

	Autumn 1	Autumn 2	Spring 1 & 2	Summer 1 & 2
Year 3	What can we learn from the world beneath our feet?	What would life be like in a world without colour?	What are the mysteries of Ancient Egypt?	Is being strong always a good thing?
Science topic	Rocks and Soils	Light	Animals including Humans	Forces and Magnets
Vocabulary	<ul style="list-style-type: none"> • crystal • fossil • igneous • metamorphic • mineral • organic matter • rock • sedimentary • soil 	<ul style="list-style-type: none"> • Shadow • Light • Reflect • Opaque • Dark • Surface • Artificial • Blocked • Solid • Dangerous • sunlight 	<ul style="list-style-type: none"> • balanced diet • carbohydrates • exercise • fats • healthy • nutrients • nutrition • oxygen • protein • survival • water • bone • cartilage • joint • muscle • pelvis • rib cage • skeleton • skull • spine • tendon 	<ul style="list-style-type: none"> • attract • force • magnet • magnetic • magnetic field • magnetic pole • non-magnetic • repel
Opportunities to work scientifically	<ul style="list-style-type: none"> • Research how fossils and different types of rocks are formed • Identify different rocks and the group they belong to 	<ul style="list-style-type: none"> • Compare materials based on reflectiveness • Shadow length throughout the day • Group materials based on their opacity and transparency • Object size compared to shadow 	<ul style="list-style-type: none"> • Observe the effect of excess sugar over time (based on egg shells) 	<ul style="list-style-type: none"> • Compare materials based on the amount of friction they generate • Group magnetic and non-magnetic materials
Knowledge	<ul style="list-style-type: none"> • Compare and group rocks based on their appearance and physical properties, giving reasons • Know how soil is made and how fossils are formed 	<ul style="list-style-type: none"> • Know that dark is the absence of light • Know that light is needed in order to see and is reflected from a surface 	<ul style="list-style-type: none"> • Know about the importance of a nutritious, balanced diet • Know how nutrients, water and oxygen are transported within animals and humans • Know about the skeletal and muscular system of a human 	

	<ul style="list-style-type: none"> • Know about and explain the difference between sedimentary, metamorphic and igneous rock 	<ul style="list-style-type: none"> • Know and demonstrate how a shadow is formed and explain how a shadow changes shape • Know about the danger of direct sunlight and describe how to keep protected 		<ul style="list-style-type: none"> • Know about and describe how objects move on different surfaces • Know how a simple pulley works and use to on to lift an object • Know how some forces require contact and some do not, giving examples • Know about and explain how magnets attract and repel Predict whether magnets will attract or repel and give a reason
Skills	<ul style="list-style-type: none"> • Can they compare and group together different rocks on the basis of their appearance and simple physical properties? • Can they describe and explain how different rocks can be useful to us? • Can they describe in simple terms how fossils are formed when things that have lived are trapped within rock? • Can they describe and explain the difference between sedimentary and igneous rocks, considering the way they are formed? • Can they recognise that soils are made from rocks and organic matter? • Can they describe what they have found using scientific language? • Can they classify objects in different ways? • Can they describe what they have found using scientific language? • Can they use different ideas and suggest how to find something out? 	<ul style="list-style-type: none"> • Can they recognise that they need light in order to see things? • Can they recognise that dark is the absence of light? • Can they notice that light is reflected from surfaces? • Can they recognise that light from the sun can be dangerous and that there are ways to protect their eyes? • Can they recognise that shadows are formed when the light from a light source is blocked by a solid object? • Can they find patterns in the way that the site of shadows change? • Can they explain the difference between transparent, translucent and opaque? • Can they set up a simple fair test to make comparisons? • Can they describe what they have found using scientific language? • Can they record their observations in different ways? <labelled diagrams, charts etc> 	<ul style="list-style-type: none"> • Can they explain the importance of a nutritionally balanced diet? • Can they describe how nutrients, water and oxygen are transported within animals and humans? • Can they identify that animals, including humans, cannot make their own food: they get nutrition from what they eat? • Can they describe and explain the skeletal system of a human? • Can they describe and explain the muscular system of a human? • Can they describe what they have found using scientific language? Can they describe what they have found out using secondary sources? 	<ul style="list-style-type: none"> • Can they compare how things move on different surfaces? • Can they observe that magnetic forces can be transmitted without direct contact? • Can they observe how some magnets attract or repel each other? • Can they identify and classify which everyday materials are attracted to magnets and which are not? • Can they notice that some forces need contact between two objects, but magnetic forces can act at a distance? • Can they describe magnets having two poles (N & S)? and predict whether two magnets will attract or repel each other depending on which poles are facing? • Can they make and record a prediction before testing? • Can they take accurate measurements using different equipment and units of measure? • Can they set ups simple fair test to make comparisons? • Can they explain what they have found out and use their measurements to say whether it helps to answer their question? • Can they record their observations in different ways? <labelled diagrams, charts etc>

	Autumn 1 & 2		Spring 1 & 2		Summer 1 & 2
Year 4	What can we learn from Ancient Communities?		Is conflict ever justified?		Should the earth look after us or should we look after the earth?
Science Topic	Animals including humans	States of Matter	Sound	Electricity	Living things and their habitats
Vocabulary	<u>Animals including Humans</u> <ul style="list-style-type: none"> • canine • dentil • enamel • food chain • incisors • intestine • molars • organ • oesophagus • pancreas • pre-molars • predators • prey • pupil salivary gland	<u>States of Matter</u> <ul style="list-style-type: none"> • celsius • condensation • evaporation • freezing point • gas • irreversible • liquid • matter • melting point • molecules • precipitation • reversible • solid • temperature 	<u>Sound</u> <ul style="list-style-type: none"> • amplitude • auditory • decibel • frequency • insulation • medium • pitch • sound wave • vibrating • volume 	<u>Electricity</u> <ul style="list-style-type: none"> • appliance • battery • buzzers • cells • circuits • conductor • insulator • socket switch 	<u>Living Things and their Habitat</u> <ul style="list-style-type: none"> • algae • amphibians • birds • fish • fungi • invertebrate • mammals • micro-organism • reptiles • species vertebrate
Opportunities to work scientifically	Research the different body parts involved in digestion Classify plants/ animals into either producer, consumer or predator	Measure temperature changes in water over time Research the water cycle and how it works Identify solids, liquids or gases	The affect of distance from the source on volume Compare how length and width of tubes affect pitch	Determine which materials are electrical conductors or insulators Classify/ group materials into electrical conductors or insulators	Research the effect of climate change on animals around the world Classify animals based on their observable characteristics
Knowledge	<ul style="list-style-type: none"> • Identify and name the parts of the human digestive system • Know the functions of the organs in the human digestive system • Identify and know the different types of human teeth • Know the functions of different human teeth • Use and construct food chains to identify producers, predators and prey • 	<ul style="list-style-type: none"> • Know the temperature at which materials change state • Know about and explore how some materials can change state • Know the part played by evaporation and condensation in the water cycle • Group materials based on their 	<ul style="list-style-type: none"> • Know how sound is made, associating some of them with vibrating • Know how sound travels from a source to our ears • Know the correlation between pitch and the object producing a sound • Know the correlation between the volume of a sound and the strength of the vibrations that produced it • Know what happens to a sound as it travels away from its source 	<ul style="list-style-type: none"> • Identify and name appliances that require electricity to function • Construct a series circuit • Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers) • Predict and test whether a lamp will light within a circuit • Know the function of a switch • Know the difference between a conductor and 	<ul style="list-style-type: none"> • Use classification keys to group, identify and name living things • Know how changes to an environment could endanger living things

		state of matter (solid, liquid or gas)		an insulator; giving examples of each	
Skills	<ul style="list-style-type: none"> • Can they identify, name and describe the functions of the basic parts of the digestive system in humans? • Can they identify the simple function of different types of teeth in humans? • Can they compare the teeth of herbivores and carnivores? • Can they identify, construct and interpret a variety of food chains, identifying producers, predators and prey? <p>Can they identify differences, similarities or changes related to simple scientific ideas or processes?</p> <ul style="list-style-type: none"> • Can they classify living things and non-living things by a number of characteristics that they have thought of? • Can they explain how people, weather and the environment can affect living things? <p>Can they explain how certain living things depend on one another to survive?</p>	<ul style="list-style-type: none"> • Can they compare and group materials together, according to whether they are solids, liquids or gases? • Can they explain what happens to materials when they are heated or cooled? • Can they measure or research the temperature at which different materials change state in degrees Celsius? • Can they describe how materials change state at different temperatures? • Can they use measurements to explain changes to the state of water? • Can they explain everyday phenomena including the water cycle? • Can they record data using diagrams, labels, classification keys, tables, scatter graphs, bar graphs and line graphs? • Can they evaluate and communicate their methods and findings? 	<ul style="list-style-type: none"> • Can they describe a range of sounds and explain how they are made? • Can they associate some sounds with something vibrating? • Can they compare sources of sound and explain how the sounds differ? • Can they explain how to change a sound (louder/softer)? • Can they recognise how vibrations from sound travel through a medium to an ear? • Can they describe the relationship between the pitch of the sound and the features of its source/object that produces it? • Can they find patterns between the volume of the sound and the strength of the vibrations that produced it, and the distance of the source? • Can they investigate how different materials can affect the pitch and volume of sounds? • Can they plan and set up a fair test and isolate variables, explaining why it was fair and which variables have been isolated? • Can they decide which information needs to be collected and decide the best way for collecting it? • Can they evaluate what they have found using scientific language, drawings, labelled diagrams, bar charts and tables? 	<ul style="list-style-type: none"> • Can they identify common appliances that run on electricity? • Can they construct a simple series electric circuit? • Can they identify and name the basic part in a series circuit, including cells, wires, bulbs, switches and buzzers? • Can they recognise symbols to represent simple series circuit diagrams? • Can they identify whether or not a lamp will light in a simple series circuit, based on whether not the lamp is part of a complete loop with a battery? • Can they recognise that a switch opens and closes a circuit? • Can they associate a switch opening with whether or not a lamp lights in a simple series circuit? • Can they recognise some common conductors and insulators? • Can they associate metals with being good conductors? • Can they plan and set up a fair test and isolate variables, explaining why it was fair and which variables have been isolated? • Can they suggest improvements and predictions? • Can they ask their own questions? • Can they explain their findings in different ways (display, presentation, writing)? 	<ul style="list-style-type: none"> • Can they recognise that living things can be grouped in a variety of ways? • Can they classify and identify into broad groups? • Can they explore and use a classification key to group, identify and name a variety of living things? (plants, vertebrates, invertebrates) • Do they recognise that environments can change, and this can sometimes pose a danger to living things? • Can they explain how environmental changes have an impact on living things? • Can they record data using diagrams, labels, classification keys, tables, scatter graphs, bar graphs and line graphs? • Can they explain their findings in different ways (display, presentation, writing)? • Can they give reasons for how they have classified animals and plants, using their characteristics and how they are suited to their environment? • Can they explore the work of pioneers in classification? (e.g. Carl Linnaeus) • Can they name and group a variety of living things based on feeding patterns? (producer, consumer, predator, prey, herbivore, carnivore, omnivore) •

		<ul style="list-style-type: none"> • Can they use a range of scientific equipment's to take accurate measurements or readings? • Can they group and classify a variety of materials according to the impact of temperature on them? • Can they explain what happens over time to materials such as puddles on the playground or washing hanging on a line? 			
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	Autumn 1 & 2		Spring 1 & 2		Summer 1 & 2
Year 5	Should people be able to choose where they live?		Creation or science – conflicting or complimentary?		Ancient Islam – a light in the dark ages?
Science Topic	Animals including humans	Living things and their habitats	Earth and Space	Forces	Materials and their properties
Vocabulary	<ul style="list-style-type: none"> • classification • embryo • gestation • obese • precision • puberty 		<ul style="list-style-type: none"> • astronomical • crescent moon • eclipse • gibbous moon • lunar • orbit 	<ul style="list-style-type: none"> • air resistance • friction • gears • gravity • levers • parachute 	<ul style="list-style-type: none"> • bicarbonate • conductivity • dissolve • evaporation • filtering • irreversible

	<ul style="list-style-type: none"> • reproduction • teenager • toddler 		<ul style="list-style-type: none"> • planet • rotation • solar • solar system spherical	<ul style="list-style-type: none"> • pulleys • surface resistance • water resistance 	<ul style="list-style-type: none"> • melting • reversible • separate • soda • solubility • thermal • transparency
Opportunities to work scientifically	<p>Research changes in humans at different stages in our lives</p> <p>Compare height with physical task e.g., distance a ball is thrown</p>	<p>Research the life cycle of different animal groups</p> <p>Classify/ group and animal based on its group and species</p>	<ul style="list-style-type: none"> • Research the plants in our solar system, including length of orbit • Compare the distance a planet is from the Sun and its temperature • 	<ul style="list-style-type: none"> • Shape of an object and the time it takes to travel through water • Surface material on a ramp and the distance/ speed it travels • 	<p>Factors that affect the speed a solute dissolves in water, e.g., temperature</p> <p>Observe over time the separation of a solute and solvent via evaporation</p> <p>Classify/ group materials as either soluble or insoluble</p>
Knowledge	<ul style="list-style-type: none"> • Create a timeline to indicate stages of growth in humans 	<ul style="list-style-type: none"> • Know the life cycle of different living things e.g. mammal, amphibian, insect and bird • Know the differences between different life cycles • Know the process of reproduction in plants • Know the process of reproduction in animals 	<ul style="list-style-type: none"> • Know about and explain the movement of the Earth and other planets relative to the Sun • Know about and explain the movement of the Moon relative to the Earth • Know and demonstrate how night and day are created • Describe the Sun, Earth and Moon (using the term spherical) 	<ul style="list-style-type: none"> • Know what gravity is and its impact on our lives • Identify and know the effect of air and water resistance • Identify and know the effect of friction • Explain how levers, pulleys and gears allow a smaller force to have a greater effect 	<ul style="list-style-type: none"> • Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets) • Know and explain how a material dissolves to form a solution • Know and show how to recover a substance from a solution • Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) • Know and demonstrate that some changes are reversible and some are not • Know how some changes result in the formation of a new material and that this is usually irreversible
Skills	<ul style="list-style-type: none"> • Can they describe the changes as humans develop to old age? • Can they use basic ideas of inheritance, variation and adaptation to describe how living things have changed over time? • Can they use a graph to answer scientific questions? <p>Can they present a report of their findings through writing, display and presentation?</p>	<ul style="list-style-type: none"> • Can they describe the differences in the life cycles of a mammal, amphibian, an insect and a bird? • Can they identify the reproductive processes of some animals? • Can they describe the life cycles of common plants? <p>Can they present a report of their findings through writing, display and presentation?</p>	<ul style="list-style-type: none"> • Can they identify and explain the movement of the Earth and other planets relative to the sun in the solar system? • Can they explain how seasons and the associated weather is created? • Can they describe and explain the movement of the Moon relative to the Earth? • Can they describe the sun, earth and moon as approximately spherical bodies? • Can they use the idea of the earth's rotation to explain day and night and the apparent 	<ul style="list-style-type: none"> • Can they explain that unsupported objects fall towards the earth because of the force of gravity acting between the earth and the falling object? • Can they identify the effects of air resistance water resistance and friction that act between moving surfaces? • Can they recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect? • Can they present a report of their findings through writing, 	<ul style="list-style-type: none"> • Can they compare and group together everyday materials on the basis of their properties, including hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets? • Can they explain how some materials dissolve in liquid to form a solution? • Can they explain what happens when dissolving occurs? • Can they use their knowledge of solids, liquids and gases to decide and describe how mixtures might be separated, including through filtering, sieving, evaporating? • Can they give reasons based on evidence for comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic?

			<p>movement of the sun across the sky?</p> <ul style="list-style-type: none"> Can they present a report of their findings through writing, display and presentation using appropriate scientific vocabulary? Can they use evidence from secondary sources to explore their own and other people's ideas? 	<p>display and presentation using appropriate scientific vocabulary?</p> <ul style="list-style-type: none"> Can they use a graph to answer scientific questions? Can they use test results to make predictions to set up comparative and fair tests 	<ul style="list-style-type: none"> Can they describe changes using scientific words? (evaporation, condensation) Can they demonstrate that dissolving, mixing and changes of state are reversible changes? Can they 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? Can they use the terms 'reversible; and 'irreversible'? Can they plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables where necessary? Can they make a prediction with reasons? Can they use test results to make predictions to set up comparative and fair tests? Can they take repeat readings when appropriate? Can they record more complex data and results using scientific diagrams, labels, classification keys, table, scatter graphs, bar and line graphs?
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	Autumn 1 & 2		Spring 1 & 2	Summer 1 & 2	
Year 6	Evolution – is change necessary?		Is duty more important than belief?	How do we cope with adversity?	
Science Topic	Evolution and inheritance	Living things and their habitats	Electricity	Light	Animals including humans
Vocabulary	<ul style="list-style-type: none"> adaptation chromosomes evolution excavating genes inheritance off-spring palaeontologist predators 	<ul style="list-style-type: none"> algae bacteria fungi invertebrates micro-organism Monera Protista species vertebrates 	<ul style="list-style-type: none"> cells conductor dimmer switch fuses generator insulator series circuits socket volts 	<ul style="list-style-type: none"> concave convex cornea iris lens light source light wave pupil refraction 	<ul style="list-style-type: none"> atriums blood vessels capillaries cardiologists cardiovascular drugs muscle pulse ultrasound

				• retina	ventricles
Opportunities to work scientifically	<p>Research Charles Darwin and his work</p> <p>Compare skulls/ body parts of animals as they have evolved</p>	<p>Conditions needed for bread to go mouldy</p> <p>Research the different types of micro-organisms</p> <p>Classify different types of arthropod</p>	<ul style="list-style-type: none"> • Effect of increasing voltage on the brightness of a bulb • Compare brightness of bulb in series and parallel circuits • 	<ul style="list-style-type: none"> • Group materials based on transparency • Compare distance from light source and shadow • 	<p>Impact of exercise on the heart rate</p> <p>Research how drugs affect the body</p> <p>Compare resting heart rate of different people</p>
Knowledge	<ul style="list-style-type: none"> • Know how the Earth and living things have changed over time • Know how fossils can be used to find out about the past • Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) • Know how animals and plants are adapted to suit their environment • Link adaptation over time to evolution • Know about evolution and can explain what it is 	<ul style="list-style-type: none"> • Classify living things into broad groups according to observable characteristics and based on similarities and differences • Know how living things have been classified • Give reasons for classifying plants and animals in a specific way 	<ul style="list-style-type: none"> • Compare and give reasons for why components work and do not work in a circuit • Draw circuit diagrams using correct symbols • Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer • 	<ul style="list-style-type: none"> • Know how light travels • Know and demonstrate how we see objects • Know why shadows have the same shape as the object that casts them • Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc. 	<ul style="list-style-type: none"> • Identify and name the main parts of the human circulatory system • Know the function of the heart, blood vessels and blood • Know the impact of diet, exercise, drugs and lifestyle on health • Know the ways in which nutrients and water are transported in animals, including humans
Skills	<ul style="list-style-type: none"> • Can they recognise the living things have changed over time and that fossils provide information about living things that inhabited the earth millions of years ago? 	<ul style="list-style-type: none"> • Can they describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences including 	<ul style="list-style-type: none"> • Can they identify and name the basic parts of a simple electric series circuit? (cells, wires, bulbs, switches, buzzers) • Can they compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzer, the on/off position of switches? 	<ul style="list-style-type: none"> • Can they recognise that light appears to travel in straight lines? • Can they use the idea that light travels in straight lines to explain that objects are seen 	<ul style="list-style-type: none"> • Can they identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood?

	<ul style="list-style-type: none"> • Can they recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents? • Can they give reasons why offspring are not identical to each other or to their parents? • Can they explain the process of evolution and describe the evidence for this? • Can they identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution? • Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? Can they explain, in simple terms, a scientific idea and what evidence supports it? 	<p>microorganisms, plants and animals?</p> <ul style="list-style-type: none"> • Can they give reasons for classifying plants and animals based on specific characteristics? • Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? • 	<ul style="list-style-type: none"> • Can they use a recognised symbols when representing a simple circuit in a diagram? • Can they explore different ways to test an idea, choose the best way, and give reasons? • Can they identify the key factors when planning a fair test? • Can they vary one factor whilst keeping the others the same in an experiment? Can they explain why they do this? • Can they use information to make a prediction and give reasons for it? • Can they use test results to make further predictions and set up further comparative tests? • Can they find a pattern from their data and explain what it shows? • Can they use a graph to answer scientific questions? • Can they link what they have found out to other science? • Can they suggest how to improve their work and say why they think this? 	<p>because they give out or reflect light into the eye?</p> <ul style="list-style-type: none"> • Can they 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? • Can they use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them? • Can they find a pattern from their data and explain what it shows? • Can they use a graph to answer scientific questions? • Can they link what they have found out to other science? • Can they suggest how to improve their work and say why they think this? • Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? • Can they draw conclusions from their work? Can they report findings from investigations through written explanations and conclusions using appropriate scientific language 	<ul style="list-style-type: none"> • Can they recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function? • Can they describe the ways in which nutrients and water are transported within animals and plants, including humans? Can they explain, in simple terms, a scientific idea and the evidence which supports it?
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