



	Working Scientifically		Rocks	Plants	Animals including humans	Light	Forces and Magnets
Year 3	- Use different ideas and suggest how to find something out - Plan a fair test and explain why it was fair - Set up simple practical enquiries, comparative and fair tests - Explain why they need to collect information to answer a question - Make systematic and careful observations and, where appropriate, take accurate measurements using standard units - Record their observations in different ways, for example, labelled diagrams, charts etc. - Explain what they have found out and use their measurements to say whether it helps to answer their question - Use a range of equipment		- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties - Describe in simple terms how fossils are formed when things that have lived are trapped within rock - Recognise that soils are made from rocks and organic matter	- Identify and describe the functions of different parts of flowering plants, for example, roots, stem/trunk, leaves and flowers - Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant - Investigate the way in which water is transported within plants - Explore the part that flowers play in the life cycle of flowering Plants, including pollination, seed formation and seed dispersal	- Identify that animals, including humans, need the right types and amount of nutrition - Understand that that they cannot make their own food; they get nutrition from what they eat - Identify that humans and some other animals have skeletons and muscles for support, protection and movement	- Recognise that they need light in order to see things and that dark is the absence of light - Notice that light is reflected from surfaces - Recognise that light from the sun can be dangerous and that there are ways to protect their eyes - Recognise that shadows are formed when the light from a light source is blocked by a solid object - Find patterns in the way that the size of shadows change	- Compare how things move on different surfaces - Notice that some forces need contact between two objects, but magnetic forces can act at a distance - Observe how magnets attract or repel each other and attract some materials and not others - Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials - Describe magnets as having two poles - Predict whether two magnets will attract or repel each other, depending on which poles are facing
Vocabulary LKS2	develop enquiry practical enquiry fair test comparative test relationships conclusion accurate thermometer data logger estimate data diagram key (identifying)	table chart bar chart results predictions explanation reason similarity difference question evidence information findings criteria values properties characteristics	Rock soil fossil organic matter Igneous Metamorphic Sedimentary	Functions Nutrients nutrition air transport (water) life cycle pollination seed formation seed dispersal reproduce	nutrition diet skeleton muscles protection support movement bones skull	Light dark (absence of light) reflect shadow opaque mirror reflective surface	move movement surfaces forces push pull contact distance magnet bar magnet ring magnet horseshoe magnet attract repel poles (of magnets) magnetic materials



	Working Scientifically		States of Matter	Electricity	Sound	Living things and their habitats		Animals including humans
Year 4	- Ask relevant questions and use different types of scientific enquiries to answer them - Set up simple practical enquiries, comparative and fair tests - Decide which information needs to be collected and decide which is the best way for collecting it - Take measurements using different equipment and units of measure and record what they have found in a range of ways - Make accurate measurements using standard units - Explain their findings in different ways, for example, display, presentation, writing - Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - Make predictions based on something they have found out - Record and present what they have found using scientific language, drawings, labelled diagrams, keys, bar charts and tables		- Compare and group materials together, according to whether they are solids, liquids or gases - Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) - Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	- Identify common appliances that run on electricity - Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers - Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery - Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - Recognise some common conductors and insulators, and associate metals with being good conductors	- Identify how sounds are made, associating some of them with something vibrating - Recognise that vibrations from sounds travel through a medium to the ear - Find patterns between the pitch of a sound and features of the object that produced it - Find patterns between the volume of a sound and the strength of the vibrations that produced it - Recognise that sounds get fainter as the distance from the sound source increases	- Construct and interpret a variety of food chains, identifying producers, predators and prey - Recognise that living things can be grouped in a variety of ways - Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - Recognise that environments can change and this can sometimes pose dangers to living things		- Identify and describe the simple functions of the basic parts of the human digestive system - Describe the simple functions of the organs of the human digestive system - Identify the different types of human teeth and their simple functions
Vocabulary LKS2	develop enquiry practical enquiry fair test comparative test relationships conclusion accurate thermometer data logger estimate data diagram key (identifying)	table chart bar chart results predictions explanation reason similarity difference question evidence information findings criteria values properties characteristics	solid liquid gas temperature heat (heating) cool (cooling) water cycle evaporation condensation melting freezing	electricity simple circuit light bulb cell wire buzzer switch motor battery series circuit conductor insulator	sound vibration vibrate pitch volume insulation	environment non-flowering plants ferns mosses flowering plants grasses vertebrate animals: fish, birds, mammals, amphibians, reptiles	invertebrate animals: snails, worms, slugs, spiders, insects human impact – litter, deforestation, population increase, nature reserves	digestive system stomach small intestine large intestine oesophagus types of teeth: molar, premolar, incisor, canine saliva



	Working Scientifically	Forces	Earth and Space	Properties and changing materials		Animals including Humans	Living things and their habitats
Year 5	- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - Use test results to make predictions to set up further comparative and fair tests - Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations - Identify scientific evidence that has been used to support or refute ideas or arguments	- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object - Identify the effects of air resistance, water resistance and friction, that act between moving surfaces - Recognise that some mechanisms including levers, pulleys and gears, allow a smaller force to have a greater effect	- Describe the movement of the Earth, and other planets, relative to the Sun in the solar system - Describe the movement of the Moon relative to the Earth - Describe the Sun, Earth and Moon as approximately spherical bodies - Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky	- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets - Know that some materials will dissolve in liquid to form a solution - Describe how to recover a substance from a solution - Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating - Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic - Demonstrate that dissolving, mixing and changes of state are reversible changes - Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	Describe the changes as humans develop to old age	- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird - Describe the life process of reproduction in some plants and animals	
Vocabulary UKS2	<i>variables</i> <i>evidence</i> <i>justify</i> <i>accuracy</i> <i>precision</i> <i>scatter graphs</i> <i>bar graphs</i> <i>line graphs</i> <i>argument (science)</i> <i>causal relationship</i>	<i>gravity</i> <i>air resistance</i> <i>water resistance</i> <i>friction</i> <i>levers</i> <i>pulleys</i> <i>gears</i> <i>springs</i>	<i>solar system</i> <i>planets: Mercury, Venus, earth, Mars, Jupiter, Saturn, Neptune, Uranus</i> <i>moon</i> <i>stars</i> <i>spherical bodies</i> <i>rotation</i> <i>orbit</i> <i>satellite</i>	<i>properties</i> <i>hardness</i> <i>solubility</i> <i>transparency</i> <i>electrical</i> <i>conductivity</i> <i>thermal conductivity</i> <i>magnetism</i> <i>dissolve</i> <i>solution</i> <i>substance</i>	<i>separating</i> <i>mixing</i> <i>filtering</i> <i>sieving</i> <i>reversible change</i> <i>burning</i> <i>rusting</i> <i>reactions</i> <i>irreversible change</i>	<i>puberty</i> <i>gestation period</i>	<i>life cycles</i> <i>reproduction</i> <i>life processes</i> <i>sexual and asexual reproduction (plants)</i> <i>root cuttings</i>



	Working Scientifically	Light	Electricity	Living things and their habitats	Animals including Humans	Evolution and Inheritance
Year 6	- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - Take measurements, using a range of scientific equipment, with increasing accuracy and precision - Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs - Use test results to make predictions to set up further comparative and fair tests - Use simple models to describe scientific ideas - Report and present findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations - Identify scientific evidence that has been used to support or refute ideas or arguments	- Recognise that light appears to travel in straight lines - Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye - Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes - Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them	- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit - Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches - Use recognised symbols when representing a simple circuit in a diagram	- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals - Give reasons for classifying plants and animals based on specific characteristics	- Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood - Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function - Describe the ways in which nutrients and water are transported within animals, including humans	- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago - Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents - Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
Vocabulary UKS2	variables evidence justify accuracy precision scatter graphs bar graphs line graphs argument (science) causal relationship	light sources periscope	voltage components symbols circuit diagram	classification microorganisms organisms	blood vessels blood lifestyle disease water transportation nutrient transportation oxygen air breathing exercise diet drugs	evolution evolve adaptation variation inherit inheritance