

Whole School Science Intent Overview

Yellow Phase Foundations for Science (End of Year Expectations)


Knowledge ~ Learners should know:	Skills ~ Learners should be able to:
<p>The names of different body parts & what they are used for</p> <p>How humans & other animals grow & change</p> <p>The different parts of a flower</p> <p>Some similarities & differences between contrasting environments in the natural world around them, drawing on their experiences & what has been read in class</p> <p>Some of the names & key features of the four seasons</p> <p>How materials can change the different factors that support their overall health & wellbeing</p>	<p>Describe what they see, hear & feel whilst outside</p> <p>Use talk to help work out problems & organise thinking & activities</p> <p>Explain how things work & why they might happen</p> <p>Plant a seed & care for a plant</p> <p>Listen to & talk about selected non-fiction texts to develop using the scientific knowledge & vocabulary introduced</p> <p>Explore the natural world around them, making observations & drawing pictures of animals & plants</p> <p>Sort & group objects according to particular characteristics</p>

Green Phase Science Overview

Year 1

Autumn		Spring		Summer	
Seasonal Changes	Senses	Everyday Materials		Plants	Animals, including humans
<p>Name, observe & compare the four seasons: spring, summer, autumn & winter</p> <p>Identify the typical weather for each season & make tables & charts about the information they collect (temperature, rainfall & wind direction)</p> <p>Describe & compare weather associated with the seasons</p> <p>Complete picture & bar charts showing the different hours of sunlight from season to season</p> <p>Describe how day length varies between seasons</p> <p>Investigate the changes that happen across the four seasons & identify the effects on plants, & animals</p> <p>Use observations & ideas to suggest answers to questions</p> <p>Identify how seasons determine how 'our changing world' varies depending on the season by examining evidence collected</p> <p>Describe the impact that seasonal change has on our lives</p> <p>Gather & record data to help in answering questions</p> <p>Describe the weather & how it varies at different seasons of the year</p>	<p>Name, draw & label the basic parts of the human body</p> <p>Record data using simple measurements & equipment</p> <p>Gather & record data to help in answering questions</p> <p>Name the five senses: touch, taste, smell, sight & hearing & describe activities that use each sense</p> <p>Performing simple tests</p> <p>Identify the body part linked to each sense & explain how it is used</p> <p>Perform simple tests to investigate each of the five senses</p> <p>Use observation & ideas to suggest answers to questions</p> <p>Ask simple questions & recognise that they can be answered in different ways</p>	<p>Identify & classify name a variety of everyday materials such as: plastic, glass, water, metal, wood & rock</p> <p>Perform simple tests to investigate questions e.g. what is the best material for an umbrella & why?</p> <p>Compare & group everyday materials by their properties (hard, soft, rough, smooth, waterproof, bendy etc.)</p> <p>Investigate different objects & understand that they are made from a material, e.g. a book is made from paper</p> <p>Identify natural & manmade materials & their uses</p> <p>Use observations about materials to make decisions about their use for different purposes & explain why</p> <p>Distinguish between an object & the material from which it is made</p> <p>Describe the simple physical properties of a variety of everyday materials</p> <p>Investigate the stretchiness & flexibility of selected materials</p> <p>Explore the properties of absorbency & waterproofing</p> <p>Perform simple tests to investigate scientific questions (e.g. what is the best material for a dog basket & why?), gathering & recording data to help in them</p>	<p>Observe, compare & contrast leaves & trees across the seasons, noticing any changes that may have occurred</p> <p>Recognise that flowers seen around school vary depending on the season</p> <p>Identify, name, & describe some familiar wild & garden plants & trees in the local environment</p> <p>Compare a variety of familiar flowering plants & group them according to the similarities in their flowers</p> <p>Observe & describe changes to plants that take place over time & use these to answer question</p> <p>Describe & compare the root systems of a variety of familiar plants</p>	<p>Identify, name, describe & compare the structure of a variety of common animals including fish, amphibians, reptiles, birds & mammals</p> <p>Classify & sort animals based on their characteristics</p> <p>Describe & compare different kinds of fish & birds</p> <p>Identify & name different animals that are carnivores, herbivores & omnivores</p> <p>Describe how the lives of nocturnal animals differ from those of animals seen during the daytime</p> <p>Scientist & Inventor Study: Carl Hagenbeck - inventor of the first zoo</p>	
<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>


Year 1 ~ End of Year Expectations

Knowledge ~ Learners should know:	Skills ~ Learners should be able to:
<p>How to sort by living & non-living things</p> <p>Parts of the human body that can be seen</p> <p>The five senses & the body parts associated with them</p> <p>Some common wild & garden plants</p> <p>That plants have petals, stem, leaves & roots & trees have roots, a trunk, branches & leaves</p> <p>The name of the materials an object is made from & their properties</p> <p>The seasons & the type of weather in each season</p>	<p>Classify a range of animals by amphibian, reptile, mammal, fish & birds & by what they eat (carnivore, herbivore & omnivore)</p> <p>Set up tests to investigate different factors such as what materials keep them warm</p> <p>Make tables & charts to record data</p> <p>Explain what they have found out & learned from a scientific investigation</p> <p>Measures (within Year 1 mathematical limits) to help find out more about the investigations undertaken</p> <p>Enquiry concepts:</p> <p></p>

Throughout and at the end of every planned unit of work all learners will have been assessed against the relevant year group expectations (knowledge and skills) utilising bespoke Kahoot low-stakes quizzes assessments, the outcomes of discussions (discussion books), workbooks and appropriate assessment tasks.

Autumn		Spring	Summer	
Uses of everyday materials	Living things & their habitats	Animals including humans	Plants	Living things & their habitats
<p>Name & identify everyday materials & describe their properties & uses</p> <p>Identify, group & classify the uses of materials around us</p> <p>Explore how the same material can be used for a variety of purposes & how different materials can be used for the same purpose</p> <p>Describe the simple physical properties of a variety of everyday materials</p> <p>Investigate the stretchiness & flexibility of selected materials</p> <p>Carrying out simple comparative & fair tests to explore how some objects can change shape by bending, twisting, squashing & stretching</p> <p>Explore the properties of absorbency & waterproofing</p> <p>Understand how the shape & use of materials can be changed through recycling</p> <p>Scientist & Inventor Study: Charles Macintosh - chemist who invented waterproof material</p>	<p>Identify, classify & sort things based on whether they are living, dead, or have never been alive</p> <p>Observe & identify what plants & animals live in different habitats</p> <p>Observe closely, gather & record data to investigate the changes to the number of animals found in a habitat during the year</p> <p>Understand how animals depend on each other for food</p> <p>Recognise & compare the main components of some different habitats</p> <p>Describe how different habitats provide for the basic needs of different kinds of animals & plants</p> <p>Describe how animals obtain their food from plants & other animals</p> <p>Complete simple food chains & understand that they always include a plant</p>	<p>Describe the basic needs of humans & animals including water, food & air</p> <p>Ask questions about what human need to stay healthy & what things animals need for survival</p> <p>Identify the different food groups & understand how to have a healthy balanced diet</p> <p>Understand, observe & record how humans & animal offspring grow into adults, e.g. egg, chick, chicken & egg, caterpillar, pupa, butterfly etc.</p> <p>Set up a test, gather & record data to find out if we are faster when we are older</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food & hygiene</p> <p>Investigate the impact of exercise on the human body</p>	<p>Identify, group & classify which seeds will grow into which plants</p> <p>Ask questions to help find out about growing plants from seeds</p> <p>Plan & set up an investigation into how seeds should be planted</p> <p>Record accurate changes that happen to seeds as they grow</p> <p>Present data on a bar chart & use it to answer questions</p> <p>Decide how to improve the condition of an unhealthy plant</p> <p>Describe the different stages of germination</p> <p>Observe & describe how seeds & bulbs grow into mature plants</p> <p>Identify what plants need for healthy growth</p>	<p>Research & describe a variety of habitats including: ocean, woodland, arctic & rainforest habitats</p> <p>Identify how living things are suited to their habitats & match a variety of animals & plants to their habitat</p> <p>Investigate the changes to the number of animals found in a habitat during the year</p> <p>Compare & contrast the findings of how habitats change over time</p> <p>Identify & describe a selection of micro-habitats & name a variety of plants & minibeasts that live in different micro-habitats</p> <p>Observe & gather & record data to investigate the preferred habitat of minibeasts</p>
<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>Develop their willingness to reflect on their experiences & that of others</p> <p>UNCRC Article: Article 24: Every child has the right to the best possible health. Governments must provide good quality health care, clean water, nutritious food, & a clean environment</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>

Year 2 ~ End of Year Expectations

Knowledge ~ Learners should know:	Skills ~ Learners should be able to:
<p>How a specific habitat provides for the basic needs of things living there (plants & animals)</p> <p>Some different sources of food for animals</p> <p>The basic stages in a life cycle for animals (including humans)</p> <p>Why exercise, a balanced diet & good hygiene are important for humans</p> <p>How seeds & bulbs grow into plants</p> <p>What plants need in order to grow & stay healthy (water, light & suitable temperature)</p> <p>How materials can be changed by squashing, bending, twisting & stretching</p> <p>Why a material might or might not be used for a specific job</p>	<p>Match living things to their habitat</p> <p>Classify things by living, dead or never lived</p> <p>Explain a simple food chain</p> <p>Use scientific equipment such as thermometers to record data</p> <p>Use microscopes to find out more about small creatures & plants</p> <p>Set up fair tests to investigate different variables</p> <p>Draw conclusions from fair tests & explain what has been found out</p> <p>Use measures (within Year 2 mathematical limits) to help find out more about the investigations being carried out</p> <p>Enquiry concepts:</p> <p></p>


Throughout and at the end of every planned unit of work all learners will have been assessed against the relevant year group expectations (knowledge and skills) utilising bespoke Kahoot low-stakes quizzes assessments, the outcomes of discussions (discussion books), workbooks and appropriate assessment tasks.

Red Phase Science Overview

Year 3

Autumn		Spring		Summer	
Animals, including humans	Rocks	Forces & Magnets	Light	Plants	
<p>Identify that animals, including humans, need the right types & amount of nutrition & that they cannot make their own food: they get nutrition from what they eat</p> <p>Classify different foods & understand what a balanced diet consists of</p> <p>Compare & contrast the diets of different animals & decide how to group them according to what they eat</p> <p>Identify the main body parts associated with the skeleton & muscles & explain their functions</p> <p>Identify & group animals with & without skeletons & observe & compare their movements</p> <p>Identify different muscles in our bodies & their functions</p> <p>Identify that humans & some other animals have skeletons & muscles for support, protection & movement</p> <p>Setting up simple practical enquiries, comparative & fair tests to investigate muscle & skeleton functions</p> <p>Complete a scientist study: Marie Curie</p> <p>Complete an animals, including humans, knowledge organiser</p>	<p>Compare & group together different kinds of rocks on the basis of their appearance & simple physical properties</p> <p>Recording findings from observing different rocks using simple scientific language, drawings & labelled diagrams</p> <p>Observe & examine rocks in the environment exploring how & why they have changed over time</p> <p>Use a microscope or hand lens to identify & classify rocks according to whether they have grains or crystals & whether they have fossils in them</p> <p>Research & identify the different kinds of living things whose fossils are found in sedimentary rock & describe how they are formed</p> <p>Explore & investigate differences & similarities between soils & recognise that soils are made from rocks & organic matter</p> <p>Complete a scientist study: Mary Anning - British Palaeontologist</p> <p>Complete a rocks knowledge organiser</p>	<p>Compare how things move on different surfaces by investigating friction</p> <p>Understand that some forces need contact between two objects, but magnetic forces can act at a distance</p> <p>Investigate, compare & group together a variety of everyday materials on the basis of whether they are attracted to a magnet, & identify some magnetic materials</p> <p>Explain that magnets have 2 poles & how magnets attract or repel each other & attract some materials & not others, through observation</p> <p>Predict whether 2 magnets will attract or repel each other, depending on which way the poles are facing</p> <p>Investigate the strength of magnets & find a fair way to compare them</p> <p>Explore the behaviour & everyday uses of different magnets (bar, ring, button & horseshoe)</p> <p>Complete a forces & magnets knowledge organiser</p>	<p>Recognise that light is needed to see things & that dark is the absence of light</p> <p>Investigate light reflecting from surfaces & explore what happens when light reflects off a mirror or other reflective surfaces</p> <p>Recognise that light from the sun can be dangerous & know how & why their eyes should be protected</p> <p>Explain & investigate how shadows are formed when the light from a light source is blocked by an opaque object</p> <p>Investigate, measure & identify patterns in shadows & decide what can affect change in shadows</p> <p>Complete an inventor study: Arthur James Wilson</p> <p>Complete a light knowledge organiser</p>	<p>Describe what we know about the different parts of plants & to ask questions about plants for further investigation</p> <p>Make detailed observations of the similarities & differences in a variety of leaves, & relate these to the function of leaves</p> <p>Plan & set up a fair test investigation to find out the effect of removing the leaves from a growing plant</p> <p>Describe in detail the similarities & differences in a variety of roots, & to relate these to the function of roots</p> <p>Investigate the way in which water is transported within plants & understand why stems are important</p> <p>Explore the part flowers play in the life cycle of flowering plants</p> <p>Describe & model the process of insect pollination</p> <p>Demonstrate understanding of methods of seed dispersal</p> <p>Investigate & explore the requirements of plants for life & growth & how they vary from plant to plant</p> <p>Investigate, compare & record the effect of different factors on plant growth</p> <p>Explain how the needs & functions of a plant alter & change</p> <p>Begin to understand the idea that plants can make their own food</p> <p>Complete a scientist & inventor study: George Washington Carver</p> <p>Complete a plants knowledge organiser</p>	
<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 24: Every child has the right to the best possible health. Governments must provide good quality health care, clean water, nutritious food, & a clean environment</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must develop every child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must develop every child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must develop every child's respect for the environment.</p>


Year 3 ~ End of Year Expectations

Knowledge ~ Learners should know:	Skills ~ Learners should be able to:
<p>The importance of a nutritious, balanced diet & how nutrients, water & oxygen are transported within animals, humans & plants</p> <p>The function of the skeletal & muscular system of a human</p> <p>The function of different parts of flowering plants & trees</p> <p>The plant life cycle</p> <p>How soil is made & how fossils are formed</p> <p>The difference between sedimentary, metamorphic & igneous rock</p> <p>How magnets attract & repel</p> <p>That dark is the absence of light & that light is needed in order to see & is reflected from a surface</p> <p>The danger of direct sunlight & how to keep protected</p>	<p>Compare & group rocks based on their appearance & physical properties, giving reasons</p> <p>Describe how objects move on different surfaces</p> <p>Demonstrate how a shadow is formed & explain how a shadow changes shape</p> <p>Use research to develop scientific ideas further</p> <p>Set up fair tests with different variables using scientific equipment</p> <p>Use bar charts, tally charts & other statistical tables to record data</p> <p>Draw conclusions from data & amend predictions according to findings</p> <p>Enquiry concepts:</p> 

Throughout and at the end of every planned unit of work all learners will have been assessed against the relevant year group expectations (knowledge and skills) utilising bespoke Kahoot low-stakes quizzes assessments, the outcomes of discussions (discussion books), workbooks and appropriate assessment tasks.

Autumn		Spring	Summer	
Electricity	States of matter	Animals, including humans	Sound	Living things & their habitats
<p>Identify common appliances that run on electricity</p> <p>Construct a simple electrical circuit, name its basic parts (cells, wires, bulbs, switches & buzzers) & draw a circuit as a pictorial representation</p> <p>Identify whether or not a lamp will light in a simple series circuit & correct problems within a circuit</p> <p>Recognise that a switch opens & closes a circuit & associate this with whether or not a lamp lights in a simple series circuit</p> <p>Setting up a practical enquiry to investigate how bulbs can get brighter in a circuit, recording & presenting findings using drawings, labelled diagrams, keys, bar charts, & tables</p> <p>Recognise some common conductors & insulators & associate metals with being good conductors</p> <p>Understand how to work safely with electricity</p> <p>Complete a scientist & inventor study: Thomas Edison - inventor of the lightbulb</p> <p>Complete an electricity knowledge organiser</p>	<p>Compare & group materials together, according to whether they are solids, liquids or gases, developing simple descriptions of these</p> <p>Observe that some materials change state when they are heated or cooled & measure or research the temperature at which this happens in degrees Celsius</p> <p>Explain observations of air using scientific knowledge about materials</p> <p>Identify the part played by evaporation & condensation in the water cycle & associate the rate of evaporation with temperature</p> <p>Making systematic & careful observations & record evaporation over time to investigate the effect of temperature on evaporation</p> <p>Complete a states of matter knowledge organiser</p>	<p>Identify & describe the main body parts associated with the digestive system & their functions (mouth, tongue teeth, oesophagus, stomach & small & large intestine)</p> <p>Investigate the role of the digestive system, gathering, recording, & presenting data in a variety of ways to help in answering questions</p> <p>Identify the different types of teeth in humans & their simple functions, making systematic & careful observations</p> <p>Compare the teeth of carnivores & herbivores & suggest reasons for differences</p> <p>Understand what damages teeth & how to look after them</p> <p>Construct & interpret a variety of food chains, identifying producers, predators & prey</p> <p>Understand the impact humans can have on food chains</p> <p>Complete an animals, including humans knowledge organiser</p>	<p>Identify how sounds are made, associating them with something vibrating</p> <p>Recognise & explain how vibrations from sounds travel through a medium to the ear</p> <p>Find patterns between the pitch of a sound & features of the object that produced it & between the volume of a sound & the strength of the vibrations that produced it</p> <p>Recognise that sounds get fainter as the distance from the sound source increases & use the results to draw simple conclusions</p> <p>Find patterns in sounds that are made by different objects e.g. saucepan lids of different sizes or elastic bands of different thicknesses & report on findings from these enquiries</p> <p>Investigate materials to find the best insulation against sound, gathering & recording data to answer questions</p> <p>Complete a sound knowledge organiser</p>	<p>Make observations of leaves in order to classify them & record findings using simple scientific language, drawings, labelled diagrams, keys, & tables</p> <p>Look for similarities & differences between deciduous trees</p> <p>Make observations of flowers that appear at different times of the year & to classify & identify them</p> <p>Give examples of positive & negative ways in which humans change the environment</p> <p>Recognise that environments can change & that these changes can sometimes pose dangers to living things</p> <p>Investigate the effect of litter on different habitats, gathering, recording, & presenting data in a variety of ways to help in answering questions</p> <p>Complete a scientist study: Gerald Durrell - English Conservationist</p> <p>Complete a living things & their habitats knowledge organiser</p>
<p>British Values: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Values: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Values: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 24: Every child has the right to the best possible health. Governments must provide good quality health care, clean water, nutritious food, & a clean environment</p>	<p>British Values: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Values: Develop an interest in investigating & offering reasoned views about moral & ethical issues</p> <p>UNCRC Article: Article 29: Education must develop every child's respect for the environment.</p>

Year 4 ~ End of Year Expectations

Knowledge ~ Learners should know:	Skills ~ Learners should be able to:
<p>The parts of the human digestive system & the functions of the organs within it</p> <p>The different types of human teeth & their functions</p> <p>How changes to an environment could endanger living things</p> <p>The temperature at which materials change state & know how some materials can change state</p> <p>The part played by evaporation & condensation in the water cycle</p> <p>Appliances that require electricity to function</p> <p>The components in a series circuit</p> <p>The difference between a conductor & an insulator</p> <p>How sound is made, travels & what happens to a sound as it travels away from its source</p>	<p>Construct food chains to identify producers, predators & prey</p> <p>Use classification keys to group, identify & name living things</p> <p>Group materials based on their state of matter (solid, liquid or gas)</p> <p>Construct a series circuit</p> <p>Plan & carry out investigations with more than one variable</p> <p>Gather & record data using statistical charts</p> <p>Use scientific equipment to measure & record data</p> <p>Make predications based on plausible reasoning & amend them based on the findings</p> <p>Draw conclusions to gain a better understanding of scientific information & processes</p> <p>Enquiry concepts:</p> 


Throughout and at the end of every planned unit of work all learners will have been assessed against the relevant year group expectations (knowledge and skills) utilising bespoke Kahoot low-stakes quizzes assessments, the outcomes of discussions (discussion books), workbooks and appropriate assessment tasks.

Blue Phase Science Overview

Year 5

Autumn		Spring	Summer	
Earth & Space	Living things & their habitats	Properties & changes of materials	Forces	Animals (including humans)
<p>Describe the shapes, positions & movement of the planets in the solar system & some of the differences between these & stars</p> <p>Use a wide range of secondary sources to understand & explain the effect of the Earth's rotation in space</p> <p>Use the idea of the Earth's rotation to explain day & night & the apparent movement of the Sun across the sky</p> <p>Explain why sunrise & sunset occur at different moments in time in different parts of the world</p> <p>Explain how the Earth's tilt affects the times of sunrise & sunset in different places at different times of the year</p> <p>Complete an astronomer study: Copernicus - who placed the sun at the centre of the universe & identifying scientific evidence that has been used to support or his ideas</p> <p>Complete an Earth & space knowledge organiser</p>	<p>Observe, describe, compare & identify differences in the life cycles of a mammal, an amphibian, an insect & a bird</p> <p>Explore & describe ways in which humans are using science to help endangered animals to complete their life cycles & increase their population numbers</p> <p>Describe the process of sexual reproduction in many flowering plants, naming parts of the flower & explaining their importance within the process</p> <p>Grow their new plants from a parent plant & collect & compare data from their experiment, reporting & presenting findings from enquiries</p> <p>Investigate ways in which crop yield might be improved</p> <p>Complete a naturalist & animal behaviourist study: Sir David Attenborough & Jane Goodhall</p> <p>Complete a living things & their habitats knowledge organiser</p>	<p>Classify a variety of materials according to their properties</p> <p>Compare & contrast different solids & liquids based on their properties</p> <p>Identify the properties of different metals & plastics & describe how these properties make them suitable for particular uses</p> <p>Explore, compare & group together everyday materials based on their properties - relating this to magnetism & electricity</p> <p>Plan a fair test to investigate different carrier bags & collect evidence to make recommendations regarding their use, including explanation of & degree of trust in results</p> <p>Recognise that materials are used in many different ways & for particular purposes within buildings</p> <p>Explain that materials can mix & to demonstrate that mixtures of solid materials can be separated by the technique of sieving</p> <p>Identify through investigation some solids that dissolve & others that do not, & describe how to tell that a solid has dissolved</p> <p>Use knowledge of solids, liquids & gases to decide how mixtures might be separated through filtering & sieving</p> <p>Describe different changes in materials when they are brought together & to be able to recognise them as reversible or non-reversible</p> <p>Explain that some changes result in the formation of new materials, & that this kind of change is not usually reversible</p> <p>Plan & set up an observation over time to investigate the conditions required for iron to rust</p> <p>Complete a chemist study: Spencer Silver who invented glue</p> <p>Complete a properties & changes of materials knowledge organiser</p>	<p>Measure friction between moving surfaces & investigate how surface area & materials affect friction</p> <p>Accurately measure forces using a range of scientific equipment</p> <p>Explore, compare & explain how the force of gravity makes unsupported objects fall</p> <p>Complete scientist studies: Aristotle vs Galileo ~ compare their theories of mass & gravity & identify scientific evidence that has been used to support or refute their ideas</p> <p>Investigate how forces can change the direction, speed & motion of an object</p> <p>Plan & carry out a fair test to investigate how to slow down a falling object</p> <p>Identify, measure & explain the effects of water resistance & up-thrust</p> <p>Explain the relationship between the mass of an object & the force of gravity</p> <p>Investigate how to reduce a force using pulleys & levers</p> <p>Explain how gears allow a smaller force to have a greater affect</p> <p>Recognise that some mechanisms allow a smaller force to have a greater effect</p> <p>Complete a forces knowledge organiser</p>	<p>Describe the life process of reproduction in mammals & birds & recognise this process as sexual reproduction</p> <p>Identify the changes as humans develop to old age</p> <p>Recognise patterns in data about the life cycles of humans & other mammals</p> <p>Learn about the changes experienced in puberty</p> <p>Complete a timeline to show stages in growth & development of humans (from a baby to old age)</p> <p>Research, identify & compare the gestation periods of different animals & compare to humans, reporting & presenting findings from enquiries, including conclusions, causal relationships & explanations of & degree of trust in results</p> <p>Complete an animals (including humans) knowledge organiser</p>
<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article 29: Education must develop every child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article 29: Education must develop every child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article 27: Every child has the right to a standard of living that is good enough to meet their physical & social needs & support their development.</p>


Year 5 ~ End of Year Expectations

Knowledge ~ Learners should know:	Skills ~ Learners should be able to:
<p>The life cycle of different living things & the differences between them</p> <p>The process of reproduction in plants & animals</p> <p>Changes as humans develop from birth to old age</p> <p>How a material dissolves to form a solution</p> <p>Reversible & irreversible changes</p> <p>What gravity is & its impact on our lives</p> <p>The effect of air resistance, water resistance & friction</p> <p>Forces & motion of mechanical devices such as levers & gears</p> <p>How a simple pulley works</p> <p>The movement of the Earth & other planets relative to the Sun</p> <p>The movement of the Moon relative to the Earth</p>	<p>Compare properties of everyday materials</p> <p>Describe the Sun, Earth & Moon (using the term spherical)</p> <p>Demonstrate how night & day are created</p> <p>Plan & set up investigations & identifying how to make sure it is a fair test</p> <p>Recognise the different variables within an investigation</p> <p>Record data in a range of ways including diagrams, labels, classification keys, tables, scatter graphs & bar & line graph</p> <p>Draw scientific conclusions from data & use this to inform further evidence & discussions</p> <p>Enquiry concepts:</p> 

Throughout and at the end of every planned unit of work all learners will have been assessed against the relevant year group expectations (knowledge and skills) utilising bespoke Kahoot low-stakes quizzes assessments, the outcomes of discussions (discussion books), workbooks and appropriate assessment tasks.

Autumn		Spring		Summer
Animals including Humans	Living Things & their Habitats	Evolution & Inheritance	Electricity	Light
<p>Identify & name the main parts of the human circulatory system</p> <p>Describe the functions of the heart, blood vessels & blood</p> <p>Recognise the impact of diet, exercise, mental wellbeing & lifestyle on health</p> <p>Conduct an investigation into the effect of exercise on heart rate, taking repeated readings to improve measurement accuracy, recording data & results of using line graphs, & presenting findings including causal relationships</p> <p>Understand how drugs & other substances can be harmful to the human body</p> <p>Explore the work of scientists & scientific research about the relationship between diet, exercise, drugs, lifestyle & health</p> <p>Describe the ways in which nutrients & water are transported within animals, including humans</p> <p>Complete animals (including humans) knowledge organizer</p>	<p>Describe how living things are classified into groups based on observable characteristics & based on similarities & differences</p> <p>Observe & classify animals into invertebrates, vertebrates & give reasons why living things are placed in one group & not another</p> <p>Recognise that micro-organisms are groups of living things & explain what they are</p> <p>Planning different types of enquiries to Investigate the growth of microorganisms within different environments, recognising & controlling variables where necessary & presenting findings from enquiries, including explanations of & degree of trust in results</p> <p>Complete a scientist study: Carl Linnaeus – a Swedish botanist, a pioneer of classification</p> <p>Research unfamiliar plants & animals & Give reasons for classifying plants & animals based on specific characteristics</p> <p>Complete living things & their habitats knowledge organizer</p>	<p>Recognise that living things have changed over time & that fossils provide information about living things that inhabited the Earth</p> <p>Millions of years ago</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments about evolution</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary & are not identical to their parent</p> <p>Planning a scientific enquiry to investigate inherited & environmental traits in animals & humans</p> <p>Identify how animals & plants are adapted to suit their environment in different ways & adaptation may lead to evolution</p> <p>Complete a scientist study: Charles Darwin & Alfred Wallace – evolution theories</p> <p>Complete evolution & inheritance knowledge organizer</p>	<p>Represent a simple circuit in a diagram & describe how it works</p> <p>Use a switch in a simple circuit, show it in a diagram & describe how it works</p> <p>Demonstrate the effects of changing the current flowing through components in a circuit</p> <p>Demonstrate & apply learning about adding & changing components in circuits, reporting & presenting findings from enquiries</p> <p>Research how electricity is generated & transmitted to the classroom, & discuss electricity generation in the future</p> <p>Complete an electricity knowledge organiser</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>Apply understanding of how light travels to explain how a periscope & other applications of mirrors work</p> <p>Recognise that whilst light does travel in straight lines, sometimes it changes direction when travelling from one thing into another</p> <p>Understand that white light is made of many colours & these can be separated out</p> <p>Investigate the relationship between light sources, objects & shadows by making & using shadow puppets</p> <p>Identify the variables that affect the size of a shadow, & plan a fair test to investigate one of them, recognising & controlling variables where necessary</p> <p>Complete an inventor study: Alhazen - inventor of the pin hole camera</p> <p>Complete light knowledge organizer</p>
<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>Display a willingness to reflect on their experiences & that of others</p> <p>UNCRC Article: Article 24: Every child has the right to education on health & well-being so that children can stay healthy.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must develop every child's respect for the environment</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 24: Every child has the right to the best possible health. Governments must provide good quality health care, clean water, nutritious food, & a clean environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>	<p>British Value: Develop a sense of enjoyment & fascination in learning about themselves, others & the world around them</p> <p>UNCRC Article: Article 29: Education must encourage the child's respect for the environment.</p>

Year 6 ~ End of Year Expectations

Knowledge ~ Learners should know:	Skills ~ Learners should be able to:
<p>The main parts of the human circulatory system including function of the heart, blood vessels & blood</p> <p>The impact of diet, exercise, drugs & lifestyle on health</p> <p>The ways in which nutrients & water are transported in animals, including humans</p> <p>How the Earth & living things have changed over time & how fossils can be used to find out about the past</p> <p>About reproduction & offspring</p> <p>How animals & plants are adapted to suit their environment</p> <p>About evolution & what it is</p> <p>How the number & voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer</p> <p>How light travels & how we see objects</p> <p>Why shadows have the same shape as the object that casts them</p> <p>How simple optical instruments work e.g. periscope</p>	<p>Science skills (Working scientifically)</p> <p>Classify living things into broad groups according to observable characteristics & based on similarities & differences</p> <p>Compare & give reasons for why components work & do not work in a circuit</p> <p>Draw circuit diagrams using correct symbols</p> <p>Planning & setting up investigations & identifying how to make sure it is a fair test</p> <p>Recognise the different variables within an investigation & how to control them</p> <p>Record data in a range of ways including diagrams, labels, classification keys, tables, scatter graphs & bar & line graph</p> <p>Make accurate predictions based on information gleaned from their investigations & create new investigations as a result</p> <p>Explain why something has happened & its possible impact on other things</p> <p>Enquiry concepts:</p> 

Throughout and at the end of every planned unit of work all learners will have been assessed against the relevant year group expectations (knowledge and skills) utilising bespoke Kahoot low-stakes quizzes assessments, the outcomes of discussions (discussion books), workbooks and Snap Science 'snapshot' assessment tasks.