KNOWLEDGE AND SKILLS PROGRESSION IN SCIENCE

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Progression in Knowledge							
Biology							
Animals including Humans	**Explore the natural world around them, making observations and drawing pictures of animals.** **Understand some important processes and changes to the natural world around them.** **Know some similarities and differences between the**	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,	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). Describe the importance for humans	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Identify that human and some other animals have skeletons and muscles for support, protection	Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains identifying producers, predators and prey.	Describe the changes as humans develop to old age.	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and

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	natural world around them and contrasting environments drawing on their own experiences and what has been read in class.	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.	of exercise, eating the right amounts of different types of food, and hygiene.	and movement.			water are transported within animals, including humans.
Key Vocabulary	diet, exercise, hygiene	Animals Herbivore Carnivore Omnivore Mammal	Basic needs Diet Exercise Hygiene Illness	Nutrition Skeleton Muscles Healthy Unhealthy	Herbivore Carnivore Omnivore Canine Digestion	Birth Conception/fertilization Death Develop Egg	Heart Lungs Blood Veins

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		Bird Fish Reptile amphibian	Medicine Offspring Seven basic needs survive	Diet Bones Vertebrae Invertebrate	Incisor Large Intestine Molar Oesophagus Peristalsis Predator Prey Producer Salvia Small Intestines Stomach	Foetus Puberty womb	Arteries Heart rate
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Living things and their Habitats			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		Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help groups. Identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things.	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics.

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			plants and animals in their habitats, including micro-habitats. 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. Explore and compare the differences.				
Key Vocabulary			Alive Dead Living Habitat Microhabitat Conditions Adapted Food chain		Environment Classify Vertebrate Invertebrate Exoskeleton Key Adaptation Pollination	Fertilisation Pollination Pollen Stamen Pistil Seed Dispersal Reproduction	Classify Vertebrate Invertebrate Exoskeleton Vascular Non-Vascular Taxonomy

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			Omnivore Herbivore Carnivore				
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Evolution and inheritance							Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may

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							lead to evolution.
Key Vocabulary							**Adaption Environment Evolution Gene National selection Inheritance Organism Species**
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Plants	**Explore the natural world around them, making observations and drawing pictures of animals and plants.** **Understand some important processes and changes in the natural world around them**	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	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.	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			

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	including seasons,	common flowering plants, including trees.		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.			
Key Vocabulary	Soil, water, heat, seeds, growing, germinating, senses*, planting,	Plant Tree Deciduous Evergreen Flower Root Stem leaf	Plant Tree Flower Roots Stem Leaf Seed bulb	Plant Tree Flower Roots Stem Leaf Seed bulb Nutrients Pollination Formation dispersal			
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Chemistry							

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Materials		**Everyday Materials** 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	**Use of Everyday Materials** 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.	Rocks Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter	**States of 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 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.	**Properties and changes of materials** 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	

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		on the basis of their simple physical properties.				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.	
Key Vocabulary		**Wood** **Metal** **Plastic** **Glass** **Rubber** **Rock** **Fabric** **Paper** **Brick** **Fragile** **smooth**	**Wood** **Metal** **Plastic** **Glass** **Rubber** **Rock** **Fabric** **Paper** **Brick** **Fragile** **smooth** **Squashing** **Bending** **Twisting** **stretching**	Rock Soil Fossil Appearance Physical properties. Marble Granite Sandstone Pumice Top soil Subsoil Rocky soil Bedrock Earth's Crust	**change** **collection** **condensation** **evaporation** **freeze** **gas** **heat** **liquid** **precipitation** **property** **solid** **temperature** **thermometer**	**Soluble** **Insoluble** **Saturation** **Solution** **Filtration** **Boiling** **Condensing** **Evaporation** **Freezing** **Melting Point** **Chemical Change** **Physical Change** **Reversible Change** **Irreversible Change**	
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**

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Forces and Magnets	**Explore the natural world around them and make observations.**			Compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces can act at a distance Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having two poles predict whether two magnets will attract or repel each other,		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.	

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				depending on which poles are facing.			
Key Vocabulary				Force Magnet Contact Non-contact Attract Repel Magnetic Non-Magnetic Iron		Force Friction Gravity Pull Push Repel Resistance Drag Streamlined Upthrust or Buoyancy Newton (N) Gear Lever Pulley	
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Physics							
Light				Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces Recognise that light from the sun can be dangerous			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

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				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.			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.
Key Vocabulary				Lightsource Dark Reflect Shadow Opaque Translucent Transparent			Dark Reflect Shadow Opaque Translucent Transparent Luminous

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				Luminous			Scattering Absorption Refraction
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Earth and Space	**Explore the natural world around them and make observations.**					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.	
Key Vocabulary	Space Space rocket Alien Moon Teddy bear Bear Fire Box					Orbit Exis Planet Day Month	

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	Journey Jam Quick/slow/fast Earth Star Clever					Planet Solar System Year Gravity	
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Sound					Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.		
Key Vocabulary					**Vibrate** **Vibrations** **Volume** **Pitch** **Pinna** **Cochlea** **Ear Drum**		

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	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity					Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.		Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. Use recognised symbols when representing a simple circuit in a diagram
Key Vocabulary					Appliance Battery Circuits Components		Appliance Battery Circuits Components

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					Conductor Current Control Electrical Insulator Mains Power Portable Pylon Switch		Conductor Electrical Insulator Mains Power Pylon Renewable Energy Non-Renewable Energy
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Seasonal Change	**Explore the natural world around them and make observations.** **Understand some important processes and changes in the natural world around them including the seasons and changing states of matter.**	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.					

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Key Vocabulary	indigenous, wild, sea, desert, minibeasts, dinosaurs, farm animals	spring Summer Autumn Winter Rain Sun Change					

Progression in working scientifically skills							
	EYFS	**KS1**		**LKS2**		**UKS2**	
Comparative/Fair testing		**Perform simple tests**		**Setting up simple practical enquiries, comparative and fair tests** **Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.**		**Using test results to make predictions to set up further comparative and fair tests.**	
		Yr 1	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**	**Yr 6**
		Perform simple tests	**Perform simple comparative**	**Setting up simple practical enquiries,**	**Setting up simple practical enquiries,**	**Using test results to make predictions**	**Using test results to make predictions**

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			and fair tests	comparative and fair tests	comparative and fair tests	to set up further comparative and fair tests	to set up further comparative and fair tests
Research		**Using their observations and ideas to suggest answer to questions**		**Ask relevant questions and using different types of scientific enquiries to answer them.**		**Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.**	
Observation over time		**Observe closely using simple equipment.**		**Making systematic and careful observations and where appropriate taking accurate measurements using standard units using a range of equipment including thermometers and data loggers.**		**Taking measurements using a range of scientific equipment with increasing accuracy and precision taking repeat readings when appropriate.**	
Pattern-seeking		**Gathering and recording data to help in answering questions.**		**Identifying differences, similarities or changes related to simple scientific ideas and processes.** **Reporting on findings from enquiries including oral and written explanations displays or presentations of results or conclusions.**		**Reporting and presenting findings from enquiries including conclusions, casual relationships and explanations of and degree of trust in results in oral and written forms such as displays and other presentations.**	

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Identifying, grouping and classifying		**Identifying and classifying**	**Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.** **Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.**	**Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.**
Problem-Solving		**Using their observations and ideas to suggest answers to questions.**	**Use straightforward scientific evidence to answer questions or to support their findings.**	**Identifying scientific evidence that has been used to support or refute ideas or arguments.**

Progression in working scientifically skills				
	EYFS	**KS1**	**LKS2**	**UKS2**

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Scientific knowledge and conceptual understanding	**Show curiosity and ask questions**	**Asking simple questions and recognising that they can be answered in different ways.** **While exploring the world the children develop the ability to ask questions (such as what something is how things are similar and different, the way things work, which alternative is better, how things change and how the happen).** **Where appropriate they answer these questions.** **The children answer questions developed with the teacher often through a scenario.**	**Asking relevant questions and using different types of scientific enquiry to answer them.** **The children consider their prior knowledge when asking questions. They independently use a range of question stems where appropriate they answer these questions. The children answer questions posed by the teacher.** **When given a range of resources the children decide for themselves how to gather evidence to answer the question.**	**Planning different types of scientific enquires to answer questions including recognising and controlling variables where necessary. Children independently ask scientific questions. They may be stimulated by a scientific experience or ask further questions based on their developed understanding following an enquiry.** **Give children a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.**

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Nature, processes and methods of science	Make observations using their senses and simple equipment. Use equipment to measure.	Observing closely using simple equipment. Children explore the world around them. They make careful observations to support identification comparison and noticing changes. They use appropriate senses aided by equipment such as magnifying glasses. They begin to take measurements initially by comparisons then using non-standard units.	Making systematic and careful observations and where appropriate taking accurate measurements using standard units using a range of equipment including thermometers. The children make systematic and careful observations. They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for measuring.	Taking measurements using a range of scientific equipment with increasing accuracy and precision, taking repeat readings when appropriate. The children select measuring equipment to give the most precise results eg ruler, tape measure, trundle wheel, force meter with a suitable scale. During an enquiry they make decisions e.g. whether they need to repeat readings, adjust the observation (observing over time) to make accurate data.
Uses and implications	Make direct comparisons. Use equipment to measure. Identify and sort group.	Performing Simple Tests The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out tests to classify	Setting up simple practical enquiries, comparative and fair tests. The children select from a range of practical resources to gather evidence to answer	Planning different types of scientific enquiries to answer questions including recognising and controlling variables where necessary.

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		comparative tests, pattern seeking enquiries and make observations over time. Identifying and classifying Using their observations and ideas to suggest answers to questions. Children use their observations and testing to compare objects materials and living things. They sort and group these things identifying their own criteria for sorting.	simple questions generated by themselves or the teacher. They follow their plan to carry out observations and test to classify comparative and simple fair tests, observation over time and pattern seeking.	The children select a range of practical resources by gathering evidence to answer the questions. They carry out fair test recognising and controlling variables. They decide what observations or measurements to make over time and for how long. The look for patterns and relationships using a suitable sample.

Progression in working scientifically skills				
	EYFS	**KS1**	**LKS2**	**UKS2**

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		comparative tests, pattern seeking enquiries and make observations over time. **Identifying and classifying** **Using their observations and ideas to suggest answers to questions.** **Children use their observations and testing to compare objects materials and living things. They sort and group these things identifying their own criteria for sorting.**	**simple questions generated by themselves or the teacher.** **They follow their plan to carry out observations and test to classify comparative and simple fair tests, observation over time and pattern seeking.**	**The children select a range of practical resources by gathering evidence to answer the questions. They carry out fair test recognising and controlling variables. They decide what observations or measurements to make over time and for how long. The look for patterns and relationships using a suitable sample.**

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