

Half Term 1

Welcome to the Year 7 Science overview for this half-term. In this important first year of secondary science, students will be introduced to key foundational concepts in both chemistry and physics. This half-term, your child will study two engaging units from the AQA KS3 Science syllabus: Atoms and the Periodic Table and Energy Stores and Transfers. Below is a summary of what your child will be learning in each unit.

Unit 1: Atoms and the Periodic Table

This unit introduces students to the basic building blocks of matter—atoms. They will begin to explore how these atoms combine to form all the substances in the world around us and how the periodic table helps organise elements.

Key topics include:

- Introduction to Atoms: Understanding what atoms are and how they are the fundamental units of all matter.
- Elements, Compounds, and Mixtures: Learning the difference between elements (made of only one type of atom), compounds (where atoms of different elements bond together), and mixtures.
- The Structure of an Atom: Identifying the key parts of an atom—protons, neutrons, and electrons—and understanding their roles.
- Introduction to the Periodic Table: Learning about the arrangement of elements in the periodic table, including groups, periods, and how elements are classified as metals and non-metals.
- Chemical Symbols and Formulae: Understanding how.

End of unit tests and PMTs elements and compounds are represented by chemical symbols and formulae.

- Introduction to Chemical Reactions: Exploring simple chemical reactions and how atoms are rearranged to form new substances during reactions. Practical work will include simple experiments to separate mixtures and observe chemical reactions, such as combining substances to create a new compound or gas.

Unit 2: Energy Stores and Transfers

This unit introduces students to the concept of energy, its different forms, and how it can be stored and transferred in various ways.

Key topics include:

- Energy Stores: Exploring the different ways energy is stored, such as in chemical stores (food and fuel), thermal stores (hot objects), and gravitational and kinetic energy stores (moving or elevated objects).
- Energy Transfers: Understanding how energy can be transferred between stores, for example, when energy is transferred as heat, light, sound, or through forces.
- The Law of Conservation of Energy: Learning that energy cannot be created or destroyed, only transferred from one store to another.
- Practical Energy Transfer Examples: Investigating real-life examples of energy transfers, such as in everyday appliances (like kettles or light bulbs), and understanding the idea of energy efficiency.
- Energy and Temperature: Understanding the difference between temperature and energy and how energy is transferred through conduction, convection, and radiation.
- Renewable and Non-Renewable Energy: Introducing the concept of renewable energy sources (like solar and wind power) and non-renewable sources (such as fossil fuels).

Students will carry out practical experiments to investigate energy transfers in different systems, such as heating water or exploring how different materials conduct heat.

Supporting Your Child's Learning: To support your child at home, encourage them to think about how science appears in everyday life. For instance, ask them to identify different materials around the home and whether they are elements, mixtures, or compounds.

Discuss real-life examples of energy transfers, such as what happens when you boil water or use a torch. Revising key concepts and practising questions from their science book will help consolidate their learning.