





Science Progression Beaucroft School

Sc1: Working scientifically		
KS1	Lower KS2	Upper KS2
EYS Junior	Middle	Senior
pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:	pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:	pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:
asking simple questions and recognising that they can be answered in different ways PfA independent Living Making choices	asking relevant questions and using different types of scientific enquiries to answer them. PfA independent Living Making choices	
Performing simple tests	Setting up simple practical enquiries, comparative and fair tests	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary PfA independent Living Making choices
observing closely, using simple equipment	making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers	taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.

Sc1: Working scientifically

	and data loggers	
gathering and recording data to help in answering questions	<ul style="list-style-type: none"> gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables 	<ul style="list-style-type: none"> recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
identifying and classifying	<ul style="list-style-type: none"> identifying differences, similarities or changes related to simple scientific ideas and processes 	identifying scientific evidence that has been used to support or refute ideas or arguments
Using their observations and ideas to suggest answers to questions	<ul style="list-style-type: none"> using straightforward scientific evidence to answer questions or to support their findings. using results to draw simple conclusions, make predictions for new values and suggest improvements and raise further questions 	<p>using test results to make predictions to set up further comparative and fair tests</p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</p>
	reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations

Biology

Biology : Plants			
KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Seniors
<p><u>Plants & Growing</u> identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p>	<p><u>Plants</u></p> 	<p><u>Plants</u> Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p>	
<p><u>Plants & Growing</u> Identify and describe the basic structure of a variety of common flowering plants, including trees</p>	<p><u>Plants</u></p> 	<p><u>Plants</u> 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</p>	
<p><u>Plants & Growing</u> find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p><u>Plants</u></p> 	<p><u>Plants</u> investigate the way in which water is transported within plants</p>	
<p><u>Plants & Growing</u> observe and describe how seeds and bulbs grow into mature plants</p>	<p><u>Plants</u></p> 	<p><u>Plants</u> explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>	<p><u>Plants, Characteristics of life, Living things in their Environments.</u> Describe the life process of reproduction in some plants (and Animals, including humans) PfA Health</p>

Biology : Living Things and their environments			
KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Senior
<p><u>Dinosaurs</u> Explore and compare the</p>	<p><u>Living Things and their Habitats</u></p>	<p><u>Living Things and their environments</u></p>	<p><u>Plants, Characteristics of life, Living things in their Environments.</u></p>



<p>differences between things that are living, dead, and things that have never been alive.</p>		<p>Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p>	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants, and animals</p>
<p><u>Beach and Sea Plants, Animals & Growth</u> 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</p>	<p><u>Living Things and their Habitats</u></p>	<p><u>Living Things and their environments</u> Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p><u>Plants, Characteristics of life, Living things in their Environments.</u> Give reasons for classifying plants and animals based on special characteristics</p>
<p><u>Plants, Animals & Growth Mini Beasts</u> Identify and name a variety of plants and animals in their habitats, including micro-habitats.</p>	<p><u>Living Things and their Habitats</u></p>		<p><u>Plants, Characteristics of life, Living things in their Environments.</u> Describe the life process of reproduction in some plants and animals</p>
<p><u>Mini Beasts</u> 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.</p>	<p><u>Living Things and their Habitats</u></p>	<p><u>Living Things and their environments</u> Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	




Biology: Animals including Humans			
KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Senior

<p><u>Farm Animals</u> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p>	<p><u>Animals and Humans 1</u></p>		
<p><u>Zoo Animals</u> Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p>	<p><u>Animals and Humans 1</u></p>		
<p><u>Myself & Senses</u> 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>	<p><u>Animals and Humans 2</u> PfA Health</p>	<p><u>Animals and Humans 1</u> Identify that humans and some other animals have skeletons and muscles for support, protection and movement PfA Health</p>	
<p><u>Growing</u> Find out about and describe the basic needs of Animals, including humans, including humans, for survival (water, food and air) PfA Health</p>	<p><u>Animals and Humans 2</u></p>		<p><u>Health and Exercise</u> Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p>

Biology: Animals including Humans

KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Seniors
<p><u>Myself & Senses</u> Identify, name, draw and label the basic parts of the human body and</p>	<p><u>Animals and Humans 2</u> PfA Health</p>		<p><u>Plants, Characteristics of life, Living things in their Environments.</u> Describe the ways in which nutrients and water are transported</p>



<p>say which part of the body is associated with each sense.</p>			<p>within Animals, including humans,</p> <p>Human Body Identify and name the main parts of the circulatory system, and explain the functions of the heart, blood vessels and blood. PfA Health</p>
<p>Zoo Animals Notice that animals, including humans, including humans, have offspring which grow into adults PfA Health</p>	<p>Animals and Humans 2 PfA Health</p> 		<p>Reproduction Describe the life processes of reproduction in some Animals, including humans PfA Health</p> <p>Plants, Characteristics of life, Living things in their Environments. Describe the changes as humans develop from birth to old age Describe the differences in the life cycles of mammal, amphibian, insect & bird</p>
<p>Myself & Senses Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p>Animals and Humans 2 PfA Health</p> 	<p>Animals and Humans 2 Describe the simple functions of the basic parts of the digestive system in humans PfA Health</p>	
<p>Zoo Animals Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p>	<p>Living Things and their Habitats</p> 	<p>Animals and Humans 2 identify that Animals, including humans, 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 PfA Health</p>	
		<p>Animals and Humans 2 describe the simple functions of the basic parts PfA Health of the digestive system in humans</p>	
		<p>Animals and Humans 2 Identify the different types of teeth in humans and their simple</p>	



		functions PfA Health	
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Biology: Evolution and inheritance			
KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Seniors
			Evolution and inheritance Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
		From 'The Earth (Rocks, Atmosphere): Describe in simple terms how fossils are formed when things that have lived are trapped within rock.	Identify how Animals, including humans and plants are adapted to suit their environment in different ways and that adaptation may lead to 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.
			Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.

Chemistry Materials:			
KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Seniors
Toys distinguish between an object and the material from which it is made	Everyday Materials their uses and properties distinguish between an object and the material from which it is made	Materials and Electricity compare and group materials together, according to whether they are solids, liquids or gases	Changing, separating & classifying materials 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
Toys describe the simple physical properties of a variety of	Sates of matter Everyday Materials their uses and properties	Materials and Electricity observe that some materials change state	

<p>everyday materials</p> <p>Identify and name a variety of everyday materials, including wood, metal, plastic, glass, metal, water and rock.</p>	<p>describe the simple physical properties of a variety of everyday materials</p> <p>Identify and name a variety of everyday materials, including wood, metal, plastic, glass, metal, water and rock.</p>	<p>when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C),</p>	
<p>Toys</p> <p>compare and group together a variety of everyday materials on the basis of their simple physical properties</p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p>	<p>Everyday Materials their uses and properties</p> <p>compare and group together a variety of everyday materials on the basis of their simple physical properties</p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p>		<p>Changing, separating & classifying materials</p> <p>give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p>
Sc3: Chemistry: Materials			
KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Seniors
<p>Toys</p> <p>(Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching)</p>	<p>Everyday Materials their uses and properties</p> <p>(Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching)</p>	<p>Materials and Electricity</p> <p>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>	<p>Changing, separating & classifying materials</p> <p>Acids, Metals, Rocks & Weathering</p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p>

			Demonstrate that dissolving , mixing and changes of state are reversible changes .
			<u>Changing, separating & classifying materials</u> Use knowledge of solids, liquids and gases to decide how mixtures might be separated , including through filtering, sieving and evaporating
Chemistry Materials:			
KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Seniors
			<u>Changing, separating & classifying materials</u> <u>Acids, Metals, Rocks & Weathering</u> 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

Chemistry The Earth : (Rocks, Atmosphere)			
KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Seniors
<u>Seasons</u> Observe changes across the seasons	<u>Seasons</u> Observe changes across the seasons	<u>Rocks & Fossils</u> Recognise that that soils are made from rocks and organic matter	
Observe and describe weather associated with the seasons and how day length varies.	Observe and describe weather associated with the seasons and how day length varies.	Describe in simple terms how fossils are formed when things that have lived are	


		trapped within rock.	
		Compare and group together different kinds of rocks on the basis of their simple physical properties	


Physics Motion and forces:			
KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Seniors
<u>Toys</u> <u>Transport</u>	<u>Forces and Magnets</u> Materials: Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		<u>Forces</u> explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
		<u>Forces and Motion</u> Notice that some forces need contact between two objects, but magnetic forces can act at a distance	<u>Forces</u> identify the effects of air resistance, water resistance and friction, that act between moving surfaces
			<u>Forces</u> Recognise that some mechanisms, including gears, pulleys, levers and springs, allow a smaller force to have a greater effect


		<u>Forces and Motion</u>	
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Compare how
things move on
different surfaces



Physics Waves: Light			
KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Seniors
		<u>Sound and Light</u> Notice that light is reflected from surfaces	<u>Earth, Space, Light and Sound</u> Recognise that light appears to travel in straight lines
		<u>Sound and Light</u> Recognise that light from the sun can be dangerous and that there are ways to protect their eyes	<u>Earth, Space, Light and Sound</u> 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
		<u>Sound and Light</u> Recognise that they need light in order to see things and that dark is the absence of light	<u>Earth, Space, Light and Sound</u> 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.
		<u>Sound and Light</u> Recognise that shadows are formed when the light from a light source is blocked by a solid object Find patterns that determine the size of shadows.	<u>Earth, Space, Light and Sound</u> use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. colours and the different frequencies of light, white light and prisms .

Physics Waves: Sound			
KS1		Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Seniors
		<u>Sound and Light</u> Identify how sounds are made, associating some of them with something vibrating <u>Sound and Light</u> Recognise that vibrations from sounds travel through	 <u>Earth, Space, Light and Sound</u>

		a medium to the ear	
		find patterns between the pitch of a sound and features of the object that produced it <u>Sound and Light</u> 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	 <u>Earth, Space, Light and Sound</u>

Energy and Magnetism:					
KS1		Lower KS2		Upper KS2	
Years 1&2	Junior	Middle		Seniors	
		<u>Energy and Magnetism</u> understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs		 <u>Energy and Electricity</u>	
		notice that some forces need contact between two objects and some forces act at a distance			
		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.			
		observe how magnets attract or repel each other and attract some materials and not others			
		Describe magnets as having two poles			
		Predict whether two magnets will attract or repel each other, depending on which poles are facing			

Physics Electricity:			
KS1		Lower KS2	
Years 1&2	Junior	Middle	Seniors
		<p><u>Electricity</u> identify common appliances that run on electricity</p>	
		<p><u>Electricity</u> construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p>	<p><u>Energy and Electricity</u> Use recognised symbols when representing a simple circuit in a diagram</p>
		<p><u>Electricity</u> 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</p>	<p><u>Energy and Electricity</u> associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p>
		<p><u>Electricity</u> recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p>	<p><u>Energy and Electricity</u> 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.</p>
		<p><u>Electricity</u> Recognise some common conductors and insulators, and associate metals with being good conductors.</p>	

Physics Earth & Space			
EYS	KS1	Lower KS2	Upper KS2
Years 1&2	Junior	Middle	Seniors
	<u>Seasonal changes</u> observe changes across the four seasons	<u>Earth and Space</u> describe the movement of the Earth and other planets relative to the Sun in the solar system 	<u>Earth, Space, Light and Sound</u>
	<u>Seasonal changes</u> observe and describe weather associated with the seasons and how day length varies.	<u>Earth and Space</u> describe the movement of the Moon relative to the Earth 	<u>Earth, Space, Light and Sound</u>
			<u>Earth, Space, Light and Sound</u> describe the Sun, Earth and Moon as approximately spherical bodies
			<u>Earth, Space, Light and Sound</u> use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.