

SCIENCE OLYMPIAD ROAD SCHOLAR PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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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. Why is mean sea level used?

- A. It is a common, fixed reference
- B. It varies by location
- C. It is convenient for navigation
- D. It changes with weather

2. In general, where are state capitals located?

- A. Eastern part of a state
- B. Western part of a state
- C. Central part of a state
- D. Along the coast

3. In the Public Land Survey System, the dimensions and area of a township?

- A. 6 miles x 6 miles; 36 square miles
- B. 5 miles x 5 miles; 25 square miles
- C. 7 miles x 7 miles; 49 square miles
- D. 4 miles x 4 miles; 16 square miles

4. What is bearing?

- A. The degrees out from the center of the map.
- B. The distance around a circle.
- C. The elevation difference between two points.
- D. The population density of an area

5. What does a profile plot indicate?

- A. Cut-away view or cross-section view
- B. Bird's-eye view of the terrain
- C. Color-coded relief shading
- D. 3D perspective of the terrain

6. Which map feature uses lines to show relief by varying thickness, indicating slopes?

- A. Hachures
- B. Contours
- C. Isobars
- D. Shading

7. Bearings designate direction by what format?

- A. An angle and quadrant letters, never greater than 90°, referenced from north or south
- B. A distance in meters
- C. A straight line length
- D. A velocity and heading

8. What information is shown in the legend of a topographic map?

- A. The Classes of Roads and Route Markers
- B. The Contour Interval
- C. The Scale
- D. Grid References

9. A witness corner is typically located how far from the true corner?

- A. 1 chain
- B. 5 or 10 chains
- C. 100 feet
- D. 1 mile

10. Which item is a Surface Features Symbol?

- A. Levee
- B. Submerged marsh
- C. Land subject to inundation
- D. Intricate surface area

Answers

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

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Explanations

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1. Why is mean sea level used?

- A. It is a common, fixed reference
- B. It varies by location
- C. It is convenient for navigation
- D. It changes with weather

Mean sea level is used because it provides a common, fixed reference surface for measuring elevations and depths worldwide. It's defined as the long term average height of the ocean's surface, which smooths out daily tides, waves, and short-term weather effects. This creates a stable baseline that maps, surveys, construction, and navigation can all reference, making heights comparable from one location to another. There are regional variations due to gravity and crustal movement, and sea level can rise with climate change, but the long-term average remains the practical standard we use as a global benchmark.

2. In general, where are state capitals located?

- A. Eastern part of a state
- B. Western part of a state
- C. Central part of a state
- D. Along the coast

State capitals are usually placed toward the center of the state so people from all regions can reach the capital without traveling extreme distances. This central location helps ensure accessibility, fair representation, and easier development of transportation and communication networks across the state. While there are notable exceptions where capitals sit near the coast or in a historical political hub, the general pattern is a central placement.

3. In the Public Land Survey System, the dimensions and area of a township?

- A. 6 miles x 6 miles; 36 square miles
- B. 5 miles x 5 miles; 25 square miles
- C. 7 miles x 7 miles; 49 square miles
- D. 4 miles x 4 miles; 16 square miles

In the Public Land Survey System, a township is a square six miles on each side, which gives an area of 36 square miles. It's also divided into 36 sections, each one square mile. The other sizes listed don't match the standard township dimensions, since 5 by 5 would be 25 square miles, 7 by 7 would be 49, and 4 by 4 would be 16.

4. What is bearing?

- A. The degrees out from the center of the map.
- B. The distance around a circle.
- C. The elevation difference between two points.
- D. The population density of an area

Bearing is the direction to a point expressed as degrees from a fixed reference direction, typically north. Imagine you're at a location and want to head toward a destination—you read off how many degrees you must rotate from north to face it. On a map this direction is represented as an angle around the map, i.e., degrees out from the center, which is why that description best fits bearing among the options. The other ideas refer to something else: distance around a circle is the circumference, elevation difference is how tall one point is compared to another, and population density describes how many people live in an area.

5. What does a profile plot indicate?

- A. Cut-away view or cross-section view
- B. Bird's-eye view of the terrain
- C. Color-coded relief shading
- D. 3D perspective of the terrain

A profile plot shows a vertical cross-section of the terrain along a line, effectively a cut-away view that plots elevation against distance. It lays out how height changes as you move along that path, revealing slopes and gradients that aren't visible from overhead views. This is different from a bird's-eye top-down map, color-shaded relief, or a full 3D perspective, which display the surface in plan, shaded detail, or three-dimensional form rather than a side view of elevation along a line.

6. Which map feature uses lines to show relief by varying thickness, indicating slopes?

- A. Hachures
- B. Contours
- C. Isobars
- D. Shading

Lines that depict relief by thickness are called hachures. They are short strokes drawn on the slope of the terrain, and their length, density, and thickness convey how steep a surface is—the more and longer the strokes, the steeper the slope; on gentler areas the lines are sparser and often shorter. This line work provides a quick sense of three-dimensional shape using variation in a few strokes. By contrast, contour lines are simply lines of equal elevation, isobars map atmospheric pressure, and shading relies on tonal gradations rather than line thickness to imply relief. So this feature uses lines whose thickness and density communicate slope.

7. Bearings designate direction by what format?

- A. An angle and quadrant letters, never greater than 90°, referenced from north or south
- B. A distance in meters
- C. A straight line length
- D. A velocity and heading

Bearings encode direction as an angle from a reference line (north or south) toward east or west, with the angle never exceeding 90°. The first letter tells you the reference direction, the number gives how far from that line you rotate, and the final letter pair tells you which side (east or west) you're in. For example, a bearing like N30°E means 30 degrees east of north, while S15°W means 15 degrees west of south. This format directly communicates orientation, not distance or speed, which is why it's the correct way to designate direction in bearings.

8. What information is shown in the legend of a topographic map?

- A. The Classes of Roads and Route Markers
- B. The Contour Interval
- C. The Scale
- D. Grid References

The legend on a topographic map is like a translator for the symbols used on the map. It tells you what each line, color, and icon represents so you can identify features at a glance. Roads have different styles and symbols to show their classes (local streets, main roads, highways, etc.) and any route markers or highway shields. The legend makes sense of these road symbols, allowing you to distinguish what you're looking at and how important each road is for navigation. Contour interval and scale are important map details, but they appear in different parts of the map (often in the margins or a scale bar) and serve different purposes: contour interval tells you the elevation spacing, while the scale converts map distance to real-world distance. Grid references describe the coordinate system used for locating places and are usually explained separately from the symbol legend. So the information most directly shown in the legend is the classes of roads and route markers, since these are the symbols you need to interpret the road network on the map.

9. A witness corner is typically located how far from the true corner?

- A. 1 chain
- B. 5 or 10 chains
- C. 100 feet
- D. 1 mile

A witness corner is placed as a backup reference near the true corner. The idea is to keep the true corner protected and still have a reliable point to reestablish the boundary if the original mark is disturbed. To achieve this, surveyors set the witness at a moderate distance from the true corner—far enough to deter tampering or accidental damage, but close enough that field crews can locate it and tie the survey lines back to the actual corner. In practice, this offset is a fixed, practical length described in the surveying units used for the project, allowing consistent reestablishment. That balance is why a moderate offset is the best choice, rather than something right at the corner or very far away.

10. Which item is a Surface Features Symbol?

A. Levee

B. Submerged marsh

C. Land subject to inundation

D. Intricate surface area

Maps use symbols to show features you can see on the ground's surface. A levee is a raised embankment built along a river or coast to prevent flooding, so it's depicted as a surface feature symbol on the map. The other options describe things that aren't standard surface features shown as symbols: a submerged marsh is underwater and not a surface feature you'd mark on the land surface; land subject to inundation is a hazard designation rather than a specific surface feature; and an intricate surface area isn't a recognized map symbol. So the item that is a Surface Features Symbol is levee.

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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.

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

<https://sciolympiadroadscholar.examzify.com>

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

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