Higher Walton CE Primary School – Science Curriculum Progression

RECEPTION			
Early Years	**AUTUMN**		
	Development Matters Statements	**Progression of knowledge and skills**	**Key vocabulary**
	• Explore the natural world around them. • Describe what they see, hear and feel outside. • Know some important processes and changes in the natural world, including the seasons. • Use senses to explore natural materials. • Use new vocabulary in context.	**Weather**: Identify rain/sun/wind → Describe and compare weather (e.g., windy vs calm). **Season Recognition**: Notice leaves falling → Name the season "Autumn" and its features. **Clothing**: Choose coat/no coat → Explain why we wear coats/wellies/hats in autumn. **Nature Changes**: Collect leaves → Describe, sort leaves; talk about animals preparing for winter.	**Vocabulary**: Rain, sun, cold → Autumn, windy, stormy, hibernate, evergreen, deciduous.
	• Use senses to explore the world. • Talk about feelings using descriptive words. • Manage hygiene and personal needs (dressing, toileting). • Develop large muscle movements through active play. • Learn and use new vocabulary (taste, smell, touch, etc.).	**Body Parts**: Point to basic body parts → Name and describe functions (e.g., "I smell with my nose"). **5 Senses**: Explore senses through play → Name all 5 senses and match them to body parts. **Describing Sensations**: Use basic words (cold/loud/yummy) → Use precise descriptive words (smooth, spicy, rough, sweet). **Investigations**: Explore objects with support → Sort/compare using senses (soft/hard, loud/quiet). **Safety Awareness**: Know hot/cold is dangerous → Talk about keeping senses safe (ear defenders, don't touch harmful objects).	Head, eyes, nose, mouth, ears, hands, taste, touch, smell, hearing, feet, arm, leg.
	• Understand features of the environment. • Explore how things work. • Describe what they see, hear and feel outside. • Use talk to clarify thinking/ask questions. • Explore light/shadows through movement and play.	**Day/Night**: Notice dark/light → Identify differences (day = light, night = dark). **Light Sources**: Notice sun makes it bright → Know sun gives light; lights are used at night. **Shadows**: Step on dark shapes → Know shadows are made when light is blocked. **Observing Changes**: Notice shadows move → Say shadows get longer/shorter depending on sun position. **Safety**: Adult mentions sun is bright → Know not to look directly at the sun; sun protection needed	Torch, source, light, source, night, day, dark, light, shadow.
	SPRING		
	Development Matters Statements	**Progression of knowledge and skills**	**Key vocabulary**
	• Use senses to explore materials. • Know about changes in the natural world (changing states). • Explore how things work and change.	**Material Exploration**: Feel hot/cold objects → Identify changes when heated/cooled (melt, freeze). **Change Awareness**: Watch ice melt → Explain simple cause ("It melts when warm"). **Safety**: Know hot is dangerous → Explain safe behaviour around hot/cold (not touching hot pans).	**Vocabulary**: Hot, cold → Melt, freeze, liquid, solid
	• Explore the natural world and its changes. • Describe what they see, hear and feel outside. • Know some important processes/changes in the natural world (seasons, growth). • Use new vocabulary in context.	**Weather/Season**: Notice warmer/cooler days → Name "Winter" (Spring 1) and "Spring" (Spring 2) and describe weather (rain showers, warmer). **Growth & Change**: Notice new plants/flowers → Recognise blossoms, buds, and new leaves. **Animals in Spring**: See animals outside → Know animals have babies in spring (lambs, chicks).	**Vocabulary**: Winter, cold, frost, rain. → Spring, blossom, bud, shower, hatch
	• Explore how things work. • Use senses to explore materials and movement. • Develop fine and gross motor control through pushing, pulling, rolling, lifting	**Movement Awareness**: Push/pull toys without explanation → Describe how objects move (roll, slide, spin). **Forces**: Notice movement from actions → Explain pushing/pulling makes objects move faster/slower. **Surface Impact**: Play on different surfaces → Compare movement (car on carpet vs ramp).	**Vocabulary**: Roll, push → Force, fast, slow, slide, ramp.

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	SUMMER		
	Development Matters Statements	**Progression of knowledge and skills**	**Key vocabulary**
	• Explore growth, change and decay in natural objects. • Understand important processes in the natural world (growth, decay). • Use vocabulary linked to life cycles.	**Growth Awareness**: Notice plants growing → Recognise plants start as seeds/bulbs. **Basic Needs**: Water plants with help → Explain plants need water, light, soil to grow. **Parts of a Plant**: Notice leaves/flowers → Name parts (flower, stem, roots, leaf). **Change Over Time**: Observe seedlings → Talk about how plants change as they grow.	**Vocabulary**: Seed, leaf → Root, bulb, grow,
	• Know about differences between places in the world. • Explore the natural world and contrasting environments. • Describe what they see/hear in different environments. Use senses to explore natural materials and living things. • Explore and ask questions about the natural world. • Know about similarities/differences between animals.	**Local Environment**: Explore local outdoor area → Describe familiar features (trees, grass, pond). **Contrasting Places**: Look at photos/books → Compare environments (desert, woodland, ocean). **Animals/Plants in Places**: Notice what lives locally → Match animals/plants to correct habitat (fish in ocean, camel in desert). **Identifying Animals:** Recognise basic animals → Sort animals by type (farm, pets, wild). **Habitats:** Notice where animals live → Name simple habitats (pond, forest, desert). **Features:** Observe simple features → Sort using key features (fur, feathers, scales).	**Vocabulary**: Outside, garden → Environment, woodland, desert, ocean, polar. **Vocabulary**: Cat, bird → Habitat, fur, feathers, scales, land, water.
	Expectation by the end of:		
	Reception (Early Learning Goals): Explore the natural world around them, making observations and drawing pictures of animals and plants 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.		

	KEY STAGE ONE	
Seasonal Changes	Pupils should be taught to: • Observe changes across the four seasons • Observe and describe weather associated with the seasons and how day length varies	
	Expectation by the end of:	
	Year 1 • To know the name and order of the four seasons; spring, summer, autumn and winter. • 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, with fewer daylight hours in the winter and more in the summer.	**Year 2**
Animals including humans	**Pupils should be taught to:** • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • identify and name a variety of common animals that are carnivores, herbivores and omnivores	**Pupils should be taught to:** • Notice that animals, including humans, have offspring which grow into adults. • find out about and describe the basic needs of animals, including humans, for survival (water, food and air)

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	• describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	• describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
	Expectation by the end of:	
	<u>Year 1</u> • To know a variety of common animals (including fish, amphibians, reptiles, birds and mammals). • To know the main body parts of common animals (arms, legs, wings, tails, fins, head, trunk, horns/tusks, shell) • To know key parts of the human body (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth). • To know the five main senses: sight, smell, hearing, taste and touch. • To know that the skin is used for touch, the tongue is used for taste, the nose is used for smell, the eyes are used for sight and the ears are used for hearing. • To know that a carnivore is an animal that eats other animals and give some examples. • To know that a herbivore is an animal that eats only plants and give some examples. • To know that an omnivore is an animal that eats both animals and plants, and to give some examples.	**<u>Year 2</u>** • 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, need water, food and air to survive. • To understand the importance of exercise, a balanced diet and hygiene for humans.
Everyday Materials	**Pupils should be taught to:** • distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • describe the simple physical properties of a variety of everyday materials • compare and group together a variety of everyday materials on the basis of their simple physical properties	**Pupils should be taught to:** • 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
	Expectation by the end of:	
	<u>Year 1</u> • 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, 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.	**<u>Year 2</u>** • To know why objects are made from particular materials and to give examples of their suitability. • To know that one material can be used for a range of purposes (and to give examples.) • To know that different materials can be used for the same purpose (and to give examples.) • 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, bent, twisted or stretched. • To know that different solid objects may take a different amount of force to change shape.
Plants	**Pupils should be taught to:** • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • identify and describe the basic structure of a variety of common flowering plants, including trees	**Pupils should be taught to:** • 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
	Expectation by the end of:	

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	Year 1 • 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 structure (including leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem) of a variety of common plants, including flowering plants and trees. • To begin to understand how plants grow and change over time.	**Year 2** • 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, that may include stems/trunks, leaves flowers and fruits. • To know that seeds need water to germinate. • To know that plants need water, light and a suitable temperature for growth and health.
Living things and their habitats	**Pupils should be taught to:** • explore and compare the differences between things that are living, dead, and things that have never been alive • identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • identify and name a variety of plants and animals in their habitats, including microhabitats • describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food	
	Year 1	**Year 2** • To begin to understand some of the life processes, including movement, reproduction, sensitivity, growth, excretion and nutrition. • To know the difference between things that are living, dead, and things that have never been alive, using some of the life processes. • To know a variety of plants and animals and describe some differences. • To name a variety of habitats, including woodland, ocean, rainforest and seashore. • 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 (e.g. stones, logs and leaf litter). • To know that living things depend upon each other (e.g. for food, shelter.) • To understand that a food chain can be used to show how animals obtain food from eating either plants and/or other animals.

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	LOWER KEY STAGE TWO	
Plants	**Pupils should be taught to:** • 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 from soil, and room to grow) and how they vary from plant to plant • investigate the way in which water is transported within plants • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	
	Expectation by the end of:	
	Year 3 • 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 stem, to the leaves. • To know that plants need water, light, air, nutrients/fertilizer 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 (part of the) flower. • To know that the process of seed formation is the growth of a seed after pollination/fertilisation. • To know some different methods of seed dispersal and the benefits of each.	**Year 4**
Animals, including humans	**Pupils should be taught to:** • 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	**Pupils should be taught to:** • 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
	Expectation by the end of:	
	Year 3 • To know that animals can be grouped based on the presence of a skeleton. • To know that the skeleton in humans and some animals is used for movement, protection and support. • To know that the muscular system in humans and some animals works with the skeleton for movement. • To know the 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 food groups (carbohydrates, protein, fats, fibre, vitamins, minerals and water) and their simple functions. • To know that a balanced diet should include all food groups.	**Year 4** • To know the main organs of the human digestive system (mouth, teeth, tongue, oesophagus, stomach, small and large intestines) and describe their simple functions. • To know the different types of human teeth (incisor, canine, premolar and molar) 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 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.

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	• To describe the diets of different animals.	• To know that food chains begin with a producer followed by consumers, and arrows to show the energy passed on.
Rocks	**Pupils should be taught to:** • 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	
	Expectation by the end of:	
	Year 3 • To know that rocks can be grouped based on their appearance or properties, (e.g. colour, texture, hardness, permeability.) • To know that rocks may contain grains, crystals or fossils. • To know that 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. • To know that rocks can change over time (e.g. erosion, weathering).	**Year 4**
Light	**Pupils should be taught to:** • 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 an opaque object • find patterns in the way that the size of shadows change	
	Expectation by the end of:	
	Year 3 • To know that light travels from a source (e.g. the Sun, light bulbs and torches). • To know that light is 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 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.	**Year 4**
Forces and Magnets	**Pupils should be taught to:** • compare how things move on different surfaces • notice that some forces need contact between 2 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 2 poles	

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	• predict whether 2 magnets will attract or repel each other, depending on which poles are facing	
	Expectation by the end of:	
	Year 3 • To know some examples of contact and non-contact forces. • To know that some forces are a result of contact between two 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, 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 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.	**Year 4**
Electricity	**Pupils should be taught to:** • 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	
	Expectation by the end of:	
	Year 3	**Year 4** • 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 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 (e.g. metals). • To know that some materials do not allow electrical charge to pass through them easily and these are known as electrical insulators (e.g wood and plastic). • 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.
L i v i	**Pupils should be taught to:**	

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	• 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	
	Expectation by the end of:	
	Year 3	**Year 4** • 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. • 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: birds, mammals, reptiles, amphibians and fish. • To know that invertebrate groups include snails, slugs, worms, spiders and insects. • To know that habitats can 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.
States of Matter	**Pupils should be taught to:** • 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	
	Expectation by the end of:	
	Year 3	**Year 4** • 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 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 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 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.
S o u n d	**Pupils should be taught to:**	

	• 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	
	Expectation by the end of:	
	Year 3	**Year 4** • 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.

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	UPPER KEY STAGE TWO	
Earth and space	**Pupils should be taught to:** • 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	
	Expectation by the end of:	
	Year 5 • 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.	**Year 6**
Properties of Materials	**Pupils should be taught to:** • 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	
	Expectation by the end of:	
	Year 5 • To describe a broader range of materials and their properties, including hardness, solubility, transparency, conductivity 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. • To know that some liquids and solids can be separated using sieving, filtering and evaporation and to describe these processes.	**Year 6**

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	• To understand that some changes result in the formation of new materials and that these are usually irreversible. (e.g. burning, rusting, the action of acid on bicarbonate of soda.)	
Light	**Pupils should be taught to:** • 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.	
	Expectation by the end of:	
	Year 5	**Year 6** • To know that light travels in a straight line from a light source. • To understand that luminous 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 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	**Pupils should be taught to:** • 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	
	Expectation by the end of:	
	Year 5 • 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.	**Year 6**

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	• To understand how the Earth's rotation causes day and night and the apparent movement of the Sun across the sky.	
Electricity	**Pupils should be taught to:** • 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	
	Expectation by the end of:	
		Year 6 • To know a wider variety of components in a series circuit (including buzzer and motor). • To know the conventions used to draw circuit diagrams, including the recognised symbols for common components and using straight lines • To know that the voltage of a circuit can be changed and how this affects bulb brightness (or buzzer volume)
Animals, including humans	**Pupils should be taught to:** • 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 • describe the changes as humans develop to old age	**Pupils should be taught to:** • 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
	Expectation by the end of:	
	Year 5 • To describe the human life cycle, including the stages of growth and development (baby, toddler, child, teenager, adult, elderly). • To describe changes that occur during puberty (in boys and girls). To know that gestation periods vary across mammals.	**Year 6** • To know the main parts of the human circulatory system (heart, blood vessels and blood). • 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 oxygen and nutrients. • To understand the relationships between different organ systems degree of trust in results, in oral and written forms such as displays and other presentations • Identify scientific evidence that has been used to support or refute ideas or arguments. • 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 and breathing rate is the number of breaths per minute. • To know that exercise increases heart and breathing rates.
N a t e	**Pupils should be taught to:**	

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	• 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	
	Expectation by the end of:	
	Year 5 • To describe a broader range of materials and their properties, including hardness, solubility, transparency, conductivity 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. • 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. (e.g. burning, rusting, the action of acid on bicarbonate of soda.	**Year 6**
Evolution and Inheritance	**Pupils should be taught to:** • 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	
	Expectation by the end of:	
	Year 5 • .	**Year 6** • 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 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 and that this process can be called evolution
Living things and their	**Pupils should be taught to:** • 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	**Pupils should be taught to:** • 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

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		• give reasons for classifying plants and animals based on specific characteristics
	Expectation by the end of:	
	Year 5 • 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 requires two parents, whereas asexual reproduction only requires one parent. • To know that there are different processes plants and animals use to reproduce (asexual and sexual reproduction).	**Year 6** • 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 •