Progression of **knowledge** in Science

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge							
Plants Plant structure and function Plant growth and needs Plant life cycle	•To know the name for the basic plant parts. •To know the names of some familiar flowering plants. •To know plants are alive. •To know that seeds need water to grow.	**Introduction to plants** •To know a variety of common plants, and how they differ. •To know that deciduous trees lose their leaves seasonally, but evergreen trees do not. •To know the basic	**Plant growth** •To know that seeds and bulbs grow into seedlings by producing roots and shoots. •To know that seedlings grow into mature plants by developing parts such as roots, stems, leaves and flowers. •To know that	**Plant reproduction** •To understand the functions of the basic parts of a plant and the relationship between structure and function. •To know that water is transported within a plant from the root, through the			

	•To know that seeds grow into plants if taken care of.	structure of a variety of common plants, including flowering plants and trees. •To begin to understand how plants grow and change over time.	seeds need water and warmth to germinate. •To know that plants need water, light and a suitable temperature for growth and health.	stem, to the leaves. •To know that plants need water, light, air, nutrients and a suitable temperature for growth and health. •To understand that the needs for growth and health vary from plant to plant. •To know the life cycle of a plant from seed to mature plant. •To know that flowers are the			

				reproductive organ of a plant. •To know that the process of pollination is the transfer of pollen to the female flower. •To know that the process of seed formation is the growth of a seed after pollination. •To know some different methods of seed dispersal and the benefits of each.			

Animals, including humans Animal growth Animal structure and function Health and nutrition	•To know the names of familiar animals. •To know the main body parts of common animals. •To know that animals, including humans use their senses to explore the world. •To know that animals need food.	**Sensitive bodies Comparing animals** •To know a variety of common animals. •To know the main body parts of common animals. •To know key parts of the human body. •To know the five main senses. •To know which body part relates to each sense. •To know what a	**Life cycles and health** •To understand how living things change, and that animals have offspring that grow into adults. •To know which offspring comes from which parent animal. •To know the stages in some animal life cycles. •To know that animals, including humans,	**Movement and nutrition** •To know that animals can be grouped based on the presence of a skeleton. •To know that the skeleton in humans and some animals are used for movement, protection and support. •To know that the muscular system in humans and some animals work with the skeleton for movement. •To know the	**Digestion and food** •To know the main organs of the human digestive system and describe their simple functions. •To know the different types of human teeth and their simple functions. •To know that teeth can be damaged, including the effect of sugary and acidic food. •To know that it is important to brush teeth	**Human timeline** •To describe the human life cycle, including the stages of growth and development. •To describe changes that occur during puberty. •To know that gestation periods vary across mammals.	**Circulation and health** •To know the main parts of the human circulatory system. •To know that the heart pumps blood around the body. •To know that the blood vessels transport blood around the body. •To know that the blood transports vital substances around the body, including

		carnivore, herbivore and omnivore is.	need water, food and air to survive. •To understand the importance of exercise, a balanced diet and hygiene for humans.	main bones in the body. •To know that animals, including humans, need the right types and amount of nutrition. •To understand that humans cannot make their own food and therefore eat to get the nutrition needed. •To know the main nutrient groups and their simple functions.	twice a day, make good food choices and visit the dentist regularly. •To describe the teeth of carnivores and herbivores and understand why they are different. •To know that predators hunt for their food and prey are the animals being hunted. •To know that producers make their own food. •To know that food chains		oxygen and nutrients. •To understand the relationships between different organ systems. •To understand the impact of diet, exercise, drugs and lifestyle on the way a body functions. •To know that the heart rate is the number of beats per minute. •To know that exercise increases heart rate.

				•To know that a balanced diet should include all nutrient groups. •To describe the diets of different animals.	begin with a producer followed by consumers, and arrows to show the energy passed on.		
Materials Identifying and naming Properties and uses Change	•To know objects float or sink. •To know some objects move when pushed or pulled. •To know some objects freeze or melt.	**Everyday materials** •To know that objects are items or things. •To know that a material is what an object is made from. •To identify and name a variety of everyday materials,	**Uses of everyday materials** •To know why objects are made from particular materials and to give examples of their suitability. •To know that one material can be used	**Rocks and soil** •To know that rocks can be grouped based on their appearance or properties. •To know that rocks may contain grains, crystals or fossils. •To know that	**States of matter** •To know that all substances around us can exist as solids, liquids and gases. •To know that a property of a solid is that it keeps its shape unless a force is applied to it. •To know that a property of a	**Mixtures and separation Properties and changes** • To describe a broader range of materials and their properties, including hardness, solubility, transparency, conductivity	

		including wood, plastic, glass, metal, water and rock. •To know that property refers to how a material can be described. •To describe the physical properties of a variety of everyday materials. •To understand that materials can be grouped based on their physical properties.	for a range of purposes. •To know that different materials can be used for the same purpose. •To know why certain materials are unsuitable for particular objects. •To know that a push or pull must be applied to change the shape of a solid object. •To know that solid objects can be squashed,	grains and crystals appear differently and can be used to classify rocks. •To know that soils are made from rocks and dead matter. •To understand the relationship between the properties of rocks and their uses. •To know that fossils can form from the remains of living things.	liquid can flow freely and take on the shape of a container. •To know that a property of a gas does not have a fixed shape and can escape from an unsealed container. •To know that heating causes solids to turn into liquids (melting) and liquids to turn into gases (evaporating). •To know that cooling causes gases to turn into liquids (condensing) and liquids to	and response to magnets. •To know that some substances will dissolve in a liquid to form a solution. •To know the factors that affect the time taken to dissolve, including temperature and stirring. •To understand that dissolving, mixing and changes of state are reversible changes.	

			bent, twisted or stretched. •To know that different solid objects may take a different amount of force to change shape.	•To know that rocks can change over time.	turn into solids(freezing). •To know that water can exist as a solid, a liquid or a gas. •To know that the melting point of water is zero degrees Celsius and the boiling point of water is 100 degrees Celsius. •To know that water flows around the world in a continuous process called the water cycle. •To know that in the water cycle, evaporation is	•To know that some liquids and solids can be separated using sieving, filtering and evaporation and to describe these processes. •To understand that some changes result in the formation of new materials and that these are usually irreversible.	

					when bodies of water are heated and turn into water vapour. •To know that in the water cycle, condensation is the process of water vapour cooling to form water droplets in clouds, which can result in precipitation. •To know that the rate of evaporation increases as temperature rises.		

Seasonal changes Key facts Forces in motion	•To know that some trees change in the four seasons. •To know some signs of each season. •To know that some animals hibernate or store food in Winter. •To know that the weather changes throughout the year. •To know and compare weather types.	**Seasonal changes** •To know the name and order of the four seasons. •To know that it is unsafe to look directly at the Sun. •To know weather associated with the four seasons and how it changes (in the UK). •To understand that day length varies across the four seasons.					

Lives things and their habitats Characteristics of living things Variation and inheritance Habitats and interdependence	•To know that animals and plants move, grow and feed. •To know the difference between things that are living and things that are non-living. •To know that some animals hibernate or store food in winter. •To know the names of familiar animals.		**Habitats Microhabitats** •To begin to understand some of the life processes. •To know the difference between things that are living, dead, and things that have never been alive. •To know a variety of plants and animals and describe some differences. •To name a variety of habitats.		**Classifying and changing habitats** •To know that living things can be grouped in different ways. •To know that a classification key can be used to group and identify plants and animals. •To know that vertebrates are animals which have a backbone and invertebrates are animals which do not have a backbone.	**Life cycles and reproduction** •To know that a life cycle shows the changes an animal or plant goes through until the reproduction of a new generation when the cycle starts again. •To know that all living things must reproduce for the species to survive. •To know that sexual reproduction	**Classifying big and small Evolution and inheritance** •To know that 'organism' is a term used to refer to an individual living thing. •To know that micro-organisms are incredibly small and cannot usually be seen by the naked eye. •To know the characteristics of the different groups of vertebrates and commonly found invertebrates.

	•To know the names of some familiar flowering plants. •To know that plants and animals live in a range of different places. •To name some different places where animals live on the school site.		•To know that a habitat is the environment where an animal or plant lives/ grows, because it provides what they need to survive. •To know that a micro-habitat is a very small habitat. •To know that living things depend upon each other. •To understand that a food chain can be used to show how animals		•To know that plants can be grouped into flowering or non-flowering varieties. •To know that flowering plants include grasses and non-flowering plants includes ferns and mosses. •To know that there are five main vertebrate groups. •To know that invertebrate groups include snails, slugs, worms, spiders and insects. •To know that habitats can	requires two parents, whereas asexual reproduction only requires one parent. •To know that there are different processes plants and animals use to reproduce.	•To know that living things have changed over time. •To know that fossils provide us with information about living things that inhabited the Earth millions of years ago. •To know that characteristics are passed from parents to their offspring, but that all offspring vary from their parents. •To know that over time, variation in

			obtain food from eating either plants and/or other animals.		change throughout the year and this can be dangerous for living things. •To know that humans can have both a positive and negative impact on the environment.		offspring can affect animals' chances of survival in particular environments. •To know that animals and plants have adapted to suit their environment over many millions of years – evolution.
Light Sources Transfer	•To know day is light because the sun is in the sky. •To know night is dark because the sun is not in the sky.•To			**Light and shadow** •To know that light travels from a source (e.g. the Sun, light bulbs and torches). •To know that light is			**Light and reflection** •To know that light travels in a straight line from a light source. •To understand that luminous

Factors affecting energy	know that shadows are created when something blocks the light.			needed to see things and that dark is the absence of light. •To know that light from the Sun can be dangerous and how to protect their eyes. •To know that all materials reflect light. •To know that shadows are formed when the light from a light source is blocked by an opaque object. •To know that shadows change as a			objects are seen as a result of light directly entering the eye, whereas non-luminous objects reflect light into the eye. •To know that shiny surfaces reflect light uniformly. •To know that when light is reflected off a surface, its direction changes. •To know that mirrors and periscopes work using reflection of light on

				result of different factors: - Changing the position of the light source. - Changing the distances between the light source, object and surface. •To know that shadows change position and length throughout the day as the Sun changes position in the sky.			smooth surfaces. •To understand why shadows have the same shape as the objects that cast them as a result of light travelling in straight lines. •To understand relationships between light sources, objects and shadows. •To understand how and why the distance between the object and the screen affects

							the size of the shadow. •To understand how the angle of a reflected ray is affected by the angle of the incoming ray on a smooth surface.
Forces and magnets Key facts Forces in motion Factors affecting forces				**Forces and magnets** •To know some examples of contact and non-contact forces. •To know that some forces are a result of contact between two		**Unbalanced forces** •To know that gravity is a non-contact force that pulls objects together. •To know that air resistance and water resistance are both types of friction.	

				surfaces, but some forces can act at a distance (e.g. magnetism). •To know the North and South poles of a magnet. •To know some examples of magnetic materials, including iron and nickel, and how they react to a magnet and each other. •To know some different examples of magnets,		•To know that unsupported objects fall towards the Earth because of gravity. •To know that friction, air resistance and water resistance act in the opposite direction to a moving object. •To know that when forces are imbalanced, the speed, shape or direction of an object changes.	

				including bar, horseshoe, button and ring, •To know some uses of magnets. To know that friction is a contact force that acts between two surfaces to slow an object down. •To know that magnetism is a non-contact force that affects objects containing magnetic metal. •To understand		•To know that when forces are balanced the speed, shape or direction of an object stays the same. •To know that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. •To know that rougher surfaces have more friction between	

				that the opposite poles of a magnet attract one another and like poles repel one another. •To know that rougher surfaces have more friction between them than smoother surfaces. •To understand that the strength of different magnets may vary.		them than smoother surfaces and how that may affect movement. •To know that the larger the surface area of an object the greater the air or water resistance it creates.	
Sound	•To know about				**Sound and vibration**		

Sources Transfer Factors affecting energy	differences in sounds.				•To understand that sound is a result of vibrations. •To know that vibrations from sounds travel through mediums to the ear. •To know that an insulating material reduces the amount of vibrations that pass through it and this can be used to protect the ears from damaging sounds. •To know that different materials provide		

					different amounts of insulation against sound. •To know a variety of ways to change the pitch or volume of a sound. •To know that quicker vibrations cause higher-pitched sounds and slower vibrations cause lower-pitched sounds. •To know that stronger vibrations cause louder sounds and weaker		

					vibrations cause quieter sounds. •To know that sounds get fainter as the distance from the sound source increases.		
Electricity Key facts Forces in motion Factors affecting forces					**Electricity and circuits** •To know that all electrical appliances need a power source, including batteries or mains electricity. •To know that an electrical circuit needs a complete path for the		**Circuits, batteries and switches** •To know a wider variety of components in a series circuit. •To know the conventions used to draw circuit diagrams. •To know that the voltage of

					electrical charge to flow through. •To know the main components in a simple series circuit. •To know the precautions for working safely with electricity. •To know that some materials allow electrical charge to pass through them quickly and these are known as electrical conductors. •To know that some materials do not allow electrical		a circuit can be changed and how this affects bulb brightness.

					charge to pass through them easily and these are known as electrical insulators. •To know that metals are used for cables and wires because they are good conductors of electricity. •To know that plastic is used to cover cables and wires because it is a good insulator. •To understand that an open switch breaks a series circuit so the		

					components will be off. •To understand that a closed switch completes a series circuit so the components will be on. •To understand the relationship between bulb brightness and the number of bulbs in a circuit.		
Earth and Space Key facts Forces in motion						**Earth and space** •To know that the Sun is a star at the centre of our solar system. •To know that the Sun, Earth	

						and Moon are approximately spherical bodies. •To know the names, order and relative positions of the planets and other main celestial bodies. •To know that a moon is a celestial body that orbits a planet and give examples of moons that orbit other planets. •To know that the Sun is a star at the centre of our solar system.	

						•To know that the Sun, Earth and Moon are approximately spherical bodies. •To know the names, order and relative positions of the planets and other main celestial bodies. •To know that a moon is a celestial body that orbits a planet and give examples of moons that orbit other planets. •To know that the Earth and other planets	

						orbit around the Sun. •To know that the tilt of the Earth and its orbit around the Sun causes the seasons. •To know that the Moon orbits around the Earth. •To understand how the Earth's rotation causes day and night and the apparent movement of the Sun across the sky. •To know that	

						the Earth and other planets orbit around the Sun. •To know that the tilt of the Earth and its orbit around the Sun causes the seasons. •To know that the Moon orbits around the Earth. •To know how the Earth's rotation causes day and night and the apparent movement of the Sun across the sky.	