Science

		Big Idea: Change					
		ASPECT: Living Things					
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class. Making observations and drawing pictures of animals and plants Know that other children do not always enjoy the same things, and is sensitive to this.	Animals, including humans Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Plants: Identify and describe the basic structure of a variety of common flowering plants, including trees. Plants Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Animals, including humans Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Identify and name a variety of common animals including fish,	Plants Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Living things & their habitats Explore and compare the differences between things that are living, dead, and things that have never been alive. Animals, including humans Notice that animals, including humans, have offspring which grow into adults. Living things & their habitats Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify	Plants Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Animals, including humans Identify that humans and some other animals have skeletons and muscles for support, protection and movement. 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. Plants Investigate the way in which water is transported within plants. Explore the requirements of plants for life and	Living things & their habitats Recognise that environments can change and that this can sometimes pose dangers to living things. Animals, including humans Construct and interpret a variety of food chains, identifying producers, predators and prey. Animals, including humans Describe the simple functions of the basic parts of the digestive system in humans. Animals, including humans Identify the different types of teeth in humans and their simple functions. Living things & their habitats Explore and use classification keys to help group, identify and name	Animals, including humans Describe the changes as humans develop to old age. Living things & their habitats Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Living things and their habitats Describe the life process of reproduction in some plants and animals.	Evolution & 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. Living things & their habitats 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. Evolution & inheritance Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

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		amphibians, reptiles, birds and mammals.	and name different sources of food. <u>Animals, including humans</u> Notice that animals, including humans, have offspring which grow into adults. <u>Animals, including humans</u> Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). <u>Animals, including humans</u> Describe the importance of exercise, eating the right amounts of different types of food, and hygiene. <u>Living things & their habitats</u> Identify and name a variety of plants and animals in their habitats, including microhabitats. Identify that most living things live in habitats to which they are suited and describe how different	growth (air, light, water, nutrients from soil and room to grow) and how they vary from plant to plant.	a variety of living things in their local and wider environment. <u>Living things and their habitats</u> Recognise that living things can be grouped in a variety of ways.		<u>Animals, including humans</u> Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. <u>Animals, including humans</u> Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. <u>Living things and their habitats</u> Give reasons for classifying plants and animals based on specific characteristics.

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			habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.				
Skills	Makes observations of animals and plants and explains why some things occur, and talks about changes Talk about past and present events in their own life and in the lives of family members Explore the natural world around them, making observations and drawing pictures of animals and plants	Describe, following observation, how plants and animals change over time. Draw and label the main parts of the human body and say which body part is associated with which sense. Identify, compare, group and sort a variety of common wild and garden plants, including deciduous and evergreen trees, based on observable features. Identify, compare, group and sort a variety of common animals, including fish, amphibians, reptiles, birds, invertebrates and mammals, based on observable features.	Observe and describe how seeds and bulbs change over time as they grow into mature plants. Compare and group things that are living, dead or have never been alive. Describe the stages of human development (baby, toddler, child, teenager, adult and elderly). Describe what humans need to survive. Describe the importance of a healthy lifestyle, including exercise, a balanced diet and good hygiene. Describe a range of local habitats and habitats beyond their locality (beaches, rainforests, deserts, oceans and mountains) and what all	Draw and label the life cycle of a flowering plant. Describe how humans need the skeleton and muscles for support, protection and movement. Explain the importance and characteristics of a healthy, balanced diet. Identify and group animals that have no skeleton, an internal skeleton (endoskeleton) and an external skeleton (exoskeleton).	Explain how unfamiliar habitats, such as a mountain or ocean, can change over time and what influences these changes. Describe the purpose of the digestive system, its main parts and each of their functions. Describe what damages teeth and how to look after them. Compare, sort and group living things from a range of environments, in a variety of ways, based on observable features and behaviour. Describe how environments can change due to human and natural influences and the impact this can have on living things.	Describe the changes as humans develop from birth to old age. Compare the life cycles of animals, including a mammal, an amphibian, an insect and a bird. Describe the process of human reproduction. Explain why personal hygiene is important during puberty. Group and sort plants by how they reproduce.	Explain that living things have changed over time, using specific examples and evidence. Compare the living things in two contrasting areas of a habitat (top vs bottom of a hill, full sun vs shade, exposed location vs sheltered location or welltrodden path vs unused area Report on and validate their findings, answer questions and justify their methods, opinions and conclusions, and use their results to suggest improvements to their methodology, separate facts from opinions, pose further questions and make predictions for what they might

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			habitats provide for the things that live there				observe. Name and describe the purpose of the circulatory system and the functions of the heart, blood vessels and blood. Explain the impact of positive and negative lifestyle choices on the body. Use and construct classification systems to identify animals and plants from a range of habitats. Classify living things, including microorganisms, animals and plants, into groups according to common observable characteristics and based on similarities and differences. Research unfamiliar animals and plants from a range of habitats, deciding upon and explaining where they belong in the classification system

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Knowledge	Knows about similarities and differences in relation to places, objects, materials and living things. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Knows about similarities and differences between themselves and others, and among families, communities, cultures and traditions	All living things (plants and animals) change over time as they grow and mature. The basic body parts are the head, arms, legs, nose, eyes, ears, mouth, hands and feet. The five senses are hearing, sight, smell, taste and touch. Ears are used for hearing, eyes are used to see, the nose is used to smell, the tongue is used to taste and skin gives the sense of touch. Plants are living things. Common plants include the daisy, daffodil and grass. Trees are large, woody plants and are either evergreen or deciduous. Trees that lose their leaves in the autumn are called deciduous trees. Examples include oak, beech and rowan. Trees that keep their leaves all year round are called evergreen trees. Examples include holly and pine. Animals are living things. Animals can be sorted and	Plants grow from seeds and bulbs. Seeds and bulbs need nutrients from soil, water and warmth to start growing (germinate). As the plant grows bigger, it develops leaves and flowers. Living things are those that are alive. Dead things are those that were once living but are no longer. Some things have never been alive. Human offspring go through different stages as they grow to become adults. These include baby, toddler, child, teenager, adult and elderly. Humans need water, food, air and shelter to survive. A healthy lifestyle includes exercise, good hygiene and a balanced diet. Objects, materials and living things can be looked at, compared and grouped according to their features.	Flowers are important in the life cycle of flowering plants. The stages of a plant's life cycle include germination, flower production, pollination, fertilisation, seed formation and seed dispersal. Insects and the wind can transfer pollen from one plant to another (pollination). Animals, wind, water and explosions can disperse seeds away from the parent plant (seed dispersal). Humans have a skeleton and muscles for movement, support and protecting organs. Major bones in the human body include the skull, ribs, spine, humerus, ulna, radius, pelvis, femur, tibia and fibula. Major muscle groups in the human body include the biceps, triceps, abdominals, trapezius, gluteal, hamstrings, quadriceps, deltoids, gastrocnemius, latissimus dorsi and pectorals.	Habitats change over time, either due to natural or human influences. Natural influences include extreme or unseasonable weather. Human influences include habitat destruction or pollution. These changes can pose a risk to animals and plants that live in the habitat. The digestive system is responsible for digesting food and absorbing nutrients and water. The main parts of the digestive system are the mouth, esophagus, stomach, small intestines, large intestines and rectum. The mouth starts digestion by chewing food and mixing it with saliva. The esophagus transports the chewed food to the stomach, where it mixes with stomach acid and gets broken down into smaller pieces. In the small intestine, nutrients from the food are absorbed by the body. In the large intestine, water is absorbed by the body. The remaining undigested waste is stored in the	Humans go through characteristic stages as they develop towards old age. These stages include baby, infant, toddler, child, adolescent, young adult, adult and senior citizen. Puberty is the transition between childhood and adulthood. A life cycle is the series of changes in the life of a living thing and includes these basic stages: birth, growth, reproduction and death. Mammals' life cycles include the stages: embryo, baby, adolescent and adult. Amphibians' life cycles include the stages: egg, larva (tadpole), adolescent and adult. Some insects' (butterflies, beetles and bees) life cycles include the stages: egg, larva, pupa and adult. Birds' life cycles include the stages: egg, baby, adolescent and adult. Humans reproduce sexually, which involves two parents (one female and one male) and produces offspring that	Scientists compare fossilised remains from the past to living species that exist today to hypothesise how living things have evolved over time. Humans and apes share a common ancestry and evidence for this comes from fossil discoveries and genetic comparison. Environmental factors can affect the distribution of living things within a habitat. These factors include light (intensity and duration), weather, altitude, soil type and humans, such as when we mow or trample grass. The circulatory system includes the heart, blood vessels and blood. The heart pumps blood through the blood vessels and around the body. There are three types of blood vessel: arteries, veins and capillaries. They each

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		grouped into six main groups: fish, amphibians, reptiles, birds, invertebrates and mammals.	Identify and name a variety of plants and animals in a range of habitats and microhabitats. Describe the basic life cycles of some familiar animals (egg, caterpillar, pupa, butterfly; egg, chick, chicken; spawn, tadpole, froglet, frog). A habitat is a place where a living thing lives. A microhabitat is a very small habitat. Local habitats include parks, woodland and gardens. Habitats beyond the locality include beaches, rainforests, deserts, oceans and mountains. All living things live in a habitat to which they are suited and it must provide everything they need to survive Animals have offspring that grow into adults. Different animals have different stages of growth or life cycles.	Humans have to get nutrition from what they eat. It is important to have a balanced diet made up of the main food groups, including proteins, carbohydrates, fruit and vegetables, dairy products and alternatives, and fats and spreads. Humans need to stay hydrated by drinking water Some animals have skeletons for support, movement and protection. Endoskeletons are those found inside some animals, such as humans, cats and horses. Exoskeletons are those found on the outside of some animals, such as beetles and flies. Some animals have no skeleton, such as slugs and jellyfish.	rectum before excretion through the anus. Regular teeth brushing, limiting sugary foods and visiting the dentist are important for good oral hygiene. Scientists classify living things according to shared characteristics. Animals can be divided into six main groups: mammals, reptiles, amphibians, birds, fish and invertebrates. These groups can be further subdivided. Classification keys are scientific tools that aid the identification of living things. Humans can affect habitats in negative ways, such as littering, pollution and land development, or positive ways, such as garden ponds, bird boxes and wildflower areas.	are different from the parents. Good personal hygiene (washing, wearing clean clothes and brushing teeth) can prevent disease or illness. Puberty is the period during which adolescents reach sexual maturity and become capable of reproduction. It causes physical and emotional changes. Flowering plants reproduce sexually. The flower is essential for sexual reproduction. Other plants reproduce asexually. Bulbs, corms and rhizomes are some parts used in asexual reproduction in plants.	have a different-sized hole (lumen) and walls. The blood carries gases (oxygen and carbon dioxide), water and nutrients to where they are needed. The red blood cells carry oxygen and carbon dioxide around the body. The blood also contains white blood cells, which protect the body from infection. Lifestyle choices can have a positive (exercise and eating healthily) or negative (drugs, smoking and alcohol) impact on the body. Classification keys help us identify living things based on their physical characteristics. Scientists classify living organisms into broad groups according to their characteristics. Vertebrates are an example of a classification group. There are a number of ranks, or levels, within

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							the biological classification system. The first rank is called a kingdom, the second a phylum, then class, order, family, genus and species. Living things are classified into groups, according to common observable characteristics and based on similarities and differences. Describe some significant changes that have happened on Earth and the evidence, such as fossils, that support this.
Vocabulary		Fish amphibians reptiles birds mammals meat plant omnivores carnivores herbivores senses seed bulb root petal leaves stem	Offspring spawn nutrition reproduce survival hygiene exercise baby toddler child teenager adult egg caterpillar pupa butterfly leaf litter woodland rainforests foodchain micro-habitats habitats germination temperature	Nutrition nutrients carbohydrates protein fats fibre vitamins minerals skeleton endoskeleton exoskeleton hydrostatic vertebrate invertebrate muscles ball/socket/hinge/gliding joint deciduous evergreen blossom bud bulb	Digestion saliva oesophagus transports stomach acid enzymes small intestine Large intestine Vitamins incisors canines molars producers prey predator flowering/nonflowering ecology population deforestation	Puberty life cycle gestation foetus fertilization life expectancy adolescence adulthood prehistoric sexual asexual David Attenborough Jane Goodall	Evolution adaptation inherited traits natural selection inheritance DNA genes variation fossilization Species microorganisms organisms Internal organs circulatory blood vessels Charles Darwin Mary Anning

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Science topic				Plants Animals, including humans	Living things and their habitat Animals, including humans	Living things and their habitat Animals, including humans	Living things and their habitat Animals, including humans Evolution and inheritance

		Big Idea: Phenomena					
		ASPECT: Light					
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum				Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Find patterns in the way that the size of shadows change. Notice that light is reflected from surfaces. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Recognise that they need light in order to see things and that dark is the			Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Recognise that light appears to travel in straight lines. Recognise that light appears to travel in straight lines.

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				absence of light.			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.
Skills				Explain why light from the Sun can be dangerous. Set up and carry out some simple, comparative and fair tests, making predictions for what might happen. Make increasingly careful observations, identifying similarities, differences and changes and making simple connections. Find patterns in the way shadows change during the day. Describe the differences between dark and light			Explain, using words, diagrams or a model, why shadows have the same shape as the objects that cast them and how shadows can be changed. Identify that light travels in straight lines. Explain that, due to how light travels, we can see things because they give out or reflect light into the eye. Describe, using scientific language, phenomena associated with light (rainbows, colours on soap

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				and how we need light to be able to see. Explain, using words or diagrams, how shadows are formed when a light source is blocked by an opaque object.			bubbles and refraction in a glass of water).
Knowledge		A shadow is formed when light from a light source, such as the Sun, is blocked by an opaque object, but not by transparent objects.		Light from the Sun is damaging for vision and the skin. Protection from the Sun includes sun cream, sun hats, sunglasses and staying indoors or in the shade. Tests can be set up and carried out by following or planning a set of instructions. A prediction is a best guess for what might happen in an investigation based on some prior knowledge. An observation involves looking closely at objects, materials and living things, which can be compared and grouped according to their features. Shadows change shape and size when the light source moves. For example, when the light source is high above the			A shadow appears when an object blocks the passage of light. Apart from some distortion or fuzziness at the edges, shadows are the same shape as the object. The distortion or fuzziness depends on the position or type of light source. Light sources give out light. They can be natural or artificial. When light hits an object, it is absorbed, scattered, reflected or a combination of all three. Light from a source or reflected light enter the eye. Vertebrates, such as mammals, birds and reptiles, have a cornea and lens that refracts light that enters the eye and focuses it on the nerve tissue at the

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				object, the shadow is short and when the light source is low down, the object's shadow is long. Dark is the absence of light and we need light to be able to see. A shadow is formed when light from a light source, such as the Sun, is blocked by an opaque object. Transparent objects allow light to pass through and do not create a shadow.			back of the eye, which is called the retina. Once light reaches the retina, it is transmitted to the brain via the optic nerve. 'White' light is a term used to describe visible, ordinary daylight. White light can be split into a spectrum of colours (rainbow) by droplets of water or prisms. Lasers are intense beams of light and they should never be pointed at people's faces or aircraft. Explain the dangers of using lasers and ways to use them safely.
Vocabulary				Reflect surface shadow blocked artificial sunlight protect			Light source lasers filters prism refract
Science topic				Light			Light

		Big Idea: Phenomena

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		ASPECT: Sound					
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum					Recognise that sounds get fainter as the distance from the sound source increases. Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Recognise that sounds get fainter as the distance from the sound source increases. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Find patterns between the pitch of a sound and features of the object that produced it.		

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Skills					Compare how the volume of a sound changes at different distances from the source. Take accurate measurements in standard units, using a range of equipment. Explain how sounds are made and heard using diagrams, models, written methods or verbally.		
Knowledge			When an instrument is played by plucking, striking or blowing, the air around or inside it vibrates. These vibrations travel as a sound wave to the ear.		Sounds are louder closer to the sound source and fainter as the distance from the sound source increases. Equipment is used to take measurements in standard units. Examples include data loggers plus sensors, timers (seconds, minutes and hours), thermometers (°C), and metre sticks, rulers or trundle wheels. Pitch is how high or low a sound is. Parts of an instrument that are shorter, tighter or thinner produce high-pitched sounds. Parts of an		

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					instrument that are longer, looser or fatter produce low-pitched sounds. Volume is how loud or quiet a sound is. The harder an instrument is hit, plucked or blown, the stronger the vibrations and the louder the sound. Compare and find patterns in the pitch of a sound, using a range of equipment, such as musical instruments. Compare and find patterns in the volume of a sound, using a range of equipment, such as musical instruments. When an instrument is played, the air around or inside it vibrates. These vibrations travel as a sound wave. Sound waves travel through a medium, such as air or water, to the ear.		
Vocabulary					Vibrate sound volume pitch string percussion woodwind brass insulate		

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Science topic					Sound		

		Big Idea: Phenomena					
		ASPECT: Electricity					
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum					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 wth whether or not a lamp lights in a simple series 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. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Use recognised symbols when representing a simple circuit in a diagram

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					Recognise some common conductors and insulators, and associate metals with being good conductors.		
Skills		Describe, following exploration, what simple electrical circuits can do.	Make working models with simple mechanisms or electrical circuits.		Explain the precautions needed for working safely with electrical circuits. Compare common household equipment and appliances that are and are not powered by electricity. Electricity is a type of energy. It is used to power many everyday items, such as kettles, computers and televisions. Electricity can also come from batteries. Batteries eventually run out of power and need to be recycled or recharged. Batteries power devices that can be carried around, such as mobile phones and torches. Predict and describe whether a circuit will work based on whether or not the circuit is a complete loop and has a battery or		Explain how the brightness of a lamp or volume of a buzzer is affected by the number and voltage of cells used in a circuit. Create circuits using a range of components and record diagrammatically using the recognised symbols for electrical components. Compare and give reasons for variations in how components in electrical circuits function (brightness of lamps; volume of buzzers and function of on or off switches).

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					cell. Construct operational simple series circuits using a range of components and switches for control.		
Knowledge		Electrical circuits can light lamps or sound a buzzer. A switch turns an electrical circuit off and on.			Working with electrical circuits can be dangerous. Precautions include not touching electrical components with wet hands and not putting batteries in mouths. A series circuit is a simple loop with only one path for the electricity to flow. A series circuit must be a complete loop to work and have a source of power from a battery or cell. Electrical components include cells, wires, lamps, motors, switches and buzzers. Switches open and close a circuit and provide control.		Voltage is measured in volts (V) and is a measure of the difference in electrical energy between two parts of a circuit. The bigger the voltage, the more electrons are pushed through the circuit. The more voltage flowing through a lamp, buzzer or motor, the brighter the lamp, the louder the buzzer and the faster the motor. There are recognized symbols for each part of a circuit. Explain how the brightness of a lamp or volume of a buzzer is affected by the number and voltage of cells used in a circuit. A circuit needs a power source, such as a

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							battery or cell, with wires connected to both the positive and negative terminals. Other components include lamps, buzzers or motors, which an electric current passes through and affects a response, such as lighting a lamp or turning a motor. When a switch is open, it creates a gap and the current cannot travel around the circuit. When a switch is closed, it completes the circuit and allows a current to flow all the way around it.
Vocabulary					Appliances electricity circuit cell wire bulb buzzer insulator conductor switch simple		Voltage brightness series circuit buzzer motor electrical safety
Scientific topic					Electricity		Electricity

		Big Idea: Physical things					
		ASPECT: Forces					
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

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National Curriculum				Compare how things move on different surfaces. Observe how magnets attract or repel each other and attract some other materials and not others. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. 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.		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. Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	
Skills				Compare how objects move over surfaces made from different materials. Magnets have two poles (north and south). Opposite poles (north and south) attract each other, while like poles (north and north,		Compare and describe, using a range of toys, models and natural objects, the effects of water resistance, air resistance and friction. Describe and	

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				or south and south) repel each other. Investigate and compare a range of magnets (bar, horseshoe and floating) and explain that magnets have two poles (north and south) and that opposite poles attract each other, while like poles repel each other. Explain that an object will not move unless a push or pull force is applied, describing forces in action and whether the force requires direct contact or whether the force can act at a distance (magnetic force).		demonstrate how simple levers, gears and pulleys assist the movement of objects. Explain that objects fall to Earth due to the force of gravity.	
Knowledge				Friction is a force between two surfaces as they move over each other. Friction slows down a moving object. Smooth surfaces usually generate less friction than rough surfaces. An object will not move unless a pushing or pulling force is applied. Some forces require direct contact, whereas other forces can act at a distance, such as magnetic force.		Friction, air resistance and water resistance are forces that oppose motion and slow down moving objects. These forces can be useful, such as bike brakes and parachutes, but sometimes we need to minimise their effects, such as streamlining boats and planes to move through water or air more easily, and using lubricants and ball bearings between two surfaces to reduce friction.	

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						Mechanisms, such as levers, pulleys and gears, give us a mechanical advantage. A mechanical advantage is a measurement of how much a simple machine multiplies the force that we put in. The bigger the mechanical advantage, the less force we need to apply. Gravity is a force of attraction. Anything with a mass can exert a gravitational pull on another object. The Earth's large mass exerts a gravitational pull on all objects on Earth, making dropped objects fall to the ground	
Vocabulary				Force magnetic attract repel poles		Gravity air/water resistance friction surface effect accelerate decelerate brake mechanism pulley gear spring gravitation Galileo Galilei	

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						Isaac Newton	
Science topic				Forces and magnets		Earth and space Forces	

	Big Idea: Matter						
	ASPECT: Properties of Material						
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Looks closely at similarities, differences, patterns and change in nature. Talk about the features of their own immediate environment and how environments might vary from one another Makes observations of animals and plants and explains why some things occur, and talks about changes Explore the natural world around them, making observations and drawing pictures		Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	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.	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 temperatures at which this happens in degrees Celsius. 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, gases to decide how mixtures might be separated, including through filtering, sieving and	

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	of animals and plants Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps					evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials including metal, 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 the kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	
Skills	Makes observations of animals and plants and explains why some things occur, and talks about changes	Observe the local environment throughout the year and ask and answer questions about living things and seasonal change.	Make models with moving parts. Sort and group objects that float and sink.	Describe how environments can change due to natural influences and how living things need to be able to adapt to these changes.	Describe the water cycle using words or diagrams and explain the part played by evaporation and condensation.	Explain the precautions needed for working safely when heating, burning, cooling and mixing materials.. Identify, demonstrate and compare reversible and irreversible changes	

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Knowledge	Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Know about similarities and differences in relation to places, objects, materials and living things Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.		Models can have moving parts that use levers, sliders, wheels and axles. Some objects float and others sink. Objects that float are typically light or hollow. Objects that sink are typically heavy or dense.			Very hot and very cold materials can burn skin. Heating materials should be done safely.	

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Vocab		Elastic metal plastic glass wood rock hard/soft stretchy/firm shiny/dull rough/smooth waterproof/not waterproof absorbent	Bend twist stretch John Dunlop (rubber) Charles Macintosh (waterproof fabric) John McAdam (macadamisation)	Fossils sedimentary organic matter soil grains crystals	Solidify evaporate condense gas changing state degrees Celsius thermometer water cycle evaporation condensation vapour	Solubility transparency electrical/thermal conductor dissolve solution separate filtering sieving melting irreversible rusting chemistry quantitative conductivity insulation chemical Ruth Benerito Spencer Silver	
Topic				Rocks	States of matter	Properties and changes of materials	

Science

	Big Idea: Earth						
	ASPECT: Space and environments						
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Looks closely at similarities, differences, patterns and change in nature	<u>Seasonal changes</u> Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.				<u>Earth & Space</u> Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 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.	

Science

Skills	Talks about the features of their own immediate environment and how environments might vary from one another Makes observations of animals and plants and explains why some things occur, and talks about changes Explore the natural world around them, making observations and drawing pictures of animals and plants	Observe the local environment throughout the year and ask and answer questions about living things and seasonal change. Observe changes across the four seasons.				Use the idea of Earth's rotation to explain day and night, and the Sun's apparent movement across the sky. Describe or model the movement of the planets in our Solar System, including Earth, relative to the Sun. Describe or model the movement of the Moon relative to Earth. Describe the Sun, Earth and Moon as approximately spherical bodies and use this knowledge to understand the phases of the Moon and eclipses.	

Science

Knowledge	Knows about similarities and differences in relation to places, objects, materials and living things Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.	The local environment is a habitat for living things and can change during the seasons. There are four seasons: spring, summer, autumn and winter. Certain events and weather patterns happen in different seasons. Different types of weather include sunshine, rain, hail, wind, snow, fog, lightning, storm and cloud. The weather can change daily and some weather types are more common in certain seasons, such as snow in winter.	The UK has typical weather in each of the seasons. For example, winter is cold and sometimes frosty, whereas summer is warm and sometimes sunny. The Earth is spherical and is covered in water and land. When it is daytime in one location, it is night time on the other side of the world.			As Earth orbits the Sun, it also spins on its axis. It takes Earth a day (24 hours) to complete a full spin. During the day, the Sun appears to move through the sky. However, this is due to the Earth rotating and not the Sun moving. Earth rotates to the east or, if viewed from above the North Pole, it rotates anti-clockwise, which means the Sun rises in the east and sets in the west. As Earth rotates, different parts of it face the Sun, which brings what we call daytime. The part facing away is in shadow, which is night time. The Solar System is made up of the Sun and everything that orbits around it. There are eight planets in our Solar System: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. Earth orbits around the Sun and a year (365 days) is the length of time it takes for Earth to complete a full orbit.	

Science

						The Moon orbits Earth, completing a full orbit every month (28 days)	

Science

						The Sun, Earth, Moon and the planets in our solar system are roughly spherical. All planets are spherical because their mass is so large that they have their own force of gravity. This force of gravity pulls all of a planet's material towards its centre, which compresses it into the most compact shape – a sphere.	
vocabulary		Summer winter autumn spring daytime weather hail sleet fog				Earth sun moon planets solar system Mercury Venus Mars Jupiter Saturn Uranus Neptune Pluto rotate spherical geocentric heliocentric hemisphere tilt Aristostle Ptolemy Galileo Copernicus Brahe Alhazen	
Science topic						Earth and space	