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## Stage 5

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### Scientific enquiry

#### Ideas and evidence

- Know that scientists have combined evidence with creative thinking to suggest new ideas and explanations for phenomena.
- Use observation and measurement to test predictions and make links.

#### Plan investigative work

- Make predictions of what will happen based on scientific knowledge and understanding, and suggest and communicate how to test these.
- Use knowledge and understanding to plan how to carry out a fair test.
- Collect sufficient evidence to test an idea.
- Identify factors that need to be taken into account in different contexts.

#### Obtain and present evidence

- Make relevant observations.
- Measure volume, temperature, time, length and force.
- Discuss the need for repeated observations and measurements.
- Present results in bar charts and line graphs.

#### Consider evidence and approach

- Decide whether results support predictions.
- Begin to evaluate repeated results.
- Recognise and make predictions from patterns in data and suggest explanations using scientific knowledge and understanding.
- Interpret data and think about whether it is sufficient to draw conclusions.

### Biology

#### Plants

- Know that plants need energy from light for growth.
- Know that plants reproduce.
- Observe how seeds can be dispersed in a variety of ways.
- Investigate how seeds need water and warmth for germination, but not light.
- Know that insects pollinate some flowers.
- Observe that plants produce flowers which have male and female organs; seeds are formed when pollen from the male organ fertilises the ovum (female).
- Recognise that flowering plants have a life cycle including pollination, fertilisation, seed production, seed dispersal and germination.

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### Chemistry

#### States of matter

- Know that evaporation occurs when a liquid turns into a gas.
- Know that condensation occurs when a gas turns into a liquid and that it is the reverse of evaporation.
- Know that air contains water vapour and when this meets a cold surface it may condense.
- Know that the boiling point of water is  $100^{\circ}\text{C}$  and the melting point of ice is  $0^{\circ}\text{C}$ .
- Know that when a liquid evaporates from a solution the solid is left behind.

### Physics

#### Light

- Observe that shadows are formed when light travelling from a source is blocked.
- Investigate how the size of a shadow is affected by the position of the object.
- Observe that shadows change in length and position throughout the day.
- Know that light intensity can be measured.
- Explore how opaque materials do not let light through and transparent materials let a lot of light through.
- Know that we see light sources because light from the source enters our eyes.
- Know that beams/rays of light can be reflected by surfaces including mirrors, and when reflected light enters our eyes we see the object.
- Explore why a beam of light changes direction when it is reflected from a surface.

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### Physics (continued)

#### The Earth and beyond

- Explore, through modeling, that the sun does not move; its *apparent* movement is caused by the Earth spinning on its axis.
- Know that the Earth spins on its axis once in every 24 hours.
- Know that the Earth takes a year to orbit the sun, spinning as it goes.
- Research the lives and discoveries of scientists who explored the solar system and stars.

