# UPCAT SCIENCE PRACTICE TEST (SAMPLE)

## STUDY GUIDE



## SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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.

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# 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!

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# Questions

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**1. What phenomenon is caused by movement along a fault plane?**

A. Seismic Waves
B. Earthquake
C. Tectonic Shift
D. Volcanic Eruption

**2. What does the term "trials" refer to in scientific experiments?**

A. The number of variables tested
B. The number of times an experiment is conducted
C. The number of controls maintained
D. The number of dependent variables observed

**3. Which traits are essential for a researcher to possess?**

A. Intuition and Charisma
B. Scientific Traits
C. Creativeness and Imagination
D. Aggressiveness and Competitiveness

**4. What characteristic distinguishes oceanic crust from continental crust?**

A. More Density
B. Less Thickness
C. Higher Composition of Iron
D. Lower Composition of Silicon

**5. What is the process of comparing a quantity with a chosen standard called?**

A. Estimation
B. Measurement
C. Evaluation
D. Calculation

**6. What is defined as an opening in the Earth's crust through which molten lava, ash, and gases are ejected?**

A. Earthquake
B. Volcano
C. Fault
D. Trench

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**7. Which of the following best describes the relationship between Newton and mass in physics?**

A. Force is directly proportional to energy

B. Force is equal to mass divided by acceleration

C. Force is equal to mass times acceleration

D. Force is equal to velocity over mass

**8. Which type of volcano is characterized by never having erupted in recorded history?**

A. Dormant Volcano

B. Extinct Volcano

C. Shield Volcano

D. Dome Volcano

**9. What type of force is responsible for binding protons and neutrons together in an atomic nucleus?**

A. Electromagnetic Force

B. Gravitational Force

C. Nuclear Force

D. Centripetal Force

**10. What type of rock is formed from the cooling of molten rock either at or below the Earth's surface?**

A. Metamorphic rock

B. Igneous rock

C. Sedimentary rock

D. Basalt

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# Answers

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

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# Explanations

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## 1. What phenomenon is caused by movement along a fault plane?

A. Seismic Waves

B. Earthquake

C. Tectonic Shift

D. Volcanic Eruption

*The phenomenon that occurs due to movement along a fault plane is an earthquake. When tectonic plates move, they can become locked at their edges due to friction. When stress builds up enough to overcome this friction, the plates slip, releasing energy. This release of energy causes seismic waves to propagate through the Earth, which is felt as shaking at the surface—this is known as an earthquake. In this context, seismic waves indeed arise from this process, but they are a consequence of the earthquake itself rather than the phenomenon in question. Tectonic shift can refer to broader movements of the Earth's lithosphere and is not as specific as an earthquake, while a volcanic eruption occurs due to the movement of magma and is not typically related to fault movement. This clarification reinforces why the occurrence of an earthquake specifically identifies the phenomenon resulting from fault movement.*

## 2. What does the term "trials" refer to in scientific experiments?

A. The number of variables tested

B. The number of times an experiment is conducted

C. The number of controls maintained

D. The number of dependent variables observed

*In scientific experiments, the term "trials" specifically refers to the number of times an experiment is conducted, which is essential for ensuring the reliability and validity of the results. Multiple trials help to minimize the impact of random variations and errors, allowing researchers to discern whether observed outcomes are due to the variable being tested or if they are merely coincidence. By conducting several trials, scientists can calculate averages, identify trends, and increase the robustness of their conclusions. A higher number of trials typically leads to greater confidence in the data, as it provides a clearer picture of the effects being studied. This systematic repetition is a cornerstone of the scientific method, ensuring that findings are reproducible and not just anomalies. Other answer choices focus on different elements of experimental design, such as variables and controls, but they do not accurately capture the meaning of "trials" in the context of conducting experiments.*

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## 3. Which traits are essential for a researcher to possess?

A. Intuition and Charisma

B. Scientific Traits

C. Creativeness and Imagination

D. Aggressiveness and Competitiveness

*The essential traits for a researcher to possess are rooted in the scientific method and the nature of scientific inquiry, which emphasizes logic, critical thinking, and a systematic approach to problem-solving. Scientific traits include attributes such as curiosity, analytical thinking, attention to detail, and perseverance. These characteristics enable researchers to formulate hypotheses, design experiments, analyze data, and draw conclusions based on empirical evidence. Curiosity drives researchers to explore questions and seek knowledge, while analytical thinking helps them assess their findings logically and critically. Attention to detail ensures accuracy and reliability in their work, and perseverance is vital for overcoming challenges and setbacks encountered during research. In contrast, traits like intuition and charisma may aid in communication and networking but do not directly contribute to the methodological rigor required in research. Creativeness and imagination are also valuable, particularly in hypothesis formulation and innovation, but the core attributes that underpin successful scientific research align more closely with scientific traits. Aggressiveness and competitiveness might motivate individuals in some fields, but they do not inherently contribute to the research process, which thrives more on collaboration and rigorous investigation rather than personal rivalry.*

## 4. What characteristic distinguishes oceanic crust from continental crust?

A. More Density

B. Less Thickness

C. Higher Composition of Iron

D. Lower Composition of Silicon

*The characteristic that distinguishes oceanic crust from continental crust is its thickness. Oceanic crust is generally thinner than continental crust, typically averaging about 5 to 10 kilometers in thickness, whereas continental crust averages about 30 to 50 kilometers. The difference in thickness is a key factor in their structural formation and composition. Continental crust is composed mainly of lighter, granitic rocks which contribute to its greater thickness and buoyancy. In contrast, oceanic crust is primarily made up of denser basaltic rocks, which are not only thinner but also denser than the materials comprising continental crust. This fundamental difference in thickness helps explain various geological features and processes related to tectonic activity, such as the formation of ocean basins and mountain ranges. As for the other options, while oceanic crust has a higher density and often greater iron content compared to continental crust, it is the significant difference in thickness that primarily differentiates the two.*

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## 5. What is the process of comparing a quantity with a chosen standard called?

A. Estimation

B. Measurement

C. Evaluation

D. Calculation

*The process of comparing a quantity with a chosen standard is known as measurement. Measurement involves determining the size, length, volume, mass, or other attributes of an object or phenomenon by using specific units. This comparison allows for precise quantification, which is essential in various fields such as science, engineering, and everyday life. For instance, when measuring length, one might use a ruler as the standard, such as centimeters or inches, to determine how long an object is. This standardized approach facilitates communication and understanding because everyone interprets the measurements in the same way. In contrast, estimation involves making an educated guess about a quantity, evaluation typically refers to assessing or judging the value or quality of something, and calculation refers to the process of using mathematical operations to determine a numerical result. While all these terms relate to working with quantities, they do not specifically encompass the act of comparing a quantity against a standard in the same way measurement does.*

## 6. What is defined as an opening in the Earth's crust through which molten lava, ash, and gases are ejected?

A. Earthquake

B. Volcano

C. Fault

D. Trench

*A volcano is a geological feature defined as an opening in the Earth's crust that allows for the eruption of molten lava, ash, and gases from beneath the Earth's surface. This process occurs when there is a buildup of pressure from magma in the Earth's mantle, which can eventually force its way through fissures or openings in the crust. When the magma reaches the surface, it erupts, leading to volcanic activity characterized by the release of various materials. The other options represent different geological phenomena. An earthquake pertains to the shaking of the ground caused by the movement of tectonic plates, typically along faults, which are fractures in the Earth's crust where blocks of rock have moved past each other. A fault itself is a specific type of geological structure where these movements occur but does not involve the material ejection associated with volcanism. A trench typically refers to a deep, elongated depression in the ocean floor, often associated with tectonic plate boundaries where one plate is subducted beneath another, and does not relate to the ejection of lava or gases. Thus, the definition of a volcano distinctly aligns it with the described processes of molten material eruption, making it the correct answer.*

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**7. Which of the following best describes the relationship between Newton and mass in physics?**

A. Force is directly proportional to energy

B. Force is equal to mass divided by acceleration

C. Force is equal to mass times acceleration

D. Force is equal to velocity over mass

*The relationship between Newton and mass in physics is best described by the principle that force is equal to mass times acceleration. This is encapsulated in Newton's second law of motion, which states that the acceleration of an object is directly proportional to the net force acting upon it and inversely proportional to its mass. In mathematical terms, this relationship is expressed as F = ma, where F is the force, m is the mass, and a is the acceleration. This means that for a given mass, an increase in force will result in a proportional increase in acceleration. Conversely, for a constant force, if the mass increases, the acceleration decreases. This fundamental concept is key in understanding how objects move and respond to forces in the physical world. Therefore, the statement that force is equal to mass times acceleration accurately captures this essential relationship in physics, illustrating how mass influences the motion of an object under the action of a force.*

**8. Which type of volcano is characterized by never having erupted in recorded history?**

A. Dormant Volcano

B. Extinct Volcano

C. Shield Volcano

D. Dome Volcano

*The type of volcano characterized by never having erupted in recorded history is known as an extinct volcano. An extinct volcano is one that has not erupted for tens of thousands of years and is not expected to do so in the future due to a lack of magma supply. This differentiates it from dormant volcanoes, which have the potential to erupt again but have not done so for an extended period. In contrast, shield and dome volcanoes are specific shapes of volcanoes based on their eruption style and composition, but their classifications do not indicate their eruptive history. Thus, the defining characteristic of an extinct volcano is its complete inactivity, making it the correct answer in this context.*

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## 9. What type of force is responsible for binding protons and neutrons together in an atomic nucleus?

A. Electromagnetic Force

B. Gravitational Force

C. Nuclear Force

D. Centripetal Force

*The force responsible for binding protons and neutrons together in an atomic nucleus is known as the nuclear force. This fundamental force operates at extremely short ranges, typically on the order of femtometers (10^-15 meters), which is approximately the size of an atomic nucleus. Nuclear force is a strong force that overcomes the electromagnetic repulsion between the positively charged protons in the nucleus, allowing them to stay closely packed with the neutrons, which are electrically neutral. This force is essential for the stability of the nucleus, as it holds these particles together against the natural repulsive forces that result from like charges. In contrast, while the electromagnetic force does govern interactions between charged particles, it does not play a role in bonding protons and neutrons within the nucleus. The gravitational force, although fundamental, is extremely weak at the scale of atomic particles and does not contribute significantly to the binding of protons and neutrons. Centripetal force relates to the motion of objects in circular paths and is not applicable in this context of nuclear binding. Therefore, the nuclear force is critical for maintaining the integrity and stability of atomic nuclei.*

## 10. What type of rock is formed from the cooling of molten rock either at or below the Earth's surface?

A. Metamorphic rock

B. Igneous rock

C. Sedimentary rock

D. Basalt

*Igneous rock is formed when molten rock, known as magma when it is beneath the Earth's surface and lava when it is above the surface, cools and solidifies. This process can occur either underground, where the cooling happens slowly, leading to the formation of large crystals, or at the surface, where it cools rapidly, producing small crystals or a glassy texture. Igneous rocks are categorized into two main types based on where they are formed: intrusive (or plutonic) igneous rocks, which form from cooling magma below the Earth's surface, and extrusive (or volcanic) igneous rocks, which form from lava that cools on the surface. Common examples of intrusive igneous rock include granite, while basalt is a common example of extrusive igneous rock, though basalt is more specifically defined as a type of igneous rock that forms from the rapid cooling of lava. Metamorphic rock, on the other hand, is not formed from molten material but rather from the transformation of existing rock types through heat, pressure, or chemically active fluids. Sedimentary rock is formed from the accumulation of sediment, which can come from the erosion of other rocks, biological activity, or precipitation from solution.*

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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://upcatscience.examzify.com

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

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