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CLASS 9

Science

Chapterwise Important Questions

13 sections | 54 original questions | 2026-27

Read each chapter, attempt the questions, and support explanations with working or textbook evidence.

Choose a chapter or topic

Exploration	
Chapter 1	Exploration: Entering the World of Secondary Science
Chapter 2	Cell: The Building Block of Life
Chapter 3	Tissues in Action
Chapter 4	Describing Motion Around Us
Chapter 5	Exploring Mixtures and their Separation
Chapter 6	How Forces Affect Motion
Chapter 7	Work, Energy, and Simple Machines
Chapter 8	Journey Inside the Atom
Chapter 9	Atomic Foundations of Matter
Chapter 10	Sound Waves: Characteristics and Applications
Chapter 11	Reproduction: How Life Continues
Chapter 12	Patterns in Life: Diversity and Classification
Chapter 13	Earth as a System: Energy, Matter, and Life

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CHAPTER 1

Exploration: Entering the World of Secondary Science

Exploration

1. A student notices that a wet cloth dries faster on some days. Separate an observation from a possible explanation, and write a testable question.

2. Plan a fair test to compare the drying of equal wet cloths in moving and still air. State one variable to change, two to control, and the observation to record.

3. Explain how a model can help us study something too small to see directly. Give one limitation of such a model.

4. A measurement is repeated three times and gives slightly different values. Why should all readings be recorded rather than only the preferred value?

5. Distinguish a prediction from evidence. Describe how an unexpected result could lead a student to revise an explanation.

6. Choose an everyday question involving both living things and their surroundings. Explain how ideas from two branches of science could help investigate it.

CHAPTER 2

Cell: The Building Block of Life

Exploration

1. How do cell walls and plasma membranes differ in structure and function?

2. Predict what happens to a plant cell placed in concentrated salt solution. Explain the movement of water.

3. Draw a plant cell and label the nucleus, vacuole, chloroplast and cell wall.

4. Compare mitosis and meiosis in terms of chromosome number and biological role.

CHAPTER 3

Tissues in Action

Exploration

1. Why are meristematic cells suitable for regions of active plant growth?
2. Compare xylem and phloem by transport function and direction of transport.
3. How do the structures of skeletal muscle and nerve tissue suit their functions?
4. Explain why protective epithelial tissue and supporting connective tissue cannot perform identical roles.

CHAPTER 4

Describing Motion Around Us

Exploration

1. A cyclist covers 120 m in 20 s and then 180 m in 30 s. Find the average speed.
2. Distinguish distance from displacement using one journey that ends at its starting point.
3. A car accelerates uniformly from 4 m/s to 16 m/s in 6 s. Calculate its acceleration.
4. Sketch a velocity-time graph for uniform acceleration and explain how to obtain displacement from it.

CHAPTER 5

Exploring Mixtures and their Separation

Exploration

1. Choose a method to separate salt, sand and iron filings. Give the steps in order.
2. How would you distinguish a true solution from a suspension using observations?

3. A solution contains 15 g of sugar and 85 g of water. Calculate mass percentage of sugar.

4. Explain how chromatography separates different dyes in an ink sample.

CHAPTER 6

How Forces Affect Motion

Exploration

1. A net force of 12 N acts on a 3 kg trolley. Find its acceleration.

2. Why does a passenger tend to move forward when a bus stops suddenly?

3. Explain how action and reaction forces act on different bodies when a swimmer moves forward.

4. Two trolleys interact on a nearly frictionless track. Explain why total momentum remains constant if external force is negligible.

CHAPTER 7

Work, Energy, and Simple Machines

Exploration

1. A 10 N force moves a box 4 m in the force direction. Calculate the work done.

2. Compare the kinetic energies of a moving object before and after its speed doubles.

3. A machine lifts a 180 N load using a 60 N effort. Calculate its mechanical advantage.

4. Explain why a simple machine can reduce effort without creating energy.

CHAPTER 8

Journey Inside the Atom

Exploration

1. An atom has atomic number 12 and mass number 24. Find its protons, electrons and neutrons.
2. How did Rutherford's scattering experiment support the existence of a small nucleus?
3. Write the shell-wise electron distribution of an atom with atomic number 17.
4. Distinguish isotopes from ions using appropriate atomic examples.

CHAPTER 9

Atomic Foundations of Matter

Exploration

1. Use valencies to write the formulae of aluminium oxide and magnesium chloride.
2. Explain why a chemical equation must conserve the number of atoms of each element.
3. Find the relative molecular mass of H_2O and CO_2, using H=1, C=12 and O=16.
4. A compound always contains the same elements in a fixed mass ratio. Which chemical law does this illustrate? Explain.

CHAPTER 10

Sound Waves: Characteristics and Applications

Exploration

1. A wave has frequency 200 Hz and wavelength 1.7 m. Calculate its speed.
2. Compare the pitch and loudness of sounds in terms of frequency and amplitude.

3. Why does sound travel through a material medium but not through a vacuum?

4. An echo returns after 0.6 s. Find the distance of the reflecting wall if sound speed is 340 m/s.

CHAPTER 11

Reproduction: How Life Continues

Exploration

1. Compare sexual and asexual reproduction in terms of parent involvement and variation.

2. Draw and label the main reproductive parts of a bisexual flower.

3. How do pollination and fertilisation differ in flowering plants?

4. Explain how binary fission in a unicellular organism differs from budding in yeast.

CHAPTER 12

Patterns in Life: Diversity and Classification

Exploration

1. Why is classification useful when studying a large variety of organisms?

2. Compare a prokaryotic cell with a eukaryotic cell using two structural features.

3. Explain why binomial names are useful across languages and regions.

4. Choose observable features that could separate flowering plants from non-flowering plants. Explain your choices.

CHAPTER 13

Earth as a System: Energy, Matter, and Life

Exploration

1. Describe one interaction each between the atmosphere, hydrosphere and biosphere.

2. Explain how solar energy drives the water cycle.

3. How can a change in vegetation affect water movement and the local environment?

4. Draw a simple carbon-cycle diagram showing photosynthesis, feeding, respiration and decomposition.

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