

Our Vision.... Our curriculum delivery puts science at the forefront of children’s understanding of the world around them. Science at Breck stimulates and excites pupils’ curiosity about natural phenomena and events in the world around them. We aim to prepare our pupils for life in an increasingly scientific and technological world, whilst ensuring children foster a concern about, and active care for, our environment. We enable children to scientifically question, hypothesise, test and discover – which truly opens their minds to science in a modern world.	We seek to ensure that children.... • Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. • Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them. • Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.	Progress.... Areas of study have been carefully sequenced so prior knowledge and concepts are built on. Regular formative assessment and AFL ensures gaps in knowledge are identified and addressed. Effective and adapted questioning takes place during each lesson and at all levels of working. Progress and attainment within areas of study are recorded and shared with subject coordinator.	Retrieval Practice Targeted and effective questioning during lesson starters to retain and enhance children’s strengths, as well as identify and address any gaps.
Content and Sequencing: All classes carry out a series of science units during the school year. This ensures all areas of the national curriculum are covered, with content used enhancing our creative curriculum and thematic planning. Lancashire thematic planning units have been cross-referenced with the national curriculum to ensure all areas of science are being covered. Focus reading materials are used, alongside other platforms (such as Grammarsaurus), to enhance and support our school’s delivery of the science national curriculum.			
Reception – Science at Foundation Stage is covered in the ‘Understanding the World’ area of the EYFS Curriculum. It is introduced indirectly through activities that encourage every child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them. During their first years at school our children will explore creatures, people, plants and objects in their natural environments. They will observe and manipulate objects and materials to identify differences and similarities. They will also learn to use their senses in a range of ways to help understand the world around them.			
Year 1 – Animals, including humans - Children learn about 5 key animal groups and can name a number of examples from each group. Children will also learn that humans are a type of animal, belonging to the mammal animal group. Children can name a number of basic body parts and can associate which part of the body is used for each of the 5 senses. Plants - Children can identify a variety of common wild and garden plants, including deciduous and evergreen trees. Children can name and describe the basic structure of a variety of common flowering plants, including trees. Materials – Children can distinguish between an object and the material from which it is made. Children can name a variety of materials and describe the simple physical properties of a variety of everyday materials. Children should be able to compare a variety of everyday materials based on their physical properties. Seasonal changes – Children are taught to observe changes across the 4 seasons and describe weather associated with each season, including day length.			
Year 2 – Plants – Children can observe and describe how seeds and bulbs grow into mature plants, whilst finding out and describing how plants need water, light and a sustainable temperature to grow and stay healthy. Animals, including humans – Children will understand that animals (including humans) have offspring which grow into adults. Children will be able to describe the basic needs of animals for survival (water, food and air) and describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. Materials – Children can identify and compare the suitability of a variety of everyday materials, for particular uses e.g. glass used for windows, plastic used for chairs etc. Children will find out how the shapes of solid objects made from some materials can be changes by squashing, bending, twisting and stretching.			
Creative Lab – Science based learning in the Creative Lab underpins and expands upon learning carried out in EYFS and KS1. Children are exposed to learning about animals and their habitats and further develop their existing knowledge of animal groups. Children also look at the parts of plants (with an in-depth focus on cacti) and how plants can adapt to survive in their surroundings. The Creative Lab have a specific focus on ‘investigation’, where a range of experiments are planned, conducted and evaluated to better understand how cacti are adapted to store water and survive in a hostile environment.			
Year 3 – Animals, including humans – Children can identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food i.e. they get nutrition from what they eat. Children will identify that humans and some other animals have skeletons and muscles for support, protection and movement. Rocks – Children will compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Children can describe in simple terms how fossils are formed when things that have lived are trapped within rock. Children will recognise that soils are made from rocks and organic matter. Light – Children can recognise that they need light in order to see things and that dark is the absence of light. Children will notice that light is reflected from surfaces. Children will recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Children will learn that shadows are formed when the light from a light source is blocked by an opaque object and can find patterns in the way that the size of shadows change. Forces and magnets – Children can compare how things move on different surfaces. Children will notice that some forces need contact between two objects, but magnetic forces can act at a distance. Children will observe how magnets attract or repel each other and attract some materials and not others. Children will 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. Children can describe magnets as having two poles and predict whether two magnets will attract or repel each other, depending on which poles are facing.			

Year 4 –

Animals, including humans – Children can describe the simple functions of the basic parts of the digestive system in humans. Children will identify the different types of teeth in humans and their simple functions. Children will construct and interpret a variety of food chains, identifying producers, predators and prey.

States of matter – Children can compare and group materials together, according to whether they are solids, liquids or gases. Children will 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 (°C). Children to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Sound – Children will identify how sounds are made, associating some of them with something vibrating and recognise that vibrations from sounds travel through a medium to the ear. Children will find patterns between the pitch of a sound and features of the object that produced it. Children will find patterns between the volume of a sound and the strength of the vibrations that produced it, whilst recognising that sounds get fainter as the distance from the sound source increases.

Electricity – Children will construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Children can 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. Children to recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Children will recognise some common conductors and insulators, and associate metals with being good conductors.

Year 5 –

Living things and their habitats – Children will describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird and describe the life process of reproduction in some plants and animals.

Properties and changes of materials – Children will compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Children will know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Children to use their knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Children will give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Children can demonstrate that dissolving, mixing and changes of state are reversible changes. Children will 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.

Earth and space – Children to describe the movement of the Earth, and other planets, relative to the Sun in the solar system. Children can describe the movement of the Moon relative to the Earth and describe the Sun, Earth and Moon as approximately spherical bodies. Children will use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky.

Forces – Children can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Children will identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Children to recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Year 6 –

Animals, including humans – Children can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Children will recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Children will describe the ways in which nutrients and water are transported within animals, including humans.

Evolution and inheritance – Children can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Children to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Children can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Light – Children will recognise that light appears to travel in straight lines. Children to 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. Children can 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. Children will use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Electricity – Children can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Children will 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. Children to use recognised symbols when representing a simple circuit in a diagram.