

# Key Stage 3 (KS3) Science - Cells Practice Test (Sample)

## Study Guide



**Everything you need from our exam experts!**

**This is a sample study guide. To access the full version with hundreds of questions,**

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**SAMPLE**

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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. Don't worry about getting everything right, 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, and take breaks to retain information better.**

## **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.**

## **7. Use Other Tools**

**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

- 1. What is the main function of the cell membrane?**
  - A. To store nutrients**
  - B. To provide energy**
  - C. To control what enters and leaves the cell**
  - D. To synthesize proteins**
- 2. Which part of the microscope is closest to the specimen and helps magnify the image?**
  - A. Stage**
  - B. Eyepiece Lens**
  - C. Objective Lens**
  - D. Base**
- 3. What is osmosis?**
  - A. The movement of glucose across a membrane**
  - B. The diffusion of water across a semi-permeable membrane**
  - C. The transport of proteins out of the cell**
  - D. The splitting of cells into two**
- 4. What does the term 'organelle' refer to?**
  - A. Membranes that surround cells**
  - B. Structures within a cell that perform specific functions**
  - C. The genetic material of a cell**
  - D. The outer layer of a plant cell**
- 5. Which organelle is known as the powerhouse of the cell?**
  - A. Nucleus**
  - B. Ribosome**
  - C. Mitochondria**
  - D. Chloroplast**
- 6. What is the jelly-like substance within the cell where chemical processes occur?**
  - A. Vacuole**
  - B. Cytoplasm**
  - C. Chloroplast**
  - D. Nucleus**



- 7. Which component is found in plant cells but not in animal cells?**
- A. Chloroplasts**
  - B. Lysosomes**
  - C. Mitochondria**
  - D. Nucleus**
- 8. What cellular structure is known as the powerhouse of the cell?**
- A. Endoplasmic reticulum**
  - B. Nucleus**
  - C. Mitochondria**
  - D. Golgi apparatus**
- 9. What substance primarily composes the majority of the cell membrane?**
- A. Nucleic acids**
  - B. Proteins**
  - C. Phospholipids**
  - D. Carbohydrates**
- 10. Which part of the microscope do you look through?**
- A. Objective Lens**
  - B. Condenser**
  - C. Eyepiece Lens**
  - D. Focus Adjustor**

## **Answers**

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

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## **Explanations**

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### 1. What is the main function of the cell membrane?

- A. To store nutrients
- B. To provide energy
- C. To control what enters and leaves the cell**
- D. To synthesize proteins

The primary function of the cell membrane is to control what enters and leaves the cell. This semi-permeable barrier is crucial for maintaining the internal environment of the cell, allowing it to carry out essential functions. The cell membrane is composed of a lipid bilayer with embedded proteins that facilitate the transport of substances. Through processes such as diffusion, osmosis, and active transport, the membrane regulates the movement of ions, nutrients, and waste products, ensuring that the cell can maintain homeostasis and respond to changes in its environment. This selective permeability is vital for the survival and proper functioning of cells, enabling them to communicate with each other and interact with their surroundings effectively.

### 2. Which part of the microscope is closest to the specimen and helps magnify the image?

- A. Stage
- B. Eyepiece Lens
- C. Objective Lens**
- D. Base

The part of the microscope that is closest to the specimen and assists in magnifying the image is the objective lens. This lens is designed to gather light from the specimen and focus it to produce a magnified image. Objective lenses are available in various magnifications, allowing the user to switch between them to see the specimen at different levels of detail. When observing a sample under a microscope, the objective lens directly interacts with the light emitted or reflected from the specimen, making it crucial for both clarity and detail of the view. In contrast, the eyepiece lens, while important for viewing the magnified image, is situated further away from the specimen. The stage serves as the platform on which the specimen slide is placed, and the base provides support for the entire microscope structure. Each component plays a vital role, but the objective lens is the key element for magnification directly related to the specimen being observed.

### 3. What is osmosis?

- A. The movement of glucose across a membrane
- B. The diffusion of water across a semi-permeable membrane**
- C. The transport of proteins out of the cell
- D. The splitting of cells into two

Osmosis refers specifically to the diffusion of water molecules through a semi-permeable membrane. This process occurs naturally as water moves from an area of higher water concentration to an area of lower water concentration, aiming to achieve equilibrium on both sides of the membrane. Semi-permeable membranes allow certain molecules, like water, to pass through while blocking others, which is crucial for maintaining cell homeostasis and regulating internal conditions. This ability of cells to control the flow of water in and out is vital for their function and survival, impacting processes such as nutrient absorption and waste removal.

#### 4. What does the term 'organelle' refer to?

- A. Membranes that surround cells
- B. Structures within a cell that perform specific functions**
- C. The genetic material of a cell
- D. The outer layer of a plant cell

The term 'organelle' refers to the specialized structures within a cell that perform distinct and essential functions necessary for the cell's life processes. Organelles include components such as the nucleus, which houses genetic material, mitochondria, which produce energy, and ribosomes, which are involved in protein synthesis, among others. Each organelle contributes to the overall functioning and survival of the cell by carrying out specific tasks. Understanding organelles is crucial for appreciating how cells operate as the building blocks of all living organisms.

#### 5. Which organelle is known as the powerhouse of the cell?

- A. Nucleus
- B. Ribosome
- C. Mitochondria**
- D. Chloroplast

The mitochondria are often referred to as the powerhouse of the cell because they are primarily responsible for producing energy in the form of adenosine triphosphate (ATP) through a process called cellular respiration. This energy is essential for powering various cellular processes and functions, from muscle contractions to the synthesis of biomolecules. Mitochondria contain their own DNA and have a unique double membrane structure that facilitates the efficient conversion of nutrients into usable energy. This capability makes them crucial for maintaining the energy balance within cells, allowing them to perform their necessary functions effectively. Understanding the role of mitochondria highlights their importance in energy metabolism and overall cellular health.

#### 6. What is the jelly-like substance within the cell where chemical processes occur?

- A. Vacuole
- B. Cytoplasm**
- C. Chloroplast
- D. Nucleus

The jelly-like substance within the cell where chemical processes occur is the cytoplasm. This semi-fluid material fills the space between the cell membrane and the various organelles, providing a medium for biochemical reactions. It contains enzymes, nutrients, and other substances that are crucial for cellular functions. The chemical processes that take place in the cytoplasm include glycolysis, which is part of cellular respiration, and other metabolic pathways essential for cell maintenance and energy production. The cytoplasm also helps in the movement of organelles within the cell, facilitating interactions between them and contributing to the overall functioning of the cell.

**7. Which component is found in plant cells but not in animal cells?**

**A. Chloroplasts**

**B. Lysosomes**

**C. Mitochondria**

**D. Nucleus**

Chloroplasts are specialized organelles found in plant cells that play a crucial role in photosynthesis, the process by which plants convert sunlight into energy. This energy is essential for the plant's growth and development as it allows them to produce their food in the form of glucose. Chloroplasts contain chlorophyll, the green pigment that captures light energy. In contrast, animal cells do not have chloroplasts because they do not perform photosynthesis; instead, they obtain energy from the consumption of food. This fundamental difference highlights the unique adaptations that plant cells have developed to thrive in their environment, making chloroplasts a distinguishing feature of plant cells.

**8. What cellular structure is known as the powerhouse of the cell?**

**A. Endoplasmic reticulum**

**B. Nucleus**

**C. Mitochondria**

**D. Golgi apparatus**

The mitochondria are referred to as the powerhouse of the cell because they are primarily responsible for producing adenosine triphosphate (ATP), the energy currency of the cell. This energy is essential for fueling various cellular processes and functions, such as movement, growth, and maintenance. Mitochondria have a unique structure that includes an inner and outer membrane, with the inner membrane folded into structures called cristae, which increases the surface area for energy production. The process by which mitochondria generate ATP is called cellular respiration, where they convert nutrients and oxygen into energy. This ability to produce energy makes mitochondria crucial for the survival and functioning of nearly all eukaryotic cells.

**9. What substance primarily composes the majority of the cell membrane?**

- A. Nucleic acids**
- B. Proteins**
- C. Phospholipids**
- D. Carbohydrates**

The majority of the cell membrane is primarily composed of phospholipids, which play a critical role in its structure and function. Phospholipids have a unique molecular structure that includes a hydrophilic (water-attracting) "head" and two hydrophobic (water-repelling) "tails." This dual nature allows phospholipids to arrange themselves into a bilayer, creating the fundamental framework of the cell membrane. In this bilayer, the hydrophilic heads face outward towards the aqueous environments both inside and outside the cell, while the hydrophobic tails face inward, shielding themselves from water. This arrangement not only provides a stable barrier that separates the cell from its external environment but also helps in regulating what enters and exits the cell. While proteins and carbohydrates are important components of the cell membrane as well, they play more supportive or functional roles. Proteins, for instance, can act as channels, receptors, or enzymes, and carbohydrates often serve as recognition sites on the surface of the membrane. However, it is the phospholipid bilayer that serves as the structural foundation of the membrane.

**10. Which part of the microscope do you look through?**

- A. Objective Lens**
- B. Condenser**
- C. Eyepiece Lens**
- D. Focus Adjustor**

The eyepiece lens is the part of the microscope through which you look to observe the specimen. It is located at the top of the microscope and contains a set of lenses that magnify the image formed by the objective lens below it. The eyepiece typically has a standard magnification of 10x or 15x, allowing you to see a more detailed view of the sample being examined. When using a microscope, the light coming from the specimen passes through the objective lens first, which magnifies the image significantly, and then the image is further enlarged by the eyepiece lens as it enters your eye. This dual magnification is what enables you to see tiny details in the cells or tissues you are studying. In contrast, the objective lenses are responsible for the initial magnification of the specimen, the condenser is used to focus light onto the specimen, and the focus adjustor helps to bring the specimen into a clearer view by moving the stage up or down. Each of these components plays a crucial role in the overall functionality of the microscope, but the eyepiece lens is specifically where you direct your sight to observe what has been magnified.



## 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://ks3sciencecells.examzify.com>**

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