



SCIENCE CURRICULUM PROGRESSION OF KNOWLEDGE, SKILLS AND VOCABULARY

INTENT

Science is a core subject and is taught throughout the school. The school feels that science can often be taught in a cross curricular manner, often combining with language, mathematics and technology. Science is taught within a unit framework. Using scientific language and equipment, the children are taught to observe, hypothesise, experiment, record data in a variety of ways, review and, where appropriate, relate the findings to their experiences in the real world. Gradually they are encouraged to devise their own experiments, taking into account the need for fair testing. Open-ended experiments are used where appropriate. Equal attention is given to the scientific process and to the progressive building of knowledge and understanding.

End of phase expectations

End of EYFS	End of KS1 Expectations	End of KS2 Expectations
UNDERSTANDING THE WORLD -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.	Working scientifically - The pupil can, using appropriate scientific language from the national curriculum: - ask their own questions about what they notice - use different types of scientific enquiry to gather and record data, using simple equipment where appropriate, to answer questions: - observing changes over time - noticing patterns - grouping and classifying things - carrying out simple comparative tests - finding things out using secondary sources of information - communicate their ideas, what they do and what they find out in a variety of ways. Science content The pupil can: - name and locate parts of the human body, including those related to the senses [year 1], and describe the importance of exercise, a balanced diet and hygiene for humans [year 2] - describe the basic needs of animals for survival and the main changes as young animals, including humans, grow into adults [year 2] - describe the basic needs of plants for survival and the impact of changing these and the main changes as seeds and bulbs grow into mature plants [year 2] identify whether things are alive, dead or have never lived [year 2] - describe and compare the observable features of animals from a range of groups [year 1] - group animals according to what they eat [year 1], describe how animals get their food from other animals and/or from plants, and use simple food chains to describe these relationships [year 2] - describe seasonal changes [year 1] - name different plants and animals and describe how they are suited to different habitats [year 2] - distinguish objects from materials, describe their properties, identify and group everyday materials [year 1] and compare their suitability for different uses [year 2].	➤ Working scientifically - The pupil can, using appropriate scientific language from the national curriculum: - describe and evaluate their own and others’ scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources - ask their own questions about the scientific phenomena that they are studying, and select the most appropriate ways to answer these questions, recognising and controlling variables where necessary (i.e. observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests, and finding things out using a wide range of secondary sources) - use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate - record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - draw conclusions, explain and evaluate their methods and findings, communicating these in a variety of ways - raise further questions that could be investigated, based on their data and observations ➤ Science content The pupil can: - name and describe the functions of the main parts of the digestive (year 4), musculoskeletal (year 3) and circulatory systems (year 6); and describe and compare different reproductive processes and life cycles in animals (year 5) - describe the effects of diet, exercise, drugs and lifestyle on how the body functions (year 6) - name, locate and describe the functions of the main parts of plants, including those involved in reproduction (year 5) and transporting water and nutrients (year 3) - use the observable features of plants, animals and microorganisms to group, classify and identify them into broad groups, using keys or other methods (year 6) - construct and interpret food chains (year 4) - describe the requirements of plants for life and growth (year 3); and explain how environmental changes may have an impact on living things (year 4) - use the basic ideas of inheritance, variation and adaptation to describe how living things have changed over time and evolved (year 6); and describe how fossils are formed (year 3) and provide evidence for evolution (year 6) - group and identify materials (year 5), including rocks (year 3), in different ways according to their properties, based on first-hand observation; and justify the use of different everyday materials for different uses, based on their properties (year 5) Page 6 of 28 Science content (continued) - describe the characteristics of different states of matter and group materials on this basis; and describe how materials change state at different temperatures, using this to explain everyday phenomena, including the water cycle (year 4) - identify and describe what happens when dissolving occurs in everyday situations; and describe how to separate mixtures and solutions into their components (year 5) - identify, with reasons, whether changes in materials are reversible or not (year 5) - use the idea that light from light sources, or reflected light, travels in straight lines and enters our eyes to explain how we see objects (year 6), and the formation (year 3), shape (year 6) and size of shadows (year 3) - use the idea that sounds are associated with vibrations, and that they require a medium to travel through, to explain how sounds are made and heard (year 4) - describe the relationship between the pitch of a sound and the features of its source; and between the volume of a sound, the strength of the vibrations and the distance from its source (year 4) - describe the effects of simple forces that involve contact (air and water resistance, friction) (year 5), that act at a distance (magnetic forces, including those between like and unlike magnetic poles) (year 3), and gravity (year 5) - identify simple mechanisms, including levers, gears and pulleys, that increase the effect of a force (year 5) - use simple apparatus to construct and control a series circuit, and describe how the circuit may be affected when changes are made to it; and use recognised symbols to represent simple series circuit diagrams (year 6) - describe the shapes and relative movements of the Sun, Moon, Earth and other planets in the solar system; and explain the apparent movement of the sun across the sky in terms of the Earth’s rotation and that this results in day and night (year 5).

Autumn Term One

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	Investigating Autumn	Everyday materials	Forest Schools	Rocks & soils	States of matter	Living things & their habitats	Living things and their habitat
Knowledge	Autumn Walk Explore the natural world around them. Describe what they see, smell and hear whilst outside. Understand the effect of changing seasons on the natural world around them.	Explain what material everyday objects are made out of. To know that the school chairs are made out of plastic. To know that the table legs are made out of metal. To know that a pencil is made out of wood. To know that the carpet is made out of fabric. Choose a suitable material to make an object out of To know that brick is a good building material because it is strong and not absorbent. To know that glass is good for windows because it is transparent and waterproof. To know that fabric is a good material for clothes because it is bendy. To know that the table top is made from plastic because it is waterproof and hard. Describe materials thinking about their characteristics To know that wood is hard, dull and rough if not sanded and smooth if it is. To know that glass is smooth, not bendy and transparent. To know that plastic can be smooth and hard or flexible. To know that metal can be stiff, hard and shiny Explain the meaning of the words transparent smooth and opaque. To know that transparent means you can see through it. To know that opaque means you cannot see through something.		Name examples of rocks that are natural and man-made To know that natural materials that are changed through chemical processes are man-made eg concrete, brick. To know that natural materials come from the ground eg stone, flint, granite, marble. To know that natural rocks can be shaped by humans but are still natural materials. Explain why one type of rock may not be suitable for a particular use Eg To know that limestone is not suitable as a worktop because it is porous. Suggest ways of grouping rocks according to their characteristics. To know that rocks can be grouped according to characteristics eg Hardness, texture. Permeability & colour What the terms ‘erosion’ and ‘permeable’ mean To know that physical erosion often causes rocks to get smaller or smoother. To know that natural erosion is caused by wind and water. To know that permeable rocks allow water to pass through them. Explain what a fossil is, how it is formed and where they are likely to be found To know that fossils are formed when things that have lived get trapped within rock. That fossils are are found almost exclusively in sedimentary rocks. Explain what soil is made up of. To know that soil is made up of organic matter.	Explain what the characteristics of a liquid, solid and gas are and identify examples of them To know that solids hold their shape. To know that liquids make a pool not a pile. To know that gases can escape when a seal is broken. Explain how heat causes changes. To know that heat can cause solids to change to liquids. Explain the different states that water can be in. To know that water can be a solid, liquid or gas. Explain the effect of heat on water as it evaporates To know that increasing energy (heat) it speeds up evaporation. Identify the part played by evaporation and condensation in the water cycle. To know that Liquid water evaporates into water vapor, condenses to form clouds, and precipitates back to earth in the form of rain and snow.	Explain the difference between sexual and asexual reproduction. Asexual reproduction generates offspring that are genetically identical to a single parent. In sexual reproduction, two parents contribute genetic information to produce unique offspring. Identify advantages and disadvantages to sexual and asexual reproduction in plants. Disadvantage of asexual is lack of diversity. Advantage of asexual reproduction is reproduction is quick. Advantage of sexual reproduction is diversity and a disadvantage of sexual reproduction is that it takes longer to reproduce. Describe ways that plants are pollinated in order to reproduce. To know that pollination happens when a male pollen grain, released from a male anther, meets the female part of a flower, the stigma. The grain germinates and travels down from the stigma into the plant's ovary, within or just behind the flower. Describe the process of reproduction in mammals. Describe and compare the life cycles of different mammals. Explain metamorphosis and give examples. Describe the similarities and differences between different plants’ and animals’ life cycles.	Sort animals into two groups using their own criteria. To know that animals can be classified into commonly known invertebrates eg insects, spiders, snails, worms. To know that animals can be classified into commonly known vertebrates such as fish, amphibians, birds, mammals, reptiles. Explain who Carl Linnaeus was and what his contribution to science was. To know that Carl Linnaeus was known for his work in taxonomy: the science of identifying, naming and classifying organisms (plants, animals, bacteria, fungi and more) Identify examples of, amphibians, mammals, birds, arthropods, molluscs, placental, marsupials, insects, arachnids. Name 3 types of microorganism The most common types are bacteria, viruses and fungi Explain some examples of helpful microorganisms and harmful ones Some bacteria help digest food, produce vitamins, and destroy disease-causing cells Fungi are a source of natural compounds that can cure various diseases. Algae can fix atmospheric nitrogen and synthesize plant growth. Harmful microorganisms: E. coli, Listeria, Norovirus. Name some conditions which help mould grow To know that molds thrive in damp, humid, and wet conditions.
Key vocabulary	Senses: sight, hearing, taste, smell, touch Summer, autumn, winter, spring Trees, leaves Weather, hot, cold, freezing, frost, ice, wind, snow, rain	Material plastic metal wood plastic fabric transparent smooth opaque flexible waterproof hard soft		Natural/man-made, hard, soft, shiny, dull, rough, smooth, absorbent, porous, fossil, sedimentary, rock, soil, organic matter, variety of rock names eg brick, sandstone, marble etc.	Solid solidify iron ice melt freeze liquid evaporate condense gas container changing state water cycle degrees Celsius thermometer water vapour	Mammal amphibian birds plants: asexual/ sexual Animals: sexual reproduction pollination	Animal kingdom, vertebrates, invertebrates, amphibians, mammals, birds, arthropods, molluscs, placental, marsupials, insects, arachnids, microorganism, fungus, virus, bacteria, Linnaeus system

Autumn Term Two

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 2	Senses	Forest School Seasonal Changes – Autumn to Winter	Uses of everyday materials and their properties	What makes plants grow and flourish?	Animals including humans	Space	Light
Knowledge	Name different body parts? To know their heads, shoulders, knees, toes, feet, hands, eyes, nose, ears, arms, legs Name the 5 senses. To know that the 5 senses are touch, taste, hear, smell and see Talk about how to look after their bodies To know that to look after their bodies they need to exercise. To know that to look after their bodies they need to make healthy food choices.	Observe changes from autumn to winter To know that trees lose their leaves in autumn. To know that the temperature gets colder. To know that frost forms on the ground. Observe and describe weather associated with autumn and winter To know that the temperature gets colder in winter. To know that it might snow. Explain what happens to animals during colder months. To know that some animals hibernate in the winter. To know that some animals gather food to store for the winter. Describe how day length varies in autumn and winter To know that sunrise is later in winter. To know that sunset is earlier in winter. To know there are fewer hours of daylight in winter.	Use adjectives to describe some of the properties of everyday materials such as metal and plastic. To use the words: transparent, opaque, absorbent, impermeable, smooth, rough, flexible, rigid, waterproof, not waterproof. Explain the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses To know that some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles) To know that different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not normally from glass). Explain how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and+ stretching To know that if you squash, bend, twist or stretch a solid object it can change shape.	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers To know that roots take nutrients from the soil. To know that stems hold plants up, move food and water inside the plant. To know that leaves make food for the plant. Explain the 7 life processes that identify something as being alive. (movement growth reproduction excretion respiration, nutrition sensitivity) Describe the lifecycle of a plant. To know that there are the 5 stages of plant life cycle. The seed, germination, growth, reproduction, pollination, and seed spreading stages. Explain how seeds can be dispersed. To know that wind, water, gravity, ballistic (where the seeds are ejected by forceful and often explosive mechanisms) and animals are the main ways seeds are dispersed. Explain the most ideal conditions for plants to grown in. To know that plants need air, light, warmth, water and nutrients to be healthy. If a plant doesn't have one of these requirements it could affect its growth or even die.	Describe the simple functions of the basic parts of the digestive system in humans To know that food enters the body through the mouth where saliva is added. To know that the tongue moves food around and over the teeth during chewing. To know that the oesophagus is a gateway between the throat and the stomach, leading the food you've eaten through onto the digestive tract To know that the stomach holds the food and mixes it with acid and enzymes that continue to break the food down into a liquid or paste. To know that the small intestine carries out most of the digestive process, absorbing almost all of the nutrients you get from foods into your bloodstream To know that the purpose of the large intestine is to absorb water and salts from the material that has not been digested as food, and get rid of any waste products left over. Identify the different types of teeth in humans and their simple functions To know that there are four types of teeth -incisors for cutting, canines for tearing, molars and premolars for grinding. To know that tooth decay is caused by bacteria and when foods containing carbohydrates (sugars and starches) are left on the teeth. To know that carnivorous animals have very defined canine teeth for tearing at meat To know that herbivores have broad, flat molars with rough surfaces, which are used for grinding up tough plant Construct and interpret a variety of food chains, identifying producers, predators and prey To know that a food chain shows the order of dependence for survival. To know that a consumer is a living thing that consumes (eats) another living thing for food. To know that a producer can make its own food (usually a plant) To know that a predator is a wild animal which hunts or preys on other animals for food.	Name the features of the solar system. To know that there are 8 planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a ‘dwarf planet’ in 2006). To know that a moon is a celestial body that orbits a planet Explain that the Earth, Sun and Moon are roughly spherical To know that the Earth, Sun and Moon are approximately spherical in shape. Explain why the sun appears to move across the sky during the day To know that the Earth is spinning towards the east. To know that the Earth spins about its axis, an imaginary line that runs through the middle of the Earth between the North and South poles. Explain that it takes 24 hours for Earth to spin on its axis. Explain the movement of the Moon around the Earth. To know that the moon orbits the Earth and it takes 30 days to orbit. Describe the movement of the Earth and other planets relative to the sun. To know that it takes 365 days for the Earth to orbit the sun. To know that very planet in the solar system orbits around the Sun, which means that they move in a curved path around the Sun. To know that each planet's orbit is nearly the shape of a circle. To know that the planets orbit the Sun because of the Sun's gravitational force.	Identify light sources and describe how light travels. To know that light travels in straight lines Describe and explain how an object’s shadow is created and how it can be changed. To know that shadows are formed when an opaque object or material is placed in the path of rays of light. To know that the closer to the light source an object is, the bigger the shadow will be. Describe how the eye helps them see things. To know that light enters the eye and hits the retina which contains receptors which send signals to the brain via the optic nerve. Explain how the direction of light can be changed. To know that reflection occurs when a light ray hits a surface and bounces off. To know that reflection can be used to see behind them. Name the seven colours that light can be split into and explain how the light is refracted based on the colours’ wavelengths To know that refraction happens when light changes direction, or bends, when it moves from one material to another.
Key vocabulary	Senses: sight, hearing, taste, smell, touch Summer, autumn, winter, spring Trees, leaves Weather, hot, cold, freezing, frost, ice, wind, snow, rain	Summer winter autumn spring day daytime, wind, rain, snow, hail, sleet, fog, sun, hot, warm, cold, weather, temperature, thermometer, weather symbol, deciduous, coniferous.	Wood, metal, plastic, glass, brick. Rock, paper, cardboard, rubber, ceramic, water, ice, leather, wool, diamond, squashing, bending, twisting, stretching,	flowering plants, roots, stem/trunk, leaves, flowers, nutrition, support, reproduction, fertiliser pollination, seed, formation, seed dispersal, movement, reproduction, sensitivity, excretion, respiration. Growth photosynthesis, germination	Canine, molar, enamel, incisors, tooth decay, omnivore, herbivore, carnivore, detritivore, saliva, gall bladder, liver, duodenum, oesophagus, digestion tongue stomach acid enzymes small intestine floss, brush	Earth, moon, sun, planets (name them), dwarf planets, rotate, orbit, axis, celestial body, spherical, day, night, light, heat, eclipse, satellite, universe, solar, shadow	Reflect refract light source opaque translucent transparent periscope, words associated with part of the eye

Spring Term One

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Spring 1	Transport Forest School	Animals including humans	Forest School	Light	Sound		Electricity
Knowledge	Changing seasons - Winter Explore the natural world around them. Describe what they see, smell and hear whilst outside. Understand the effect of changing seasons on the natural world around them.	Name some common animals looking at pictures of them. <i>To know common names eg lion rather than Barbary lion.</i> Match common animals to their classification eg amphibian, fish, reptile, mammal, bird. <i>To know that a snake is a reptile. To know that a frog is an amphibian. To know that a lion/ dolphin are mammals To know that an owl is a bird. To know that a shark is a fish.</i> Explain a feature of a reptile, mammal, fish, amphibian, bird. <i>To know that a reptile has scaly skin/ lays eggs. To know that a mammal has fur/hair/ usually have live babies.</i> Explain what a herbivore, carnivore and omnivore is and give examples of which animal is what. <i>To know that a herbivore is an animal that only eats plants. To know that a carnivore only eats meat. To know that an omnivore eats both plants and meat.</i> Label the human body eg neck, legs, elbows, head, knee. Name the 5 human senses? <i>To know that taste comes from the mouth, smell from the nose, sight from the eyes, that hearing is from the ears and touch is from anywhere on the body.</i>		Identify light sources Explain that light travels in straight lines Explain why we have dark Explain what reflect means Explain why they shouldn't look directly into the sun Explain how shadows are formed	Explain how sound is made and how it travels <i>To know that sounds are made from something vibrating. To know that sound waves move by vibrating objects and these objects vibrate other surrounding objects, carrying the sound along.</i> Some materials allow sound to pass through them more easily than others. <i>To know that materials with higher elastic properties return to their normal shape faster, making it easier for sound to travel through them.</i> Explain what happens to sound when it gets further away. <i>To know that volume decreases over distance.</i> Explain why it might be necessary to muffle sound and explain how this can be achieved. <i>To know that muffling sound may be necessary to avoid sound pollution. To know that some materials absorb sound rather than transmit (eg foam, rubber, heavy fabrics).</i> Explain what is meant by 'pitch' and how this can be changed. <i>To know that Pitch is the quality of a sound (high or low) and depends on the speed of the vibrations. To know that pitch can be changed when the vibrations are slowed down.</i>		Draw a diagram using the electrical symbols Identify ways to make a bulb brighter and a buzzer fainter Explain that electricity is measured in volts Explain the difference between parallel and series circuit
Key vocabulary	Summer, autumn, winter, spring Trees, leaves Weather, hot, cold, freezing, frost, ice, wind, snow, rain	Fish, amphibians, reptiles, birds, animals, pets, insects, carnivores, meat, herbivores, plants. Omnivores, head, neck, arms, elbows, legs, knees, face, ears eyes, hair, mouth, teeth, tongue, nose, skin, taste, small, vision, touch, hearing, fur, fin, scales, hair, scales, hooves, paw, beak, feathers, tail		Light dark reflect surface natural star moon sun shadow blocked solid artificial UV	Vibrate, vibration, vibrating, air, medium, ear, hear, sound, volume, pitch, faint, fainter, loud, louder, string, percussion, woodwind, brass, insulate.		Voltage symbol series circuit parallel circuit lamp/bulb cell open switch closed switch buzzer battery voltmeter ammeter

Spring Term Two

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Spring 2	People who help us	Forest School Seasonal changes	Plants	Animals including humans	Living things & their habitats	Properties & changes in materials	
Knowledge	Seasonal Changes - Spring Explore the natural world around them. Describe what they see, smell and hear whilst outside. Understand the effect of changing seasons on the natural world around them. Can they ask questions about aspects of my familiar world such as the place where I live or the natural world? Can they describe how they change as they grow older? To know that they get taller as they get older. To know that they might grow facial hair. To know that their feet and hands get bigger. Compare what they can do now with what they could do as a baby. To know that they can walk. To know that they can talk. To know that they can use the toilet. To know they can dress themselves. To know they can feed themselves. Explain what they will be able to do when they are older. To know when they ae older they can drive a car. To know that they can get married. To know they can have their own children.	Can they observe changes from winter to spring? Can they observe and describe weather associated with autumn and Spring and how day length varies?	Explain the process of planting a seed. Fill a plant pot with soil, make a hole, sow the seeds, cover with soil and water. Explain the best conditions for plants to grow. That plants need water, light and a suitable temperature to thrive. Identify the main parts of a plant and explain the job it does. Explain why plants produce seeds.	Explain why humans and animals need food. Explain the following: Vitamins and minerals keep us healthy Fibre helps digestion Carbohydrates and fats give us energy Water moves nutrients round the body Compare nutritional food labels and say which one is better for them and explain why. Identify animals which are vertebrates and invertebrates Explain the purpose of the skeleton and identify the main parts of the skeletal system Explain how muscles work together	Identify similarities and differences between similar organisms. Identify characteristics of animals and plants and group them. To know that plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, for example ferns and mosses. To know that animals can be grouped according to their physical appearance eg length of nose. Use a classification key to help them identify which group an animal belongs to. To know that a classification key is a series of questions that determine an organism's physical characteristics. Identify a variety of animals that are vertebrates, fish, amphibians, reptiles, birds, and mammals; invertebrates, snails and slugs, worms, spiders, and insects. Explain how one change in a habitat can affect all the organisms within that environment. To know that habitats can be destroyed and the plants and animals that live there might be killed. Those animals that survive might find that their sources of food and water have disappeared. They may no longer have a safe place to live and grow. Explain the and negative ways in which humans can impact the environment. To know that humans impact the physical environment in many ways: overpopulation, pollution, burning fossil fuels, and deforestation.	Explain what is meant by permeable, flexible and absorbent& conductivity giving examples of materials with these properties and their response to magnets. To know that flexibility is the ability to bend or compress easily without breaking. To know that absorbency is a materials ability to draw water in to its internal volume. To know that a permeable material allows water or liquids to flow through. Explain what is meant by dissolving and give examples. To know that dissolving is when a solute (soluble substance) is added to a solvent (liquid that does the dissolving) to form a solution. The solute seems like it disappears when in fact it is being broken down into pieces so small that we cannot see them anymore. Explain ways which can speed up the dissolving process and how to recover dissolved materials To know that dissolving can be sped up through warming, stirring or Explain what ‘insulating’ means and give examples of materials that are insulators. Explain how solids, liquids and gases might be separated, including through filtering, sieving and evaporating. 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	Body, skeleton, bones Body parts: eg head, neck, shoulders, back, arms, legs	Summer winter autumn spring day daytime, wind, rain, snow, hail, sleet, fog, sun, hot, warm, cold, weather, temperature, thermometer, weather symbol, deciduous, coniferous.	Living dead never alive habitats micro-habitats food chain leaf litter shelter seashore woodland ocean rainforest conditions hot/warm/cold dry/damp/wet bright/shade/ dark	Nutrition, vitamins minerals fats protein carbohydrates fibre water skeleton skull ribs, clavicle ribcage pelvis femur vertebral column bicep triceps vertebrates invertebrates	Environment, flowering, non-flowering, plants, animals, vertebrate, fish, amphibians, reptiles, birds, mammals, invertebrate, deforestation, range of flowering and non-flowering plant names.	Properties, hardness, solubility, transparency, electrical conductor, thermal conductor, dissolve, solution, separate, solids, liquids, gases, evaporating, reversible change, evaporation, filtering, sieving, melting, irreversible, burning, rusting, magnetism, conductivity, insulation	

Summer Term One

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Summer 1	How does your garden grow?		Animals inc Humans	Magnets	Electricity	Forces	Evolution & inheritance
Knowledge	Can they start to develop an understanding of growth, decay and changes over time? Can they talk about some of the things they have observed such as plants, animals, natural and found objects? Can they describe and comment on things they have seen whilst outside, including plants and animals? Can they tell you what a plant needs to grow? Can they understand the key features of the life cycle of a plant and animal?		Explain the meaning of the words: offspring, live young, adult, life cycle. To know that offspring means an animals young. To know that live young means a smaller version of the adult. To know that life cycle means the stages that an animal goes through in its life. Explain that different animals have different offspring To know that mammals give birth to live young that look like a smaller version on the adult. I know that most reptiles lay eggs but some give birth to live young. To know that birds lay eggs and when these hatch they are called hatchlings. To know that fish lay eggs (roe) and that when they hatch they are called lave. Describe the stages of a human life cycle, To know that babies grow to toddlers, children, teenagers and adults. Describe the stages the life cycle for animals eg spawn, tadpole, frog. Egg, chick, chicken Caterpillar, pupa, butterfly. Explain what all living things need to survive. To know that all living things need food, air and water to survive. Describe some of the things humans can do to stay healthy. To know that exercise can contribute to a healthy body. To know that eating healthy food contributes to a healthy body.	Explain how things move on different surfaces To know the rougher a surface is the more force in needed to move an object across it. Explain that some forces need contact between two objects, but magnetic forces can act at a distance. To know that magnets don't need to be touching to be attracted towards each other or an object. To know that to push or pull something you need to make direct contact with an object. Identify some magnetic and non-magnetic materials. To know that coins, iron nails, steel paper clips, steel food tins are magnetic To know that plastic pens, wooden pencils, aluminium drinks cans, wooden spoons or plastic tubs are not magnetic. Explain how magnets attract or repel each other. To know that magnets have a north and south pole. To know that the same poles will repel. To know that opposite poles will attract. To know that attract means to pull to or draw toward each other by force. To know that repel means to force something away.	Explain what electricity is and how it flows. To know that electricity is a flow of electrical charge. It flows from a negative to a positive terminal. Explain what is needed to make a simple circuit. To know that a circuit needs a path (wire), source (eg battery) and load (eg bulb). Identify objects which run on mains electricity or battery electricity. Examples of the above Name the components which can be used in electrical circuits. Battery, buzzer, wire, switch & motor. Explain why an electrical circuit does not work. To know that is there is a break in the electrical circuit it will not work. To know that if a circuit is overloaded it will not work. Explain which materials conduct electricity and those that insulate. To know that copper, gold, silver, steel, aluminum and brass and some of the most common and best conductor of electricity. To know that plastic, wood, glass and rubber are good electrical insulators.	Explain what gravity is To know that gravity is an invisible force that pulls objects toward each other. Earth's gravity is what keeps you on the ground and what makes things fall. Explain the effects of air resistance, water resistance and friction, that act between moving surfaces. To know that an object moving through air, or any fluid, will experience a drag force resisting its motion. To know that water resistance is a type of force that uses friction to slow things down that are moving through water; Water resistance doesn't have to be just water, however, it can happen to objects moving through any type of fluid. To know that friction is a force between two surfaces that are sliding, or trying to slide, across each other. Explain the actions of a pulley, lever or gears. To know that a pully reduces the force needed to lift a weight. To know that a lever amplifies physical force. To know that gears are mechanical parts with cut teeth designed to fit with teeth on another part so as to transmit or receive force and motion.	Recognise that living things have changed over time. To know that fossils give us evidence of what living things inhabited the Earth millions of years ago/ To know that fossils allow scientist to see how living things have evolved. To know that evolution is the process of adaptation over a long period of time. Recognise that living things produce offspring. To know that characteristic are passed on from parent to offspring To know that they produce offspring of the same kind but that the offspring are not identical to its parents. To know that inherited characteristics leads to variation. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution To know that variation in offspring over time can make animals more or less able to survive in particular environments To know that there are clear examples of adaptation for survival eg how giraffes' necks got longer, or the development of insulating fur on the arctic fox. To know that Charles Darwin's discovery of the Galapagos Islands are an example of how the same species have adapted depending on which island they live on
Key vocabulary	Grow Plants, trees, flowers Fruit, vegetables Seeds, water, rain, sun, soil		offspring grow adults water food air exercise hygiene nutrition reproduce egg caterpillar pupa butterfly spawn tadpole frog lamb/sheep baby/toddler baby toddler child teenager adult	Force, push, pull, open, surface, magnet, magnetic, attract, repel, magnetic poles, North, South, friction	Appliances electricity electrical circuit cell wire bulb buzzer insulator conductor switch (closed/open)	Gravity, air resistance, water resistance, friction, surface, force, effect, move, accelerate, decelerate, stop, change direction, brake, mechanism, pulley, gear, spring, Galileo Galilei, Isaac Newton	Fossils offspring not identical characteristics variation evolution adaptation inherit advantageous disadvantageous adapt environment Charles Darwin

Summer Term Two

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Summer 2	Animals from around the world	Plants	Living things & their habitats			Animals including humans	Humans and other animals
Knowledge	Do they show care and concern for living things in the environment? Can they talk about ways in which I can look after the environment? Can they talk about the life cycle of a butterfly? Can they identify similarities and differences between countries/envirnonments/Africa/ Animals using different texts? Can they talk about things they have observed such as animals? Do they show care for living things (pets)?	Name a variety of wild plants. Eg dandelion, daisy, nettle, dock, thistle, buttercup, bramble, fern and St. John's wort. To know that a wild plant is not one planted by a human. Name a variety of common garden plants Eg daffodil, rose, lavender, ivy, tulip, poppy, bluebell, strawberry and crocus. Name parts of a plant. To know and locate the roots, stem, leave, petals. Name parts of a tree. To know and locate the roots, trunk, branches, leaves, fruit, blossom. To know that a deciduous tree sheds its leaves at the end of a growing season. To know that an evergreen tree does not shed its leaves. Compare and contrast plants and flowers. To know that there are similarities between flowering plants and trees. To know that they can be grouped using the similarities.	Explain the meaning of the words: offspring, live young, adult, life cycle. To know that offspring means an animals young. To know that live young means a smaller version of the adult. To know that life cycle means the stages that an animal goes through in its life. Explain that different animals have different offspring To know that mammals give birth to live young that look like a smaller version on the adult. I know that most reptiles lay eggs but some give birth to live young. To know that birds lay eggs and when these hatch they are called hatchlings. To know that fish lay eggs (roe) and that when they hatch they are called lave. Describe the stages of a human life cycle, To know that babies grow to toddlers, children, teenagers and adults. Describe the stages the life cycle for animals eg spawn, tadpole, frog. Egg, chick, chicken Caterpillar, pupa, butterfly. Explain what all living things need to survive. To know that all living things need food, air and water to survive. Describe some of the things humans can do to stay healthy. To know that exercise can contribute to a healthy body. To know that eating healthy food contributes to a healthy body			Describe the changes as humans develop to old age To know that infancy is from birth up to one year of age. To know that a toddler is from one to five years of age. To know that childhood is from three to eleven years old - early childhood is from three to eight years old, and middle childhood is from nine to eleven years old. Adolescence or teenage is from 12 to 18 years old. To know changes happen to boys and girls during puberty and explain these occur due to hormones from the brain. To know that as the human body ages their hair often thins and turns grey, skin wrinkles, muscles shrink, bones become more fragile and become shorter. To know that babies grow in both height and weight.	Identify the features of the respiratory system. Explain what the circulatory system is and how it functions. Explain the purpose of the valves. Explain the purpose of the blood and how it moves around the body. Explain the function of the arteries, veins and capillaries. Explain how the lungs work. Explain the journey of food through the human body. Explain why exercise is good for them. Describe some of the effects of drugs and alcohol on the human body.
Key vocabulary	Names of animals Names of countries and continents	wild plants garden plants deciduous evergreen plant leaf root leaves bud flowers blossom petals root stem trunk branches fruit vegetables bulb seed	Life processes Living Dead Never living Food chain Food sources: Habitat Microhabitat Depend Survive			Puberty gestation development reproduction hormones	Internal organs, heart, lungs, liver, kidney, brain, skeletal, muscle, digest, respiratory system, circulatory system, blood vessels, blood, diet, exercise, drugs, nutrients, alcohol, arteries, capillaries, veins, pulmonary artery, pulmonary vein, aorta, valves, chambers, superior vena cava