

Whole School Overview

Early Years	Y1	Y2	Y3	Y4	Y5	Y6
Make observations of animals and plants.	Plants- names	Living things and their habitats Plants- growth	Plants- functions of parts, life cycles and requirements for life and growth	Living things and their habitats- grouping, classification keys, environments posing danger	All living things and their habitats- comparing life cycles, reproduction in plants and animals	All living things and their habitats- grouping micro organisms, plants and animals and reasons Evolution and Inheritance
Look closely at similarities and differences in relation to objects, materials.	Animals including humans	Animals including humans Offspring, needs and healthy eating	Animals including humans- nutrition, skeletons and movement	Animals including humans- digestive system, teeth, food chains	Animals including humans- changes as humans develop	Animals including humans- circulatory system, impact of diet on body functions, water transportation in bodies
Talk about changes.	Everyday materials	Uses of everyday materials- changing the shape of solids	Rocks	States of matter- solids, liquid and gases, changing state, evaporation and condensation	Properties and changes of materials- group based on properties including magnetism, dissolving, separating materials, reversible changes	Light- how and why light travels in straight lines
	Seasonal changes		Light- reflection and shadows	Sound	Earth and Space	
			Forces and Magnets		Forces	
				Electricity- simple series circuit, simple switch, conductors and insulators		Electricity- brightness, variation in components, symbols



Science for the pupils of New Earswick Primary School

Our Science curriculum is designed to allow pupils to find the answers to questions about materials, physical processes and biology.

Some Science teaching is discrete whilst other lessons follow the school topic:

- **A Step in Time**
- **Discover**
- **Me, Myself and I**

Skills

We have designed a progression of skills to allow our pupils to become proficient in:

- **Scientific and conceptual knowledge**
- **Understanding of nature**
- **Uses and implications of science**

Barriers

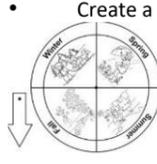
Stakeholders have identified that our pupils lack confidence and life experiences. Our entire curriculum, including Science, promotes opportunities to be Braver, Stronger and Smarter. We have designed a program of study which builds on prior knowledge and makes links to other subjects.

Skills Progression

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants and Living things	<ul style="list-style-type: none"> I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. I can identify and describe the basic structure of a variety of common flowering plants, including trees. 	<ul style="list-style-type: none"> I can observe and describe how seeds and bulbs grow into mature plants. I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. I can explore and compare the differences between things that are living, dead, and things that have never been alive. I can 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. I can identify and name a variety of plants and animals in their habitats, including microhabitats. I can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. 	<ul style="list-style-type: none"> I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. I can 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. I can investigate the way in which water is transported within plants I can 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"> I can recognise that living things can be grouped in a variety of ways. I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. I can recognise that environments can change and that this can sometimes pose dangers to living things. 	<ul style="list-style-type: none"> I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. I can describe the life process of reproduction in some plants and animals. 	<ul style="list-style-type: none"> I can 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. I can give reasons for classifying plants and animals based on specific characteristics.
Animals including humans	<ul style="list-style-type: none"> I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. I can identify and name a variety of common animals that are carnivores, herbivores and omnivores. I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 	<ul style="list-style-type: none"> I can notice that animals, including humans, have offspring which grow into adults. I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air). I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<ul style="list-style-type: none"> I can 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. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. 	<ul style="list-style-type: none"> I can describe the simple functions of the basic parts of the digestive system in humans. I can identify the different types of teeth in humans and their simple functions. I can construct and interpret a variety of food chains, identifying producers, predators and prey. 	<ul style="list-style-type: none"> I can describe the changes as humans develop to old age. 	<ul style="list-style-type: none"> I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. I can describe the ways in which nutrients and water are transported within animals, including humans. <p>Evolution:</p> <ul style="list-style-type: none"> I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
Materials	<ul style="list-style-type: none"> I can distinguish between an object and the material from which it is made. I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. I can describe the simple physical properties of a variety of everyday materials. I can compare and group together a variety of everyday materials on the basis of their simple physical properties. 	<ul style="list-style-type: none"> I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<ul style="list-style-type: none"> Rocks: I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. I can describe in simple terms how fossils are formed when things that have lived are trapped within rock. I can recognise that soils are made from rocks and organic matter. 	<ul style="list-style-type: none"> States of matter: I can compare and group materials together, according to whether they are solids, liquids or gases. I can 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). I can 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"> I can 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. I can know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. I can demonstrate that dissolving, mixing and changes of state are reversible changes I can 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. 	<ul style="list-style-type: none"> I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Light and sound including space	<ul style="list-style-type: none"> I can observe changes across the 4 seasons. I can observe and describe weather associated with the seasons and how day length varies. 		<p>Light:</p> <ul style="list-style-type: none"> I can recognise that we need light in order to see things and that dark is the absence of light. I can notice that light is reflected from surfaces. I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes. I can recognise that shadows are formed when the light from a light source is blocked by an opaque object. I can find patterns in the way that the size of shadows change. 	<p>Sound:</p> <ul style="list-style-type: none"> I can identify how sounds are made, associating some of them with something vibrating. I can recognise that vibrations from sounds travel through a medium to the ear. I can find patterns between the pitch of a sound and features of the object that produced it. I can find patterns between the volume of a sound and the strength of the vibrations that produced it. I can recognise that sounds get fainter as the distance from the sound source increases. 	<p>Earth and Space:</p> <ul style="list-style-type: none"> I can describe the movement of the Earth and other planets relative to the sun in the solar system. I can describe the movement of the moon relative to the Earth. I can describe the sun, Earth and moon as approximately spherical bodies. I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 	<p>Light:</p> <ul style="list-style-type: none"> I can recognise that light appears to travel in straight lines. I can 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. I can 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. I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Forces			<ul style="list-style-type: none"> I can compare how things move on different surfaces. I can notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. I can observe how magnets attract or repel each other and attract some materials and not others. I can 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. I can describe magnets as having 2 poles. I can predict whether 2 magnets will attract or repel each other, depending on which poles are facing. 		<ul style="list-style-type: none"> I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. I can identify the effects of air resistance, water resistance and friction that act between moving surfaces. I can 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"> I can identify common appliances that run on electricity. I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. I can 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. I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. I can recognise some common conductors and insulators, and associate metals with being good conductors. 		<ul style="list-style-type: none"> I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. I can 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. I can use recognised symbols when representing a simple circuit in a diagram.
Working scientifically	<ul style="list-style-type: none"> I can ask simple questions and recognise that they can be answered in different ways. I can observe closely. I can perform simple tests. I can identify and classify. I can use observation to suggest answers for questions. 	<ul style="list-style-type: none"> I can ask simple questions and recognise that they can be answered in different ways. I can observe closely. I can perform simple tests. I can identify and classify. I can use observation to suggest answers for questions. I can gather and record data and use this to answer questions. 	<ul style="list-style-type: none"> I can ask relevant questions and using different types of scientific enquiries to answer them. I can set up simple practical enquiries, comparative and fair tests. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. 	<ul style="list-style-type: none"> I can ask relevant questions and using different types of scientific enquiries to answer them. I can make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. I can identify differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I can use test results to make predictions to set up further comparative and fair tests. I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I can use test results to make predictions to set up further comparative and fair tests. I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments

YEAR 1

	A Step in Time			Discover			Me, myself and I								
	Autumn 1	Autumn 2		Spring 1	Spring 2		Summer 1								
Curriculum Links	Year 1 Dinosaur disasters	Year 1 Space- Tim Peak and travel (space buggies)		Year 1 Kings and Queens, portraits	Year 1 Discover		Year 1 New Earswick								
Curriculum	Animals and human- animals and habitats	Everyday materials		Animals and humans Human body	Seasonal Change		Plants								
Scientific and conceptual understanding	<ul style="list-style-type: none"> I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. I can identify and name a variety of common animals that are carnivores, herbivores and omnivores. I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). 	<ul style="list-style-type: none"> I can distinguish between an object and the material from which it is made. I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. I can describe the simple physical properties of a variety of everyday materials. I can compare and group together a variety of everyday materials on the basis of their simple physical properties. 		<ul style="list-style-type: none"> I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense 	<ul style="list-style-type: none"> I can observe changes across the 4 seasons. I can observe and describe weather associated with the seasons and how day length varies. 		<ul style="list-style-type: none"> I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. I can identify and describe the basic structure of a variety of common flowering plants, including trees. 								
Working Scientifically (incl. uses and implications for today/ future)	<ul style="list-style-type: none"> I can answer simple questions and recognise that they can be answered in different ways. I can observe closely. I can perform simple tests. I can identify and classify. I can use observation to suggest answers for questions. 	<ul style="list-style-type: none"> I can answer simple questions and recognise that they can be answered in different ways. I can observe closely. I can perform simple tests. I can use observation to suggest answers for questions. 		<ul style="list-style-type: none"> I can answer simple questions and recognise that they can be answered in different ways. I can observe closely. I can identify. I can use observation to suggest answers for questions. 	<ul style="list-style-type: none"> I can answer simple questions and recognise that they can be answered in different ways. I can observe closely. I can perform simple tests. I can use observation to suggest answers for questions. 		<ul style="list-style-type: none"> I can answer simple questions and recognise that they can be answered in different ways. I can observe closely. I can perform simple tests. I can identify and classify. I can use observation to suggest answers for questions. 								
Suggested tasks (including working scientifically)	<ul style="list-style-type: none"> Forest schools- ongoing habitat investigation Mini-beast hunt and nature walk. Classify and sort findings (collect data with pictograms or tallies) Compare and contrast animals found now with dinosaurs and make connections if they are possible Label basic features of animals including size Sort animals by what they eat (including dinosaurs) Compare habitats by textures, sounds and smells. Make a habitat for an animal based on enquiries and observations Design a creature to live in a habitat (set criteria) 	<ul style="list-style-type: none"> Collect questions about materials to answer Explore properties of materials (including those to be used for Space Buggies) Categorise materials by properties Use descriptions of materials when observing: hard, soft, stretchy, waterproof, absorbent, opaque, transparent brick, paper, fabric, foil etc Label buggy sketches with the above vocabulary Select questions: which material is most stretchy? Rough? Waterproof, test these and record findings 		<ul style="list-style-type: none"> Observe the body in real life and through other sources (VR technology) Label and learn names of parts: head, neck, arm, elbow, legs, knee, face, ears, eyes, mouth, teeth with games and songs Know what jobs body parts do When sketching in Art, label and rehearse spellings of body parts In English look at non-fiction (my body DK books) Organise, and sort body parts: those used for communicating, moving, feeling etc 	<ul style="list-style-type: none"> Collect data from seasons (rainfall, sun shine, snowy days) Record information in a prepared chart (use of IT) Create a seasons wheel  <ul style="list-style-type: none"> Collect temperatures collectively Make a presentation on the dangers of looking into the sun Investigate day length by researching and the day/night relationships between countries 		<ul style="list-style-type: none"> Forest schools throughout the year- planting flowers and vegetables Walk through the village, noting what is growing and where Visit/ visitor: garden centre/ nursery Listing common flower names Finding and listing deciduous and evergreen trees Label simple plant structures (seed, bulb, trunk, branches, stem) Draw and label collected flowers, seed, leaves Use magnifying glass to observe 								
Vocabulary 'Juicy Jargon'	Grow Sort Classify Move Young Strong Omnivore Herbivore Carnivore Prey Predator Habitat Safety Adult Male female	Dinosaur Past Young Feet Tails Height Weight Eat Habitat shelter	The And It They With Can Had Like Some Not Then Them When look Came their Could Time called	Material Metal Plastic sorting Strong Weak Flexible Transparent Absorbent Opaque waterproof	Travel Space Moon Planet Land Travel Move buggy	The And It They With Have some Look Got Pull Push	head neck arm elbow legs know face ears eyes mouth teeth skin part skeleton bones	Me Baby Adult Male Female Move Bend Hold twist	And It They With Can Had Like Some Not Then Them When look Has Is	Time Season Change Measure Collect Snow Rain Ice Sunshine Temperature- degrees Weather Thermometer	Winter Summer Autumn Spring Change Clothes temperature	The Little Is People Off Make Come Look when	Plant Sort Classify Strong Leaf Seed Bulb Trunk Flower Stem Vegetable Plant soil	Village Grow Habitat Shelter Weather Season Plants	Is Has Had People Children House Big Little Have Some Were Got about
Outcomes	<ul style="list-style-type: none"> Know prehistoric and present animal names to support Y2 'Ice and Stone Age' Be able to create and label habitats To be able to match animals to habitats (preparing for Y3 classification) Know that some animals cannot live in certain habitats 	<ul style="list-style-type: none"> Know that different materials have different properties Know that different materials can be used for a range of jobs (links to DT and future DT/ Art work) Know that materials have common features Know what objects are made of (linking to DT) 		<ul style="list-style-type: none"> Know the names of the parts of the body Know the basic job of each part of the body 	<ul style="list-style-type: none"> Know the 4 seasons of the year Know that the weather changes between seasons Know how to care for yourself in different seasons 		<ul style="list-style-type: none"> Know that plants and flowers grown in our habitats to prepare for Y2 growing unit Know the basic parts of plants to help with Y4 classification Know the names of common plants and flowers 								
Previous	<p>←</p> <p>EYFS:</p> <ul style="list-style-type: none"> Recognise some environments are different to where they live 	<p>EYFS:</p> <ul style="list-style-type: none"> Explore the natural world around them Describe what they see, hear and feel outside 		<p>EYFS:</p> <ul style="list-style-type: none"> Know and talk about factors that support overall health and wellbeing 	<p>EYFS:</p> <ul style="list-style-type: none"> Understand the effect of changing seasons on the natural world around them 		<p>EYFS:</p> <ul style="list-style-type: none"> Explore the natural world around them 								
Next	<p>→</p> <p>YEAR 1</p> <ul style="list-style-type: none"> Body parts and portraits (Art) <p>YEAR 2</p> <ul style="list-style-type: none"> Animals: offspring (Ice Age, Stone Age) Healthy eating (links to DT cooking and nutrition Stone Age Scavenge) <p>YEAR 3</p> <ul style="list-style-type: none"> Animals: skeleton and movement (builds on body parts from Y1) <p>YEAR 4</p> <ul style="list-style-type: none"> Teeth and digestion <p>YEAR 6</p> <ul style="list-style-type: none"> Body functions Evolution and inheritance 	<p>YEAR 3</p> <ul style="list-style-type: none"> Rocks <p>YEAR 4</p> <ul style="list-style-type: none"> States of Matter <p>YEAR 5</p> <ul style="list-style-type: none"> Properties and changes of materials <p>DT links- using materials</p>		<p>YEAR 3</p> <ul style="list-style-type: none"> Skeletons and movement <p>YEAR 4</p> <ul style="list-style-type: none"> Digestion, teeth <p>YEAR 5</p> <ul style="list-style-type: none"> Changing humans <p>YEAR 6</p> <ul style="list-style-type: none"> Body functions and systems 	<p>YEAR 5</p> <ul style="list-style-type: none"> Earth and Space 		<p>YEAR 2</p> <ul style="list-style-type: none"> Build on to Plants-growth <p>YEAR 3</p> <ul style="list-style-type: none"> Functions and life cycles <p>YEAR 4</p> <ul style="list-style-type: none"> Classification and keys 								

YEAR 2

	A Step in Time			Discover			Me, Myself and I					
	Autumn 1		Autumn 2	Spring 2		Summer 2						
Curriculum Links	Year 2 Ice Age		Year 2 Stone Age	Year 2 Discover		Year 2 New Earswick						
Curriculum	Living things and habitats		Everyday materials- changing the shape of solids	Animals - offspring		Plants- growing						
Scientific and conceptual understanding	<ul style="list-style-type: none"> I can explore and compare the differences between things that are living, dead, and things that have never been alive. I can 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. I can identify and name a variety of animals in their habitats, including microhabitats. I can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. 		<ul style="list-style-type: none"> I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<ul style="list-style-type: none"> I can notice that animals, including humans, have offspring which grow into adults. I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air). I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 		<ul style="list-style-type: none"> I can observe and describe how seeds and bulbs grow into mature plants. I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 						
Working Scientifically (incl. uses and implications for today/ future)	<ul style="list-style-type: none"> I can ask simple questions and recognise that they can be answered in different ways. I can observe closely. I can identify and classify. 		<ul style="list-style-type: none"> I can ask simple questions and recognise that they can be answered in different ways. I can observe closely. I can identify and classify. I can use observation to suggest answers for questions. I can gather and record data and use this to answer questions. 	<ul style="list-style-type: none"> I can ask simple questions and recognise that they can be answered in different ways. I can observe closely. I can identify and classify. I can use observation to suggest answers for questions. 		<ul style="list-style-type: none"> I can ask simple questions and recognise that they can be answered in different ways. I can observe closely. I can perform simple tests. I can identify and classify. I can use observation to suggest answers for questions. I can gather and record data and use this to answer questions. 						
Suggested tasks (including working scientifically)	<ul style="list-style-type: none"> Sorting animals prehistoric and present in Venn diagrams and name them Sketch diagrams to show where an animal gets its food Classify and sort animals by habitat and within that, micro habitats List and make annotations to sketches and pictures to show where animals find: food, shelter and water Create visual simple food chains Answer the questions of animals: who eats me? What do I need to survive? What characteristics do I have? Compare habitats and the features: Ice Age vs Forest schools Investigate Forest schools for micro habitats. What do leaves provide? Food and shelter (2 jobs). Draw a habitat with flaps to reveal micro habitats and the inhabitants 		<ul style="list-style-type: none"> Investigate the tools from the Ice/Stone Age- look for purpose and material. Compare to a similar tool we have- what is ours made from? Why? Investigate and debate if an object can be made of different materials? ie: spoon, knife etc Sort suitable/ unsuitable materials for key jobs linked to life in Stone Age and life now. Investigate and sort which materials can be squashed, twisted and stretched. Gather and record data on which materials will squash, twist or stretch. Test materials: ie best roof for a Stone Age house, Best material for an axe or arrow etc present findings backed up with photos. Research 3 people who have developed new materials: John Dunlop 1890(rubber), Joseph Aspdin 1824 (concrete) and Robert Gair 1890 (Cardboard) the use a web diagram to show what people have done with these materials over time. 	<p>Basic Needs:</p> <ul style="list-style-type: none"> Identify food, water and air <p>As a basic need by listing what might happen if you didn't have these things. Look at fish, mammals, birds and insects as groups and sort what they need to survive.</p> <p>Offspring:</p> <ul style="list-style-type: none"> Care for a butterfly crèche and not the simple stages of life Care for chicks and sketch the stages of life (with Rec) Sketch and label growth from baby, toddler, child, teen and adult (flip book or ipad) Study the concept of reproduction and how this ensures survival of the species Know and match off spring names with adults <p>Exercise, diet and hygiene:</p> <ul style="list-style-type: none"> Link to PE. Design a healthy week: diet and exercise Design a healthy meal (paper plate) Design a leaflet, poster or video on keeping healthy (hygiene) 		<ul style="list-style-type: none"> Study the definition of germination, growth and survival Germinate a range of seeds/ bulbs Explain the difference between a seed and a bulb and sort some plants that have seeds and some that grow from bulbs. Grow a range of plants, flowers and vegetables (forest school) Perform an experiment that removes the light from seeds and make comparisons Draw a cross section of a variety of seeds and share that seeds store food to grow Draw and label plant growth stages from seed to plant 						
Vocabulary 'Juicy Jargon'	Prey Predator Food Chain survive Habitat Source Micro habitat Food Shelter Water Safety	Animals Insects Woodland Beach Village city	Because Find Wild Cold Everybody Grass Plant path water many parents their house by	Material Properties Feel Stretch Bend Squash Solid Designer Job/ uses Compare	Same Different Inventor Develop Uses Smooth Soft Hard Tools Hunt, catch, gather	Floor Door Break Hold Should Could	Adult Off spring Baby Teen Child Grow Reproduce Survival Healthy Diet Hygiene Life cycle species	Butterfly Chick Babies Fit Healthy Draw Sketch Label	Children Child Only Both People Parents Their	Grow Germinate Seed Bulb Soils Roots Leaves Shoots Stem Water Light Test fair	Compare Different Animals Birds Cross-section Sketch Draw	Because Only Both Grass Plant Water many
Outcomes	<ul style="list-style-type: none"> Know that animals must have a safe habitat to survive Know that habitats provide food, water and shelter Know what animals are usually found in a variety of habitats (contrasting) Know where some animals get food from 		<ul style="list-style-type: none"> Know that some materials do a job better than others Show that materials can be used for many purposes Know how to test materials with a set brief 	<ul style="list-style-type: none"> Know that growing occurs over time and this changes for different animals Show the stage of human development Know that health is built up of exercise, diet and hygiene Know what reproduce means and that this is key to survival of a species/ animal 		<ul style="list-style-type: none"> Know that bulbs and seeds need water to grow but once a plant, they need light too. Know that seeds and bulbs store energy (food) to help them germinate and grow. 						
Previous	Year 1 • Habitats			YEAR 1 • Body parts and portraits (Art)		Year 1 • Know basic parts of plants						
Next	YEAR 2 <ul style="list-style-type: none"> Animals: offspring (Ice Age, Stone Age) Healthy eating (links to DT cooking and nutrition Stone Age Scavenge) YEAR 3 <ul style="list-style-type: none"> Animals: skeleton and movement (builds on body parts from Y1) YEAR 4 <ul style="list-style-type: none"> Teeth and digestion YEAR 6 <ul style="list-style-type: none"> Body functions Evolution and inheritance 		YEAR 3 <ul style="list-style-type: none"> Rocks YEAR 4 <ul style="list-style-type: none"> States of Matter YEAR 5 <ul style="list-style-type: none"> Properties and changes of materials DT links- using materials	YEAR 3 <ul style="list-style-type: none"> Skeletons and movement YEAR 3 <ul style="list-style-type: none"> Functions and life cycles YEAR 5 <ul style="list-style-type: none"> Changing humans YEAR 6 <ul style="list-style-type: none"> Body functions and systems 		YEAR 2 <ul style="list-style-type: none"> Build on to Plants- growth YEAR 4 <ul style="list-style-type: none"> Classification and keys 						

YEAR 3

	A Step in Time			Discover			Me, Myself and I								
	Autumn 2			Spring 1			Spring 2			Summer 1			Summer 2		
Curriculum Links	Year 3 Trojan horse (Romans and Greeks)			Year 3 Discover Volcanoes			Year 3 Animals- skeletons and movement			Year 3 Art: painting towns and villages LS lowry			Year 3 DT: cooking and nutrition		
Curriculum	Forces			Rocks			Animals and living things (skeletons and movement)			Light, reflections and shadows			Plants		
Scientific and conceptual understanding	<ul style="list-style-type: none"> I can compare how things move on different surfaces. I can notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. I can observe how magnets attract or repel each other and attract some materials and not others. I can 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. I can describe magnets as having 2 poles. I can predict whether 2 magnets will attract or repel each other, depending on which poles are facing. 			<p>Rocks:</p> <ul style="list-style-type: none"> I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. I can describe in simple terms how fossils are formed when things that have lived are trapped within rock. I can recognise that soils are made from rocks and organic matter. 			<ul style="list-style-type: none"> I can 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. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. 			<p>Light:</p> <ul style="list-style-type: none"> I can recognise that we need light in order to see things and that dark is the absence of light. I can notice that light is reflected from surfaces. I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes. I can recognise that shadows are formed when the light from a light source is blocked by an opaque object. I can find patterns in the way that the size of shadows change. 			<ul style="list-style-type: none"> I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. I can 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. I can investigate the way in which water is transported within plants I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 		
Working Scientifically (incl. uses and implications for today/ future)	<ul style="list-style-type: none"> I can ask relevant questions and using different types of scientific enquiries to answer them. I can set up simple practical enquiries, comparative and fair tests. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can record findings using simple scientific language, drawings, labelled diagrams, and tables. I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. 			<ul style="list-style-type: none"> I can ask relevant questions and using different types of scientific enquiries to answer them. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. 			<ul style="list-style-type: none"> I can ask relevant questions and using different types of scientific enquiries to answer them. I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. 			<ul style="list-style-type: none"> I can ask relevant questions and using different types of scientific enquiries to answer them. I can set up simple practical enquiries, comparative and fair tests. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions 			<ul style="list-style-type: none"> I can ask relevant questions and using different types of scientific enquiries to answer them. I can set up simple practical enquiries, comparative and fair tests. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. 		
Suggested tasks (including working scientifically)	<ul style="list-style-type: none"> Explore the question, <i>Could the Greeks have used a magnetic force to move the Trojan Horse into Troy?</i> Explore bar, ring, button and horseshoe magnets. Order and rank magnets on strength. Sort materials by attraction or repelling properties. Label the poles and explain that this technology is used for compass' Explore which ends of magnets attract or repel and draw diagrams to show this. Draw diagrams to show that a magnet does not need direct contact to act. Measure distances from the horse before the magnetic force acts, present these in tables Select the best magnet for the job and explain why Research some of the biggest magnets (including Earth) and some of the smallest and note their uses. 			<ul style="list-style-type: none"> Visit forest schools and collect soil samples from different areas. Use microscopes and magnifying glasses to sort, rocks, organic matter (leaves and roots etc), seeds etc Use microscopes and magnifying glasses to observe and classify rocks (grains, crystals and fossils). Observe fossils in sedimentary rocks predicting how they died, where they lived. Sort rock by location (including metamorphic volcanic) Sort and organise rocks from properties when rubbed together, scratched or submerged in water. Investigate: which rock would make the best house, sea defence etc 			<p>Food and nutrition:</p> <ul style="list-style-type: none"> Research different food groups and what benefits they have for us- display on a poster/IT program Design a meal to keep a child healthy and an adult healthy (variate with Vegetarian, Coeliac, allergy based) Compare and contrast the diets of different animal groups and let pupils decide on how to group them <p>Skeletons:</p> <ul style="list-style-type: none"> Identify and groups animals with and without a skeleton using videos as evidence so that movement can be observed Explore own skeleton in PE and why we have them. Label skeletons Use APPs to look inside the body: Why do we have muscles? What function does: the heart have? Lungs? Stomach? Brain, Intestine? 			<ul style="list-style-type: none"> Play mirror games to show light reflecting off different surfaces including mirrored surfaces Look at light travelling, how does it change when water is involved? (pencil, water, clear cup) Investigate shadows including moving the light source further away and closer Measure and record the length or height of shadows and record as a bar chart Identify different light sources (bulbs and other electrical lights and the sun) Investigate why we should never look at the sun directly, even when wearing sun glasses. Create pin hole cameras to do this safely. 			<ul style="list-style-type: none"> Label plants to the jobs the part do (roots, stem, leaves, flowers) Observe the the roots of different plants (including potatoes) and predict why they might be different. Sketch and label. Cut white carnations and use dye to show the job of a stem- draw and annotate findings over several days Look at the job of light, water and fertiliser on plants Cut up and observe a variety of fruits, organising and sorting by the methods of seed dispersal (animal digestion, animal carried, wind, water or explosion). Watch videos for evidence. Design own plant and explain how it's seeds will be dispersed/ spread. Design a plat to survive a certain habitat/ environment. 		
Vocabulary 'Juicy Jargon'	Magnet Attract Repel Materials Magnetic Distance Force Act poles	Distance Weight Size Move	Answer Arrive Build Complete Decide Earth Forward notice	Solid Rock Sediment Metamorph ic Organic material Crystals Appearance Fossils pressure	Habitats Land Earth Soil Living dead	Build Decide Different earth group natural notice pressure	Skeleton Lungs Stomach Brain Intestine Heart Movement Muscles Bones nutrition	Body Bones Strong Flexible Move Protect	Breathe Exercise Heart Fruit Accident Guard Height Medicine	Light Reflect Bend Straight Source Travel Shadow distance mirror	See Camera Sun Source	Appear Experiment Straight Notice Position Weight	Roots Stem Leaves Job Disperse Digestion Explosion Spread Fruit Seeds	Animals Birds Fruit Flower	Earth Experiment Extreme Fruit Natural notice
Outcomes	<ul style="list-style-type: none"> Know that magnet come in different shapes and sizes Know what to repel and to attract means Know that two of the same pole repel and vice versa Know which materials are magnetic or not Know that this force does not need direct contact 			<ul style="list-style-type: none"> Know that rocks are formed in different ways Know that metamorphic rocks are found near/on volcanoes Show that soil is made up of various parts including rock (ground or whole) and not all soil is the same. 			<ul style="list-style-type: none"> Know that humans need to make their own food Demonstrate a good diet and the benefits Answer questions with research and decide on how to present results Know the main organs of the body and the job they do Demonstrate the job of the skeleton 			<ul style="list-style-type: none"> Know that light travels in straight lines expect through water Know that light reflects from some surfaces Know how shadows form and the effect of distance from source Able to measure and share results to make a conclusion 			<ul style="list-style-type: none"> Know that parts of a plant have jobs to do and what they are Know the route water takes through a flower Demonstrate seed dispersal visually Conclude why a plant has key features 		
Previous	YEAR 1 <ul style="list-style-type: none"> DT- materials for space buggies YEAR 2 Identify and classify range of materials			YEAR 1 <ul style="list-style-type: none"> Dinosaur Disaster- fossils YEAR 2 <ul style="list-style-type: none"> Identify and classify range of materials 			YEAR 1 <ul style="list-style-type: none"> Name and draw basic parts of the body Art- bodies and portraits YEAR 2 <ul style="list-style-type: none"> Basic needs, off spring and importance of exercise, diet and hygiene 						YEAR 1 <ul style="list-style-type: none"> Names of common flowers and plants including trees YEAR 2 <ul style="list-style-type: none"> How seeds and bulbs grow 		
Next	YEAR 5 <ul style="list-style-type: none"> Forces: gravity and air resistance Earth and Space YEAR 6 <ul style="list-style-type: none"> DT puppet making with levers, pulleys, CAMS to adjust forces 			YEAR 4 <ul style="list-style-type: none"> States of matter Water cycle (Geo) 			YEAR 4 <ul style="list-style-type: none"> Digestive system Teeth YEAR 6 <ul style="list-style-type: none"> Circulatory system Transportation of water in humans Dangers to health 			YEAR 4 <ul style="list-style-type: none"> Electricity- lamps and light in a circuit YEAR 6 <ul style="list-style-type: none"> Light traveling to an eye through reflection Electricity- brightness and variation 			YEAR 4 <ul style="list-style-type: none"> Plants- growing and classification YEAR 5 <ul style="list-style-type: none"> Plants- life cycles and reproduction YEAR 6 <ul style="list-style-type: none"> Plants- grouping and micro organisms 		

YEAR 4

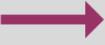
	A Step in Time			Discover			Me, Myself and I					
	Autumn 2			Spring 1			Spring 2			Summer 1		
Curriculum Links	Year 4 Iceni warriors, Boudicca and mask-making			Year 4 Expeditions- Shackleton			Year 4 Expeditions- Shackleton Water-cycle			Year 4 New Earswick Music		
Curriculum	Animals and living things: digestion and teeth			Living things- habitats			States of Matter Electricity			Sound		
Scientific and conceptual understanding	<ul style="list-style-type: none"> I can describe the simple functions of the basic parts of the digestive system in humans. I can identify the different types of teeth in humans and their simple functions. I can construct and interpret a variety of food chains, identifying producers, predators and prey. 			<ul style="list-style-type: none"> I can recognise that living things can be grouped in a variety of ways. I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. I can recognise that environments can change and that this can sometimes pose dangers to living things. 			<p>STATES OF MATTER</p> <ul style="list-style-type: none"> I can compare and group materials together, according to whether they are solids, liquids or gases. I can 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). I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. <p>ELECTRICITY</p> <ul style="list-style-type: none"> I can identify common appliances that run on electricity. I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. I can 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. I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. I can recognise some common conductors and insulators, and associate metals with being good conductors. 			<ul style="list-style-type: none"> I can identify how sounds are made, associating some of them with something vibrating. I can recognise that vibrations from sounds travel through a medium to the ear. I can find patterns between the pitch of a sound and features of the object that produced it. I can find patterns between the volume of a sound and the strength of the vibrations that produced it. I can recognise that sounds get fainter as the distance from the sound source increases. 		
Working Scientifically (incl. uses and implications for today/ future)	<ul style="list-style-type: none"> I can ask relevant questions and using different types of scientific enquiries to answer them. I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. I can identify differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings. 			<ul style="list-style-type: none"> I can ask relevant questions and using different types of scientific enquiries to answer them. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. I can identify differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings. 			<ul style="list-style-type: none"> I can ask relevant questions and using different types of scientific enquiries to answer them. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. 			<ul style="list-style-type: none"> I can ask relevant questions and using different types of scientific enquiries to answer them. I can make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. 		
Suggested tasks (including working scientifically)	<ul style="list-style-type: none"> Investigate the function and process of the digestive system using clips and practical investigation (tights!) Draw and label parts of the digestive system and sketch the parts Sort animals by digestive systems: ie cow, chicken and human knowing that they are different based on type of feed and teeth Identify producers, predators and prey in food chains and compose own Name teeth and identify jobs (use actions for each job) Make teeth out of clay (link to Art mask work) Sort animals by teeth type (top trumps or ranking by most deadly) 			<ul style="list-style-type: none"> Compare various habitats to the Antarctic: temperature, humidity, ground formation, shelter, food sources Gather and classify animals from set habitats (beyond local already studied)- use a virtual journey Follow keys to identify and name animals-link this to real life new discoveries ... answer is it a ...? Identify and label keys with key characteristics, creating own classification flow charts etc. Study one animal and how it has adapted over time. Look at environments that have changed over time, letting new species thrive (David Attenborough) Answer: could a frog survive in Antarctica, why? Etc How would Antarctica's environment need to change for frogs to survive? 			<p>ELECTRICITY</p> <ul style="list-style-type: none"> Create simple circuits and label the components, exploring the effect of power and bulb. Explore the effect of too many batteries on a bulb Label the battery as a cell and explain that it is the power source Design and make circuits with switches and bulbs for a torch, including reflecting and adapting to best suit the purpose DT: design and make torches to hold circuits Take torches apart and find the components- noting their role, note that some batteries hold more power or that batteries can be combined <p>STATES OF MATTER</p> <ul style="list-style-type: none"> Be a solid, liquid and a gas. Draw the particles and label. Investigate a range of items and group into categories based on criteria for each state of matter. Investigate: What is Jelly? Investigate how to change the state of Jelly. Model evaporation, creating evaporation experiments: <ul style="list-style-type: none"> -making salt crystals - rain in a jar Can you speed up evaporation? Measure the size of a puddle on a plate over time, record the findings in a line graph. Different groups can change the environment, outside, radiator, in the light, in the dark. Use 5ml droppers. 			<ul style="list-style-type: none"> Investigate the way that sound travels practically Draw how sound travels Explore the change in pitch and volume between variations in objects- smallest to largest drum, violin, base, elastic bands. (link to music) Measure and log sound in decibels (using a data logger) to get results and record in Venn diagrams and line graphs. Predict the decibel level before testing based on previous findings. Make earmuffs from a brief to block a certain level of noise. These can be made on simple headbands. Tests of insulation should be recorded on a table, a select made and a product designed. (look at ear defenders in school and why they are used in real life) 		
Vocabulary 'Juicy Jargon'	Producer Prey Predators Incisors Molars Canines Bite Job/ function Tear Hold Chew	Kill Catch Chase Eat Feed Young Herbivore Omnivore Carnivore Diet digestion	Continue Different Important Natural Caught Purpose Strength Separate pressure	Classify Key Sort Key Environment Tundra Survive Thrive Characteristic Temperature Humidity Daylight shelter	Habitat Icy Glacier Extreme Exposed Barren Species Food source	Consider Describe Difficult Extreme group	Cell /Battery Circuit Switch/Bulb Power Component Brightness Insulator Solid ,Liquid ,Gas Evaporation Particle Movement Shape Container Space Heat cycle	Steam Water Heat Cool Cycle Rain Test Predict	Appear Breathe Experiment Material position through	Sort Classify Sound Wave Decibel Distance Travel Vibration Test Insulate Pitch Volume Change	Drum Violin Strings Pressure	Describe Experiment t Hear Heard Position through
Outcomes	<ul style="list-style-type: none"> Know what body parts build the digestive system Know why we have a digestive system (ready for Y5 impact of diet) Know what a food chain is and know the direction of energy transferred Demonstrate knowledge of teeth names and jobs Match animals to teeth and diet Compare human to animal teeth, knowing the differences. 			<ul style="list-style-type: none"> Know how to follow keys and create keys to classify animals Know and demonstrate common characteristics of groups of animals Explain how animals adapt to their habitat or why they choose a habitat Know that habitats change over time Identify how some animals have change over very long periods of time. 			<p>STATES OF MATTER</p> <ul style="list-style-type: none"> Know the definition of solid, liquid and gas and some examples of each Know that these states can be changed and demonstrate examples of this Record findings through diagrams and labels <p>ELECTRICITY:</p> <ul style="list-style-type: none"> Know how to combine a switch in a circuit Know how to make a torch bright enough to use Know that you can vary components in a circuit and that this will change the outcome 			<ul style="list-style-type: none"> Know how sound is made Know how sound travels Be able to log sound measurements and report these Make predictions about sound Be able to insulate sound Make connections to music and the world around us (dangerous sound levels etc) 		
Previous	YEAR 2 <ul style="list-style-type: none"> Basic needs, off spring and importance of exercise, diet and hygiene YEAR 3 <ul style="list-style-type: none"> Skeletons and movement 			YEAR 1 <ul style="list-style-type: none"> Animals names and characteristics YEAR 2 <ul style="list-style-type: none"> Habitats- alive and never alive YEAR 3 <ul style="list-style-type: none"> Animals- food and nutrition 			YEAR 1 <ul style="list-style-type: none"> DT: exploring materials to build a Space buggy YEAR 2 <ul style="list-style-type: none"> Changing the shape of solids and comparing materials YEAR 3 <ul style="list-style-type: none"> Rocks and formation of soils and rocks 			YEAR 5 and 6 Music: sound, pitch and volume.		
Next	YEAR 5 <ul style="list-style-type: none"> Changing humans and impact of diet on health YEAR 6 <ul style="list-style-type: none"> Body functions and systems 			YEAR 6 <ul style="list-style-type: none"> Evolution and inheritance 			YEAR 5 <ul style="list-style-type: none"> Dissolving, separating and changes in materials 			KS3 Sound waves <ul style="list-style-type: none"> frequencies of sound waves, measured in hertz (Hz); echoes, reflection and absorption of sound sound needs a medium to travel, the speed of sound in air, in water, in solids sound produced by vibrations of objects, in loud speakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal auditory range of humans and animals. 		

YEAR 5

	A Step in Time			Discover			Me, Myself and I								
	Autumn 1	Autumn 2		Spring 1	Spring 2		Summer 1								
Curriculum Links	Year 5 Victorians- Inequality for children	Year 5 Victorians- Inequality for children DT cooking and nutrition		Year 5 Rainforests	Year 5 Mapping and locations		Year 5 New Earswick								
Curriculum	Forces	Properties and changing materials		Living things- life cycles and reproduction of mammals	Earth and Space (stand alone)		Living things- changes in human development								
Scientific and conceptual understanding	<ul style="list-style-type: none"> I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. I can identify the effects of air resistance, water resistance and friction that act between moving surfaces. I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect 	<ul style="list-style-type: none"> I can 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. I can know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. I can demonstrate that dissolving, mixing and changes of state are reversible changes I can 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. 		<ul style="list-style-type: none"> I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. I can describe the life process of reproduction in some plants and animals. 	<ul style="list-style-type: none"> I can describe the movement of the Earth and other planets relative to the sun in the solar system. I can describe the movement of the moon relative to the Earth. I can describe the sun, Earth and moon as approximately spherical bodies. I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 		<ul style="list-style-type: none"> I can describe the changes as humans develop to old age. 								
Working Scientifically (incl. uses and implications for today/ future)	<ul style="list-style-type: none"> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can using test results to make predictions to set up further comparative and fair tests. I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments 		<ul style="list-style-type: none"> I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. I can record data and results of increasing complexity using scientific diagrams and labels and classification keys. 	<ul style="list-style-type: none"> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. 		<ul style="list-style-type: none"> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can use test results to make predictions to set up further comparative and fair tests. I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments 								
Suggested tasks (including working scientifically)	<ul style="list-style-type: none"> Investigate the principle of gravity and research Isaac Newton Investigate air resistance around us: sycamore seeds, parachutes- draw and label diagrams to show the forces Investigate bike brakes as a resistant force and the effects of friction to slow an object down. Can you design a new Victorian toy which uses only air resistance? Test several prototypes, recording results and making changes. Design parachute style toys based on the principles of air resistance. Test it and report the findings. Investigate how to reduce a force required to move something using pre made pulleys, levers, gears and springs. Match pulleys, levers, gears and springs to a suitable use. 	Reversible and irreversible changes: <ul style="list-style-type: none"> Identify the features of changes by: Investigate burning, cooking and rusting compared to dissolving and mixing and by attempt to separate by filtering, sieving, melting or evaporating. Research the story of Chewing Gum and how that is made and cannot be reversed. Materials: <ul style="list-style-type: none"> Conductivity- explore materials that when place near heat retain it or do not. Insulators- explore those that will let electricity pass through them and those that will not. Design the best blanked for a street child in Victorian times to use or for a homeless person to use. Use a probe style thermometer to collect results and report.		<ul style="list-style-type: none"> Look at statistical information on height and weight at different stages of life and make predictions for future height etc Compare life cycles which include eggs to the human life cycle (including time), include a comparison with a rainforest animal. Make drawings and annotations to show sexual and asexual reproduction in plants. (exploded diagrams DT link) Study the work of Jane Goodall or David Attenborough. 	<ul style="list-style-type: none"> Create questions to answer Use PE and physical modelling to explain rotation, movement and orbit Complete diagrams to explain findings Label the planets of the universe and why Pluto has been classed as a dwarf planet in 2006. Create facts about the geocentric and heliocentric solar system models. (create mobile models) Demonstrate the phases of the moon using biscuits and labels. 		<ul style="list-style-type: none"> Draw timelines to indicate stages in growth and development from birth to death Look at gestation periods of animals and compare them with humans. Compare length and mass of a baby as it grows. Investigate puberty in PHSE Statistical enquiry ideas: <ul style="list-style-type: none"> Investigate the average number of offspring between birds, amphibians, fish, mammals and humans and make conclusions. Create line graphs to predict continued growth of a child Create simple pie charts to show estimated number of animals in each category are on Earth- does this link to offspring numbers? 								
Vocabulary 'Juicy Jargon'	Gravity Forces Newtons Resistance Friction Test gears	Prototype Levers Pulleys Springs	Attached Developed Interfere	Reversible Irreversible Change Sieving Filtering Conductivity dissolve	Insulation Sound Heat Water Mix Melt Cook	Physical Temperature determine	Amphibian Sexual Asexual Stamen Stigma	Leaves Roots Stem Transport Nutrition	Category Environment Existence Competition	Orbit Sphere Heliocentric Geocentric Planet names Axis	Gravity Pull Planet Star Source Light heat	Physical System	Gestation Mass Reproduction Youth growth	Infant Time Continuous Development	Develop Existence
Outcomes	<ul style="list-style-type: none"> Know that air resistance is a force that using friction Know examples of friction slowing things down Demonstrate the ability to alter resistance for an effect Know how to test then adapt a product to change the resistance 	<ul style="list-style-type: none"> Plan a fair test and test conductivity or insulation properties Know which materials are better insulators than others Match materials to jobs based on properties Know that some changes cannot be reverse Know some solutions can be separated and how to do this. 		<ul style="list-style-type: none"> Know that plants reproduce and how Know that life cycles are different for different animals Be able to predict based on reasonable assumptions from Scientific information and research. 	<ul style="list-style-type: none"> Know that there are different beliefs that changed the way we think about the universe Know that the Earth orbits the sun Know and show the rotation of the moon Know the effect of these orbits on day and night 		<ul style="list-style-type: none"> Know the basic changes in the body during puberty Know that there are changes for animals over a longer period of time Know the gestation period of several animals 								
Previous	YEAR 2 <ul style="list-style-type: none"> DT: levers and sliders YEAR 3 <ul style="list-style-type: none"> Forces and magnets YEAR 4 <ul style="list-style-type: none"> DT: pulleys, cams 	YEAR 1 <ul style="list-style-type: none"> DT- materials for space buggies YEAR 2 <ul style="list-style-type: none"> Identify and classify range of materials YEAR 3 <ul style="list-style-type: none"> Rocks YEAR 4 <ul style="list-style-type: none"> States of matter: solid, liquid, gas and evaporation 		YEAR 3 <ul style="list-style-type: none"> Simple life cycles, young YEAR 4 <ul style="list-style-type: none"> Digestive system Food chains 	YEAR 1 <ul style="list-style-type: none"> (His) Space and moon landing YEAR 3 <ul style="list-style-type: none"> Forces- magnets 		YEAR 2 <ul style="list-style-type: none"> Plants- growth YEAR 3 <ul style="list-style-type: none"> Functions and life cycles YEAR 4 <ul style="list-style-type: none"> Classification and keys 								
Next	YEAR 6 <ul style="list-style-type: none"> DT puppet making with levers, pulleys, CAMS to adjust forces 	KS3 Physical changes <ul style="list-style-type: none"> conservation of material and of mass, and reversibility, in melting, freezing, evaporation, sublimation, condensation, dissolving similarities and differences, including density differences, between solids, liquids and gases Brownian motion in gases diffusion in liquids and gases driven by differences in concentration the difference between chemical and physical changes. Science – key stage 3 13 Particle model the differences in arrangements, in motion and in closeness of particles explaining changes of state, shape and density, the anomaly of ice-water transition atoms and molecules as particles. Energy in matter changes with temperature in motion and spacing of particles internal energy stored in materials. 		YEAR 6 <ul style="list-style-type: none"> Circulatory System Grouping and classifying PHSE RSE 	KS3 Earth and atmosphere <ul style="list-style-type: none"> the composition of the Earth and the structure of the Earth the rock cycle and the formation of igneous, sedimentary and metamorphic rocks Earth as a source of limited resources and the efficacy of recycling the carbon cycle and the composition of the atmosphere the production of carbon dioxide by human activity and the impact on climate. Space physics <ul style="list-style-type: none"> gravity force, weight = mass x gravitational field strength (g), on Earth g=10 N/kg, different on other planets and stars; gravity forces between Earth and Moon, and between Earth and Sun (qualitative only) our Sun as a star, other stars in our galaxy, other galaxies the seasons and the Earth's tilt, day length at different times of year, in different hemispheres the light year as a unit of astronomical distance. 		YEAR 6 <ul style="list-style-type: none"> Body functions Evolution and inheritance 								

YEAR 6

	A Step in Time			Discover			Me, Myself and I					
	Autumn 2			Spring 1			Spring 2			Summer 2		
Curriculum Links	Year 6 Industrial revolution Titanic			Year 6 Stand alone			Year 6 Stand alone			Year 6 New Earswick- war to present day, contrasting civilisation		
Curriculum	Light and Electricity			Living things- grouping micro organisms, plants and animals			Body Systems- circulatory system			Evolution and inheritance		
Scientific and conceptual understanding	<p>LIGHT:</p> <ul style="list-style-type: none"> I can recognise that light appears to travel in straight lines. I can 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. I can 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. I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. <p>ELECTRICITY:</p> <ul style="list-style-type: none"> I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. I can 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. I can use recognised symbols when representing a simple circuit in a diagram. 			<ul style="list-style-type: none"> I can 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. I can give reasons for classifying plants and animals based on specific characteristics. 			<ul style="list-style-type: none"> I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. I can describe the ways in which nutrients and water are transported within animals, including humans 			<ul style="list-style-type: none"> I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. 		
Working Scientifically (incl. uses and implications for today/ future)	<ul style="list-style-type: none"> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I can using test results to make predictions to set up further comparative and fair tests. 			<ul style="list-style-type: none"> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I can using test results to make predictions to set up further comparative and fair tests. I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments 			<ul style="list-style-type: none"> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I can using test results to make predictions to set up further comparative and fair tests. I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments 			<ul style="list-style-type: none"> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I can using test results to make predictions to set up further comparative and fair tests. I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments 		
Suggested tasks (including working scientifically)	<p>LIGHT:</p> <ul style="list-style-type: none"> Explore light travelling and draw diagrams to explain. Explain how a periscope would have worked in the war. Use a clear cup, water and a pencil to see what happens to light when it hits water. Explore blocking light to create shadows, noting the shape. (linking to silhouettes) Create and sketch shadows of objects from different angles. <p>ELECTRICITY:</p> <ul style="list-style-type: none"> Draw and plan a circuit for a set brief using symbols Experiment with changing the buzzer sound and the brightness of the bulb (building on from Y4 how many bulbs a cell can light) a luxmetre can measure bulb brightness. Predict and record results in a line graph. 			<ul style="list-style-type: none"> Classify by sub dividing micro organisms, animals and plants. Classify vertebrates and invertebrates Reason why animals are classified in one group and not another (justify the choice) Classify and group unfamiliar and common animals and plants that require more justification from research (builds on from Y4 simple classification). 			<ul style="list-style-type: none"> Explain and draw the circulatory system, making reference to its job. Linking this to Y4 digestive system and knowledge about the brain, heart and lungs. Investigate the impact of exercise (link to PE) on health by: composing a question to answer, making predictions, taking measurements and recording. Study the impact of drugs on a healthy lifestyle (link to PHSE) and how the body can be damaged. Describe and draw the way that water and nutrients are transported in humans and animals. (ipad presentation) 			<ul style="list-style-type: none"> Explore how humans have changed over time Investigate how characteristics are passed to offspring Observe the characteristics when two breeds of the same animal are combined Look at natural adaptation over time: ie. Pigs, cows, horses, sharks, giraffe, elephants and explain why they have adapted. Study the work of Darwin or Mary Anning and summarise their key findings. Compare 'the best' is it better to have...2 feet or 4, long or short beaks, no flowers or bright flowers and does opinion this change depending on habitat? 		
Vocabulary 'Juicy Jargon'	Voltage Current Lux Reflect Block Silhouette Buzzer	Wires Bulbs Switch Volume	Achieve Equipment Through although	Classify Common Species Sub categorical Vertebrates invertebrates	Animals Plants Insect Amphibians	Definite Physical Although	Blood Circulatory Red Blue Direction atrium Valve Vena cava Aorta pulmonary	Travel Breathe Heart Beat Direction	Through Equip Communicate conscious Excellent Interrupt Muscle Physical Rhythm	Characteristics Advantages Adapt Evolve Inhabited Features	Change Millions Thousands Adapt Survive breed	Ancient Develop Environment Equip Immediately Necessary
Outcomes	<p>LIGHT</p> <ul style="list-style-type: none"> Know that light travels in straight lines from a source to your eye Know that the direction of light alters when it hits water Know that you can control the direction of light by reflection Know that blocked light creates a shadow the same shape as the object blocking the source <p>ELECTRICITY</p> <ul style="list-style-type: none"> Know that you can use a luxmeter to measure brightness of a bulb Know how to adapt the brightness of a bulb Know that power is measured in voltage Show how to build a successful circuit including a buzzer and a light which can be controlled by a switch. 			<ul style="list-style-type: none"> Know that you can classify into smaller groups Know characteristics of plants and animals in these groups Know what vertebrates and invertebrates are and give examples Be able to justify choices using scientific evidence 			<ul style="list-style-type: none"> Know the function and parts of the circulatory system Understand the impacts of diet, exercise and hygiene on the circulatory system Know what can danger your health (drugs, lack of hygiene etc) Show how water and nutrients are transported in the body 			<ul style="list-style-type: none"> Know that animals and humans changed over time Share adaptations and animals and reasoning behind the adaptations Know that we pass characteristics to our offspring (in preparation for Inheritance, chromosomes and DNA in KS3) Know the effects of breeding and creation of new breeds. 		
Previous	<p>YEAR 3</p> <ul style="list-style-type: none"> Simple circuits <p>YEAR 4</p> <ul style="list-style-type: none"> Electricity- lamps and light in a circuit 			<p>YEAR 2</p> <ul style="list-style-type: none"> Build on to Plants- growth <p>YEAR 3</p> <ul style="list-style-type: none"> Functions and life cycles <p>YEAR 4</p> <ul style="list-style-type: none"> Classification and keys <p>YEAR 5</p> <ul style="list-style-type: none"> Changes as humans develop 			<p>YEAR 4</p> <ul style="list-style-type: none"> Digestive systems <p>YEAR 5</p> <ul style="list-style-type: none"> Changes as humans develop Life cycles of mammals, amphibians etc 			<p>YEAR 1</p> <ul style="list-style-type: none"> Fossils <p>YEAR 3</p> <ul style="list-style-type: none"> Rocks and fossils <p>YEAR 4</p> <ul style="list-style-type: none"> Habitats and adaptations <p>YEAR 5</p> <ul style="list-style-type: none"> Changes as humans develop 		

		<ul style="list-style-type: none"> Life cycles of mammals, amphibians etc 		<ul style="list-style-type: none"> Life cycles of mammals, amphibians etc
<p>Next</p> 	<p>KS3</p> <p>Current electricity</p> <ul style="list-style-type: none"> electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current differences in resistance between conducting and insulating components (quantitative). Static electricity separation of positive or negative charges when objects are rubbed together: transfer of electrons, forces between charged objects the idea of electric field, forces acting across the space between objects not in contact. 	<p>KS3</p> <ul style="list-style-type: none"> Relationships in an ecosystem the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops the importance of plant reproduction through insect pollination in human food security how organisms affect, and are affected by, their environment, including the accumulation of toxic materials. Plus: Cells and organisation in plants 	<p>KS3</p> <p>Gas exchange systems</p> <ul style="list-style-type: none"> the structure and functions of the gas exchange system in humans, including adaptations to function the mechanism of breathing to move air in and out of the lungs, using a pressure model to explain the movement of gases, including simple measurements of lung volume the impact of exercise, asthma and smoking on the human gas exchange system content of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, minerals, dietary fibre and water, and why each is needed calculations of energy requirements in a healthy daily diet the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases the tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food (enzymes simply as biological catalysts) 	<p>KS3</p> <ul style="list-style-type: none"> reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta The skeletal and muscular systems the structure and functions of the human skeleton, to include support, protection, movement and making blood cells biomechanics – the interaction between skeleton and muscles, including the measurement of force exerted by different muscles the function of muscles and examples of antagonistic muscles. <p>Plus: Inheritance, chromosomes, DNA and genes</p>