

## Science Essential Skills Y4

### Working Scientifically

- Suggest relevant questions and know that they could be answered in a variety of ways, including using secondary sources such as ICT. Answer questions using straight forward scientific evidence.
- Make decisions about different enquiries, including recognising when a fair test is necessary and begin to identify variables.
- Make systematic and careful observations.
- Take accurate measurements using standard units and a range of equipment, including thermometers and data loggers.
- Identify similarities/differences/changes when talking about scientific processes. Use and begin to create simple keys.
- Choose appropriate ways to record and present information, findings and conclusions for different audiences (e.g. displays, oral or written explanations).
- Identify, with help, changes, patterns, similarities and differences in data to help form conclusions. Use scientific evidence to support their findings.
- Use recorded data to make predictions, pose new questions and suggest improvements for further enquiries.

### Substances, Matter & Materials

- Identify how water changes state, using the correct terminology and relate these key processes to the water cycle.
- Classify everyday materials as a solid, liquid or gas at room temperature.
- Describe a material whose use changes as its state changes.
- Explain the effect of heating and cooling on a range of substances, including water.
- Describe the properties of solids, liquids and gases, giving examples of each (e.g. solids retain their shape).
- Measure or research the temperature, in degrees Celsius (°C), at which materials change state and compare to the temperatures at which water changes state.

### Plants

- Identify and name a variety of plants in the local and a contrasting environment from their physical appearance.
- Use classification keys to classify plants into groups, such as flowering or non-flowering plants, or compound, palmate or single blade leaves.
- Identify uncommon, specialised plant parts such as tendrils and suckers and explain their functions.
- Describe how a plant's habitat may naturally change throughout the year and how plants adapt to these changes.
- Explain how humans can impact on a plant's environment in both positive and negative ways, giving examples from their locality.
- Draw a labelled diagram to show the life cycle of a familiar plant, including germination, flower production, pollination, seed formation and seed dispersal.
- Describe in detail the changes that occur in a familiar tree or plant over the seasons.
- Compare plants growing in a local habitat to those in a contrasting one, such as a cacti in the desert, and notice how they are adapted.

### Animals including Humans

- Identify, producers, predators and prey in a given food chain and define the terms.
- Develop own classification keys and assign living things to groups, using their keys.
- Construct a variety of food chains and explain what would happen if one of the parts of the chain became 'unavailable'.
- Identify different foods that can affect the health of teeth and know the importance of good oral hygiene.
- Identify the different types of teeth and their functions, including how these vary from animal to animal and animal to human.
- Identify body parts associated with the digestive system, such as mouth, tongue, teeth, oesophagus, stomach and intestine and describe their special functions.
- Compare and contrast the digestive system of a herbivore, with a carnivore, using their knowledge of the parts of the human digestive system, including end products.

### Electricity

- Identify and name a range of familiar devices and equipment that require electricity for power.
- Construct operational simple series circuits, using a range of components and switches for control, and use these to make simple devices.
- Predict if a circuit will work based on whether it is a complete loop and draw simple circuits, using their own or conventional circuit symbols.
- Recognise that a cell (battery) is a power source, generating and pushing current (electricity) through a circuit, and by adding cells the power source increases.
- Sort and classify materials into those that are conductors and those that are insulators, identifying similarities within the groups.
- Recognise the dangers of working with electricity and explain how to work safely.

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### Forces

- Identify how the magnetic north and south pole is different to the geographical north and south pole.
- Demonstrate using models or actions, the key forces in action during a given activity.
- Develop research skills, using secondary sources (e.g. finding out why aurora form at the north and south magnetic poles).
- Test whether any materials block magnetic attraction.
- Compare the speed in which objects fall to the ground through the same distance of air or water, using their knowledge of forces to explain the outcomes.

### Light & Sound

- Listen to and be able to identify a variety of familiar sounds and what is vibrating in each case.
- Describe how sound travels through a medium to the outer ear and how sound is transferred to the inner ear.
- Describe and demonstrate how the volume or pitch of a sound can be altered, using a range of equipment such as musical instruments.
- Investigate and classify materials for their ability to insulate against sound.
- Measure and compare the volume of a sound at different distances from its source, using appropriate equipment.
- Recognise that certain sounds can be damaging for hearing and identify ways in which the ear can be protected.