Science Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**Animals Including Humans** In this unit, the children will learn about the five animal groups, how to identify which groups an animal beings to, all about human body parts and the senses. Key Vocabulary Animal, human, reptile, mammal, fish, bird, amphibian, herbivore, omnivore, carnivore, sight, touch, hearing, smell, taste	**Seasonal Changes – Autumn and Winter** In this unit, the children will learn about the four seasons then focus on Autumn and Winter. Through this they will observe seasonal weather and changes around them. They will also learn about changes for wildlife through the winter time. Key Vocabulary Season, weather, autumn, winter, spring, summer, change, tree, leaves, animals, hibernate, temperature.	**Everyday Materials** In this unit, the children will learn about different materials such as rock, plastic, metal, wood and fabric. They will learn about their properties and investigate how suitable materials are for different purposes. Key Vocabulary Materials, stone, rock, fabric, plastic, metal, wood, properties, change,	**Plants** The children will learn about trees and plants that they see in their gardens and locality. They will grow a plant and learn about what conditions are needed for survival. Key Vocabulary Tree, beech, oak, plant, daisy, rose, leaf, petal, trunk, branch, twig, roots, grow, soil, water, light.	**Seasonal Changes – Spring and Summer** In this unit, the children will review their understanding of the four seasons then focus on Spring and Summer. Through this they will observe seasonal weather and changes around them. They will also learn about changes for wildlife through the spring and summer. Key Vocabulary Season, spring, summer, weather, breeze, sunshine, temperature,	**Scientists and Inventors** This unit will teach the children about famous scientists and inventors. It will also allow them to consolidate the learning from previous units by carrying out further investigations about animals, plants, materials and the weather. Key Vocabulary Christiansen, Jemison, Mottershead, Symons, Buck, investigate, inventor, scientist

Year 2	**Living things and their habitats** In this unit, the children will learn about how we known if something is dead, living or has never been a live. We will investigate microhabitats, identify world habitats and learn about how animals depend on each other. As well as looking at food chains. Key Vocabulary Habitat, dependable, predator, MRS GREN, micro-habitat, survive, dead, living, never been alive.	**Everyday materials** The children will identify uses of everyday materials and be able to group these depending on the material that they are made from. They will consider suitability depending on the properties of each material. The children will also investigate how objects change shape and will understand the process of recycling. Key Vocabulary Recycling, hard, flexibles, strong, water-proof, transparent, bend, twist, stretch, squash, absorb, glass, paper,	**Animals including Humans** In this unit, children will begin by looking at young animals and compare them to their adults. They will look at how animals change as they grow up and be introduced to the life cycles. The children will be introduced to the three basic needs of animals for survival (water, food and air). They will apply this knowledge to suggest ways to look after pets. The unit ends with children looking at healthy lifestyles, including the importance of exercise, healthy	**Plants** In this unit children have the opportunity to closely study plants and trees in the natural environment, taking measurements and making observational drawings. Children plant a seed and a bulb and compare them as they grow. Children set up a comparative experiment to observe what plants need to grow well, and watch the germination process first hand by growing cress. Children will understand what conditions are best	**Environment** This Environment Unit introduces children to the ecological challenges that face the modern world. Children undertake a range of activities that challenge them to engage with environmental issues and to understand the simple changes we can make to live more sustainable lives. Throughout the unit, learning is closely focused on the Working Scientifically strand of objectives, providing a range of opportunities for children to apply	**Scientists and Inventors** This 'Scientists and Inventors' unit will teach your class about famous scientists and inventors linked to the Year 2 science curriculum. Children will learn about the invention of the waterproof coat, and will explore other waterproof materials by carrying out simple tests. Children will find out about the work of doctors, and will learn about Elizabeth Garrett Anderson, the first woman doctor in Britain. Children will have the opportunity to create their own greenhouse based on the invention of

		fabric, metal, wood, plastic, brick	eating and hygiene. Key Vocabulary Exercise, healthy, life cycle, survive, change, grow, healthy, diet, exercise	for food crops to grow. Key Vocabulary Grow, plants, petal, stem, germination, conditions, sunlight, soil, roots, water, seed	practical scientific methods and skills. Key Vocabulary Environment, global warming, pollution, plastic, ecological	the biomes at the Eden Project, and use their greenhouse to compare the growth of plants. They will learn about how germs are spread, looking at the work of Louis Pasteur and carrying out a fun experiment to prove how far germs can spread in a few minutes. Children will set up a small world to show the effects of water pollution, as discovered by Rachel Carson during her research on ocean habitats. Finally, children will learn about the development of Rachel Carson and how this invention is used to generate

						power. Throughout the unit, children will work in a fun and hands-on way to learn about scientists and inventors Key Vocabulary Louis Pasteur Elizabeth Garrett Anderson Inventor Rachel Carson Invent Scientists discovery
Year 3	**Rocks and Fossils** During this unit the children will learn about how to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. They will be able to describe in simple terms, how fossils are formed when things that have	**Rocks and Fossils continued**	**Animals including Humans** In this unit children will be taught that animals, including humans need the right types and amounts of nutrition. They will learn that animals cannot make their own food and they get their nutrition from what they eat. Children will	**Plants** During this unit should will be able to identify and describe the functions of different parts of flowering plants. They will explore the requirements of plants for life and growth and how they can vary from plant to plant. Children will investigate the way	**Forces and Magnets** In this unit children will compare how things move on different surfaces. They will be able to notice that some forces need contact between two objects, but magnetic forces can act at a distance. Children will observe how	**Light** During this unit children will recognise that they need light in order to see things and that dark is the absence of light. They will notice that light is reflected from some surfaces. Children will understand that light from the sun is dangerous and that there are

	lived are trapped within rock. Children will be able to recognise that soils are made from rocks and organic matter. <u>Key Vocabulary</u> Metamorphic, sedimentary, igneous, magma, dinosaur, crust, rock, erupt, preserve, dormant, volcano, active, mineral, extinct, fossil, ash, lava, soil, clay, granite, marble, chalk sandstone, permeable, impermeable, slate, absorbent,		be able to identify that humans and some other animals have skeletons and muscles for support, protection and movement. <u>Key Vocabulary</u> Vitamins, minerals, protein, carbohydrates, water, fibre, nutrition, fat, healthy, unhealthy, skeleton, endoskeleton, exoskeleton, muscles, movement, support, protection.	in which water is transported within plants. They will explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. <u>Key Vocabulary</u> Plant, root, stem, trunk, leaves, flowers, air, light, water, nutrients, transport, life cycle, pollination, seed dispersal, seeds, formations, investigation, reproduction, support,	magnets attract or repel each other and attract some materials and not others. They will 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. Children will know that magnets have two poles and be able to predict whether two magnets will attract or repel each other. <u>Key Vocabulary</u> Magnets, repel, attract, poles, forces, north, south, magnetism, metal, push, pull, surface, affect, move, friction, resistance, gravity.	ways to protect their eyes. They will recognise that shadows are formed when the light from a light source is blocked by a solid object. Children will find patterns in the way that the size of shadows change. <u>Key Vocabulary</u> Light, see, dark, reflect, moon, sun, shadow, blocked, solid, pattern, surface, safe, unsafe.

Year 4	**Living Things and their Habitats** The children will learn to identify, group and classify living things. They will learn to identify vertebrates and invertebrates. They will use classification keys to identify living things in their local environment by completing an 'Invertebrate Hunt'. The children will explore how environments can change and the impact this can have on living things. The children will work scientifically by making and using keys to identify living things. They will make careful observations of	**Animals including Humans** The children will learn to name and describe the functions of the main parts of the human digestive system. They will learn the names of the different types of human teeth and their functions. They will make food chains and identify producers, predators and prey. The children will work scientifically by investigating what damages teeth. **Key Vocabulary** Mouth, tongue, teeth, oesophagus,	**States of Matter** The children will compare and group materials together, according to whether they are solids, liquids or gases. They will 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) Children will identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature **Key Vocabulary** Gas, solid, liquid, matter, melt, dissolve, evaporate, rate, change, temperature, degrees, cooled, heated, boiling, material	**Sound** The children will identify how sounds are made, associating some of them with something vibrating Additionally, the children will recognise that vibrations from sounds travel through a medium to the ear They will find patterns between the pitch of a sound and features of the object that produced it The children will find patterns between the volume of a sound and the strength of the vibrations that produced it They will recognise that sounds get fainter as the distance from the	**Electricity** The children will find out what electricity is and the difference between mains and battery powered electricity. They will identify appliances that run on electricity in their homes and will find out about how to keep safe around electricity. They will learn to make simple circuits and draw circuit diagrams. **Key Vocabulary** Circuit, diagram, electricity, current, electrons, bulb, motor, switch, safety, hazards, battery, mains

	living things in their local area and will ask and answer questions about living things. <u>Key Vocabulary</u> Organism, sort, group, criteria, variation, classification, vertebrates, invertebrates Specimen, invertebrate, thorax, abdomen, antenna, segmented, wing case, mandible, proboscis, prolegs characteristic, classification, key habitat, environment, wildlife	stomach, duodenum, small intestine, large intestine, pancreas, liver, rectum, anus, salivary glands, gallbladder, digestion, digest, digestive system, enzymes, acid, teeth, incisors, canines, molars, premolars, humans, animals		sound source increases **<u>Key Vocabulary</u>** Sounds, vibration, ear, travel, pitch, low, high, muffled	

Year 5	Living things & their habitats The children about the process of reproduction and the life cycles of plants, mammals, amphibians, insects and birds. The children will explore reproduction in different plants, including different methods of pollination and asexual reproduction. They will learn about different types of mammals and their different life cycles. Furthermore, the children will find out about Jane Goodall and her	Animals (including humans) This unit focuses on the changes that human beings experience as they develop to old age. It tackles some sensitive subjects including puberty and death. As such, it is advisable to consult your school sex and relationships education policy prior to teaching this unit. Children will learn about the life cycle of a human being. They will investigate the development of babies and compare the	Earth and Space The children will learn to describe the movement of the Earth and other planets relative to the sun in the solar system describe the movement of the moon relative to the Earth describe the sun, Earth and moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky Key Vocabulary	Forces The children will learn about forces this term. They will learn that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. They will learn how to iidentify the effects of air resistance, water resistance and friction, that act between moving surfaces. Key Vocabulary Friction, air resistance, water resistance, buoyancy,	Properties of materials different materials, their uses and their properties, as well as dissolving, separating mixtures and irreversible changes. The children will sort and classify objects according to their properties. They will explore the properties of materials to find the most suitable material for different purposes. The children will work scientifically and collaboratively to investigate the best thermal insulator to make a lunch box, making predictions and forming conclusions. Furthermore, they will have chance to find the best electrical conductor, in the context of making floodlights brighter. They will have the opportunity to work in a hands-on way to explore dissolving, identifying the different variables in their own investigations. They will find out about different ways to separate mixtures of materials, using filtering, sieving and evaporating. Finally, they will learn about irreversible changes, and participate in two exciting investigations to create new materials, including casein plastic and carbon dioxide.

	work with the now-endangered chimpanzees in Africa. They will explore metamorphosis in insects and amphibians, comparing their life cycles <u>Key Vocabulary</u> Reproduction, sexual, asexual, life cycle, metamorphosis, pollination, gestation, ovary, sperm, cell, sex cell, embryo, foetus, offspring	gestation period of humans and other animals. They will learn about the changes experienced during puberty and why these occur. The final investigation will be about the changes to the body as humans get older, as well as comparing the life expectancy of different animals. <u>Key vocabulary</u> Fertilisation, prenatal, gestation, reproduction life cycle, adolescence, puberty, menstruation, adulthood,	Sun, star, moon, planet, sphere, spherical body, orbit, galaxy, universe, satellite, axis, rotate, day, night,	streamlined, mechanism, upthrust, forces, gravity, weight, mass	<u>Key Vocabulary</u> Materials, solids, liquids, gases, melting, freezing, evaporating, condensing, conductor, insulator, transparency, translucent, opaque, dissolving, filtering, evaporating,

		infancy, old age, life expectancy				
Year 6	<u>Animals including humans</u> In this unit, the children will be exploring the circulatory system, learning all about the key components involved in this. The children will investigate the blood (including key components), blood vessels and the functions of the heart. Focusing on nutrients and water, the children will practically explore how these are transported in our bodies,	<u>Living things and their habitats</u> In this unit, the children will be describing how living things are classified into broad groups according to common observable characteristics. Additionally, they will observe their similarities and differences, looking closely at microorganisms, plants and animals. Following this, the children will provide reasons with	<u>Light</u> This unit focuses on light, how we see, refraction, reflection and shadows. Throughout this topic, the children will learn all about how light travels and how this enables us to see objects. Moreover, they will explore mirrors, angles of reflection and incidence before working collaboratively and scientifically to investigate refraction. Finally, the children will	<u>Electricity</u> In this topic, the children will extend their knowledge of electricity taught in previous year groups by relating circuits to symbols, representing these in diagrams. They will learn about two of the most important scientific inventors in the field of electricity - Thomas Edison and Nikola Tesla. Furthermore, the children will have the opportunity to develop their understanding of what electricity is		<u>Evolution and inheritance</u> Within this unit, the children will be building on their understanding of fossils, habitats and human development. They will recognise that living things have changed over time, identifying the importance of fossils in this process. They will explore inheritance, specifically focusing on offspring. Furthermore, they will learn about variation and

	identifying their impact on the circulatory system. Following this, the children will explore the impact of diet, drugs, exercise and lifestyle on the way their body's function. <u>Key vocabulary:</u> Circulatory system, white blood cells, red blood cells, plasma, platelets, heart, lungs, blood vessels, arteries, veins, capillaries, nutrients, water, osmosis, diffusion, exercise, lifestyle, drugs, alcohol, impact	justifications for their classifications. <u>Key vocabulary:</u> Classify, characteristics, evolutionary taxonomy, microorganisms, Carl Linnaeus, system, genus, species, family, class.	learn about Isaac Newton and his theory of light and colour. <u>Key vocabulary:</u> Light, reflection, refraction, travel, angles, incidence, Isaac Newton, theory, shadow, spectrum, observation.	and how it can be measured. Throughout the unit their will conduct their own investigations, selecting appropriate scientific enquiries. <u>Key vocabulary:</u> Electricity, bulb, switch, buzzer, motor, wire, battery, cell, circuit, Thomas Edison, Nikola Tesla, brightness, current, voltage.		adaptation before exploring how Charles Darwin and Alfred Wallace separately developed their theories of evolution. Finally, they will examine the scientific evidence from plants and animals that has been gathered to support the theory of evolution. <u>Key vocabulary:</u> Evolution, inheritance, adaptation, characteristics, theory, developed, inhabited, Charles Darwin, Alfred Wallace, traits, selective, cross-breeding, natural selection, genes, DNA.

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