

Biology, Chemistry and Physics Coverage Plan 2022-2024

These objectives follow the long-term plan for 2022-2024 and ensure that the entire national curriculum has cumulative coverage to provide a high level of understanding and skills for our children. Teaching staff use this document along the long-term plan to ensure this.

Biology Cycle A

	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Plants and Living Things and their Habitats	<ul style="list-style-type: none">▪ 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▪ find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.▪ observe and describe how seeds and bulbs grow into mature plants▪ observe changes across the four seasons	<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 how water is transported within plants▪ explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	<ul style="list-style-type: none">▪ recognise that living things (plants) produce offspring of the same kind, but normally offspring vary and are not identical to their parents▪ describe the life process of reproduction in some plants

<p>Animals, including Humans (including keeping fit and healthy)</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▪ find out about and describe the basic needs of animals, including humans, for survival (water, food and air)▪ describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	<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▪ 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.	<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 (including the pulse and clotting).▪ recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.▪ describe the ways in which nutrients and water are transported within animals, including humans
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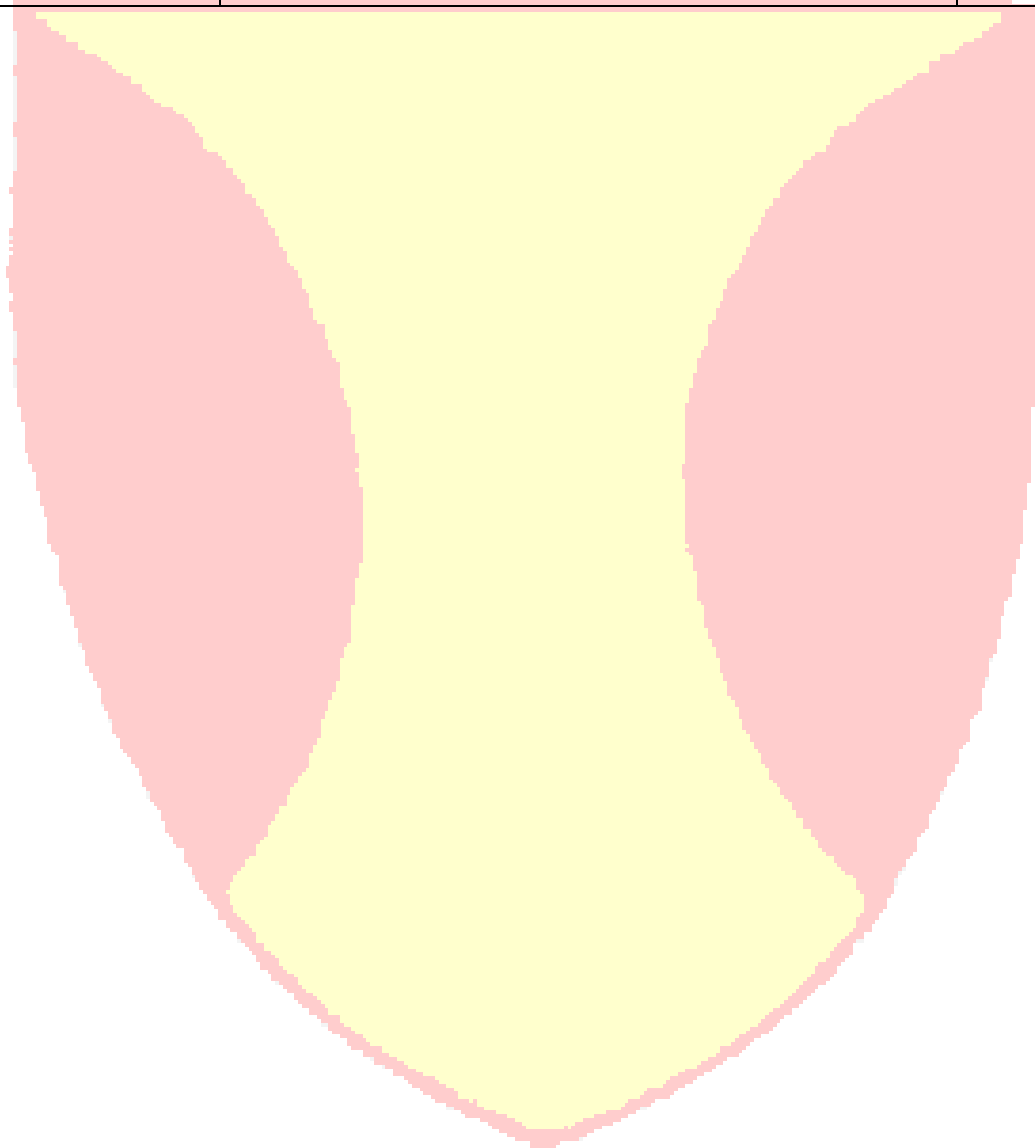
Chemistry Cycle A

	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Properties of Materials	<ul style="list-style-type: none"> distinguish between an object and the material from which it is made compare and group together a variety of everyday materials on the basis of their simple physical properties describe the simple physical properties of a variety of everyday materials identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock 	<ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their simple physical properties recognise that soils are made from rocks and organic matter compare and group materials together, according to whether they are solids, liquids or gases 	<ul style="list-style-type: none"> compare and group together everyday materials based on evidence from comparative and fair tests, 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 use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating

Physics Cycle A

	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Electricity	<p><i>(No electricity in KS1; however, children could explore battery powered toys and carry out a variety of enquires related to these).</i></p>	<ul style="list-style-type: none"> ▪ identify common appliances that run on electricity ▪ construct a simple series electrical circuit identifying and naming the basic parts of a simple electrical circuit, 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"> ▪ 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
Forces and Movement	<p><i>(explore things that move including toys that need a push or a pull. Compare how different things move.)</i></p> <ul style="list-style-type: none"> ▪ describe the simple physical properties of a variety of everyday materials <i>(attracted to a magnet or not)</i> ▪ compare and group together a variety of everyday materials on the basis of their simple physical properties <i>(attracted to a magnet or not)</i> 	<ul style="list-style-type: none"> ▪ compare how things move on different surfaces ▪ notice that some forces need contact between two objects but magnetic forces 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. 	<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 effect 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

	<i>(explore toys that use magnets)</i>	
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Biology Cycle B

	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Animals, including Humans (including keeping fit and healthy)	<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. describe and compare the structure of a variety of common animals, fish, amphibians, reptiles, birds and mammals including pets) notice that animals, including humans, have offspring which grow into adults 	<ul style="list-style-type: none"> identify that humans and some animals have skeletons and muscles for support, protection and movement 	<ul style="list-style-type: none"> recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents describe the life process of reproduction in some animals describe the changes as humans develop to old age
Living Things and their Habitats	<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 identify and name a variety of plants and animals in their habitats, including micro-habitats 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 observe changes across the four seasons (<i>observe which animals are present in local habitats throughout the year</i>). 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 	<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 constantly changing and that this can sometimes pose dangers to specific habitats construct and interpret a variety of food chains, identifying producers, predators and prey 	<ul style="list-style-type: none"> 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 describe the difference in the life cycles of a mammal, an amphibian an insect and a bird identify how animals and plants are adapted to suit their environment in different ways and adaption leads to evolution

Chemistry Cycle B

	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Materials Changing	<ul style="list-style-type: none"> find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching describe the simple physical properties of a variety of everyday materials (<i>Flexibility</i>) compare and group together a variety of everyday materials on the basis of their simple physical properties (<i>Flexibility</i>) 	<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) describe in simple terms how fossils are formed when things that have lived are trapped within rock identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	<ul style="list-style-type: none"> demonstrate that dissolving, mixing and changes of state are reversible changes. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution 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.

Physics Cycle B

	Key Stage 1	Lower Key Stage 2	Upper key Stage 2
Light	<p><i>(explore looking for things in a dark "cave/area" erected from dark material in the classroom)</i></p> <ul style="list-style-type: none"> describe the simple physical properties of a variety of everyday materials (<i>opaque, translucent, transparent materials</i>) compare and group together a variety of everyday materials on the basis of their simple physical properties (<i>opaque, translucent, transparent material</i>) <p><i>(explore shadow play and possibly make shadow puppets)</i></p> <p><i>(observe and name a variety of sources of light, including electric lights, flames and the Sun)</i></p> <ul style="list-style-type: none"> observe and describe weather associated with the seasons and how day length varies. 	<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 shadows are formed when a light source is blocked by a solid object find patterns in the way that the size of shadows change recognise that light from the Sun can be dangerous and that there are ways to protect our eyes 	<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 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 sun's apparent movement across the sky.

<p>Sound</p>	<p><i>(explore different ways of making and altering sounds ... experiment making sounds of differing volume and pitch)</i> <i>(observe and name a variety of sources of sound, noticing that we hear with our ears)</i></p>	<ul style="list-style-type: none">▪ identify how sounds are made, associating some of them with something vibrating▪ recognise that vibrations from sound travel through a medium to the ear▪ recognise that sounds get fainter as the distance from the sound source increases▪ 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.	
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