

INTENT

- Curious about Science.
- Inspired by the Scientific world.
- Determined and creative when investigating

Biology - Green Chemistry - Blue Physics - Yellow

	YEAR 3	YEAR 4	YEAR 5	YEAR 6
THROUGHOUT THE YEAR	Many plants have an annual cycle - having buds, flowers, seeds/berries at certain times in the year. This should be referred to when teaching the relevant topic.	While learning to name and identify plants, the pupils should be drawing on a range of different clues. Many plants change in appearance over the year -losing leaves, buds developing into flowers, flowers developing into seeds or berries. At any particular time, only some of these parts will be present. To ensure correct identification, all parts should be considered. This should be referred to when teaching the relevant topic. Animals visible in a habitat will change depending on the weather on the day and the season. In order to build up a full picture of the animals in a habitat, this should be referred to when teaching the relevant topic.	N/A	N/A
AUTUMN 1	Animals including humans (Skeletons and nutrition)	States of Matter	Forces	Living things and their habitats (Classification)
AUTUMN 2	Rocks	Electricity	Earth and Space	Animals including humans (Circulatory system and how bodies function)
SPRING	Forces & Magnets	Sound	Properties and changes of materials	Electricity
SUMMER 1	Plants	Living things and their habitats (Grouping & Identifying and Environmental changes)	Living things and their habitats (Life Cycles and reproduction)	Light
SUMMER 2	Light	Animals including humans (Food chains, Teeth and Digestion)	Animals including humans (Changes in human development)	Evolution and inheritance

SKILLS PROGRESSION - SUBSTANTIVE KNOWLEDGE

TOPIC	YEAR 3	YEAR 4	YEAR 5	YEAR 6
FORCES	<ul style="list-style-type: none"> compare how things move on different surfaces Know how a simple pulley works and use making lifting an object simpler notice that some forces need contact between 2 objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing 		<ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect 	
ELECTRICITY		<ul style="list-style-type: none"> identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors 		<ul style="list-style-type: none"> 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
EARTH AND SPACE			<ul style="list-style-type: none"> describe the movement of the Earth and other planets relative to the sun in the solar system describe the movement of the moon relative to the Earth describe the sun, Earth and moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky 	
LIGHT &	<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 	<ul style="list-style-type: none"> identify how sounds are made, associating some of them with something vibrating 		<ul style="list-style-type: none"> recognise that light appears to travel in straight lines

SOUND	<ul style="list-style-type: none"> recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change 	<ul style="list-style-type: none"> recognise that vibrations from sounds travel through a medium to the ear find patterns between the pitch of a sound and features of the object that produced it find patterns between the volume of a sound and the strength of the vibrations that produced it recognise that sounds get fainter as the distance from the sound source increases 		<ul style="list-style-type: none"> 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
MATERIALS	<ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter 	<ul style="list-style-type: none"> compare and group materials together, according to whether they are solids, liquids or gases observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	<ul style="list-style-type: none"> compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets 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 and fair tests, for the particular uses of everyday materials, including metals, wood and plastic demonstrate that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda 	
LIVING THINGS AND THEIR HABITATS	<ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal 	<ul style="list-style-type: none"> recognise that living things can be grouped in a variety of ways explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things 	<ul style="list-style-type: none"> describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals 	<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
ANIMALS INCLUDING HUMANS	<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 	<ul style="list-style-type: none"> describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey 	<ul style="list-style-type: none"> describe the changes as humans develop to old age 	<ul style="list-style-type: none"> identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function

	<ul style="list-style-type: none"> Identify that humans and some other animals have skeletons and muscles for support, protection and movement 			<ul style="list-style-type: none"> describe the ways in which nutrients and water are transported within animals, including humans
EVOLUTION AND INHERITANCE				<ul style="list-style-type: none"> recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

PROGRESSION OF SCIENTIFIC ENQUIRY SKILLS - DISCIPLINARY KNOWLEDGE

YEAR 3	YEAR 4	YEAR 5	YEAR 6
<ul style="list-style-type: none"> Use ideas to pose questions, independently about the world around them. Discuss investigation methods and describe simple fair tests. Complete fair tests by following instructions. Make decisions about what to observe during an investigation. Talk about criteria for grouping, sorting and categorising, beginning to see patterns and relationships. Record their findings using scientific language and present in note form, writing frame, diagrams, tables and charts. 	<ul style="list-style-type: none"> Suggest relevant questions and know that they could be answered in a variety of ways. Set up simple practical fair tests with some independence. With support, choose a variable to test and start to recognise what else must be kept the same. Make systematic and careful observations. Identify similarities/differences/ changes when talking about scientific processes. Use and begin to create simple keys. Record their findings using scientific language and present in note form, writing work, more independent diagrams, tables and charts. 	<ul style="list-style-type: none"> Raise different types of scientific questions and hypotheses. Make decisions about different enquiries including recognising when a fair test is necessary and begin to identify variables. Plan and carry out comparative and fair tests making systematic and careful observations. Use and develop keys to identify, classify and describe living things and materials. Record data and results of increasing complexity using scientific diagrams, labels, classification keys, tables, bar and line graphs and models. 	<ul style="list-style-type: none"> Make decisions about what questions to investigate and how best to investigate them. Select and plan the most suitable test to answer a particular question, including which variables need to be controlled and why. Make their own decisions about which observations to make using test results and observations to make predictions or set up further comparative or fair tests. Use and develop keys to identify, classify and describe living things and materials. Choose appropriate ways to record and present information, findings and conclusions for different audiences e.g. displays, oral or written explanations.