

Science Knowledge Progression Plan Years 1 – 6

Aspect	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including humans: Identifying and naming	Identify and name a range of common animals from the local and wider environment.	Identify the habitats of animals and understand that most living things live in habitats to which they are suited.	Identify some of the most common bones in animals such as skull, ribs and spine, describing their primary functions and explain the function of the skeleton.	Identify producers, predators and prey in a given food chain and define the terms.	Identify and present in an appropriate way, the key stages in human growth and development from birth to old age.	Identify the major parts of the human circulatory system and their functions (heart, blood vessels and blood).
Animals including humans: Classification	Classify and sort familiar animals according to whether they are invertebrates, fish, amphibians, reptiles, birds or mammals.	Sort and classify things according to whether they are dead, alive or have never been alive.	Use classification keys to group, identify and name a variety of living things in their local and wider environment.	Develop own classification keys and assign living things to groups, using the keys.	Describe the difference in the lifecycles in the different categories of animals: mammals, amphibians, insects and birds.	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences. Give reasons for classifying plants and animals in this way.
Animals including humans: Habitats, adaptation and interdependence	Name animals living in a range of familiar environments, such as their homes, woodland or school grounds.	Define the terms 'habitat' and 'micro-habitat', giving examples of animals that live in each place.	Know that animals, including humans, cannot make their own food chains and recognise that all food begins with a plant.	Construct a variety of food chains and explain what would happen if one of the parts of the chain became 'unavailable'. Recognise that environments can change and that this can sometimes pose dangers to living things.	Complete own research/watch documentaries, noting detail on animals and plants in their habitats, including the work of naturalists such as Attenborough or Goodall.	Describe how animals must adapt to their habitat to survive, using a range of animals and their adaptations as examples.
Animals including humans: Growth, health and survival	Explain how to take care of an animal from the local habitat.	Identify the basic needs of animals and humans for survival, including good nutrition and regular exercise.	Describe how each of the main food groups specifically benefit the human body for growth and health.	Identify different foods that can affect the health of teeth and know the importance of good oral hygiene.	Describe the process of sexual reproduction in a familiar animal and why it is important for species' survival.	Recognise and describe the damaging impact that some drugs and other substances can have on the human body.
Animals including humans: Diet and teeth	Identify whether an animal is a carnivore, herbivore or omnivore and how we might know this from their physical appearance.	Construct a simple food chain that includes humans at the top as the consumer.	Identify the different food groups and design a healthy meal based on these food groups.	Identify the different types of teeth and their functions, including how these vary from animal to animal and animal to human.	Make informed choices to maintain their health and well-being, explaining the reasons for these choices.	Explain how nutrients and water are transported within humans and animals.

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Animals including humans: The body	Draw and label basic parts of the human body, including those related to the senses.	Explain simply how humans and some familiar animals change as they grow.	Describe how the skeleton and muscles work together to support, protect and assist movement.	Identify the body parts associated with the digestive system, such as mouth, tongue, teeth, oesophagus, stomach and intestine and describe their special functions.	Describe the key physical changes in the male and female human body during puberty. Describe the changes in the human body as it develops to old age.	Describe how lifestyle is important for the health of the human circulatory system, including how diet, exercise, drugs and lifestyle affect our bodies.
Animals including humans: Life Cycles	Describe in simple terms the life cycle of familiar animals such as a frog, butterfly or human.	Notice that animals have offspring which grow into adults. Recognise the need for animals and humans to grow and reproduce.			Draw the lifecycle of an insect, an amphibian, a bird and a mammal, highlighting the key differences and similarities.	Describe how the lifecycles of bacteria and viruses differ.
Animals including humans: Comparing	Compare animals that are kept as pets, knowing which group they belong to.	Compare the living things in familiar habitats with the living things in a less familiar habitat.	Compare the diets of a herbivore and carnivore with (typically) omnivorous humans.	Compare and contrast the digestive system of a herbivore, with a carnivore, using their knowledge of the parts of the human digestive system, including end products.	Compare key facts about mammalian gestation and birth and suggest reasons for variation within a species (e.g. typical gestation in humans being 37 – 42 weeks).	
Substances, matter and materials: Identifying and naming	Name a range of everyday materials, including wood, plastic, metal, rock and glass.	Identify the uses of everyday materials in a familiar location (e.g. school or home), recording their findings.	Identify and name a range of rocks and soils, describing simply how fossils are formed.	Identify how water changes state, using the correct terminology and relate these key processes to the water cycle.	Identify a wide range of reversible and irreversible changes that are in use in everyday life.	
Substances, matter and materials: Classification	Group and sort materials according to their simple physical properties.	Sort and grade a range of materials for a specific property (e.g. smoothness).	Classify and group rocks according to their appearance or physical properties, using a hand lens or digital microscope and identify whether they are granular, crystalline or fossilised.	Classify everyday materials as a solid, liquid or gas at room temperature.	Classify and group mixtures for how they can be separated, including sieving, filtering and evaporating.	

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<p>Substances, matter and materials: Uses</p>	Identify the material an object is made from, suggesting why it is made from that material.	Identify and describe the range of materials that can be used to make a single given object (e.g. cup, chair, table or shelter).	Suggest reasons why certain rocks or stones are used for a specific purpose.	Describe a material whose use changes as its state changes.	Provide evidence and reasons why a material has been chosen for a specific use. Scientifically and systematically compare the functionality of a range of materials to perform a specific function.	
<p>Substances, matter and materials: Physical processes</p>	Identify some materials that help physical processes (e.g. woollen fabric keeps us warm).	Describe how the shape of some materials can be changed by twisting, kneading, squashing or stretching.	Explain the terms 'weathering' and 'erosion' and describe the effect they have on different rocks and soils.	Explain the effect of heating and cooling on a range of substances, including water.	Describe what happens when a solute dissolves in a solvent to form a solution and how this process can be reversed.	
<p>Substances, matter and materials: Physical properties</p>	Describe properties of materials using everyday language or simple scientific vocabulary (e.g. hard/soft, bendy/not bendy).	Relate a material's physical properties to its uses (e.g. describe or demonstrate how a material can be unsuitable for a given task due to its ability to be changed by squashing and bending).	Investigate the physical properties of one or a number of rock types and relate their properties to their appearance.	Describe the properties of solids, liquids and gases, giving examples of each (e.g. solids retain their shape).	Describe some familiar and unfamiliar material's physical properties, including transparency, conductivity, solubility and magnetism.	
<p>Substances, matter and materials: Comparisons</p>	Compare two or more different materials for their performance at a particular task (e.g. mopping up a spill).	Compare significant individuals who have developed useful materials (e.g. Charles Macintosh or John Dunlop) and decide which individual material is most useful to them.	Compare a range of rock or soil samples from the locality, using simple tables and diagrams to present their findings.	Measure or research the temperature, in degrees celsius, at which materials change state and compare to the temperature at which water changes state.	Compare reversible with irreversible change, using flow diagrams/equations to show which materials are added, what is made and indicating if the reaction can be reversed.	
<p>Plants: Identifying and naming</p>	Identify and name common flowers and trees found growing in the locality.	Identify what eats plants as a food source and recognise simple food chains.	Identify and describe the functions of common plant parts. Explain how their structure is suited to their function (e.g. roots are long	Identify and name a variety of plants in the local area and compare to a contrasting environment, comparing their physical appearance.	Identify the key structures involved in plant sexual reproduction.	Identify plants which have survived on Earth for millions of years and how we know this.

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			and branched to provide good anchorage).			
Plants: Classification	Sort trees into groups to show those that are evergreen and those that are deciduous.	Sort seeds and bulbs into groups according their physical features.	Sort and classify a range of seeds into broad dispersal methods, such as wind (dandelion), water (coconut) or animal (yew).	Use classification keys to classify plants into groups, such as flowering or non-flowering plants, or compound, palmate or single blade leaves.	Classify plant types according to how they reproduce.	Devise classification keys to identify plants in the immediate environment. Give reasons for classification and understand the significance of scientists' work.
Plants: Plant parts and their functions	Identify the basic structural parts of common flowering plants and trees, including root, stem, stalk, leaves, flowers, bulb, fruit, seeds and trunk.	Describe the different plant parts.	Draw a simple diagram to show how water is transported through a plant.	Identify uncommon, specialised plant parts such as tendrils and suckers and explain their function.	Explain why plants have flowers and why it is important for them to attract insects and other pollinators.	Research and describe similarities and differences between petals, leaves, stamen and stigma on a variety of plants found in the locality and elsewhere.
Plants: Habitats and Adaptation	Identify their locality as a habitat for living things.	Explain how plants are suited to their habitats and give examples of plants growing in different habitats.	Compare and describe how requirements for growth vary from plant to plant and how this relates to a plant's environment, such as with climbing plants and alpine plants.	Describe how a plant's habitat may naturally change throughout the year and how plants adapt to these changes.	Describe features of flowers, such as scent, colour, shape and size, and how they have evolved to ensure successful pollination.	Describe how plants have adapted and ultimately evolved to suit their environments using specific examples.
Plants: Growth and Survival	Care for a growing seedling, observing and describing its growth.	Describe how plants grow, identifying what a plant needs for healthy growth and survival (water, light and a suitable temperature).	Recognise that plants make their own food necessary for growth and survival, storing it in their leaves (they do not need to understand how this happens).	Explain how humans can impact on plants' environment in both positive and negative ways, giving examples from their locality.	Describe the different ways in which new plants can be grown from their parent plant, including seeds, bulbs, tubers, cuttings and grafting.	Suggest why some plants have survived over time and some have not.
Plants: Life Cycles	Identify the seeds, as a part of a plant, that makes a whole new plant.	Recognise that plants produce seeds in order to reproduce and generate new plants. Describe the requirements of plants for germination.	Order pictures showing the stages in the life cycle of a plant.	Draw a labelled diagram to show the lifecycle of a familiar plant, including germination, flower production, pollination, seed formation and seed dispersal.	Describe the process of plant reproduction using the correct scientific language. Observe/comment on/record plant life cycles.	Define the plant terms 'annual', 'biennial', and 'perennial' describing differences in lifecycles and identifying plants of each type.

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Plants: Seasonal Changes	Describe how plants change over time, including seasonal changes (leaves fall off, blossom, buds opening).	Describe how bulbs help plants to grow in winter.	Allocate different stages of a plant's life cycle to different seasons, suggesting reasons why the stages occur when they do.	Describe in detail the changes that occur in a familiar tree or plant over the seasons.	Grow a range of plants/vegetables from seeds, cutting, tubers and bulbs, across the different seasons and note the conditions needed for growth.	Identify relationships between the seasons and a typical plant life cycle using observations from the school environment.
Plants: Comparisons	Name and compare familiar plants according to their observable features.	Make comparisons between seeds or bulbs grown in different conditions (e.g. with and without light or water).	Compare and explain the effect of different factors on plant growth, including light and nutrition.	Compare plants growing in a local habitat to those in a contrasting one, such as a cactus in the desert, and notice how they have adapted.	Make comparisons between asexual and sexual reproduction in plants, suggesting reasons why plants may reproduce in different ways.	Compare native plants with non-native plants and determine whether non-native plants can be classified in the same way as native plants.
Light and Sound: Identifying and naming			Identify that light is reflected from surfaces, using equipment such as mirrors to demonstrate.	Listen to and be able to identify a variety of familiar sounds and what is vibrating in each case.	Identify by investigation if and how light and sound travel through space, using specific examples to validate their thinking.	Identify parts of the eye and draw a diagram showing how light enters our eyes in order to see, using the correct scientific vocabulary.
Light and Sound: Phenomena			Recognise that dark is the absence of light and describe how light behaves.	Recognise that vibrations from sound travel through a medium to the outer ear and know how sound is transferred to the inner ear.	Investigate shadows in relation to times of day and explain why the sun appears to move across the sky.	Describe how white light can be split using prisms and droplets of water and what colours white light is made from.
Light and Sound: Physical processes			Explain that when a light source is blocked a shadow is formed.	Explain the patterns between the pitch of a sound and the features of the object that produced it. Explain the patterns between the volume of a sound and the strength of the vibrations that produced it.	Describe the Earth's rotation to explain day and night.	Explain how light behaves and travels in straight lines. Demonstrate, using a model or diagram, how this explains why we can see objects and how shadows are formed.
Light and Sound: Classifying			Classify a range of objects as either a light source or light reflector.	Investigate and classify materials for their ability to insulate against the sound.		Classify a range of objects or surfaces for their reflective qualities using scientific testing.

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Light and Sound: Comparing			Compare and find patterns in the way that the size of shadows change when the light source moves or the distance between the light source and the object changes.	Measure and compare the volume of a sound at different distances from its source, using appropriate equipment.	Compare day lengths during different seasons and provide an explanation for why they differ.	Compare how a beam of light changes direction (refraction) when passing through different mediums, such as water and air.
Light and Sound: Safety	Share some ideas about how to stay safe in the sun.		Recognise that light from the sun is damaging to vision and the skin, and how we can protect ourselves.	Recognise that certain sounds can be damaging to our hearing and identify ways in which the ear can be protected.	Recognise that it isn't safe to look directly at the sun, even when wearing dark glasses.	Recognise the dangers of using lasers and how they can be used safely.
Forces: Identifying and naming			Name a range of familiar daily activities which rely upon or are caused by forces and magnets.	Identify how the magnetic north and south pole is different to the geographical north and south pole.	Identify and define the opposing forces that act upon objects: air resistance, water resistance and friction.	
Forces: Physical processes			Describe forces in action (pulling and pushing) and whether the force requires direct contact between objects or whether the force can act at a distance (magnetic force).	Demonstrate using models or actions, the key forces in action during a given activity.	Describe the force of gravity, what causes it and how the force of gravity changes (e.g. if we were standing on a different planet). Use study skills to research the work of scientists such as Galileo or Newton.	
Forces: Phenomena			Explain the terms 'magnetic attraction' and 'repulsion' and 'magnetic poles', using a model for assistance. Notice that magnets attract and repel some materials but not others.	Develop research skills, using secondary sources (e.g. finding out why aurora form at the north and south magnetic poles).	Demonstrate, using a model, how simple levers, gears and pulleys assist the movement of objects by using less force.	
Forces: Testing			Make predictions and test whether two magnets will attract or repel one another,	Test whether any materials block magnetic attraction.	Make predictions, supported by scientific reasoning to test the effects of friction on	

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			depending on which way their poles are facing.		movement and distance travelled.	
Forces: Comparing			Compare how an object moves over surfaces made from different materials, making predictions and measuring the distance travelled.	Compare the speed in which objects fall to the ground through the same distance of air or water, using their knowledge of forces to explain the outcomes.	Compare the speed with which objects of different shapes and surface area fall through air or water and explain the reason for any differences in terms of the forces acting on the objects.	
Forces: Classification			Sort and group materials into those that are magnetic and those that are not magnetic and identify patterns within these groups.		Classify and group forces based on their actions or whether they act directly, or at a distance.	
Seasonal changes: Identifying and naming	Name a range of different types of weather from pictures or sounds.	Identify less familiar weather conditions that are more common in other parts of the world.				
Seasonal changes: Effects of weather	Describe some positive and negative effects of the weather for ourselves and our environment.	Explain how and why the weather influences our choice of clothing and affects what we can do.				
Seasonal changes: Recording the weather	Observe and record the daily weather on a chart or in a table.	Identify patterns and also similarities and differences within recorded weather over a given period of time.				
Seasonal changes: The seasons	Broadly assign different weather types to the seasons.	Explain how animals or plants are affected by the seasons, using a specific animal or plant as an example.				
Seasonal changes:	Describe how day length changes over a year,	Make comparisons to other parts of the world where				

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Day length	from experience and know how it affects their lives.	day length changes to a greater or lesser degree, such as Arctic or equatorial regions.				
Electricity: Identifying and naming	Identify and talk about products that use electricity.			Identify and name a range of familiar devices and equipment that require electricity for power.		Identify and name components of a circuit and define terms, such as 'voltage' and 'current', in relation to series circuits.
Electricity: Series circuits		Create working circuits in the context of D and T (e.g. to light a bulb or work a buzzer).		Construct operational simple series circuits, using a range of components and switches for control, and use these to make simple devices.		Work scientifically to construct a series circuit for a specific device or outcome and explain how it works.
Electricity: Circuit symbols				Predict if a circuit will work based on whether it is a complete loop and draw simple series circuits, using their own or conventional circuit symbols.		Draw a series circuit, using the conventional symbols.
Electricity: Current and voltage				Recognise that a cell (battery) is a power source, generating and pushing current (electricity) through a circuit and by adding cells the power source increases.		Describe the relationship between the number of cells, or the voltage of a cell, and the effect this has on a bulb or buzzer.
Electricity: Conductors and insulators				Sort and classify materials into those that are conductors and those that are insulators, identifying similarities within the groups.		Predict materials that could be good conductors of electricity and conduct a fair test to show this.
Electricity: Safety	Recognise that electricity can be dangerous.	Identify dangerous scenarios from pictures or video clips.	Create rules that show an understanding of electrical safety requirements at home.	Recognise the dangers of working with electricity and explain how to work safely.		Demonstrate how to work safely with electrical circuits.

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Earth and Space: Identifying and naming					Name the eight planets of the solar system and describe their position and movement in relation to the sun and neighbouring planets.	
Earth and Space: Moons					Describe what a moon is, how they orbit a planet and which planets in our solar system have them.	
Earth and Space: Spherical bodies					Describe the key force responsible for planets being spherical.	
Earth and Space: Day and night					Explain day and night referring the Earth's rotation, correct terminology and a model.	Compare times in other parts of the world and relate this to the use of time zones.
Earth and Space: Day length and the seasons					Explain how the Earth's 'position' affects day length.	Explain how the day length changes to a greater or lesser degree in other parts of the world (e.g. Arctic or equatorial regions).
Evolution and inheritance: Identifying and naming			Identify a range of fossilised animals and plants from pictures.			Identify features which are inherited from parents, such as eye colour and those that are not, such as tattoos and dyed hair colour.
Evolution and inheritance: Inheritance						Match offspring to their parents, linked to observable features and characteristics.
Evolution and inheritance: Evolution						Describe how variation in living things leads to the evolution of a species, using specific examples. Research the work of Darwin or Wallace to explain how the theory of evolution developed.



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Evolution and inheritance: Adaptation						Identify how specific plants or animals have adapted to their environment.
Evolution and inheritance: Fossils			Define what a fossil is and how they are formed.			Explain how fossils are formed and how fossil discoveries have helped develop the theory of evolution.
Evolution and inheritance: The future			Suggest what the fossil of the future may be.			Suggest ways in which future changes in the world's climate may impact on ourselves and other living species and suggest ideas for how we may adapt to these changes.