energy, but it isn't the barrier. Chemical energy is the energy stored in bonds that may be released or required during the reaction, and potential energy is the stored energy due to position; both describe energy changes during the reaction, while the activation energy specifically describes the required energy to start it.

**2. What is the relationship between enzymes and activation energy?**

- A. They increase activation energy**
- B. They have no effect on activation energy**
- C. They decrease activation energy**
- D. They create new products**

Activation energy is the energy barrier that must be overcome for a chemical reaction to start. Enzymes act as biological catalysts by providing an alternative, lower-energy pathway for the reaction. They do this mainly by binding the substrates in their active site in the right orientation, stabilizing the transition state, and sometimes altering the local environment to favor the reaction. Because the barrier is lower, the rate constant increases and the reaction proceeds much faster at a given temperature. Importantly, enzymes don't change the overall energy change of the reaction or create new products; they simply speed it up by lowering the activation energy.

### 3. What is interspecific competition?

- A. Two members of the same species fight for same resources
- B. Two members of different species fight for same resources**
- C. They never interact
- D. One species always dominates

Inter-specific competition is when individuals from different species compete for the same limited resources, such as food, space, or light. Because those resources are finite, the overlapping needs of two species can limit growth, survival, or reproduction for both. This pressure can push species to shift where they live or what they eat, leading to solutions like niche differentiation that allow coexistence, or in some cases exclusion if one species consistently outcompetes the other. For example, two different bird species that eat the same type of insects in the same tree will compete for those insects. In contrast, competition occurring within a single species is called intraspecific competition. The idea that they never interact isn't accurate because competition is defined by this interaction over shared resources. Likewise, one species always dominating isn't a universal rule; the outcome depends on the specific resources, the environment, and how each species can adapt or partition those resources.

### 4. Enzymes work by lowering the activation energy. Which description best explains this mechanism?

- A. Increasing activation energy
- B. Breaking bonds without energy change
- C. Storing energy in bonds
- D. Lowering activation energy**

Activation energy is the energy barrier that reactants must overcome to reach the transition state and react. Enzymes speed reactions by providing an alternative path with a lower barrier. They do this mainly through the active site: binding substrates tightly and orienting them precisely, stabilizing the transition state with various interactions (like hydrogen bonds and ionic contacts), and sometimes forming temporary covalent bonds or creating a favorable microenvironment. All of these actions make it easier for the molecules to reach the transition state, so more molecules react in the same amount of time. Importantly, enzymes do not change the overall energy change of the reaction or the equilibrium; they only speed things up by lowering activation energy.

### 5. What is a nonpolar covalent bond?

- A. Electrons are transferred from one atom to another.
- B. Electrons are shared unequally due to different electronegativities.
- C. Electrons are shared in a polar covalent bond.
- D. Electrons are shared equally due to similar electronegativities.**

Nonpolar covalent bonding happens when two atoms share electrons equally because their electronegativities are very similar. When neither atom pulls the shared electrons more strongly, the electrons spend about the same amount of time around each nucleus, so there's no partial charge on either atom. That makes the bond nonpolar. So this description—electrons shared equally due to similar electronegativities—best matches what a nonpolar covalent bond is. If electrons were transferred from one atom to another, you'd have ionic bonding. If electrons are shared but pulled more toward one atom, you'd have a polar covalent bond.

**6. Which macromolecule is not primarily eaten for energy?**

- A. Lipids**
- B. Carbohydrates**
- C. Nucleic Acids**
- D. Proteins**

Energy in the body comes mainly from carbohydrates and fats. Carbohydrates provide quick glucose for immediate energy, while fats offer a large, efficient energy reserve for longer-term needs. Proteins, on the other hand, are mainly used as building blocks for tissues, enzymes, hormones, and other critical functions. If energy is desperately needed, amino acids from proteins can be converted into energy pathways, but this use sacrifices valuable proteins that the body relies on for structure and function. Nucleic acids aren't used for energy at all in normal metabolism; they store and transmit genetic information. So the macromolecule not primarily eaten for energy is proteins.

**7. The cecum is located between which two digestive organs?**

- A. Small intestine and large intestine**
- B. Esophagus and stomach**
- C. Stomach and small intestine**
- D. Large intestine and rectum**

Understanding where the cecum sits in the digestive tract shows how chyme moves from the end of the small intestine into the large intestine. The cecum is the initial part of the large intestine, forming a pouch at the junction where the ileum from the small intestine empties into the colon, via the ileocecal valve. This places it between the end of the small intestine and the rest of the large intestine. It isn't located between the esophagus and stomach, nor between the stomach and small intestine, nor between the large intestine and rectum.

**8. Which color represents hydrogen in common color conventions for atomic models?**

- A. Red**
- B. White**
- C. Blue**
- D. Black**

Color coding in atomic models helps you quickly identify elements. In the widely used CPK (Corey-Pauling-Kurtz) coloring scheme, hydrogen is represented by white. This choice keeps hydrogen, the lightest and most abundant element in many molecules, visually distinct from others like carbon (often black), nitrogen (blue), and oxygen (red). While some resources may show hydrogen as colorless or light gray, the standard convention in most teaching and modeling contexts is white, so the color that represents hydrogen is white.

**9. Which characteristic is typical of a temperate deciduous forest biome?**

- A. Seasonal temperatures**
- B. Deciduous trees**
- C. Precipitation evenly spaced**
- D. Migratory and hibernating fauna**

In temperate deciduous forests, the hallmark feature is the presence of deciduous trees that shed their leaves each autumn. This leaf loss is an adaptation to the four-season climate, especially the cold winters, helping trees conserve water and survive freezing conditions. The seasonal rhythm of leaf drop shapes how the forest looks and functions, including nutrient cycling and habitat structure. While these forests do experience seasonal temperatures and receive moderate precipitation, and many animals migrate or hibernate, the vegetation that changes with the seasons—deciduous trees—is the most distinctive trait of this biome. Precipitation being evenly spaced isn't a defining characteristic, since rainfall patterns can vary without changing the essential identity of the forest.

**10. Why might the products have more energy than the reactants?**

- A. Because bonds are weaker and less stable**
- B. Because energy is absorbed during product formation**
- C. Because mass increases**
- D. Because bonds are stronger, more stable, and release more energy**

The key idea is how energy changes when bonds are broken and formed. If the products end up with more energy than the reactants, energy must enter the system from the surroundings during the reaction. That is an endothermic process. It can happen when the products are in a higher-energy arrangement or form bonds that don't release as much energy as was required to reach that state, so overall more energy remains in the products. In contrast, forming stronger, more stable bonds typically releases energy, making the products lower in energy than the reactants. That's why that option describes a scenario where products would have less energy, not more. Mass doesn't drive this energy difference—the change comes from bond energies and whether energy is absorbed or released during the reaction.

## 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://biologymarkingperiod2.examzify.com>**

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

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