Curriculum Progression of Knowledge & Skills

SCIENCE

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Science Curriculum End Points: Composite Substantive Knowledge

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Rec (NC Links)	**Seasonal Changes** **Earth & Space**	**Animals inc. Humans**	**Materials** **Forces**	**Plants**	**Living Things in their Habitat**	**Light** **Sound**
	To recognise the changes in the natural world around them	Recognise animals, including humans and how to care for them	To begin to name and recognise simple properties of materials in their environment To recognise the everyday use of simple forces	Understand what a plant is	To know what a habitat is	To understand the term shadow To recognise the term sound
Y1	**Animals inc Humans**		**Materials**	**Animals inc. Humans**	**Plants**	
	To know the basic parts of the human body, including the parts responsible for the 5 senses		To identify, group and describe everyday materials using their properties	Identify and compare a variety of common animals and their structures	Identify, name and describe a variety of plants:	
	Seasonal Changes: To understand that we experience four seasons					
Y2		**Materials**	**Animals inc. Humans**		**Plants**	**Living Things in their Habitat**
		To compare materials suitability for different uses. To recognise that some materials can change shape by applying a force.	Understand how animals, including humans grow into healthy adults		Know how to grow a healthy plant from seed or a bulb	To understand the importance of a habitat
Y3		**Forces**	**Materials**	**Animals inc. Humans**	**Plants**	**Light**
		To know that forces are a push or a pull in a direction and understand magnetism	To identify and compare rocks, fossils and soils.	Understand the function of a skeleton and muscles Understand the importance of nutrition for animals, including humans To know animals do not make their own food	Know the functions of different parts of flowering plants	To understand light is an energy that can be manipulated
Y4	**Living Things in their Habitat**	**Materials**		**Electricity**	**Animals inc. Humans**	**Sound**
	To classify living things and understand how habitats can change	To recognise that materials can change state by heating and cooling		To know how a simple electric circuit works	Understand the journey of food through the human body To understand food chains	To know that sound is a vibration which travels through a medium to the ear
Y5	**Forces**	**Earth & Space**	**Materials**	**Materials**	**Forces**	**Animals inc. Humans** **Living Things in their Habitat**
	To know that there are different types of forces and understand their different effects	To know and understand the movement of the Earth, Moon and other planets in the Solar System.	To justify materials suitability for different uses. To identify that changes can be reversible or irreversible.	To identify that changes can be reversible or irreversible.	Effects on forces when using Levers, Pulleys & Gears	Understand how humans develop to old age Understand the lifecycles of a variety of plants & animals
Y6	**Living Things in their Habitat**	**Light**		**Evolution & Inheritance**	**Electricity**	**Animals inc. Humans**
	To classify living things based on specific and common characteristics	To understand that light travels in straight lines and to know how we see objects		Describe how living things have adapted and evolved over time.	To know and understand that the amount of voltage in a circuit can affect the output of a component inc brightness, volume and speed	Understand the importance of a healthy circulatory system

Science Progression of Knowledge & Skills EYFS Reception

In this year group, children will be taught to:	
• Explore the natural world around them. • Describe what they see, hear and feel whilst outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.	**Knowledge & Understanding of the World ELG-The Natural World** · 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.

These specific objectives will be built upon in Years 1-6

Biology

Recognise animals, including humans and how to care for them

- To know animals, need to be cared for
- To make observations of common animals
- To know how to describe myself (hair, eyes, skin)
- To name and describe people in my family and community
- To know ways to look after myself (wash hands, teeth, toilet hygiene, keeping warm)

Understand what a plant is:

- To make observations of familiar plants
- To know plants, need to be cared for
- To name and describe some plants
- To draw pictures of plants

To know what a habitat is

- To know that a habitat is a home for animals and plants
- To explore a variety of habitats (woodland, pond, park, under a log)
- To build a home for an animal (bug hotel etc)

Chemistry

To begin to name and recognise simple properties of materials in their environment.

- To name the material used to make a model and begin to identify a key property the material has.
- To reuse materials and talk about what can be recycled.
- To test a material to see if they are suitable e.g. is this bridge strong enough for the Billy Goats Gruff.
- To take photos or draw pictures to record how materials change.

Physics

To understand the term shadow

- To know what a shadow looks like.
- To know that we see shadows on a sunny day.
- To know shadows changes during the day.

To recognise the changes in the natural world around them.

- To understand the differences between day and night.
- To know that there are changes in the natural world around them inc. seasons

To recognise the everyday use of simple forces.

- To understand that movement changes as a result of pushing and pulling an object
- To know that different objects can float or sink.

To recognise the term sound

- To know and name the sounds I hear.
- To understand the source of sounds.
- To know how I make different sounds.

To recognise the changes in the natural world around them.

- To understand the key features that identify the Sun, the Moon and the stars through observation.
- To know the differences between day and night

Science Progression of Knowledge & Skills Year 1

In this year group, children will be taught to:		Children will be able to:
KS1 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 asking simple questions and recognising that they can be answered in different ways • WS2 observing closely, using simple equipment and measurement • WS3 performing simple tests • WS4 identifying and classifying • WS5 using their observations and ideas to suggest answers to questions • WS6 gathering, recording and communicating data and findings to help in answering questions. • WS7 use scientific language and read and spell age-appropriate scientific vocabulary • WS8 begin to notice patterns and relationships.	**Plants** • P1 identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • P2 identify and describe the basic structure of a variety of common flowering plants, including trees. **Animals, including Humans** • AH1 identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • AH2 identify and name a variety of common animals that are carnivores, herbivores and omnivores • AH3 describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • AH4 identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **Everyday Materials** • EM1 distinguish between an object and the material from which it is made • EM2 identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • EM3 describe the simple physical properties of a variety of everyday materials • EM4 compare and group together a variety of everyday materials on the basis of their simple physical properties. **Seasonal Changes** • SC1 observe changes across the four seasons • SC2 observe and describe weather associated with the seasons and how day length varies.	**Identify, name and describe a variety of plants:** •To name some garden plants •To name some wild plants •To understand the term evergreen •To label a plant: roots, stem (trunk), petals or flowers **Identify and compare a variety of common animals and their structures** •To name a variety of animals (fish, amphibians, reptiles, birds and mammals) •To understand the terms carnivores, herbivores & omnivores •To name animals that are carnivores, herbivores & omnivores •To compare the structures of a variety of common animals (e.g. wings, ears, tails) •To know the basic parts of the human body, including the parts responsible for the 5 senses **Identify, group and describe everyday materials using their properties.** •To group every day materials into metals, rock, fabrics, wood, plastic and glass. •To distinguish between an object and the material it is made from. (This is a table it is made of wood, this is a window it is made of glass, etc) •To sort and compare everyday materials using hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through. **Understand that we experience four seasons.** •To know different types of weather. •To know the names of the four seasons. •To understand the differences in the local environment inc living things, throughout the year •To understand how things in my life change during the seasons. i.e. the clothes I wear, the activities I do etc.

Science Progression of Knowledge & Skills Year 2

In this year group, children will be taught to:		Children will be able to:
KS1 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 asking simple questions and recognising that they can be answered in different ways • WS2 observing closely, using simple equipment and measurement • WS3 performing simple tests • WS4 identifying and classifying • WS5 using their observations and ideas to suggest answers to questions • WS6 gathering, recording and communicating data and findings to help in answering questions. • WS7 use scientific language and read and spell age-appropriate scientific vocabulary • WS8 begin to notice patterns and relationships.	**Living Things and their Habitats** • LH1 explore and compare the differences between things that are living, dead, and things that have never been alive • LH2 identify that most living things live in habitats to which they are suited • LH3 describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • LH4 identify and name a variety of plants and animals in their habitats, including micro-habitats • LH5 describe how animals obtain their food from plants and other animals • LH6 understand a simple food chain, and identify and name different sources of food. **Plants** • P1 observe and describe how seeds and bulbs grow into mature plants • P2 find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. **Animals including Humans** • AH1 notice that animals, including humans, have offspring which grow into adults • AH2 find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • AH3 describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **Uses of Everyday Materials** • EM1 identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • EM2 find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**Understand the importance of a habitat** •To compare things that are living, dead and never been alive •To name a variety of plants/animals suited to a habitat/microhabitat (movement, finding food) •To understand that habitats provide shelter, food & water for animals & plants •To understand that plants/animals within a habitat depend on each other •To construct a simple food chain starting with a plant **Know how to grow a healthy plant:** •To know a plant starts as a seed or a bulb •To observe and describe how seeds and bulbs grow. •To know that plants need water, light and warmth to grow and stay healthy. **Understand how animals, including humans grow into healthy adults** •To understand the term offspring •To know offspring grow into adults •To know that some offspring don't look like their adult •To know that animals, including animals need water, food & air to survive •To know to grow into a healthy adult the importance of exercise, healthy eating and hygiene **To compare materials suitability for different uses.** **To recognise that some materials can change shape by applying a force.** •To understand why a material is suitable or not suitable for a specific purpose using the vocabulary, opaque, transparent and translucent, reflective, non-reflective, flexible, rigid. •To label a picture or diagram of an object made from a combination of different materials describing their properties. e.g. house is made from bricks, slate, glass because … •To understand what properties a suitable material needs to have. •To know how the shape of a material can be changed in a variety of ways - squashing, bending, twisting and stretching.

Science Progression of Knowledge & Skills Year 3

In this year group, children will be taught to:		Children will be able to:
Lower KS2 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 making decisions, asking relevant questions and using different types of scientific enquiries to answer them • WS2 setting up simple practical enquiries, comparative and fair tests • WS3 making systematic and careful observations using notes and simple tables • WS4 taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • WS5 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • WS6 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • WS7 reporting on findings from enquiries, using relevant scientific language, including oral and written	**Plants** • P1 identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • P2 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 • P3 investigate the way in which water is transported within plants • P4 explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. • P5 know that plants make their own food **Animals including Humans** • AH1 identify that animals, including humans, need the right types and amount of nutrition, and that they • AH2know that animals cannot make their own food; they get nutrition from what they eat • AH3 identify that humans and some animals have skeletons and muscles for support, protection and movement. **Rocks** • R1 compare and group together different kinds of rocks (including those in the locality) on the basis of appearance and simple physical properties • R2 describe in simple terms how fossils are formed when things that have lived are trapped within rock • R3 recognise that soils are made from rocks and organic matter.	**Know the functions of different parts of flowering plants** •To explain the function of the roots, stem/trunk, leaves & flowers •To know the requirements plants, need to grow: air, light, water, nutrients from soil and room to grow •To know that different plants require different amounts of air •To know that water travels from the soil, to the roots to the stem and the leaves •To understand the term pollination (using male and female parts) •To know 3 forms of seed dispersal – wind, animal, water (river/stream/canal) **Understand the function of a skeleton and muscles** •To know the names of some bones (skull, spine, ribs) •To know the purpose of the skeleton and muscles – movement, protection, support **Understand the importance of nutrition for animals, including humans** • To know animals do not make their own food •To know the nutrients found in food: carbohydrates, protein, vitamins, minerals, fats, sugars, fibre •To know a balance of nutrients is needed to stay healthy **To identify and compare rocks, fossils and soils.** •To know that rock is a naturally occurring material. •To know the name of some types of rock including marble, chalk, granite, sandstone, slate. •To know examples of igneous (granite), sedimentary (sandstone, chalk) and metamorphic (slate marble) rock. •To understand the vocabulary of (grain, crystals, layers, hard, soft, texture, absorb water) to describe the observable features of the named rocks. •To understand how a fossil is formed. •To understand that soils are a mixture of rocks and living/dead matter.

explanations, displays or presentations of results and conclusions • WS8 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • WS9 identifying differences, patterns, similarities or changes related to simple scientific ideas and processes • WS10 using straightforward scientific evidence to answer questions or to support their findings. • WS11 begin to look for naturally occurring patterns and relationships • WS12 recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.	**Light** • L1 recognise that they need light in order to see things and that dark is the absence of light • L2 notice that light is reflected from surfaces • L3 recognise that light from the sun can be dangerous and that there are ways to protect their eyes • L4 recognise that shadows are formed when the light from a light source is blocked by a solid object • L5 find patterns in the way that the size of shadows change. **Forces and Magnets** • FM1 compare how things move on different surfaces • FM2 notice that some forces need contact between two objects, but magnetic forces can act at a distance • FM3 observe how magnets attract or repel each other and attract some materials and not others • FM4 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 • FM5 describe magnets as having two poles • FM6 predict whether two magnets will attract or repel each other, depending on which poles are facing.	**Understand light is an energy that can be manipulated.** •To understand darkness is the absence of light. •To know how we see objects in light. •To understand that it is dangerous to view the sun directly and state precautions used to view the sun, for example in eclipses. •To know the terms transparent, translucent and opaque •To understand how shadows are formed •To understand how shadows, change size. **Know that forces are a push or a pull in a direction and understand magnetism.** •To know examples of forces in everyday life •To understand that objects can move differently on different surfaces •To know that magnets have two poles which attract and repel •To understand that not all metals are magnetic/attracted to a magnet

Science Progression of Knowledge & Skills Year 4

In this year group, children will be taught to:		Children will be able to:
Lower KS2 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 making decisions, asking relevant questions and using different types of scientific enquiries to answer them • WS2 setting up simple practical enquiries, comparative and fair tests • WS3 making systematic and careful observations using notes and simple tables • WS4 taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • WS5 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • WS6 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • WS7 reporting on findings from enquiries, using relevant scientific language, including oral and written explanations, displays or presentations of results and conclusions	**Living things and their Habitats** • LH1 recognise that living things (including those in the locality) can be grouped in a variety of ways • LH2 explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • LH3 recognise that environments can change and that this can sometimes pose dangers to living things. **Animals including Humans** • AH1 describe the simple functions of the basic parts of the digestive system in humans • AH2 identify the different types of teeth in humans and their simple functions • AH3 construct and interpret a variety of food chains, identifying producers, predators and prey. **States of Matter** • SM1 explore a variety of everyday materials and develop simple descriptions of the states of matter • SM2 compare and group materials together, according to whether they are solids, liquids or gases • SM3 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) • SM4 identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	**Classify living things and understand how habitats can change** •To know how to group living things in a variety of ways (key features) •To use a classification key •To know some positive ways humans can impact a habitat (e.g. nature reserves) •To know some negative ways habitats can be humans or nature can impact a habitat (e.g. littering, deforestation) **Understand the journey of food through the human body** •To know the 4 types of teeth and their functions – Incisors for cutting, canines for tearing, molars and premolars for chewing •To identify the key stages of digestion – teeth & saliva, oesophagus, stomach, small intestine, large intestine & rectum **To understand food chains** •To know the terms producer, prey, predator •To construct a food chain using the correct terminology **Recognise that materials can change state by heating and cooling.** •To understand materials can be grouped into solids, liquids and gases. •To understand how heating causes solids to melt into liquids and liquids to evaporate into gases. •To understand how cooling causes gases to condense into liquids and liquids to freeze into solids. •To know melting point of water is 0°C and the boiling point is 100°C. •To know that the higher the temperature the faster the rate of evaporation. •To understand how condensation and evaporation occur within the water cycle.

• WS8 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • WS9 identifying differences, patterns, similarities or changes related to simple scientific ideas and processes • WS10 using straightforward scientific evidence to answer questions or to support their findings. • WS11 begin to look for naturally occurring patterns and relationships • WS12 recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.	**Sound** • S1 identify how sounds are made, associating some of them with something vibrating • S2 recognise that vibrations from sounds travel through a medium to the ear • S3 find patterns between the pitch of a sound and features of the object that produced it • S4 find patterns between the volume of a sound and the strength of the vibrations that produced it • S5 recognise that sounds get fainter as the distance from the sound source increases. **Electricity** • E1 identify common appliances that run on electricity • E2 construct a simple series circuit, identifying/naming its basic parts, including cell, wire, bulb, switch and buzzer • E3 use their circuits to create simple devices • E4 draw the circuit as a pictorial representation (not necessarily using conventional circuit symbols) • E5 about precautions for working safely with electricity. • E6 identify whether or not a lamp will light in a simple series circuit • E7 recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit • E8 recognise some common conductors and insulators, and associate metals with being good conductors	**Know that sound is a vibration which travels through a medium to the ear.** •To understand that sound is a type of energy created by vibrations; the louder the sound, the bigger the vibration. •To understand that sound travels from its source in all directions and we hear it when it travels to our ears. •To know that sound travel can be blocked. •To know that sound moves through all materials by making them vibrate; changing the way an object vibrates changes its sound. •To know that sound volume changes dependant on the distant from the sound source •To know that faster vibrations (higher frequencies) produce higher pitched sounds **To know how a simple electric circuit works** •To know that electricity is a form of energy. •To understand that a source of electricity (mains or battery) is needed for electrical devices to work. •To know that electricity sources push electricity round a circuit. •To understand a complete circuit is needed for electricity to flow and devices to work. •To understand that some materials allow electricity to flow easily and these are called conductors. •To know that materials that don't allow electricity to flow easily are called insulators.

Science Progression of Knowledge & Skills Year 5

In this year group, children will be taught to:		Children will be able to:
Upper KS2 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • WS2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • WS3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • WS4 using test results to make predictions to set up further comparative and fair tests • WS5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • WS6 identifying scientific evidence that has been used to support or refute ideas or arguments. • WS7 explore and talk about their ideas; asking their own questions about scientific	**Living things and their Habitats** • LT1 describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • LT2 describe the life process of reproduction in some plants and animals. • LT3 raise questions about their local environment throughout the year. • LT4 find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall. • LT5 find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals. **Animals, including Humans** • AIH1 describe the changes as humans develop to old age. • AIH2 draw a timeline to indicate stages in the growth and development of humans. • AIH3 learn about the changes experienced in puberty. **Properties and changes of materials** • PM1 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 • PM2 know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • PM3 use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • PM4 give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • PM5 demonstrate that dissolving, mixing and changes of state are reversible changes	**Understand the lifecycles of a variety of plants & animals** •To know the terms sexual and asexual reproduction •To know how plants, reproduce sexually (through pollination) •To know how plants, reproduce asexually (through bulbs, tubers, runners, plantlets) •To know how different animals, reproduce sexually •To compare the life cycles of different animals (mammals, insects, birds, amphibians, reptiles) **Understand how humans develop to old age** •To know the stages of the human life cycle •To identify specific steps in each stage (baby – crawling, teenage – puberty) **Justify materials suitability for different uses.** **Identify that changes can be reversible or irreversible.** •To know how to group everyday materials based upon properties including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Electricity covered in Year 4 and magnets covered in Y3) •To know that some materials will dissolve in liquid to form a solution, these are soluble and solids that do not dissolve are insoluble. •To understand why a material is suitable or not suitable for a specific purpose based upon its physical properties. •To understand when some materials are mixed, they can be separated by sieving, filtering, evaporating or by magnetic properties. These changes are reversible. •To understand that when some materials are mixed a chemical reaction can create a change of state or a new material. These changes are irreversible e.g. burning and **rusting.**

phenomena; and analysing functions, relationships and interactions more systematically. • WS8 recognise that scientific ideas change and develop over time. • WS9 draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. • WS10 Pupils should read, spell and pronounce scientific vocabulary correctly.	• PM6 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. • PM7 explore reversible changes, including, evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes. • PM8 explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example, vinegar with bicarbonate of soda **Earth and Space** • ES1 describe the movement of the Earth, and other planets, relative to the Sun in the solar system • ES2 describe the movement of the Moon relative to the Earth • ES3 describe the Sun, Earth and Moon as approximately spherical bodies • ES4 use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. • ES5 learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006). • ES6 understand that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones). **Forces** • F1 explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • F2 identify the effects of air resistance, water resistance and friction, that act between moving surfaces • F3 recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. • F4 explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall. • F5 explore the effects of friction on movement and find out how it slows or stops moving objects. • F6 find out how scientists, for example, Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.	•To understand that heating can sometimes cause materials to change permanently. When this happens, a new substance is made. **Know and understand the movement of the Earth, Moon and other planets in the Solar System.** •To know the approximate shape of the Sun, Earth and Moon – Spherical •To understand the movement of planets in the Solar System •To know how the Earth and Moon moves. •To understand why we have day and night. •To know the moon has different phases. **Know that there are different types of forces and understand their different effects** •To understand that air resistance and water resistance are forces against motion caused by objects having to move air and water out of their way. •To know that friction is a force against motion caused by two surfaces rubbing against each other. •To understand that some objects require large forces to make them move; gears, pulley and levers can reduce the force needed to make things move. •To know that some objects/animals are streamlined to minimise the effects of air/water resistance**.**

Science Progression of Knowledge & Skills Year 6

In this year group, children will be taught to:		Children will be able to:
Upper KS2 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • WS2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • WS3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • WS4 using test results to make predictions to set up further comparative and fair tests • WS5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • WS6 identifying scientific evidence that has been used to support or refute ideas or arguments. • WS7 explore and talk about their ideas; asking their own questions about scientific phenomena; and analysing functions,	**Living things and their Habitats** • LTH1 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 • LTH2 give reasons for classifying plants and animals based on specific characteristics. • LTH3 know that broad groupings, such as micro-organisms, plants and animals can be subdivided. • LTH4 should classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals). • LTH5 find out about significance of the work of scientists such as Carl Linnaeus, a pioneer of classification. **Animals, including Humans** • AIH1 identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • AIH2 recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • AIH3 describe the ways in which nutrients and water are transported within animals, including humans. • AIH4 explore questions to understand how the circulatory system enables the body to function. • AIH5 learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body. • AIH6 explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health. **Evolution and Inheritance** • EI1 recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • EI2 recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents	**Classify living things based on specific and common characteristics** •To know that living things can be grouped into plants, animals and micro-organisms •To understand the terms vertebrate and invertebrates •To know animals can be grouped into vertebrates and invertebrates •To know the common characteristics of the vertebrates' group - fish, amphibians, reptiles, birds, mammals •To know that invertebrates can be grouped into insects, spiders, snails and worms •To know plants can be grouped into flowering and non-flowering **Understand the importance of a healthy circulatory system** •To know the main parts of the circulatory system and their function (heart, blood vessels and blood) •To know that water and nutrients are transported in the blood •To understand the effect of lifestyle choices (diet, exercise, drugs) on your circulatory system **Describe how living things have adapted and evolved over time.** •I can define the terms evolution and inheritance. •I know that fossils provide information about living things that inhabited the Earth millions of years ago. •I recognise that living things have adapted and evolved over time to survive within the environment. •I understand that organisms reproduce and offspring inherit similar characteristics.

relationships and interactions more systematically. • WS8 recognise that scientific ideas change and develop over time. • WS9 draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. • WS10 Pupils should read, spell and pronounce scientific vocabulary correctly.	• EI3 identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. • EI4 be introduced to the idea that characteristics are passed from parents to their offspring, i.e. different breeds of dogs, and what happens when, for example, labradors are crossed with poodles. • EI5 appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks got longer. • EI6 find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution. **Light** • L1 recognise that light appears to travel in straight lines • L2 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 • L3 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 • L4 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. • L5 work scientifically by: deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. • L6 look at a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters (they do not need to explain why these phenomena occur). **Elecricity** • E1 associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • E2 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 • E3 use recognised symbols when representing a simple circuit in a diagram. • E4 construct simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors. • E5 learn how to represent a simple circuit in a diagram using recognised symbols.	•I know that variation exists within a population and between offspring of some plants. **Understand that light travels in straight lines and to know how we see objects.** •To understand that animals see light sources when light travels from the source into their eyes. •To understand that animals see objects when light is reflected off that object and enters their eyes. •To know that light reflects off all objects (unless they are black). Non-shiny surfaces scatter the light so we don't see the beam. •To know that light travels in straight lines, called rays or beams of light **Know and understand that the amount of voltage in a circuit can affect the output of a component inc brightness, volume and speed.** •To know that batteries/cells are a store of energy and this energy pushes electricity around the circuit. •To know that battery/cell energy is measured in voltage. •To understand that when the battery's/cell's energy is gone it stops pushing. (Voltage measures the 'push.') •To know the symbols for: lamp, wire, buzzer, cell, battery, motor, switch (open), switch (closed). •To understand that a series circuit will not work if a lamp is broken or a wire is disconnected. •To understand how to vary the output of a component e.g. bulb, buzzer, motor

Progression in Substantive Knowledge:

Animals, including humans - Biology

EYFS

Recognise animals, including humans and how to care for them

- To know animals, need to be cared for
- To make observations of common animals
- To know how to describe myself (hair, eyes, skin)
- To name and describe people in my family and community
- To know ways to look after myself (wash hands, teeth, toilet hygiene, keeping warm)

Year 1

Identify and compare a variety of common animals and their structures

- To name a variety of animals (fish, amphibians, reptiles, birds and mammals)
- To understand the terms carnivores, herbivores & omnivores
- To name animals that are carnivores, herbivores & omnivores
- To compare the structures of a variety of common animals (e.g. wings, ears, tails)
- To know the basic parts of the human body, including the parts responsible for the 5 senses

Year 2

Understand how animals, including humans grow into healthy adults

- To understand the term offspring
- To know offspring grow into adults
- To know that some offspring don't look like their adult
- To know that animals, including animals need water, food & air to survive
- To know to grow into a healthy adult the importance of exercise, healthy eating and hygiene

Year 3

Understand the function of a skeleton and muscles

- To know the names of some bones (skull, spine, ribs)
- To know the purpose of the skeleton and muscles – movement, protection, support

Understand the importance of nutrition for animals, including humans

To know animals do not make their own food

- To know the nutrients found in food: carbohydrates, protein, vitamins, minerals, fats, sugars, fibre
- To know a balance of nutrients is needed to stay healthy

Year 4

Understand the journey of food through the human body

- To know the 4 types of teeth and their functions – Incisors for cutting, canines for tearing, molars and premolars for chewing
- To identify the key stages of digestion – teeth & saliva, oesophagus, stomach, small intestine, large intestine & rectum

To understand food chains

- To know the terms producer, prey, predator
- To construct a food chain using the correct terminology

Year 5

Understand how humans develop to old age

- To know the stages of the human life cycle
- To identify specific steps in each stage (baby – crawling, teenage – puberty)

Year 6

Understand the importance of a healthy circulatory system

- To know the main parts of the circulatory system and their function (heart, blood vessels and blood)
- To know that water and nutrients are transported in the blood
- To understand the effect of lifestyle choices (diet, exercise, drugs) on your circulatory system

Plants - Biology

EYFS

Understand what a plant is:

- To make observations of familiar plants
- To know plants, need to be cared for
- To name and describe some plants
- To draw pictures of plants

Year 1

Identify, name and describe a variety of plants:

- To name some garden plants
- To name some wild plants
- To understand the term evergreen
- To label a plant: roots, stem (trunk), petals or flowers

Year 2

Know how to grow a healthy plant:

- To know a plant starts as a seed or a bulb
- To observe and describe how seeds and bulbs grow.
- To know that plants need water, light and warmth to grow and stay healthy.

Year 3

Know the functions of different parts of flowering plants

- To explain the function of the roots, stem/trunk, leaves & flowers
- To know the requirements plants, need to grow: air, light, water, nutrients from soil and room to grow
- To know that different plants require different amounts of air
- To know that water travels from the soil, to the roots to the stem and the leaves
- To understand the term pollination (using male and female parts)
- To know 3 forms of seed dispersal – wind, animal, water (river/stream/canal)

Living things and their habitats - Biology

EYFS

To know what a habitat is

- To know that a habitat is a home for animals and plants
- To explore a variety of habitats (woodland, pond, park, under a log)
- To build a home for an animal (bug hotel etc)

Year 2

To understand the importance of a habitat

- To compare things that are living, dead and never been alive
- To name a variety of plants/animals suited to a habitat/microhabitat (movement, finding food)
- To understand that habitats provide shelter, food & water for animals & plants
- To understand that plants/animals within a habitat depend on each other
- To construct a simple food chain starting with a plant

Year 4

To classify living things and understand how habitats can change

- To know how to group living things in a variety of ways (key features)
- To use a classification key
- To know some positive ways humans can impact a habitat (e.g. nature reserves)
- To know some negative ways habitats can be humans or nature can impact a habitat (e.g. littering, deforestation)

Year 5

Understand the lifecycles of a variety of plants & animals

- To know the terms sexual and asexual reproduction
- To know how plants, reproduce sexually (through pollination)
- To know how plants, reproduce asexually (through bulbs, tubers, runners, plantlets)
- To know how different animals, reproduce sexually
- To compare the life cycles of different animals (mammals, insects, birds, amphibians, reptiles)

Year 6

To classify living things based on specific and common characteristics

- To know that living things can be grouped into plants, animals and micro-organisms
- To understand the terms vertebrate and invertebrates
- To know animals can be grouped into vertebrates and invertebrates
- To know the common characteristics of the vertebrates' group - fish, amphibians, reptiles, birds, mammals
- To know that invertebrates can be grouped into insects, spiders, snails and worms
- To know plants can be grouped into flowering and non-flowering

Evolution & Inheritance

Describe how living things have adapted and evolved over time.

- I can define the terms evolution and inheritance.
- I know that fossils provide information about living things that inhabited the Earth millions of years ago.
- I recognise that living things have adapted and evolved over time to survive within the environment.
- I understand that organisms reproduce and offspring inherit similar characteristics.
- I know that variation exists within a population and between offspring of some plants.

Materials - Chemistry

EYFS

To begin to name and recognise simple properties of materials in their environment.

- To name the material used to make a model and begin to identify a key property the material has.
- To reuse materials and talk about what can be recycled.
- To test a material to see if they are suitable e.g. is this bridge strong enough for the Billy GoatsGruff.
- I can take photos or draw pictures to record how materials change.

Y1 Everyday Materials

To identify, group and describe everyday materials using their properties.

- To group every day materials into metals, rock, fabrics, wood, plastic and glass.
- To distinguish between an object and the material it is made from. (This is a table it is made of wood, this is a window it is made of glass, etc)
- To sort and compare everyday materials using **hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through.**

Y2 Uses of everyday materials

To compare materials suitability for different uses.

To recognise that some materials can change shape by applying a force.

- To understand why a material is suitable or not suitable for a specific purpose using the vocabulary, **opaque, transparent and translucent, reflective, non-reflective, flexible, rigid.**
- To label a picture or diagram of an object made from a combination of different materials describing their properties. e.g. house is made from bricks, slate, glass because …
- To understand what properties a suitable material needs to have.
- To know how the shape of a material can be changed in a variety of ways - **squashing, bending, twisting and stretching.**

Y3 Rocks

To identify and compare rocks, fossils and soils.

- To know that rock is a naturally occurring material.
- To know the name of some types of rock including **marble, chalk, granite, sandstone, slate.**
- To know examples of **igneous** (granite), **sedimentary** (sandstone, chalk) and **metamorphic** (slate marble) rock.
- To understand the vocabulary of (grain, crystals, layers, hard, soft, texture, absorb water) to describe the observable features of the named rocks.

- To understand how a fossil is formed.
- To understand that soils are a mixture of rocks and living/dead matter.

Y4 States of matter

To recognise that materials can change state by heating and cooling.

- To understand materials can be grouped into solids, liquids and gases.
- To understand how heating causes solids to melt into liquids and liquids to evaporate into gases.
- To understand how cooling causes gases to condense into liquids and liquids to freeze into solids.
- To know melting point of water is 0°C and the boiling point is 100°C.
- To know that the higher the temperature the faster the rate of evaporation.
- To understand how condensation and evaporation occur within the water cycle.

Y5 Properties of Materials

To justify materials suitability for different uses.
To identify that changes can be reversible or irreversible.

- To know how to group everyday materials based upon properties including their hardness, solubility, transparency, conductivity *(electrical and thermal), and response to magnets. (Electricity covered in Year 4 and magnets covered in Y3)*
- To know that some materials will dissolve in liquid to form a solution, these are **soluble** and solids that do not dissolve are **insoluble**.
- To understand why a material is suitable or not suitable for a specific purpose based upon its physical properties.
- To understand when some materials are mixed, they can be separated by sieving, filtering, evaporating or by magnetic properties. These changes are reversible.
- To understand that when some materials are mixed a chemical reaction can create a change of state or a new material. These changes are **irreversible** e.g. burning and rusting.
- To understand that heating can sometimes cause materials to change permanently. When this happens, a new substance is made.

Light - Physics

EYFS

To understand the term shadow

- To know what a shadow looks like.
- To know that we see shadows on a sunny day.
- To know shadows changes during the day.

Year 3

To understand light is an energy that can be manipulated.

- To understand darkness is the absence of light.
- To know how we see objects in light.
- To understand that it is dangerous to view the sun directly and state precautions used to view the sun, for example in eclipses.
- To know the terms transparent, translucent and opaque
- To understand how shadows are formed
- To understand how shadows, change size.

Year 6

To understand that light travels in straight lines and to know how we see objects.

- To understand that animals see light sources when light travels from the source into their eyes.
- To understand that animals see objects when light is reflected off that object and enters their eyes.
- To know that light reflects off all objects (unless they are black). Non-shiny surfaces scatter the light so we don't see the beam.
- To know that light travels in straight lines, called rays or beams of light

Seasonal Changes - Physics

EYFS

To recognise the changes in the natural world around them.

- To understand the differences between day and night.
- To know that there are changes in the natural world around them inc. seasons

Year 1

To understand that we experience four seasons.

- To know different types of weather.
- To know the names of the four seasons.
- To understand the differences in the local environment inc living things, throughout the year
- To understand how things in my life change during the seasons. i.e. the clothes I wear, the activities I do etc.

Forces & Magnets - Physics

EYFS

To recognise the everyday use of simple forces.

- To understand that movement changes as a result of pushing and pulling an object
- To know that different objects can float or sink.

Year 3

To know that forces are a push or a pull in a direction and understand magnetism.

- To know examples of forces in everyday life
- To understand that objects can move differently on different surfaces
- To know that magnets have two poles which attract and repel
- To understand that not all metals are magnetic/attracted to a magnet

Year 5

To know that there are different types of forces and understand their different effects

- To understand that air resistance and water resistance are forces against motion caused by objects having to move air and water out of their way.
- To know that friction is a force against motion caused by two surfaces rubbing against each other.
- To understand that some objects require large forces to make them move; gears, pulley and levers can reduce the force needed to make things move.
- To know that some objects/animals are streamlined to minimise the effects of air/water resistance.

Sound - Physics

EYFS

To recognise the term sound

- To know and name the sounds I hear.
- To understand the source of sounds.
- To know how I make different sounds.

Year 4

To know that sound is a vibration which travels through a medium to the ear.

- To understand that sound is a type of energy created by vibrations; the louder the sound, the bigger the vibration.
- To understand that sound travels from its source in all directions and we hear it when it travels to our ears.
- To know that sound travel can be blocked.
- To know that sound moves through all materials by making them vibrate; changing the way an object vibrates changes its sound.
- To know that sound volume changes dependant on the distant from the sound source
- To know that faster vibrations (higher frequencies) produce higher pitched sounds

Electricity - Physics

Year 4

To know how a simple electric circuit works

- To know that electricity is a form of energy.
- To understand that a source of electricity (mains or battery) is needed for electrical devices to work.
- To know that electricity sources push electricity round a circuit.
- To understand a complete circuit is needed for electricity to flow and devices to work.
- To understand that some materials allow electricity to flow easily and these are called conductors.
- To know that materials that don't allow electricity to flow easily are called insulators.

Year 6

To know and understand that the amount of voltage in a circuit can affect the output of a component inc brightness, volume and speed.

- To know that batteries/cells are a store of energy and this energy pushes electricity around the circuit.
- To know that battery/cell energy is measured in voltage.
- To understand that when the battery's/cell's energy is gone it stops pushing. (Voltage measures the 'push.')
- To know the symbols for: lamp, wire, buzzer, cell, battery, motor, switch (open), switch (closed).
- To understand that a series circuit will not work if a lamp is broken or a wire is disconnected.
- To understand how to vary the output of a component e.g. bulb, buzzer, motor

Earth & Space - Physics

EYFS

To recognise the changes in the natural world around them.

- To understand the key features that identify the Sun, the Moon and the stars through observation.
- To know the differences between day and night.

Year 5

To know and understand the movement of the Earth, Moon and other planets in the Solar System.

- To know the approximate shape of the Sun, Earth and Moon – Spherical
- To understand the movement of planets in the Solar System
- To know how the Earth and Moon moves.
- To understand why we have day and night.
- To know the moon has different phases.

Progression of Working Scientifically Skills (Disciplinary Knowledge):

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Questioning	**They are beginning to ask a range of questions.** They can answer how or why questions about their environment. They can answer how and why questions about their experiences They can ask appropriate questions about what they have heard.	**Ask some simple questions using everyday language and begin to use some simple scientific words.** Begin to recognise that questions can be answered in different ways such as: observing changes over time, grouping and classifying and simple tests. With support, use observations and ideas to suggest answers to questions.	**Ask simple questions using everyday language and year 2 scientific language.** Recognise that questions can be answered in different ways such as: observing changes over time, grouping and classifying, simple tests, researching using secondary sources and noticing patterns. Use observations and ideas to suggest answers to questions.	**Begin to ask some relevant questions using scientific language.** Begin to make some decisions about which type of enquiry will be the best way of answering questions including: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources.	**Ask a range of relevant questions using scientific language.** Make some decisions about which type of enquiry will be the best way of answering questions including: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources.	**Begin to ask some significant scientific questions based on scientific concepts.** Begin to plan different types of scientific enquiries to answer questions: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations, including recognising and controlling variables); and researching using secondary sources.	**Ask a range of significant scientific questions based on scientific concepts.** Plan the most appropriate type of scientific enquiry to answer questions including: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations, including recognising and controlling variables); and researching using secondary sources.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investigating	**Begin to compare two things** Can look for similarities and differences. Can identify a similarity or difference between two places, objects, materials or living things.	**Begin to perform simple tests** Begin to use practical resources to gather evidence to answer questions. With support, carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.	**Perform simple tests** Use practical resources to gather evidence to answer questions. Carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.	**Begin to set up simple practical enquiries, comparative and fair tests** Begin to select practical resources to gather evidence to answer questions generated by themselves or given to them. With support, they follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.	**Set up simple practical enquiries, comparative and fair tests** Select from a range of practical resources to gather evidence to answer questions generated by themselves or given to them. They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.	**Plan different types of scientific enquiries to answer questions** Begin to decide for themselves how to gather evidence to answer a scientific question, choosing a type of enquiry to carry out. Select from a range of practical resources to gather evidence. Begin to recognise how secondary sources can be used to answer questions. Decide what observations or measurements to make over time and for how long. With support, look for patterns and relationships using a suitable sample. Carry out fair tests, beginning to recognise and control variables.	**Independently, plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** Decide for themselves how to gather evidence to answer a scientific question, choosing a type of enquiry to carry out and justifying their choice. Independently select from a range of practical resources to gather evidence. Recognise how secondary sources can be used to answer questions. Independently decide what observations or measurements to make over time and for how long. Look for patterns and relationships using a suitable sample. Carry out fair tests, recognising and controlling variables.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Drawing conclusions	**Begin to talk about what they have found out** Begin to say what happened	**Suggest answers to questions** Describe what happened and whether they were surprised at the findings or not. Begin to orally answer questions based upon their findings and their experiences of the world	**Suggest answers to questions and begin to look for patterns** Use observations from their investigations to answer questions based upon their findings and their experiences of the world With support, begin to look for changes, patterns, similarities and differences in their findings	**Draw simple conclusions and raise further questions** Begin to use straightforward scientific evidence to answer questions or to support their findings using age-appropriate scientific language. With support, begin to look for changes, patterns, similarities and differences in their results in order to draw simple conclusions using age-appropriate scientific language. With support, begin to identify new questions arising from the results and make new predictions.	**Use results to draw simple conclusions, suggest improvements and raise further questions** Use straightforward scientific evidence to answer questions or to support their findings using age-appropriate scientific language. See patterns in results; begin to say what has been found out, linking cause and effect to develop simple conclusions. using age-appropriate scientific language. With support, begin to identify new questions arising from the results, make new predictions and suggest ways of improving what they have already done.	**Draw conclusions, including any causal relationships and scientific explanations and set up further linked investigations** Identify scientific evidence to support or refute ideas or arguments. Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings. Use their findings to identify when further tests and observations are needed.	**Draw conclusions, including any causal relationships and scientific explanations of and degree of trust in results and set up further linked comparative and fair tests** Identify and explain the scientific evidence to support or refute ideas or arguments. Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings including an analysis of the degree of trust in their findings. Use their findings to identify when further comparative, fair tests and observations are needed.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Identifying & Classifying	**They are beginning to sort items using their senses** Use all their senses in hands-on exploration. Explore collections of materials with similar and/or different properties. They can sort items by simple observable features.	**Use their observations to identify & classify.** Make careful observations to identify features and notice changes. Sort and group living things or materials using similarities and differences. Use simple charts to identify unknown animals and plants. Begin to identify and describe how they group items.	**Use given criteria to identify and classify.** Sort and classify things according to given criteria. Classify items using simple prepared tables and sorting rings. Describe the characteristics they used to identify a living thing.	**Identify and classify in different ways.** Record classifications using Venn diagrams, Carroll diagrams, tables etc. Compare, classify and group items using Scientific criteria (e.g. magnetic, not magnetic). Independently, classify and group in different ways.	**With support, use similarities and differences in order to group and identify.** Begin to identify similarities/ differences/ changes when talking about scientific processes. Use and begin to create simple keys.	**Use similarities and differences in order to group and identify.** Accurately, identify similarities/ differences/ changes when talking about scientific processes and materials.	**Independently, use similarities and differences in order to group and identify.** Independently, identify similarities/ differences/ changes when talking about scientific processes and living things. Use and develop keys to identify, classify and describe living things. Identify and explain patterns seen in the natural environment.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recording and Presenting	**Begin to record and present** To draw pictures (of plants and animals) To create group/class block graphs to record votes/findings To present what they found out orally	**With support, record and present simple findings and ideas** To begin to draw diagrams and label To draw pictures (or take photographs) over a period of time To present grouping in a simple format To begin to complete simple tally tables, block graphs and pictograms To present findings orally.	**Record and present simple findings and ideas** To draw diagrams, using observations, and label parts, including over a period of time To present grouping in a given format To complete simple tally tables, block graphs and pictograms with a simple scale To present findings orally, with simple scientific language, and visually.	**With support, record and present results and ideas** To produce detailed labelled diagrams using observations, including over a period of time To begin to present results by creating or completing Venn and Carroll diagrams, tally, columned tables and simple bar charts, using scales To present results orally, visually or in written form with support, using simple scientific language	**Record and present results and ideas** To produce detailed labelled diagrams using observations, including over a period of time To present results by creating or completing Venn and Carroll diagrams, simple keys, tally, columned tables and simple bar charts, using scales To present results orally, visually or in written form, using key vocabulary and scientific language	**With support, record and present data and ideas in detail** To produce detailed labelled diagrams using observations, including over a period of time To present data by creating Venn and Carroll diagrams, keys, columned tables, scatter graphs, bar charts and line graphs, using appropriate scales To present results orally, visually and in written form, using key vocabulary and scientific language	**Independently, record and present data and ideas in detail** To independently produce detailed and accurate labelled diagrams using observations, including over a period of time To choose the most appropriate form to present data: Venn and Carroll diagrams, keys, columned tables, scatter graphs, bar charts and line graphs, using appropriate scales To present results orally, visually and in written form, using relevant key vocabulary and scientific language