



Map of the Science Curriculum

What are the Knowledge, Skills and Understanding we want our pupils to gain?

September 2022

Intent of our Science curriculum – At Pensford Primary School we believe that a high quality science curriculum provides the building blocks for understanding the world through the specific disciplines of biology, chemistry and physics. This curriculum is built upon both pillars Language and Reasoning. Through the exploration of key knowledge and concepts, the children should be encouraged to recognise the power of explanation and reasoning, and develop a sense of excitement and curiosity about science. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave and analyse causes. Science in our school is about developing children’s knowledge and skills that enable them to make sense of the world in which they live through investigation, as well as using and applying process and reasoning skills. They are immersed in scientific vocabulary, which aids children’s knowledge and understanding of the topic they are studying.

Year A

	Term 1	Term 2	Term 3	Term 4	Term 5 & 6
EYFS	<p><i>Teaching of science is not discreet in the Early Years but children will be encouraged to think critically, (having their own ideas; making links; planning, doing, reviewing) and will learn about ‘Understanding the World’ (including people, living things and the environment, weather and the natural world) through exploration, observations, story-telling and other first-hand experiences and conversations in order to make sense of their physical world and their community.</i></p> <p>*UtW – (T1-T2) Eliciting and building upon the range of children’s personal experiences to help increases their knowledge and sense of the world around them, particularly thinking about similarities and differences between the past and present – using their own families and local community as a starting point.</p> <p>*UtW links – (T3 -T6) After close observation, draw pictures of the natural world, including animals and plants. Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water. Encourage focused observation of the natural world. Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in. Name and describe some plants and animals children are likely to see, encouraging children to recognise familiar plants and animals whilst outside. Guide children’s understanding by draw children’s attention to the weather and seasonal features. Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons.</p>				

	*UtW links – (throughout the year) Take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change. Thinking about different religious and cultural communities. Where possible have real life experiences and visits (parks, churches, libraries etc); meetings with ‘People who can help us’ (police officers, nurses, vets etc). firefighters. Ongoing access to listen to a broad selection of stories, non-fiction, rhymes and poems.				
KS1	<p>Topic – Who’s coming to tea? (Plan, year 1 and 2 animals including humans) To 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>To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (PSHE link)</p>	<p>Topic – Fire</p>	<p>Topic – How do we get to....? (Plan, year 1 Everyday materials and year 2 uses of everyday materials) Year 2 activities To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p>Be able to describe the importance for humans of exercise and hygiene. (PSHE link)</p>	<p>Topic – Where are all the wild things? (Plan, year 1 and 2 animals including humans) To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>To identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>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. (PSHE link) To 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>Topic – Once upon a time (Plan, year 1 and year 1 plants) To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>To identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>To observe and describe how seeds and bulbs grow into mature plants.</p> <p>To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. To explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>To identify and name a variety of plants.</p>

				<p>To notice that animals, including humans, have offspring which grow into adults.</p> <p>To find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p>	<p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (PSHE link)</p>
<p>Lower KS2</p>	<p>Topic – North, East, South, West Plan: Year 3 Topic: Forces and magnets Compare how things move on different surfaces.</p> <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>Compare and group together a variety of everyday materials on the basis on whether they are attracted to a magnet, and identify some magnetic materials.</p>	<p>Topic – Rise of the Robots Plan: Year 4 Topic: Electricity Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>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>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>Topic – Extreme Survival Plan: Year 4 Topic: Living things and their habitats 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>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>Topic – Grown your own Plan: Year 3 Topic: Rocks Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>Recognise that soils are made from rocks and organic matter.</p>	<p>Topic – Escape from Pompeii (...with a snap, crackle and pop) Plan: Year 3 Topic: Light Recognise that they need light in order to see things and that the dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Find patterns in the way that the size of shadows changes.</p>

	<p>Describe magnets as having two poles.</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>	<p>Recognise some common conductors and insulators, and associate metals with being good conductors.</p>			
Upper KS2	<p>Topic – Chocolate Properties and changes of materials Plan: Year 5, Topic: Properties and changes of materials</p> <p>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.</p> <p>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. give reasons, based on evidence from comparative</p>	<p>Topic – Why aorta keep fit Animals including humans Plan: Year 5 & 6, Topic: Animals, including humans</p> <p>Describe the changes as humans develop to old age.</p> <p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>Topic – Marvellous Mayans Living things and their habitats Plan: Year 5, Topic: Living things and their habitats</p> <p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals. (PSHE link)</p>	<p>Topic – Were we a fish Evolution and Inheritance Plan: Year 6, Topic: Evolution and inheritance</p> <p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	Topic – Dragon’s Den

	<p>and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>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>				
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Year B

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EYFS	<p><i>Teaching of science is not discreet in the Early Years but children will be encouraged to think critically, (having their own ideas; making links; planning, doing, reviewing) and will learn about ‘Understanding the World’ (including people, living things and the environment, weather and the natural world) through exploration, observations, story-telling and other first-hand experiences and conversations in order to make sense of their physical world and their community.</i></p> <p>*UtW – (T1-T2) Eliciting and building upon the range of children’s personal experiences to help increases their knowledge and sense of the world around them, particularly thinking about similarities and differences between the past and present – using their own families and local community as a starting point.</p> <p>*UtW links – (T3 -T6) After close observation, draw pictures of the natural world, including animals and plants. Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water. Encourage focused observation of the natural world. Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in. Name and describe some plants and animals children are likely to see, encouraging children to recognise familiar plants and animals whilst outside. Guide children’s understanding by draw children’s attention to the weather and seasonal features. Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons.</p>				

	*UtW links – (throughout the year) Take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change. Thinking about different religious and cultural communities. Where possible have real life experiences and visits (parks, churches, libraries etc); meetings with ‘People who can help us’ (police officers, nurses, vets etc). firefighters. Ongoing access to listen to a broad selection of stories, non-fiction, rhymes and poems.				
KS1	<p>Topic - Our amazing world (space) (Plan, Year 2 living things and their habitats) Living things and their habitats</p> <p>To 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>Identify and name a variety of plants and animals in their habitats, including micro- habitats.</p> <p>To work scientifically by: sorting and classifying minibeasts.</p>	<p>Topic – Toys Materials (Plan, year 1 Everyday materials and year 2 uses of everyday materials) Year 1 activities</p> <p>To distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>To describe the simple physical properties of a variety of everyday materials.</p> <p>To compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock,</p>	<p>Topic – We are Artists</p>	<p>Topic - maps and routes</p>	<p>Topic – Seasonal changes (Plan, Year 1 Seasonal changes)</p> <p>To observe changes across the four seasons.</p> <p>To observe and describe weather associated with the seasons and how day length varies.</p>

		paper and cardboard for particular uses			
Lower KS2	<p>Topic – Going Global Plan: Year 3 Topic: Animals including humans 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.</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>Topic – Raiders and Traders Plan: Year 4 Topic: States of matter Compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>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).</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Topic – Walk like an Egyptian Plan: Year 4 Topic: Animals, including humans Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Identify the different types of teeth in humans and their simple functions.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>Topic – Who is roaming in the rainforest? Plan: Year 3 Topic: Plants Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>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>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>	<p>Topic – Down in the Valley Plan: Year 4 Topic: Sound Identify how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases</p>
Upper KS2	<p>Topic – What’s out there? Earth and Space Plan: Year 5, Topic: Earth and Space Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p>	<p>Topic – Who let the gods out? Forces and Magnets Plan, Year 5, Topic: Forces Compare how things move on different surfaces notice that some forces need contact between two</p>	<p>Topic – Is it me or is it hot in here? Living things and their habitats Plan: Year 6, Topic: Living things and their habitats Describe how living things are classified into broad</p>	<p>Topic – Victorious Victorians?</p>	<p>Topic – How steady is your hand? Plan: Year 6, Topics: Light and Electricity Electricity Associate the brightness of a lamp or the volume of a buzzer with the number and</p>

	<p>Describe the movement of the Moon relative to the Earth.</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p>objects, but magnetic forces can act at a distance</p> <p>observe how magnets attract or repel each other and attract some materials and not others.</p> <p>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.</p> <p>Describe magnets as having two poles.</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>recognise that some mechanisms, including levers, pulleys and gears , allow a smaller force to have a greater effect.</p>	<p>groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p>		<p>voltage of cells used in the circuit.</p> <p>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>Use recognised symbols when representing a simple circuit in a diagram.</p> <p>Light</p> <p>Recognise that light appears to travel in straight lines.</p> <p>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.</p> <p>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.</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p> <p>Revisit for Y6 and introduction for Y5- Plan: Year 5, Topic: Living things and their habitats</p>
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