

## Stage 5

### Thinking and Working Scientifically

#### Models and representations

- **5TWSm.01** Know that a model presents an object, process or idea in a way that shows some of the important features.
- **5TWSm.02** Use models, including diagrams, to represent and describe scientific phenomena and ideas.

#### Scientific enquiry: purpose and planning

- **5TWSp.01** Ask scientific questions and select appropriate scientific enquiries to use.
- **5TWSp.02** Know the features of the five main types of scientific enquiry.
- **5TWSp.03** Make predictions, referring to relevant scientific knowledge and understanding within familiar and unfamiliar contexts.
- **5TWSp.04** Plan fair test investigations, identifying the independent, dependent and control variables.
- **5TWSp.05** Describe risks when planning practical work and consider how to minimise them.

#### Carrying out scientific enquiry

- **5TWSc.01** Sort, group and classify objects, materials and living things through testing, observation and using secondary information.
- **5TWSc.02** Complete a key based on easily observed differences.
- **5TWSc.03** Choose equipment to carry out an investigation and use it appropriately.
- **5TWSc.04** Decide when observations and measurements need to be repeated to give more reliable data.
- **5TWSc.05** Take appropriately accurate measurements.
- **5TWSc.06** Carry out practical work safely.
- **5TWSc.07** Use a range of secondary information sources to research and select relevant evidence to answer questions.
- **5TWSc.08** Collect and record observations and/or measurements in tables and diagrams appropriate to the type of scientific enquiry.

#### Scientific enquiry: analysis, evaluation and conclusions

- **5TWSa.01** Describe the accuracy of predictions, based on results.
- **5TWSa.02** Describe patterns in results, including identifying any anomalous results.
- **5TWSa.03** Make a conclusion from results informed by scientific understanding.
- **5TWSa.04** Suggest how an investigation could be improved and explain any proposed changes.
- **5TWSa.05** Present and interpret results using tables, bar charts, dot plots and line graphs.

### Biology

#### Structure and function

- **5Bs.01** Know that not all plants produce flowers.
- **5Bs.02** Identify the parts of a flower (limited to petals, sepals, anthers, filaments, stamens, stigma, style, carpel, and ovary).
- **5Bs.03** Describe the functions of the parts of a flower (limited to petals, anthers, stigma and ovary).
- **5Bs.04** Describe the human digestive system, including the functions of the organs involved (limited to mouth, oesophagus, stomach, small intestine, large intestine and anus), and know that many vertebrates have a similar digestive system.

**Life processes**

- **5Bp.01** Know that animals, including humans, need an adequate, balanced diet in order to be healthy.
- **5Bp.02** Know the stages in the life cycle of a flowering plant.
- **5Bp.03** Describe how flowering plants reproduce by pollination, fruit and seed production, and seed dispersal.
- **5Bp.04** Describe seed germination and know that seeds, in general, require water and an appropriate temperature to germinate.

**Ecosystems**

- **5Be.01** Describe how plants and animals are adapted to environments that are hot, cold, wet and/or dry.
- **5Be.02** Describe how flowering plants are adapted to attract pollinators and promote seed dispersal.
- **5Be.03** Describe the common adaptations of predator and prey animals.

**Chemistry****Materials and their structure**

- **5Cm.01** Use the particle model to describe solid, liquids (including solutions) and gases.
- **5Cm.02** Understand that substances can be gaseous and know the common gases at room temperature (limited to oxygen, carbon dioxide, water (vapour), nitrogen and hydrogen).

**Properties of materials**

- **5Cp.01** Know that the ability of a solid to dissolve and the ability of a liquid to act as a solvent are properties of the solid and liquid.
- **5Cp.02** Know the main properties of water (limited to boiling point, melting point, expands when it solidifies, and its ability to dissolve a range of substances) and know that water acts differently from many other substances.

**Changes to materials**

- **5Cc.01** Describe the processes of evaporation and condensation, using the particle model and relating the processes to changes in temperature.
- **5Cc.02** Understand that dissolving is a reversible process and investigate how to separate the solvent and solute after a solution is formed.
- **5Cc.03** Investigate and describe the process of dissolving, and relate it to mixing.

**Physics****Forces and energy**

- **5Pf.01** Identify a range of forces (limited to gravity, applied forces, normal forces, upthrust, friction, air resistance and water resistance).
- **5Pf.02** Know that an object may have multiple forces acting upon it, even when at rest.
- **5Pf.03** Use force diagrams to show the name and direction of forces acting on an object.

**Light and sound**

- **5Ps.01** Investigate how sounds are made by vibrating sources.
- **5Ps.02** Describe sounds in terms of high or low pitch and loud or quiet volume.
- **5Ps.03** Investigate how to change the volume and pitch of sounds.

### Electricity and magnetism

- **5Pe.01** Know the difference between a magnet and a magnetic material.
- **5Pe.02** Know that forces act over a distance between magnets, and between a magnet and a magnetic material.
- **5Pe.03** Know that magnets can have different magnetic strengths.

## Earth and Space

### Planet Earth

- **5ESp.01** Know that the Earth is surrounded by a layer of air called the atmosphere, which is a mixture of different gases (including nitrogen, carbon dioxide and oxygen).
- **5ESp.02** Understand that most water on Earth is not pure and has dissolved substances in it.
- **5ESp.03** Understand that pollution is the introduction of substances by humans that harm the environment and identify examples of pollution.

### Cycles on Earth

- **5ESc.01** Describe the water cycle (limited to evaporation, condensation and precipitation).

### Earth in space

- **5ESs.01** Describe the orbit of the Earth around the Sun (limited to slight ellipse, anticlockwise direction and the duration).
- **5ESs.02** Describe how the tilt of the Earth can create different seasons in different places.
- **5ESs.03** Know that a satellite is an object in space that orbits a larger object and a moon is a natural satellite that orbits a planet.

## Science in Context

- **5SIC.01** Describe how scientific knowledge and understanding changes over time through the use of evidence gained by enquiry.
- **5SIC.02** Describe how science is used in their local area.
- **5SIC.03** Use science to support points when discussing issues, situations or actions.
- **5SIC.04** Identify people who use science, including professionally, in their area and describe how they use science.
- **5SIC.05** Discuss how the use of science and technology can have positive and negative environmental effects on their local area.