



ATP Education

Class 9 Science - All Chapters Assignment 2025-26

New Release

Chapter 1: Matter in Our Surroundings

Important Topics

- States of matter: Solid, liquid, gas
- Properties of solids, liquids, and gases
- Change of state: Melting, freezing, evaporation, condensation, sublimation
- Effect of temperature and pressure on states of matter
- Diffusion in gases and liquids

A. MCQs (1 mark each)

1. Matter exists in how many states?
a) 2 b) 3 c) 4 d) 5
2. Which of the following has a fixed shape?
a) Solid b) Liquid c) Gas d) None

3. Diffusion is fastest in:
a) Solid b) Liquid c) Gas d) Vacuum
4. Boiling is a type of:
a) Condensation b) Freezing c) Evaporation d) Sublimation
5. Which change of state does not involve liquid?
a) Melting b) Sublimation c) Freezing d) Condensation

B. Short Answer Questions (2–3 marks)

1. Differentiate between solid, liquid, and gas with examples.
2. Explain melting and boiling with examples.
3. Describe diffusion in liquids with an experiment.
4. Explain effect of temperature on states of matter.
5. Define sublimation with example.

C. Long Answer Questions (5 marks)

1. Describe the properties of solids, liquids, and gases with a table.
2. Explain evaporation and condensation with suitable diagram.

D. Practical/Activity-Based Questions

1. Observe diffusion of potassium permanganate in water and record your observations.
2. Measure melting of ice under room temperature and note time taken.

Chapter 2: Is Matter Around Us Pure?

Important Topics

- Pure substances and mixtures

- Elements, compounds, homogeneous and heterogeneous mixtures
- Methods of separation: Filtration, distillation, chromatography, etc.
- Physical and chemical changes

A. MCQs (1 mark each)

1. Which of the following is a compound?
a) Oxygen b) Water c) Iron d) Hydrogen
2. Which method is used to separate sand and water?
a) Filtration b) Distillation c) Chromatography d) Sublimation
3. Heterogeneous mixtures have:
a) Uniform composition b) Non-uniform composition c) Only elements d) Only compounds
4. Chromatography is used to separate:
a) Colors in ink b) Sand & water c) Salt & water d) Metals
5. Physical change does not alter:
a) Chemical composition b) Size c) Shape d) All

B. Short Answer Questions (2–3 marks)

1. Define elements, compounds, and mixtures with examples.
2. Explain homogeneous and heterogeneous mixtures.
3. Describe method of filtration with example.
4. Give two examples of physical changes.
5. Give two examples of chemical changes.

C. Long Answer Questions (5 marks)

1. Explain various methods of separating mixtures with examples and diagrams.
2. Differentiate between element, compound, and mixture in a tabular form.

D. Practical/Activity-Based Questions

1. Perform separation of sand and salt from their mixture using water and filtration method.
2. Use chromatography to separate pigments from leaves or ink.

Chapter 3: Atoms and Molecules

Important Topics

- Atomic theory
- Atoms, molecules, and their structure
- Laws of chemical combination: Law of conservation of mass, Law of definite proportions
- Molecular formula and chemical formula

A. MCQs (1 mark each)

1. Who proposed the law of conservation of mass?
a) Dalton b) Lavoisier c) Rutherford d) Thomson
2. H_2O is a:
a) Atom b) Molecule c) Element d) Compound
3. Which of the following is a diatomic molecule?
a) H_2 b) Na c) CO_2 d) H_2O
4. Law of definite proportions states:
a) Mass is not conserved b) Compound has elements in fixed ratio c) Molecules can vary d) Elements do not combine
5. Molecular formula of water is:
a) H_2 b) O_2 c) H_2O d) H_2O_2

B. Short Answer Questions (2–3 marks)

1. Define atom and molecule with examples.
2. Explain law of conservation of mass with example.
3. Explain law of definite proportions.
4. Calculate molecular mass of CO_2 .
5. Distinguish between atom and molecule.

C. Long Answer Questions (5 marks)

1. Describe the structure of an atom and explain its components.
2. Explain formation of molecules from atoms using chemical formulas.

D. Practical/Activity-Based Questions

1. Experiment to verify law of conservation of mass using chemical reaction.
 2. Identify molecular formula of common compounds like NaCl, H₂O.
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Chapter 4: Structure of the Atom

Important Topics

- Discovery of subatomic particles: Electron, proton, neutron
- Thomson's model, Rutherford's model, Bohr's model
- Atomic number, mass number, isotopes, and isobars
- Electronic configuration

A. MCQs (1 mark each)

1. Who discovered the electron?
a) Thomson b) Rutherford c) Bohr d) Dalton
2. Rutherford's gold foil experiment proved:
a) Atom is indivisible b) Atom has nucleus c) Electrons are static d) Atom is a solid sphere
3. Atomic number represents:
a) Number of neutrons b) Number of protons c) Mass number d) Electrons only
4. Isotopes have:
a) Same mass number b) Same number of protons c) Same number of neutrons d) None
5. Bohr model explains:
a) Nucleus size b) Energy levels of electrons c) Proton number d)

Mass of atom

B. Short Answer Questions (2–3 marks)

1. Explain Thomson's model of the atom.
2. Describe Rutherford's model and its limitations.
3. Define isotopes with examples.
4. State the electronic configuration of sodium and oxygen.
5. Explain mass number and atomic number with examples.

C. Long Answer Questions (5 marks)

1. Explain Bohr's model of the atom with diagram.
2. Differentiate between isotopes and isobars with examples.

D. Practical/Activity-Based Questions

1. Observe flame test of different metal salts and relate color to electron transition.
2. Perform a simple activity to identify isotopes using mass number and atomic number data.

Class 9 Science - OTBA Assignment 2025-26

Chapter 5: The Fundamental Unit of Life (Cell)

Important Topics

- Discovery of cell
- Cell theory

- Prokaryotic and eukaryotic cells
- Plant and animal cell structure
- Cell organelles and their functions

A. MCQs (1 mark each)

1. Who first observed cells?
a) Robert Hooke b) Anton van Leeuwenhoek c) Schleiden d) Schwann
2. Which of the following is a prokaryotic cell?
a) Onion cell b) Bacteria c) Human cheek cell d) Amoeba
3. Nucleus controls:
a) Photosynthesis b) Cell activities c) Respiration d) Digestion
4. Which organelle is called the “powerhouse of the cell”?
a) Ribosome b) Mitochondria c) Chloroplast d) Golgi apparatus
5. Cell theory was proposed by:
a) Robert Hooke b) Schleiden & Schwann c) Darwin d) Mendel

B. Short Answer Questions (2–3 marks)

1. Define a cell and explain its importance.
2. Differentiate between prokaryotic and eukaryotic cells.
3. Label the parts of a plant cell diagram.
4. Write the functions of nucleus, mitochondria, and ribosome.
5. Explain the discovery of cell by Robert Hooke.

C. Long Answer Questions (5 marks)

1. Explain the structure and function of different organelles in a plant cell with a diagram.
2. Describe cell theory and its contributors with examples.

D. Practical/Activity-Based Questions

1. Prepare a temporary mount of an onion peel and observe it under a microscope. Draw labeled diagram of the cell.

2. Observe a human cheek cell under microscope and identify the nucleus and cell membrane.

Chapter 6: Tissues

Important Topics

- Plant tissues: Meristematic and permanent tissues
- Animal tissues: Epithelial, muscular, connective, and nervous tissues
- Structure and functions of different tissues
- Simple permanent tissues: Parenchyma, Collenchyma, Sclerenchyma
- Special tissues: Xylem and Phloem

A. MCQs (1 mark each)

1. Which tissue is responsible for movement in animals?
a) Connective b) Muscular c) Nervous d) Epithelial
2. Collenchyma tissue provides:
a) Storage b) Flexibility & support c) Photosynthesis d) Conduction
3. Which of these is a permanent plant tissue?
a) Parenchyma b) Collenchyma c) Sclerenchyma d) All of the above
4. Nervous tissue is made up of:
a) Neurons b) Muscle fibers c) Collagen fibers d) Epithelial cells
5. Xylem conducts:
a) Food b) Water & minerals c) Hormones d) Enzymes

B. Short Answer Questions (2–3 marks)

1. Differentiate between meristematic and permanent tissues.
2. Explain the structure and function of parenchyma tissue.
3. Give two examples of connective tissue in animals.
4. Explain the function of phloem in plants.

5. Describe the structure of a neuron.

C. Long Answer Questions (5 marks)

1. Describe different types of plant tissues with diagram.
2. Explain the types of animal tissues with suitable examples and diagrams.

D. Practical/Activity-Based Questions

1. Prepare a temporary mount of a plant stem to observe xylem and phloem under a microscope. Draw and label.
2. Observe a prepared slide of human muscle tissue and identify striated and unstriated fibers.

Chapter 7: Diversity in the Living World

Important Topics

- Classification of living organisms
- Hierarchy of classification: Kingdom, Phylum, Class, Order, Family, Genus, Species
- Binomial nomenclature
- Five Kingdom classification
- Characteristics of major groups: Monera, Protista, Fungi, Plantae, Animalia

A. MCQs (1 mark each)

1. Who proposed the binomial nomenclature?
a) Darwin b) Linnaeus c) Mendel d) Hooke

2. Which kingdom includes unicellular prokaryotes?
a) Protista b) Fungi c) Monera d) Plantae
3. Which of the following is a multicellular eukaryote?
a) Bacteria b) Amoeba c) Mushroom d) Virus
4. Species is the:
a) Largest group in classification b) Smallest group c) Family level
d) Class level
5. Which kingdom includes non-green, spore-producing organisms?
a) Plantae b) Fungi c) Protista d) Animalia

B. Short Answer Questions (2–3 marks)

1. Define classification and explain its importance.
2. Differentiate between genus and species.
3. List the major characteristics of Kingdom Fungi.
4. Give two examples each of unicellular and multicellular organisms.
5. Explain the hierarchy of classification with examples.

C. Long Answer Questions (5 marks)

1. Explain the Five Kingdom classification system with suitable examples and diagram.
2. Describe the principles of binomial nomenclature with examples.

D. Practical/Activity-Based Questions

1. Collect leaves of two different plants. Observe and classify them based on morphological characteristics.
2. Observe a prepared slide of Amoeba and Paramecium under a microscope. Identify the kingdom and characteristics.

Chapter 8: Motion

Important Topics

- Concept of motion
- Distance and displacement
- Speed, velocity, and acceleration
- Uniform and non-uniform motion
- Graphical representation of motion

A. MCQs (1 mark each)

1. Which of the following is a vector quantity?
a) Speed b) Distance c) Velocity d) Time
2. Uniform motion means:
a) Speed changes constantly b) Distance covered is zero c) Same distance in equal intervals of time d) Acceleration is non-zero
3. Acceleration is defined as:
a) Change in distance/time b) Change in velocity/time c) Speed $\times$ Time d) Distance $\div$ Velocity
4. Displacement can be:
a) Always positive b) Positive, negative, or zero c) Only negative d) Zero always
5. The slope of a distance-time graph gives:
a) Acceleration b) Speed c) Displacement d) Time

B. Short Answer Questions (2–3 marks)

1. Define distance and displacement with examples.
2. Differentiate between speed and velocity.
3. Define uniform and non-uniform motion.
4. A car moves 100 m east in 10 s. Calculate its speed and velocity.
5. Explain acceleration with an example.

C. Long Answer Questions (5 marks)

1. Draw a distance-time graph for uniform motion and explain it.
2. A particle moves with uniform acceleration from 5 m/s to 25 m/s in 10 s. Calculate acceleration and distance covered.

D. Practical/Activity-Based Questions

1. Measure the time taken by a toy car to move a fixed distance and calculate its speed.
 2. Plot a distance-time graph for a moving object and interpret its slope.
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Chapter 9: Force and Laws of Motion

Important Topics

- Concept of force
- Newton's laws of motion
- Inertia of motion
- Momentum and its conservation
- Applications of laws of motion in daily life

A. MCQs (1 mark each)

1. Which of the following is a vector quantity?
a) Mass b) Force c) Speed d) Time
2. Newton's First Law of Motion is also called:
a) Law of Acceleration b) Law of Inertia c) Action-Reaction Law d) Law of Gravitation
3. According to Newton's Third Law, when a body exerts a force, another body exerts:
a) Same force in same direction b) Equal and opposite force c) Zero force d) Double force
4. Momentum of a body is given by:
a) Mass $\times$ Acceleration b) Mass $\times$ Velocity c) Force $\times$ Time d) Mass $\div$ Velocity
5. Inertia of motion means:
a) Body at rest remains at rest b) Body in motion continues in motion unless acted upon c) Both a and b d) None

B. Short Answer Questions (2–3 marks)

1. Define force. Give two examples.
2. State and explain Newton's First Law of Motion.
3. Differentiate between mass and weight.
4. Define momentum. Calculate momentum of a 10 kg body moving at 5 m/s.
5. Give two examples of Newton's Third Law of Motion from daily life.

C. Long Answer Questions (5 marks)

1. Explain Newton's Second Law of Motion with formula and example.
2. Derive the equation $F = ma$ and explain its applications.

D. Practical/Activity-Based Questions

1. Take a ball and roll it on a smooth surface. Observe and explain how force changes its motion.
2. Use a spring balance to measure force required to move a body on a horizontal surface and verify Newton's Second Law.

Chapter 10: Gravitation

Important Topics

- Universal Law of Gravitation
- Acceleration due to gravity (g)
- Mass vs Weight
- Free fall and motion under gravity
- Force of gravity on Earth and other planets

A. MCQs (1 mark each)

1. Who proposed the Universal Law of Gravitation?
a) Newton b) Galileo c) Kepler d) Einstein
2. Acceleration due to gravity on Earth is approximately:
a) 9.8 m/s^2 b) 10 m/s^2 c) 9.8 km/s^2 d) 9 m/s^2
3. Weight of a body is:
a) $\text{Mass} \times \text{Velocity}$ b) $\text{Mass} \times \text{Acceleration due to gravity}$ c) $\text{Mass} \div \text{Gravity}$ d) $\text{Mass} \times \text{Speed}$
4. Free fall occurs when:
a) Object moves horizontally b) Only gravity acts on the object c) Object is at rest d) Object is pushed upwards
5. Force of gravitation acts:
a) Between Earth and Sun only b) Between any two masses c) Only on moving bodies d) Only in space

B. Short Answer Questions (2–3 marks)

1. State Newton's Universal Law of Gravitation.
2. Differentiate between mass and weight.
3. Calculate the weight of a 50 kg person on Earth.
4. Explain the concept of free fall with example.
5. Why do objects fall towards the Earth?

C. Long Answer Questions (5 marks)

1. Derive the formula for acceleration due to gravity at the surface of the Earth.
2. Explain the motion of planets and satellites using Universal Law of Gravitation.

D. Practical/Activity-Based Questions

1. Drop two objects of different masses from the same height and observe their motion. Verify that acceleration is independent of mass.
2. Use a simple pendulum to determine acceleration due to gravity.

Chapter 11: Work and Energy

Important Topics

- Definition of work and its conditions
- Energy: Kinetic and potential energy
- Work-energy theorem
- Power and its calculation
- Conservation of energy

A. MCQs (1 mark each)

1. Work is said to be done when:
a) Force is applied b) Body moves in direction of force c) Body moves perpendicular to force d) Force is zero
2. Kinetic energy depends on:
a) Mass only b) Velocity only c) Mass and velocity d) Force only
3. Potential energy is maximum when:
a) Body is at rest b) Body is at maximum height c) Body is moving d) Body is on the ground
4. Power is defined as:
a) $\text{Work done} \times \text{Time}$ b) $\text{Work done} \div \text{Time}$ c) $\text{Force} \times \text{Distance}$ d) $\text{Energy} \times \text{Time}$
5. Law of conservation of energy states:
a) Energy can be created & destroyed b) Total energy remains constant c) Energy depends on mass only d) Energy is always kinetic

B. Short Answer Questions (2–3 marks)

1. Define work. State the conditions for work to be done.
2. Differentiate between kinetic and potential energy with examples.
3. Calculate the kinetic energy of a 2 kg body moving at 5 m/s.
4. Explain power and give its SI unit.
5. State the work-energy theorem.

C. Long Answer Questions (5 marks)

1. Explain the law of conservation of energy with an example.
2. Derive the formula for kinetic energy and potential energy with suitable diagrams.

D. Practical/Activity-Based Questions

1. Lift a weight and measure the work done. Calculate the potential energy gained by the body.
2. Push a trolley over a distance and measure the force applied. Calculate work done and power if moved in a given time.

Chapter 12: Sound

Important Topics

- Nature of sound
- Propagation of sound in different media
- Speed of sound
- Reflection of sound and echo
- Structure of human ear and hearing mechanism

A. MCQs (1 mark each)

1. Sound is produced by:
a) Light vibrations b) Vibrating body c) Static body d) Force only
2. Which medium does sound travel fastest in?
a) Air b) Water c) Steel d) Vacuum
3. Echo is caused due to:
a) Refraction of sound b) Diffraction of sound c) Reflection of sound
d) Absorption

4. Audible range of human hearing is approximately:
a) 20 Hz – 20 kHz b) 10 Hz – 10 kHz c) 50 Hz – 15 kHz d) 1 Hz – 100 kHz
5. In which of these does sound not travel?
a) Air b) Water c) Steel d) Vacuum

B. Short Answer Questions (2–3 marks)

1. Define sound and explain its characteristics.
2. Differentiate between loudness and pitch.
3. Calculate the time taken by sound to travel 1 km in air (speed = 343 m/s).
4. Explain echo and how it is formed.
5. Describe the structure of the human ear with a diagram.

C. Long Answer Questions (5 marks)

1. Explain the propagation of sound in solids, liquids, and gases.
2. Describe the working of the human ear and explain how we perceive sound.

D. Practical/Activity-Based Questions

1. Observe the vibration of a tuning fork in water and explain the production of sound.
2. Measure the speed of sound using echo method.

Chapter 13: Why Do We Fall Ill?

Important Topics

- Causes of diseases: Infection, poor hygiene, lifestyle
- Pathogens: Bacteria, viruses, fungi, protozoa

- Types of diseases: Communicable and non-communicable
- Prevention of diseases
- Role of immunity and vaccination

A. MCQs (1 mark each)

1. Which of the following is a viral disease?
a) Malaria b) Influenza c) Tuberculosis d) Ringworm
2. Bacteria causing diseases can be treated by:
a) Antibiotics b) Antivirals c) Vaccines d) Painkillers
3. Which of these is a non-communicable disease?
a) Cold b) Diabetes c) Chickenpox d) Malaria
4. Protozoa causes:
a) Malaria b) Typhoid c) Flu d) Tetanus
5. Vaccination helps to:
a) Cure disease b) Build immunity c) Spread disease d) None

B. Short Answer Questions (2–3 marks)

1. Define communicable and non-communicable diseases with examples.
2. Explain the role of bacteria and viruses in causing diseases.
3. List four preventive measures to avoid diseases.
4. Explain immunity and its importance.
5. Differentiate between acute and chronic diseases.

C. Long Answer Questions (5 marks)

1. Describe the causes, symptoms, and prevention of malaria and tuberculosis.
2. Explain the role of vaccination in controlling diseases.

D. Practical/Activity-Based Questions

1. Observe a model or chart showing human immune system and identify organs involved.
2. Prepare a poster showing preventive measures to avoid communicable diseases.

Chapter 14: Natural Resources

Important Topics

- Types of natural resources: Renewable and non-renewable
- Water resources and conservation
- Forest and wildlife conservation
- Soil erosion and its control
- Pollution: Air, water, and soil

A. MCQs (1 mark each)

1. Which of the following is a renewable resource?
a) Coal b) Water c) Petroleum d) Natural gas
2. Soil erosion can be controlled by:
a) Deforestation b) Afforestation c) Mining d) Overgrazing
3. Major cause of air pollution is:
a) Planting trees b) Industrial emissions c) Rainfall d) Soil formation
4. Forests help in:
a) Maintaining ecological balance b) Soil erosion c) Pollution d) Reducing rainfall
5. Which of these is a non-renewable resource?
a) Solar energy b) Wind energy c) Coal d) Water

B. Short Answer Questions (2–3 marks)

1. Differentiate between renewable and non-renewable resources with examples.
2. Explain the importance of water conservation.
3. List two methods to control soil erosion.
4. Describe the role of forests in maintaining ecological balance.
5. What are the major causes of pollution?

C. Long Answer Questions (5 marks)

1. Explain the conservation of natural resources with suitable examples.
2. Describe the effects of human activities on natural resources and suggest preventive measures.

D. Practical/Activity-Based Questions

1. Collect samples of soil, water, and air from your surroundings. Observe and discuss any signs of pollution.
2. Prepare a model or chart showing water conservation methods like rainwater harvesting.

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