



Science Learning Map

Biology



Chemistry



Physics



Year	Autumn	Spring	Summer
Nursery	<p>Discuss and investigate the seasonal changes Autumn and weather changes. Describe the differences in the seasons. Discuss how animals are nocturnal linked to Owl Babies. Recognise the changes in the environment during winter. Explore ice melting</p>	<p>Understand that we grow and change from babies. Butterfly Life Cycle Caterpillar to butterfly kit. How keeping healthy affects our bodies. Focus on different textures and materials when building house and bridge linked to stories Look at the natural world and growth of plants, trees and animals linked to Spring How plants change growing sunflowers Which material is best to use to build a house? Understand what plants need to grow and change.</p>	<p>Discuss the different habitats of animals i.e. land and sea. Understand how animals are different i.e. colour and pattern. Caring for animals in the environment What do animals need to survive?</p>
Reception	<p>Children to understand and discuss the effect of changing seasons on the natural world around them. Key Vocabulary: <ul style="list-style-type: none"> Autumn Winter Spring Summer Change <p>Explore light/dark, night/day and nocturnal animals. Key vocabulary: <ul style="list-style-type: none"> Light Dark Nocturnal Day time Nighttime </p> </p>	<p>Explore the life cycle of penguins. Key vocabulary: <ul style="list-style-type: none"> Natural Habitat Life cycle Penguin Egg <p>Plant their own sunflower and care for their plant. Ensuring they provide what their sunflower needs to grow. Key vocabulary: <ul style="list-style-type: none"> Change See Grow </p> </p>	<p>Explore gravity by introducing things that don't float and the impact it has. E.g. dropping an item and seeing the cause and effect, linking to Space. Key vocabulary: <ul style="list-style-type: none"> Explore Same Different <p>Object</p> <p>Explore floating and sinking objects. Key vocabulary: <ul style="list-style-type: none"> Floating Sinking Water </p> </p>
Year 1	<p>Aut 1 - Animals including humans – What are our seen body parts called and what are the five senses</p> <ul style="list-style-type: none"> Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <p>Aut 2 - Seasonal changes – How do seasons change</p> <ul style="list-style-type: none"> Observe changes across the 4 seasons Observe and describe weather associated with the seasons and how day length varies. 	<p>Spr 1 - Everyday Materials – What are the materials that are around us called</p> <ul style="list-style-type: none"> 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. <p>Spr 2 - Seasonal changes - How do seasons change</p> <ul style="list-style-type: none"> Observe changes across the 4 seasons Observe and describe weather associated with the seasons and how day length varies. 	<p>Sum 1 - Animals including humans – How are animals classified</p> <ul style="list-style-type: none"> 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) <p>Sum 2 – Plants – What are the names of different parts of plants</p> <ul style="list-style-type: none"> Identify and describe the basic structure of a variety of common flowering plants, including trees identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Know the name of different parts of a plant including stem, petal, flower, root (not on NC but children need to know this before year 2/3)

<p>Year 2</p>	<p><u>Aut 1 - Living things and their habitats – Why do animals choose the habitats they have?</u></p> <ul style="list-style-type: none"> • Explore and compare the differences between things that are living, dead, and things that have never been alive (in year 1 unit how are animals classified - component 4) • Describe 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. • 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 microhabitats <p><u>Aut 2 - Animals including humans – Why is it important to keep our bodies healthy</u></p> <ul style="list-style-type: none"> • Notice that animals, including humans, have offspring which grow into adults 	<p><u>Spr 1 - Everyday Materials – What are the properties of different materials</u></p> <ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching <p><u>Spr 2 - Animals including humans – Why is it important to keep our bodies healthy</u></p> <ul style="list-style-type: none"> • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) 	<p><u>Sum 1 – Plants – What do plants and trees need to grow healthy?</u></p> <ul style="list-style-type: none"> • Observe and describe how seeds and bulbs grow into mature plants • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy
<p>Year 3</p>	<p><u>Aut 1 – Rocks – What are the main type of rocks on our earth?</u></p> <ul style="list-style-type: none"> • 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. 	<p><u>Spr 1 - Animals including Humans – Why do humans have skeletons and muscles?</u></p> <ul style="list-style-type: none"> • 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 • Identify that humans and some other animals have skeletons and muscles for support, protection and movement. <p><u>Spr 2 – Light – Why do we have light and dark and what is its impact on our everyday life?</u></p> <ul style="list-style-type: none"> • Recognise that they need light in order to see things and that dark is the absence of light. • Notice that light is reflected from surfaces. • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. • 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. 	<p><u>Sum 1 – Plants – What roles do different parts of plants play in helping them grow healthily?</u></p> <ul style="list-style-type: none"> • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. • Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. • Investigate the way in which water is transported within plants. • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. <p><u>Sum 2 - Forces and Magnets – What do we mean by a force?</u></p> <ul style="list-style-type: none"> • Compare how things move on different surfaces. • Notice that some forces need contact between 2 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 2 poles. • Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.
<p>Year 4</p>	<p><u>Aut 1 – Sound – How is sound created and how does it travel?</u></p> <ul style="list-style-type: none"> • 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. <p><u>Aut 2 – Electricity – What is electricity and why is it so important in our lives?</u></p>	<p><u>Spr 1 - All Living things – How are living things grouped?</u></p> <ul style="list-style-type: none"> • 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. • Recognise that environments can change and that this can sometimes pose dangers to living things. <p><u>Spr 2 - States of Matter – How do some liquids, solids and gases change state?</u></p> <ul style="list-style-type: none"> • Compare and group materials together, according to whether they are solids, liquids or gases. 	<p><u>Sum 1 - Animals including humans – What happens to the food we eat?</u></p> <ul style="list-style-type: none"> • 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. • Construct and interpret a variety of food chains, identifying producers, predators and prey.

	<ul style="list-style-type: none"> Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its 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. 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. 	<ul style="list-style-type: none"> 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). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	
Year 5	<p><u>Aut 1 & 2 - Properties and Changes of Materials.</u></p> <ul style="list-style-type: none"> 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. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. <p><u>Aut 1 & 2 - Properties and Changes of Materials – Which materials can or not be changed back to their original form?</u></p> <ul style="list-style-type: none"> Know that some materials will dissolve in liquid 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. 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. 	<p><u>Spr 1 - Earth and Space – What do we know about the sun, earth moon and planets?</u></p> <ul style="list-style-type: none"> 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 bodies. Use the idea of the Earth’s rotation to explain day and night, and the apparent movement of the sun across the sky. <p><u>Spr 2 - Living things and their habitats – What do we know about the life cycles of humans and various animals</u></p> <ul style="list-style-type: none"> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals. 	<p><u>Sum 1 - Animals including humans – name?</u></p> <ul style="list-style-type: none"> Describe the changes as humans develop to old age. <p><u>Sum 2 – Forces – What is a force and how does it impact on the way that things move?</u></p> <ul style="list-style-type: none"> 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, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.
Year 6	<p><u>Aut 1 – Electricity – How does electricity work and how does its power vary</u></p> <ul style="list-style-type: none"> 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. <p><u>Aut 2 - Animals including humans – How does the heart work and why is it so important?</u></p> <ul style="list-style-type: none"> Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their body's function. Describe the ways in which nutrients and water are transported within animals, including humans <p><u>Aut 2 - Living things and their habitats – How are our living things are grouped and classified?</u></p> <ul style="list-style-type: none"> Describe how living things are classified into broad groups according to common observable characteristics and based on 	<p><u>Spr 1 – Evolution – How have living things on earth changed over time</u></p> <ul style="list-style-type: none"> 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. 	<p><u>Sum 2 – Light – How do our eyes help us see?</u></p> <ul style="list-style-type: none"> 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.

similarities and differences, including micro-organisms, plants and animals.

- Give reasons for classifying plants and animals based on specific characteristics.

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