Key skills Progression KS2

National Curriculum requirements by year group				
Subject	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Plants	identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients, room to grow) and how they vary 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 dispersal.			
Animals (including humans)	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 identify that humans and some other animals have skeletons and muscles for support, protection and movement.	describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey .	describe the changes as humans develop to old age.	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.
Living things and their habitats		recognise that living things can be grouped in a variety of ways explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things.	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.	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
Evolution and Inheritance				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

Materials		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	compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic demonstrate that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	
Rocks	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			
Light	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 changes			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.

Forces and Magnets	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.		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	
Sound		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		
Electricity		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		associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches use recognised symbols when representing a simple circuit in a diagram.
Earth and Space			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.	

Working Scientifically requirements by year group				
Subject	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Enquiring and investigating to obtain evidence	Put forward own ideas about how to find the answers to scientific questions. Recognise the need to collect data to answer questions. Carry out their own fair test with support. Recognise and explain why it is a fair test. With support, begin to realise that scientific ideas are based on evidence.	Understand that scientific ideas are based on evidence. Know how to vary one factor while keeping others the same. Set up their own approach to an investigation to answer questions. Describe which factors will change and which will remain the same and say why.	Use previous knowledge and experience combined with evidence to provide scientific explanations. Recognise the key factors to be considered in carrying out a fair test.	Describe evidence for a scientific idea. Use scientific knowledge to identify an approach for their own investigation. Explain how the investigation leads to new ideas and questions.
Observing and Recording	Make relevant observations. Measure using given equipment. Select equipment from a wider choice.	Carry out measurement accurately using equipment. Make a number of observations, comparisons and measurements. Select and use suitable equipment. Sometimes as a group, make a series of observations and measurements to achieve a task.	Make a series of observations, comparisons & measurements with increasing precision. Select apparatus for a range of tasks. Plan to use different apparatus effectively. Begin to make repeat observations and measurements systematically.	Independently measure quantities with precision using different and fine-scale divisions. Select and use information effectively and efficiently. Independently make enough measurements or observations for the required task.

Science key skills progression by year group				
Subject	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Plants	Explain the different parts of a flowering plant (stem, root, leaves, flower) Investigate what a plant needs to grow well (with help set up an experiment) Investigate the way in which water is transported through plants (with help set up an experiment) To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation	Explain the different parts of a flowering plant (stem, root, leaves, flower) Investigate what a plant needs to grow well (Set up an investigation independently) Investigate the way in which water is transported through plants (Set up an investigation independently) To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed		

	and seed dispersal (draw and label the cycle)	dispersal (Write an explanation of each stage)		
Vocabulary	Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower	Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower		

Subject	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Animals (including humans)	To sort foods into food groups (Eatwell plate) and find out about the nutrients that different foods provide. To explore the nutritional values of different foods by gathering information from food labels. To sort animal skeletons into groups, discussing patterns and similarities and differences (vertebrates and invertebrates) To investigate an idea about how the human skeleton supports movement. To explain how bones and muscles work together to create movement.	To discuss how to keep teeth healthy (cleaning, non-acidic foods); plan and set up an investigation into tooth decay. To draw conclusions about keeping teeth healthy; to identify and examine different types of teeth (incisors, canines and molars) and their functions. To identify the parts of the digestive system and their function (mouth, teeth, oesophagus, intestines, rectum, stomach) To demonstrate and explain the process of digestion (chewing, grinding, swallowing, stomach acid, liquid and nutrient removal, excretion of waste) To construct food chains for different habitats and explain findings using the correct scientific language (identify producer, predator and prey) To compare the teeth of different animals and link this with their role in a food chain (identify different types of teeth for omnivores, herbivores and carnivores)	Name the different stages of development (physical, emotional, social and psychological) I can explain how babies grow and develop (increased weight and height) I can describe and explain the main changes that occur during puberty (oily skin, hair growth, sexual organs change, larynx changes, menstruation) I can identify the changes that take place in old age (changes to hair, skin, height, weight, regeneration of body cells, weaker immune system) Record complex data using graphs and models.	To know the three main parts of the circulatory system (heart, lungs and blood) and describe the job of the heart. To describe the important jobs of the blood vessels and blood (differences between arteries, capillaries and veins carrying oxygenated and deoxygenated blood). To be able to describe the importance of exercise and how it affects the heart. To understand that regular exercise is important for a healthy body. To be able to explain how diet and exercise affect the body. To be able to recognise the impact of drugs and alcohol on the way bodies function.
Vocabulary	Movement, Muscles, Bones, Skull, Nutrition, food types, carbohydrates, protein, vitamins & minerals. Skeletons Vertebrate, invertebrate	Digestive system, Mouth, Tongue, Teeth, Oesophagus, Stomach, digestive Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar	Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty; Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration	Circulatory system, heart, blood vessels, oxygenated blood, deoxygenated blood, drug, alcohol, nutrients

Subject	Year 3	Year 4	Year 5	Year 6
Living things and their habitats	Group (using Venn / Carroll diagrams) living things according to whether they are a plant or animal, by habitat etc Grouping animals that are vertebrates or invertebrates. What is the same? What is different? Classify Invertebrates (insects, annelids, protozoa, crustaceans, Molluscs, arachnids, echinoderms) Classifying keys – create questions to sort animals by characteristics. Identify positive and negative changes to the local environment. Describe environmental dangers (natural changes, deforestation, pollution, urbanisation) and endangered species (Tasmanian Tiger, Quagga, Dodo)	Group (using Venn / Carroll diagrams) living things according to whether they are a plant or animal, by habitat etc Grouping animals that are vertebrates or invertebrates. What is the same? What is different? Classify Invertebrates (insects, annelids, protozoa, crustaceans, Molluscs, arachnids, echinoderms) Classifying keys – create questions to sort animals by characteristics. Identify positive and negative changes to the local environment. Describe environmental dangers (natural changes, deforestation, pollution, urbanisation) and endangered species (Tasmanian Tiger, Quagga, Dodo)	Identify the difference between sexual and asexual. Identify the parts of a flower (stem, ovule, sepal, carpel, ovary, style, stigma, filament anther, stamen, pollen, petal) Explain the process of pollination. Describe asexual reproduction in plants. Identify advantages and disadvantages to sexual and asexual reproduction in plants. Explain different ways to make new plants. Describe the life cycle of different mammals Explain who Jane Goodall is and why chimpanzees are endangered. Explain metamorphosis and give examples. Describe the life cycles of amphibians and insects. Describe the similarities and differences between the life cycles of amphibians and insects. Identify the stages of a bird's life cycle. I can describe the similarities and differences between different plants' and animals' life cycles.	Sort and group animals according to their features and justify choices for grouping Describe who Carl Linnaeus was. Explain how living things are classified using the Linnaean system. Classify living things using the Linnaean system. Identify types of microorganism. Describe helpful and harmful microorganisms. Investigate harmful microorganisms. Describe and compare the structure of different cells. Describe the characteristics of different microorganisms. Sort and group living things found in the local environment.
Vocabulary	Classification, Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats	Classification, Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats	Habitats Mammal, Reproduction, Insect, Amphibian, Bird, Offspring; Classification, Vertebrates, Invertebrates, Microorganisms, Amphibians, Reptiles, Mammals, Insects	Organism. Micro-organism, fungus, classification, arachnid, mollusc, insect, crustacean

Subject	Year 3	Year 4	Year 5	Year 6
Evolution and inheritance			Identify inherited characteristics that are passed on from parent to offspring. Explain how inherited characteristics can lead to variation. Explain what a fossil is and how living things change over time Understand how ideas about evolution developed over time. Explain the terms adaptation, evolution and natural selection. Explain how a living thing has evolved overtime. Identify adaptive traits in humans as a species. Describe the known stages of human evolution. Compare modern humans with members of the same genus and family. Explain how humans have created new varieties of living things through selective breeding. Understand the issues raised by human intervention in the evolutionary process.	Identify inherited characteristics that are passed on from parent to offspring. Explain how inherited characteristics can lead to variation. Explain what a fossil is and how living things change over time Understand how ideas about evolution developed over time. Explain the terms adaptation, evolution and natural selection. Explain how a living thing has evolved overtime. Identify adaptive traits in humans as a species. Describe the known stages of human evolution. Compare modern humans with members of the same genus and family. Explain how humans have created new varieties of living things through selective breeding. Understand the issues raised by human intervention in the evolutionary process.
Vocabulary			Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics	Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics

Subject	Year 3	Year 4	Year 5	Year 6
Materials	Sort materials into solids, liquids or gases. Describe the properties of solids, liquids and gases.	Sort materials into solids, liquids or gases. Describe the properties of solids, liquids and gases.	Describe a material's properties. Explain the uses of different materials based on their properties.	Describe a material's properties. Explain the uses of different materials based on their properties.

	Show the difference between the particles in solids, liquids and gases. Identify solids, liquids and gases. Explain some uses of gases. Investigate the weight of a gas. Understand how heat can cause solids to change to liquids and vice versa. Identify materials that melt at different temperatures. Investigate the melting and freezing temperature of a material. Identify the different states water can be in. Identify the temperatures at which water changes state. Identify and observe the processes that cause water to change state. Explain the effect of temperature on the process of evaporation Plan and carry out a comparative test using equipment accurately and display results. Describe the different stages of the water cycle. Explain the role of evaporation and condensation in the water cycle.	Show the difference between the particles in solids, liquids and gases. Identify solids, liquids and gases. Explain some uses of gases. Investigate the weight of a gas. Understand how heat can cause solids to change to liquids and vice versa. Identify materials that melt at different temperatures. Investigate the melting and freezing temperature of a material. Identify the different states water can be in. Identify the temperatures at which water changes state. Identify and observe the processes that cause water to change state. Explain the effect of temperature on the process of evaporation Plan and carry out a comparative test using equipment accurately and display results. Describe the different stages of the water cycle. Explain the role of evaporation and condensation in the water cycle.	Sort and compare materials according to their properties. Identify materials that are thermal conductors and insulators. Explain what thermal conductors and insulators are. Plan and carry out an investigation into thermal conductors and insulators. Give reasons for the uses of thermal conductors and insulators. Identify electrical conductors and insulators. Explain that some materials are better conductors than others. Carry out an investigation to find the best electrical conductor. Describe dissolving. Explain the difference between melting and dissolving. Identify materials which will dissolve in water. Investigate factors which affect the speed of dissolving. Identify different ways materials can be mixed together. Use sieving, filtering, evaporating and other processes to separate mixtures of materials. Know when to use which processes to separate mixtures. Identify irreversible chemical changes.	Sort and compare materials according to their properties. Identify materials that are thermal conductors and insulators. Explain what thermal conductors and insulators are. Plan and carry out an investigation into thermal conductors and insulators. Give reasons for the uses of thermal conductors and insulators. Identify electrical conductors and insulators. Explain that some materials are better conductors than others. Carry out an investigation to find the best electrical conductor. Describe dissolving. Explain the difference between melting and dissolving. Identify materials which will dissolve in water. Investigate factors which affect the speed of dissolving. Identify different ways materials can be mixed together. Use sieving, filtering, evaporating and other processes to separate mixtures of materials. Know when to use which processes to separate mixtures. Identify irreversible chemical changes. Explain irreversible chemical changes.

			Explain irreversible chemical changes. Describe the new materials created in irreversible chemical changes.	Describe the new materials created in irreversible chemical changes.
Vocabulary	States of Matter Solid, Liquid, Gas, Evaporation, Condensation, water cycle, Particles, Temperature, Freezing,	States of Matter Solid, Liquid, Gas, Evaporation, Condensation, water cycle, Particles, Temperature, Freezing,	Properties, including changes of, materials Hardness, Solubility, Transparent, Opaque, Translucent, Magnetic, Filter,	Properties, including changes of, materials Hardness, Solubility, Transparent, Opaque, Translucent, Magnetic, Filter,

Subject	Year 3	Year 4	Year 5	Year 6
Rocks	Name the three different types of rocks (igneous, sedimentary, metamorphic) Explain the difference between natural (see above) and human-made rocks (concrete, mock rock, bricks) Use the appearance of rocks to group and compare them (hard, soft, permeable, impermeable, durable, density) Identify the difference between a bone and a fossil Order how a fossil is formed. Explain what a palaeontologist does. Understand why Mary Anning's fossil findings were important. Describe how palaeontology has changed our understanding of prehistoric animals. Explain that soil is composed of different things (air, water, minerals, organic matter) Describe the 4 processes of soil formation (additions, losses, transformations, translocations)	Name the three different types of rocks (igneous, sedimentary, metamorphic) Explain the difference between natural (see above) and human-made rocks (concrete, mock rock, bricks) Use the appearance of rocks to group and compare them (hard, soft, permeable, impermeable, durable, density) Identify the difference between a bone and a fossil Order how a fossil is formed. Explain what a palaeontologist does. Understand why Mary Anning's fossil findings were important. Describe how palaeontology has changed our understanding of prehistoric animals. Explain that soil is composed of different things (air, water, minerals, organic matter) Describe the 4 processes of soil formation (additions, losses, transformations, translocations) Observe how much water has filtered through different types of soil.		

	Observe how much water has filtered through different types of soil.			
Vocabulary	Fossils, Soils, chalky, Sandstone, Granite, Marble, Pumice, Crystals, sedimentary, metamorphic, igneous, absorbent/porous durable, permeable, impermeable	Fossils, Soils, chalky, Sandstone, Granite, Marble, Pumice, Crystals, sedimentary, metamorphic, igneous, absorbent/porous durable, permeable, impermeable		

Subject	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Light	Identify a range of light sources (candle, fire, lightening, lantern, TV, sun, lighthouse, lamp, torch, fireworks) Explain that dark is caused by the absence of light. Explain that light is required to see things. Explain reflection. Identify reflective materials (CDs, tin foil, paper, different fabrics, bubble wrap, cardboard) Select the most reflective material for a purpose (CDs, tin foil, paper, different fabrics, bubble wrap, cardboard) Explain why mirrors are good reflectors. Use mirrors to reflect light onto different objects. Explain the benefits and dangers of the sun. Explain about UV light and its dangers.	Identify a range of light sources (candle, fire, lightening, lantern, TV, sun, lighthouse, lamp, torch, fireworks) Explain that dark is caused by the absence of light. Explain that light is required to see things. Explain reflection. Identify reflective materials (CDs, tin foil, paper, different fabrics, bubble wrap, cardboard) Select the most reflective material for a purpose (CDs, tin foil, paper, different fabrics, bubble wrap, cardboard) Explain why mirrors are good reflectors. Use mirrors to reflect light onto different objects. Explain the benefits and dangers of the sun. Explain about UV light and its dangers. Describe ways to protect our eyes from the sun.	Demonstrate that light travels in a straight line. Create a model to show how light travels from a light source to our eyes, or to an object and then our eyes. Explain how we see things. Explain how light is reflected. Measure the angles of incidence and reflection. Use your understanding of reflection to create a working periscope and explain how it works. Understand how light is refracted. Investigate the effects of refraction. Understand the way refraction alters the direction of light. Understand how a prism affects a ray of light. Explain what this tells us about the visible spectrum.	Demonstrate that light travels in a straight line. Create a model to show how light travels from a light source to our eyes, or to an object and then our eyes. Explain how we see things. Explain how light is reflected. Measure the angles of incidence and reflection. Use your understanding of reflection to create a working periscope and explain how it works. Understand how light is refracted. Investigate the effects of refraction. Understand the way refraction alters the direction of light. Understand how a prism affects a ray of light. Explain what this tells us about the visible spectrum. Describe what Isaac Newton discovered about light.

	Describe ways to protect our eyes from the sun. Explain how light travels. Sort different materials according to whether they are opaque, transparent or translucent. Explain how a shadow is formed. Plan and set up an investigation about the way shadows change size.	Explain how light travels. Sort different materials according to whether they are opaque, transparent or translucent. Explain how a shadow is formed. Plan and set up an investigation about the way shadows change size.	Describe what Isaac Newton discovered about light. Make a colour wheel and explain what it shows about light. Explain what Isaac Newton discovered about colour. Investigate and understand how light enables us to see colours. Explain how a shadow is formed. Explain why shadows are the same shape as the object that casts them. Using knowledge of Isaac Newton's ideas about light to create a shadow puppet play.	Make a colour wheel and explain what it shows about light. Explain what Isaac Newton discovered about colour. Investigate and understand how light enables us to see colours. Explain how a shadow is formed. Explain why shadows are the same shape as the object that casts them. Using knowledge of Isaac Newton's ideas about light to create a shadow puppet play.
Vocabulary	Light, source, see, visible, travel, reflection, angle, incidence, periscope, mirror smooth, shiny reverse, translucent, shadow, filter, absorb, observe, pattern, cast, shadows, mirror, reflective, dark	Light, source, see, visible, travel, reflection, angle, incidence, periscope, mirror smooth, shiny reverse, translucent, shadow, filter, absorb, observe, pattern, cast, shadows, mirror, reflective, dark	Refraction, Image, illuminate, straight line, waves, ray, beam, photon, energy, vacuum, scatter, bend, lens, transparent, UV light, UV rating, spectrum, pupil, retina, wavelength, rainbow, opaque,	Refraction, Image, illuminate, straight line, waves, ray, beam, photon, energy, vacuum, scatter, bend, lens, transparent, UV light, UV rating, spectrum, pupil, retina, wavelength, rainbow, opaque,

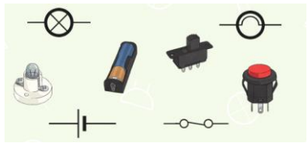
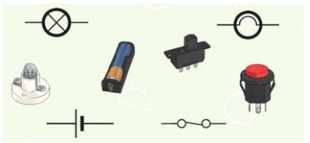
Subject	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Forces	Name different forces (push, pull) Identify when a push or pull is being used Explain the force of friction. Make a prediction about which surfaces creates the most friction for a toy car Explain that magnets produce a force that attracts some materials. Use a magnet to separate items that are magnetic and non-magnetic.	Name different forces (push, pull) Identify when a push or pull is being used Explain the force of friction. Make a prediction about which surfaces creates the most friction for a toy car Explain that magnets produce a force that attracts some materials. Use a magnet to separate items that are magnetic and non-magnetic.	Identify forces as pushes and pulls. Identify and explain the different forces acting on objects. Explain the effect of gravity on unsupported objects. Explain Isaac Newton's role in developing the theory of gravity. Accurately measure the force of gravity pulling on objects using a Newton meter. Explain how air resistance affects moving objects.	Identify forces as pushes and pulls. Identify and explain the different forces acting on objects. Explain the effect of gravity on unsupported objects. Explain Isaac Newton's role in developing the theory of gravity. Accurately measure the force of gravity pulling on objects using a Newton meter. Explain how air resistance affects moving objects.

	Name some magnetic materials and some non-magnetic materials. Identify different types of magnet. Predict which magnet will be the strongest. Test a prediction by adding paperclips to different magnets. Identify the poles of a magnet. Look at poles to say whether two magnets will attract or repel each other. Explain that a compass always points north-south. Identify materials that are attracted to magnets. Use the force of magnetic attraction to make a magnetic game. Explain how a magnetic game works by attracting materials.	Name some magnetic materials and some non-magnetic materials. Identify different types of magnet. Predict which magnet will be the strongest. Test a prediction by adding paperclips to different magnets. Identify the poles of a magnet. Look at poles to say whether two magnets will attract or repel each other. Explain that a compass always points north-south. Identify materials that are attracted to magnets. Use the force of magnetic attraction to make a magnetic game. Explain how a magnetic game works by attracting materials.	Plan and investigate the effects of air resistance. Explain the effects of water resistance. Identify streamlined shapes. Minimise the effects of water resistance on an object. Explain the effects of friction on a moving vehicle. Investigate the effects of friction created by different materials. Explain how different mechanisms work (pulleys and levers) Investigate a simple mechanism. Design a mechanism for a given purpose.	Plan and investigate the effects of air resistance. Explain the effects of water resistance. Identify streamlined shapes. Minimise the effects of water resistance on an object. Explain the effects of friction on a moving vehicle. Investigate the effects of friction created by different materials. Explain how different mechanisms work (pulleys and levers) Investigate a simple mechanism. Design a mechanism for a given purpose.
Vocabulary	Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull	Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull	Forces, Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys, lever, force, pivot (fulcrum)	Forces, Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys, lever, force, pivot (fulcrum)

Subject	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Sound	Identify and describe sound sources around school. Explain how sources of sound vibrate, creating sound. Describe how vibrations make sounds.	Identify and describe sound sources around school. Explain how sources of sound vibrate, creating sound. Describe how vibrations make sounds.		

	Explain how vibrations change when a sound gets louder. Explain how loud and quiet sounds travel to our ears. Identify and describe high and low sounds. Observe and describe patterns between the pitch of a sound and features of the object that made the sound. Create a musical instrument and explain how it makes high and low sounds. Identify how sounds change over distance. Identify sounds at a distance. Create a string telephone and explain how sound travels through it. Explain that sound needs something to travel through. Investigate the best material for absorbing sound. Explain why some materials absorb sounds. Create a musical instrument that will play sounds of different pitch and loudness. Explain how my musical instrument makes different sounds.	Explain how vibrations change when a sound gets louder. Explain how loud and quiet sounds travel to our ears. Identify and describe high and low sounds. Observe and describe patterns between the pitch of a sound and features of the object that made the sound. Create a musical instrument and explain how it makes high and low sounds. Identify how sounds change over distance. Identify sounds at a distance. Create a string telephone and explain how sound travels through it. Explain that sound needs something to travel through. Investigate the best material for absorbing sound. Explain why some materials absorb sounds. Create a musical instrument that will play sounds of different pitch and loudness. Explain how my musical makes different sounds.		
Vocabulary	sound, vibration, volume, amplitude, sound wave, vocal chords, Eardrum, ear canal, small bones, cochlea, Pitch, high, low, change sound distance, loud,	sound sources, vibration, volume, vibration, vocal chords, amplitude, sound wave, particle, medium, Pinna, stirrup, anvil, hammer, eardrum, cochlea, nerve, Eustachian tube pitch, high, low, column		

	quiet, telephone solids, liquids, medium	of air, length of string distance, loud, quiet, telephone, transmit, solids, liquids, vacuum, medium,		

Subject	Year 3	Year 4	Year 5	Year 6
Electricity	Identify electrical and non-electrical appliances (washing machine, mobile phone, fan, hairdryer, iron, can opener, vacuum cleaner, fridge). Group appliances (using a Venn diagram) based on whether they are mains- or battery-powered. Identify the different components (parts) in a circuit (bulb, cell, switch) Explain how to work safely with electrical components. Build a working series circuit. Draw labelled diagrams of my circuits. Explain how an energy ball works. Make a prediction about whether a circuit will work. Identify circuits as incomplete or complete circuits. Explain what makes a complete circuit and why a circuit may be incomplete. Explain what electrical conductors and insulators are. Carry out an investigation where I only change one thing and keep everything else the same.	Identify electrical and non-electrical appliances (washing machine, mobile phone, fan, hairdryer, iron, can opener, vacuum cleaner, fridge). Group appliances (using a Venn diagram) based on whether they are mains- or battery-powered. Identify the different components (parts) in a circuit (bulb, cell, switch) Explain how to work safely with electrical components. Build a working series circuit. Draw labelled diagrams of my circuits. Explain how an energy ball works. Make a prediction about whether a circuit will work. Identify circuits as incomplete or complete circuits. Explain what makes a complete circuit and why a circuit may be incomplete. Explain what electrical conductors and insulators are. Carry out an investigation where I only change one thing and keep everything else the same.	Identify how our understanding of electricity has changed over time. Explain how major discoveries affected our understanding and use of electricity. Know the scientific symbols for the main parts of a circuit.  Create circuit diagrams using scientific symbols. Draw circuit diagrams indicating the voltage. Explain the effect of increasing or decreasing the voltage on different parts of a circuit. Create an investigation to explain how wire length affects the circuit (plan, carry out and evaluate)	Identify how our understanding of electricity has changed over time. Explain how major discoveries affected our understanding and use of electricity. Know the scientific symbols for the main parts of a circuit.  Create circuit diagrams using scientific symbols. Draw circuit diagrams indicating the voltage. Explain the effect of increasing or decreasing the voltage on different parts of a circuit. Create an investigation to explain how wire length affects the circuit (plan, carry out and evaluate)

	Test materials to identify if they are electrical conductors or insulators. Explain what a switch is and the job it does in a circuit. Name some different types of switches (push button, slide, toggle). Build a switch and use it in a series circuit.	Test materials to identify if they are electrical conductors or insulators. Explain what a switch is and the job it does in a circuit. Name some different types of switches (push button, slide, toggle). Build a switch and use it in a series circuit.		
Vocabulary	Appliance, device, Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, components, positive/negative crocodile clip, bright/ dim	Appliance, device, Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, components, positive/negative crocodile clip, bright/ dim	As LKS2 plus Voltage, current, Resistance, solar power, wind power, generate, turbines, fossil fuels, vary circuits, symbols	As LKS2 plus Voltage, current, Resistance, solar power, wind power, generate, turbines, fossil fuels, vary circuits, symbols

Subject	Year 3	Year 4	Year 5	Year 6
Earth and Space			Describe a sphere. Describe the Sun, Earth and Moon as spherical. Name at least two different shapes the Earth was thought to be. Name the planets in the solar system Describe some features of the planets. Place the planets in the solar system in the correct order Explain how the planets orbit the Sun. Distinguish between heliocentric and geocentric ideas of planetary movement. Explain theories of planetary movement in the solar system using evidence. Explain how night and day occur.	Describe a sphere. Describe the Sun, Earth and Moon as spherical. Name at least two different shapes the Earth was thought to be. Name the planets in the solar system Describe some features of the planets. Place the planets in the solar system in the correct order Explain how the planets orbit the Sun. Distinguish between heliocentric and geocentric ideas of planetary movement. Explain theories of planetary movement in the solar system using evidence. Explain how night and day occur.

			Explain that day and night is due to rotation of the Earth. Write a report making predictions about night and day in different places on Earth. Explain why night and day occur at different times in different places on Earth. Explain that the Moon orbits the Earth not the Sun. Explain how the Moon moves relative to the Earth. Explain how the Earth and Moon move relative to the Sun.	Explain that day and night is due to rotation of the Earth. Write a report making predictions about night and day in different places on Earth. Explain why night and day occur at different times in different places on Earth. Explain that the Moon orbits the Earth not the Sun. Explain how the Moon moves relative to the Earth. Explain how the Earth and Moon move relative to the Sun.
Vocabulary			Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation, waxing, waning, full, new, year, month, geocentric model, heliocentric model, shadow clocks, sundials, astronomical clocks	Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation, waxing, waning, full, new, year, month, geocentric model, heliocentric model, shadow clocks, sundials, astronomical clocks