

Inspiring and enabling our school community to live life to the full



YEAR 3 SCIENCE

Light and Shadow

Our Science curriculum aims to enthuse children and help them to be curious and develop a sense of excitement about the world. Through a range of teaching, learning and extra-curricular opportunities, children will develop scientific knowledge and conceptual understanding to recognise the uses and implications of Science, today and for the future. We encourage children to ask their own questions; predict how things will behave and analyse causes, using Science to explain what is happening.

Characteristics of an Effective Learner

Courage
Commitment
Collaboration
Creativity
Curiosity

Prior Learning:

- Children explore animals' diets and classify them into carnivores, herbivores and omnivores in year 1
- Children know how animals in all habitats depend on plants and each other for food by creating simple food chains in year 2
- In year 3, children explore different types of food, sorting them into different categories and planning meals. They begin to understand that different people may have different energy/nutritional requirements e.g. athletes or explorers.

Key Vocabulary taught in this unit:

Absence/absent, artificial, block, similar, surface, conclude/conclusion, comparative test, data, data logger, explain/explanation, identifying and classifying, measure/measurement, observe/observation, pattern, predict/prediction, bright, dark/darkness, data logger, dim, light, light source, lux, opaque, reflect, reflective, sensor, shadow, sun, sunlight, translucent, transparent, ultraviolet, enquiry, measure/measurement, observe/observation, pattern, predict/prediction.

Key Questions:

Q1: What do we need to see?

Q2: Which object is the most reflective?

Q3: How are shadows made?

Q4: Is my shadow like me?

Q5: How can we change the size of a shadow?

Intent: What do we want the children to know and be able to do by the time they complete this unit?

- 1: Light comes from light sources. Dark is the absence of light. Nothing can be seen if there is no light. Objects are easier to see when there is more light.
- 2: Shiny objects are those with surfaces that are good at reflecting light. When there is less light, more reflective materials are easier to see than less reflective ones.
- 3: Shadows are formed when light is blocked. Opaque materials are those that block all the light so objects made from opaque materials cast the darkest shadows.
- 4: Shadows are the same shape as the objects that cast them. There are similarities and differences between the object and the shadow. Light from the sun can be dangerous so we need to protect our eyes. Opaque materials block sunlight and so can protect our skin.

5: The size of a shadow can be changed by moving the light source, changing either its height (for an object standing on and casting its shadow onto a surface) or distance from the object (for a shadow cast on a screen).

Working Scientifically:

- Using straightforward scientific evidence to answer questions [or to support their findings].
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including [thermometers and] data loggers.
- Reporting on findings from enquiries, including oral and written explanations, [displays or presentations of results and conclusions].
- Identifying differences, similarities or changes related to simple scientific ideas [and processes].
- Using results to draw simple conclusions, [make predictions for new values, suggest improvements and raise further questions].

Impact / Outcome: What will the final product / result be?

Children will learn that scientists make and use observations to answer scientific questions and explain natural phenomena. They use scientific equipment to quantify their observations.

They will develop an understanding of the following types of enquiry: grouping and classifying things, carrying out simple comparative [and fair] tests.

P4C Inquiry (where appropriate):