



Whiteshill Primary School

Science Enquiry Questions – Curriculum Progression

Living Things and their Habitats

Key Stage 1	Why is a rock not alive?	Explore and compare the differences between things that are living, dead and things that have never been alive. Notice that animals, including humans, have offspring which grown into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
Key Stage 1	Am I a predator?	how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.
Key Stage 1	Could a polar bear live in Whiteshill?	Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including micro habitats.
Lower Key Stage 2	Why can't pigs fly?	Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.
Upper Key Stage 2	Do all living things lay eggs?	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the process of reproduction in some plants and animals.
Upper Key Stage 2	What does a Kangaroo have to do with a common cold?	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics.

Key Stage 1	How do we recycle?	<i>Non-statutory: Pupils should explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds and the negative effects of population and development, litter or deforestation. Look at waste, recycling and reusing.</i>
Lower Key Stage 2	D&T project link – planning an eco-friendly town	Recognise that environments can change and that this can sometimes pose dangers to living things. <i>Non-statutory: Pupils should explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds and the negative effects of population and development, litter or deforestation</i>
Upper Key Stage 2	Can we be a plastic free school?	Recognise that environments can change and that this can sometimes pose dangers to living things. <i>Non-statutory: Pupils should explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds and the negative effects of population and development, litter or deforestation.</i>

Animals Including Humans

Key Stage 1	Are all animals the same?	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets).
Key Stage 1	What makes a healthy me?	Describe the importance for humans of exercise and eating the right amounts of different types of food.
Key Stage 1	How does my body heal?	Describe the importance for humans of hygiene (e-bug and first aid)
Lower Key Stage 2	Where does my food go?	Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions.
Lower Key Stage 2	How and why does a lion chase its prey?	Construct and interpret a variety of food chains, identifying producers, predators and prey. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.
Lower Key Stage 2	D&T Project Link/PSHE/ gardening	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food, they get nutrition from what they eat. – healthy, balanced menu and meal for parents/old people's home/nursery.
Upper Key Stage 2	Can I make my heart beat faster?	Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood. Describe the ways in which nutrients and water are transported within animals including humans.
Upper Key Stage 2	What am I like on the inside?	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.
Upper Key Stage 2	PSHE link	Describe the changes as humans develop to old age.

Sound

Lower Key Stage 2	Music link	Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.
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Everyday Materials/States of Matters/Properties and Changes of Materials

Key Stage 1	Why is a rock a rock?	Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties.
Key Stage 1	Can we shape glass?	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
Key Stage 1	Why don't bridges fall down?	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
Key Stage 1	How do we recycle?	Look at waste, recycling and reusing and the suitability of materials for different jobs – sustainable materials?
Lower Key Stage 2	Can I make ice disappear?	Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius.
Lower Key Stage 2	So where did the ice really go?	Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
Upper Key Stage 2	Can I turn my toast back to bread?	Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.
Upper Key Stage 2	D&T Project Link – Can we save the egg?	Compare and group together everyday materials on the basis of their properties including their hardness, transparency and response to magnets. Give reasons based on evidence from comparative and fair tests, for the particular use of everyday materials, including metals, wood and plastic.
Upper Key Stage 2	Can I get salt out of the sea?	Know that some materials will dissolve in liquids to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Demonstrate that dissolving, mixing and changes of state are reversible changes. Compare and group together everyday materials on the basis of their properties including their solubility.

Plants

Key Stage 1	Can you grow a plant anywhere?	Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
Key Stage 1	Gardening Sessions	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees. Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. Observe and describe how seeds and bulbs grow into mature plants.
Lower Key Stage 2	Can plants grow in the desert?	Investigate the way in which water is transported within plants.
Lower Key Stage 2	Why do we need bees?	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
Lower Key Stage 2	Gardening Sessions	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.
Upper Key Stage 2	Gardening Sessions	Explore the requirements for plants for life and growth (air, light, water, nutrients from the soil and room to grow) and how they vary from plant to plant.

Rocks/Evolution and Inheritance

Lower Key Stage 2	Can rocks change?	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter.
Upper Key Stage 2	Why do giraffes have long necks?	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
Upper Key Stage 2	RE Link – creation and evolution	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago

Electricity

Lower Key Stage 2	Is the sun plugged in?	Identify common appliances that run on electricity. Construct a simple electrical circuit, identifying and naming the basic parts including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.
Lower Key Stage 2	D&T Link – create a lamp for playgroup children.	Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.
Upper Key Stage 2	D&T Link – Mars Rover	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. Use recognised symbols when representing a simple circuit in a diagram. Compare and group together everyday material on the basis of their conductivity (electrical and thermal).

Forces and Magnets

Lower Key Stage 2	Can I ride my bike in the sand?	Compare how things move on different surfaces.
Lower Key Stage 2	Does everything I touch really move?	Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing.
Upper Key Stage 2	Why did Neil Armstrong not fall off the moon?	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance and water resistance that act between moving surfaces.
Upper Key Stage 2	How can we win at Curling?	Identify the effects of friction that act between moving surfaces.

Light

Lower Key Stage 2	How do cats eyes keep me safe?	Notice that light is reflected from surfaces.
Lower Key Stage 2	D&T Link – shadow puppet theatre for Willow class	Recognise that they need light in order to see things and that dark is the absence of light. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change – structure and mechanical.
Lower Key Stage 2	PSHE link – sun safety	Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.
Upper Key Stage 2	Can we bend the sun's rays?	Recognise that light appears to travel in straight lines. Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Earth and Space

Upper Key Stage 2	Why is it night-time in Australia and day-time here?	Describe the movement of the Earth and other planets, relative to the Sun in the solar system. Describe the movement of the moon relative to the Earth. Describe the Sun, Earth and Moon as approximately spherical objects. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.
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