

# TASC Physical Science Practice Exam (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 an endothermic reaction?**
  - A. When more energy is released than absorbed.**
  - B. When more energy is absorbed than released.**
  - C. When energy is stored on the left side of the equation.**
  - D. When energy is unchanged.**
  
- 2. According to the material, what happens when force is applied to an object?**
  - A. It will stop immediately**
  - B. It changes color**
  - C. It will accelerate**
  - D. It will remain at the same speed regardless of force.**
  
- 3. Which statement describes a medical use of radiation?**
  - A. Televisions and radios use radiation in everyday devices.**
  - B. Visible light is used to image soft tissues.**
  - C. Microwaves are used for bone imaging.**
  - D. X-rays and gamma rays are used to image the inside of the body.**
  
- 4. Which of the following is a typical example of an action-at-a-distance force?**
  - A. Normal force**
  - B. Friction**
  - C. Gravity**
  - D. Tension**
  
- 5. Which statement best describes surface waves?**
  - A. They propagate energy only through solids**
  - B. They fail to transfer energy**
  - C. They are the same as transverse waves**
  - D. They involve circular motion at the surface, such as water ripples**

- 6. Which statement about work is true?**
- A. The work done is negative when the force is in the opposite direction to displacement**
  - B. The work done is positive when the force and displacement align**
  - C. Work is zero when there is no displacement**
  - D. All of the above**
- 7. Why do atoms bond?**
- A. To increase their mass**
  - B. To complete a full PEL**
  - C. To change color**
  - D. To increase their energy**
- 8. What energy transformation occurs in a toaster?**
- A. Mechanical energy into electrical energy**
  - B. Electrical energy into heat**
  - C. Heat into electrical energy**
  - D. Light into chemical energy**
- 9. If distance doubles, what happens to gravitational force according to  $F = G \frac{m_1 m_2}{r^2}$ ?**
- A. It doubles.**
  - B. It becomes one-half as large.**
  - C. It becomes one-quarter as large.**
  - D. It remains unchanged.**
- 10. Action-at-a-distance forces are defined as forces that do not require direct contact to affect an object.**
- A. They do not require direct contact.**
  - B. They require direct contact to affect an object.**
  - C. They always require a medium to propagate.**
  - D. They only occur when objects touch.**

## Answers

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

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## **Explanations**

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### 1. What is an endothermic reaction?

- A. When more energy is released than absorbed.
- B. When more energy is absorbed than released.**
- C. When energy is stored on the left side of the equation.
- D. When energy is unchanged.

Endothermic reactions take in energy from the surroundings. The defining feature is that more energy is absorbed than is released, so the overall energy of the system increases. This is why such reactions often feel cold to the touch—the surroundings lose energy as the reaction consumes it. In contrast, releasing more energy than is absorbed would be exothermic, and a reaction with no net energy change would be energy-neutral. Some diagrams show energy as a reactant on the left to indicate absorption, but the essential point is the net energy flow into the system.

### 2. According to the material, what happens when force is applied to an object?

- A. It will stop immediately
- B. It changes color
- C. It will accelerate**
- D. It will remain at the same speed regardless of force.

When a force is applied to an object, it causes the object to accelerate—the velocity changes over time in the direction of the net force. The relationship  $a = F/m$  means the acceleration depends on the force and the object's mass: for a given push, a lighter object speeds up more than a heavier one. If the net force is not present, the object's motion stays constant, but applying a force always leads to some change in motion, not a color change or an immediate stop.

### 3. Which statement describes a medical use of radiation?

- A. Televisions and radios use radiation in everyday devices.
- B. Visible light is used to image soft tissues.
- C. Microwaves are used for bone imaging.
- D. X-rays and gamma rays are used to image the inside of the body.**

Medical imaging with radiation relies on high-energy photons that can pass through the body and be captured to form pictures. X-rays and gamma rays fit this role because they penetrate tissues and create contrast based on how different tissues absorb or scatter them. X-ray imaging (like radiographs and CT scans) is used to visualize the inside of the body, especially bones and organs, while gamma rays from radioactive tracers are used in nuclear medicine to show how organs are functioning. This combination makes X-rays and gamma rays a direct way to image internal structures, which is why they describe a medical use of radiation. The other options describe radiation in contexts that aren't about imaging the body's interior: everyday devices emit radiation for communication, visible light doesn't penetrate body tissues well enough for internal imaging, and microwaves aren't used for standard bone imaging.

**4. Which of the following is a typical example of an action-at-a-distance force?**

- A. Normal force**
- B. Friction**
- C. Gravity**
- D. Tension**

Action-at-a-distance forces act without direct contact between objects. Gravity fits this description because two masses attract each other even when separated by space—no physical connection is required, and the interaction is described by a gravitational field. Normal force, friction, and tension all rely on contact or an intervening medium. Normal force comes from surfaces pushing on each other, friction arises from contact between surfaces, and tension is the pull transmitted along a rope or cable that connects objects. So gravity is the clear example of an action-at-a-distance force.

**5. Which statement best describes surface waves?**

- A. They propagate energy only through solids**
- B. They fail to transfer energy**
- C. They are the same as transverse waves**
- D. They involve circular motion at the surface, such as water ripples**

Surface waves travel along the boundary between two media, and the motion of particles at the surface is circular (or elliptical) as the wave passes. This orbital motion is what lets the wave carry energy along the surface, as seen in water ripples where the water particles move in circular paths near the surface and gradually get smaller with depth. That combination—energy propagating along the boundary and particles moving in circular motion at the surface—is what makes this description the best fit. The other statements miss that key point: energy is indeed transferred by surface waves (not zero energy transfer), they aren't purely transverse (the motion isn't simply up-and-down), and surface waves aren't limited to solids or described as the same as transverse waves.

## 6. Which statement about work is true?

- A. The work done is negative when the force is in the opposite direction to displacement
- B. The work done is positive when the force and displacement align
- C. Work is zero when there is no displacement
- D. All of the above**

The key idea is that work depends on how the force compares to the motion it causes, and it's quantified by the dot product  $W = F \cdot d$ . This means the sign and amount of work come from how much of the force acts in the direction of the displacement. If the force points opposite to the direction of motion, the component of force along the displacement is negative, so the work done is negative. If the force points in the same direction as the motion, the force has a positive component along the displacement, giving positive work. If there is no displacement at all, there's no distance over which the force can act, so the work is zero regardless of the force. Putting these together shows all the statements are true: negative work can occur when the force and displacement oppose each other, positive work occurs when they align, and zero work happens when there is no displacement.

## 7. Why do atoms bond?

- A. To increase their mass
- B. To complete a full PEL**
- C. To change color
- D. To increase their energy

Atoms bond because they seek a more stable, lower-energy arrangement by filling their outer electron level. When atoms bond, they share or transfer electrons so the valence shells become full, which moves the system toward a noble-gas configuration. This release of energy makes the bonded state more stable than the separate atoms. Bonding isn't about gaining mass, nor is it primarily about changing color; and bonds form precisely because they lower energy, not raise it.

## 8. What energy transformation occurs in a toaster?

- A. Mechanical energy into electrical energy
- B. Electrical energy into heat**
- C. Heat into electrical energy
- D. Light into chemical energy

Electrical energy from the outlet is transformed into heat in a toaster. The heating elements, usually a metal alloy, resist the electric current, so some of the electrical energy is converted into thermal energy. That heat radiates and conducts to the bread, browning it as its moisture and sugars caramelize. So the main energy path is electrical energy to heat energy. This isn't about turning heat back into electrical energy, which would be something like a generator, and it isn't about turning light into chemical energy, which would involve storing light in chemical bonds. It also isn't about converting mechanical energy into electrical energy, which would require moving parts or a motor—neither is the typical function of a toaster.

**9. If distance doubles, what happens to gravitational force according to  $F = G m_1 m_2 / r^2$ ?**

- A. It doubles.**
- B. It becomes one-half as large.**
- C. It becomes one-quarter as large.**
- D. It remains unchanged.**

Gravitational force follows an inverse-square relationship:  $F$  is proportional to  $1/r^2$ . If you double the distance between the masses, substitute  $2r$  for  $r$  in the formula:  $F' = G m_1 m_2 / (2r)^2 = G m_1 m_2 / (4 r^2) = (1/4)$  times the original value. So the force becomes one-quarter as large. This happens because the interaction spreads over a sphere whose surface area grows with the square of the radius, so increasing distance by a factor of two dilutes the force to one-fourth.

**10. Action-at-a-distance forces are defined as forces that do not require direct contact to affect an object.**

- A. They do not require direct contact.**
- B. They require direct contact to affect an object.**
- C. They always require a medium to propagate.**
- D. They only occur when objects touch.**

Action-at-a-distance forces act without any physical touch between the objects involved. The correct idea is that these forces do not require direct contact to influence motion or equilibrium. Think of gravity pulling you toward Earth from a distance, or electric and magnetic forces acting between charges or magnets that aren't touching. These forces are carried by fields that extend through space, so no medium or contact is needed. The statements that require contact, or require a medium, don't describe how action-at-a-distance forces operate.

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

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

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