

Science Essential Skills Y6

Working Scientifically

- Pose/select the most appropriate line of enquiry to investigate scientific questions.
- Select and plan the most suitable line of enquiry, explaining which variables need to be controlled and why, in a variety of comparative and fair tests.
- Make their own decisions about which observations to make, using test results and observations to make predictions or set up further comparative or fair tests.
- Choose the most appropriate equipment in order to take measurements, explaining how to use it accurately. Decide how long to take measurements for, checking results with additional readings.
- Identify and explain patterns seen in the natural environment.
- Choose the most effective approach to record and report results, linking to mathematical knowledge.
- Identify and explain causal relationships in data and identify evidence that supports or refutes their findings, selecting fact from opinion.
- Identify validity of conclusion and required improvement to methodology. Discuss how scientific ideas develop over time.

Plants

- Identify plants which have survived on Earth for millions of years and how we know this.
- Devise classification keys to identify plants in the immediate environment. Give reasons for classification and understand the significance of scientists' work, from study.
- Research and describe similarities and differences between petals, leaves, stamen and stigma on a variety of plants found in the locality and elsewhere.
- Describe how plants have adapted and ultimately evolved to suit their environments using specific examples.
- Suggest why some plants have survived over time and some have not.
- Define the plant terms 'annual', 'biennial' and 'perennial', describing differences in life cycles and identifying plants of each type.
- Identify relationships between the seasons and a typical plant life cycle using observations from the school environment.
- Compare native plants with non-native plants and determine whether non-native plants can be classified in the same way as native plants.

Animals including Humans

- Identify the major parts of the human circulatory system and their functions.
- Recognise the importance of the classification system and its inception, giving reasons for how the groups and subgroups are chosen.
- Describe how animals must be adapted to their habitats for survival, using a range of animals and their adaptations as examples.
- Recognise and describe the damaging impact that some drugs and other substances can have on the human body.
- Explain how nutrients and water are transported within humans and animals.
- Describe how lifestyle is important for the health of the human circulatory system, contributing towards a class policy on exercise and diet choices.
- Describe how the life cycles of bacteria and viruses differ.
- Compare scientifically the effect that different exercises have on heart rate, making predictions and measuring heart rate accurately.

Earth & Space

- Compare times in other parts of the world and relate this to the use of timezones.
- Explain how the day length changes to a greater or lesser degree in other parts of the world (e.g. Arctic or equatorial regions).

Light & Sound

- Identify parts of the eye and draw a diagram showing how light enters our eyes in order to see, using the correct scientific vocabulary.
- Describe how white light can be split using prisms and droplets of water and what colours white light is made from.
- Explain how light behaves and travels in straight lines. Demonstrate, using a model or diagram, how this explains why we can see objects and how shadows are formed.
- Classify a range of objects or surfaces for their reflective qualities using scientific testing.
- Compare how a beam of light changes direction (refraction) when passing through different mediums, such as water and air.
- Recognise the dangers of using lasers and how they can be used safely.

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Electricity

- Identify and name components of a circuit and define terms, such as voltage and current in relation to series circuits.
- Work scientifically to construct a series circuit for a specific device or outcome and explain how it works.
- Draw a series circuit, using the conventional circuit symbols.
- Describe the relationship between the number or voltage of a cell or cells and the effect it has on a bulb or buzzer for example.
- Predict materials that could be good conductors of electricity and conduct a fair test to show this.
- Demonstrate how to work safely with electrical circuits.

Evolution & Inheritance

- Identify features which are inherited from parents, such as eye colour and those that are not, such as tattoos and dyed hair colour.
- Match offspring to their parents, linked to observable features and characteristics.
- Describe how variation in living things leads to the evolution of a species, using specific examples. Research the work of Darwin or Wallace to explain how the theory of evolution developed.
- Identify how specific plants or animals have adapted to their environment.
- Explain how fossils are formed and how fossil discoveries have helped develop the theory of evolution.
- Suggest ways in which future changes in the world's climate may impact on ourselves and other living species, and suggest ideas for how we may adapt to these changes.