Science Knowledge long term plan 2024-25

Year Group	Autumn 1 (8 weeks)	Autumn 2 (7 weeks)	Spring 1 (6 weeks)	Spring 2 (6 weeks)	Summer 1 (5 weeks)	Summer 2 (7 weeks)
EYFS	**Progression towards: The Natural World ELG** • Children at the expected level of development will: • 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.					
FS1	• Autumn • Nocturnal animals • Plant spring bulbs	• Body parts	• Travel and vehicles • Machines	• Farm animals • Chicks and eggs	• Minibeasts • Lifecycles- Butterflies	• Plants/ Vegetables
FS2	• Autumn • Diurnal/ Nocturnal animals • Night and day	• Bedtimes- Sleep • Rocket builders • Space- Planets • Signs of Winter	• Winter • Arctic animals	• Senses • Spring	• Observations of the Natural world- UK and Africa. • British animals • African animals	• Sea creatures • What lives by the sea? • Materials • Recycling
Year 1	**Everyday Materials Unit 1 (6 lessons)** NC Link: Everyday Materials • Objects can be made from a variety of materials. • Different materials have different physical properties. • Everyday materials include wood, plastic ,metal, water and rock. • Group, compare and sort materials.	**Autumn and Winter Unit 2 (6 lessons)** NC Link: Seasonal changes/Living things and their habitats • The four seasons - autumn, winter, spring and summer. • Different weather associated with different seasons. • Day length varies in different seasons.	**Amazing Animals Unit 3 (10 lessons)** NC Link: Animals including humans/Living things and their habitats • Animals grouped into - fish, amphibians, reptiles, birds and mammals by their structural features. • Animals grouped into carnivores, herbivores and omnivores. • The human body is made of many different parts; each with its own function. • Humans have five senses: sight, hearing, touch, taste and smell. Each sense uses different body parts.		**Spring and Summer Unit 4 (6 lessons)** NC Link: Seasonal changes • The four seasons - autumn, winter, spring and summer. • Different weather associated with different seasons. • Day length varies in different seasons. • How the changing seasons affect humans.	**Plants Unit 5 (6 lessons)** NC Link: Plants • A plant is a living thing. • The main parts of a plant are stem, leaves and roots. • Parts of a tree. • Plants can be grown by people and also in the wild (common garden and wild plants).

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Year 2	**Uses of materials** **Unit 1 (6 lessons)** NC Link: Uses of everyday materials • Everyday materials include wood, metal, plastic, glass, brick, rock, paper and cardboard. • The material chosen to make an object/device is based on the suitability of its properties. • The shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**Animals and survival** **Unit 2 (6 lessons)** NC Link: Animals, including humans • Animals, including humans, have offspring which grow into adults. • The basic needs of animals, including humans, for survival include food, water and air. • To remain healthy humans should exercise, eat the right amounts of different types of food (balanced diet), and have good hygiene (germs).	**Habitats** **Unit 3 (10 lessons)** NC Link: Living things and their habitats • Things can be living, dead or never alive. • Plants and animals live in a variety of habitats, including microhabitats. • Most living things live in habitats to which they are suited. • The living things in the habitat depend on each other for survival. • Animals obtain their food from plants and other animals (simple food chain).	**Protecting the environment** **Unit 4 (6 lessons)** NC Link: Animals, including humans/Living things and their habitats. • Humans and their activities pose a danger to wildlife, through housing, traffic, waste and pollution. • Where possible materials should be recycled to reduce landfill and pollution. • To ensure a sustainable supply of water and energy, these resources must be used efficiently (how to save water/how to be energy efficient.	**Plants and growth** **Unit 5 (6 lessons)** NC Link: Plants • Seeds and bulbs grow into mature plants. • Plants need water, light and a suitable temperature to grow and stay healthy. • Germination. • Life cycle of a plant.
Year 3	**Skeletons,muscles and nutrition** **Unit 1 (6 lessons)**	**Rocks and fossils** **Unit 2 (6 lessons)** NC Link: Rocks • Rocks can be grouped by	**Lights and shadows** **Unit 3 (10 lessons)** NC Link: Light • Light is needed to see things. • Darkness is the absence of light.	**Plants - Needs for survival** **Unit 4 (6 lessons)** NC Link: Plants	**Forces and Magnets** **Unit 5 (6 lessons)** NC Link: Forces and magnets

	NC Link: Animals, including humans • Animals, including humans, need the right types and amount of nutrition. • Animals cannot make their own food; they get nutrition from what they eat. • Humans and some other animals have skeletons and muscles for support, protection and movement.	their appearance and simple physical properties. • Fossils are formed when things that have lived are trapped within rock. • Soils are made from rocks and organic matter.	• Light is reflected from surfaces. • Light from the sun is dangerous, eyes should be protected from sunlight (Ultraviolet - UV). • Shadows are formed when the light from a light source is blocked by an opaque object. • There are patterns in the way that the size of shadows change.	• Flowering plants have roots, a stem/trunk, leaves and flowers. • Plants require air, light, water, nutrients from the soil and room to grow. • Water is transported within plants in vessels. • Flowers play an important role in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	• Objects experience different amounts of friction on different surfaces. • Some forces need contact between two objects, but magnetic forces can act at a distance. • Some materials are magnetic, meaning they are attracted to a magnet. • Magnets have two poles. • Magnets can attract or repel each other, depending which poles are facing each other.
Year 4	**<u>Teeth and Digestion</u> <u>Unit 1 (6 lessons)</u>** NC Link: Animals, including humans • The human digestive system contains a number of organs including the mouth, stomach, oesophagus, and intestines.	**<u>States of matter</u> <u>Unit 2 (6 lessons)</u>** NC Link: States of matter • Materials can be grouped according to whether they are solids, liquids, or gases. • Materials can change state	**<u>Living things and environments</u> <u>Unit 3 (10 lessons)</u>** NC Link: Living things and their habitats • Living things can be grouped in a variety of ways. • Classification keys can be used to help group, identify and name living things. • Food chains and food webs. • Invertebrates and vertebrates.	**<u>Sound</u> <u>Unit 4 (6 lessons)</u>** NC Link: Sound • Sounds are made when something vibrates. • Vibrations from sounds travel through a medium to the ear. • The pitch of a sound is affected	**<u>Electricity</u> <u>Unit 5 (6 lessons)</u>** NC Link: Electricity • The brightness of a lamp or the volume of a buzzer is associated with the number and voltage of cells used in the circuit. • Switches can be

	• The main types of human teeth are incisors, canines, molars, and premolars. Each type of tooth looks different and has a different function.	when they are heated or cooled—this happens at different temperatures for different materials. • Evaporation and condensation are key processes in the water cycle. • Rate of evaporation is affected by temperature.	• Environments can change and this can sometimes pose dangers to living things (climate change).	by how quickly an object vibrates. • The volume of a sound is determined by the strength of the vibrations that produced it. • Sounds get fainter as the distance from the sound source increases.	used to turn components on and off in a circuit. • Circuit symbols are used when representing a simple circuit in a diagram.
Year 5	**Earth and Space** **Unit 1 (6 lessons)** NC Link: Earth and Space • Earth and other planets in the Solar System orbit around the Sun. • The Moon orbits round Earth. • The Sun, Earth, and the Moon are approximately spherical bodies.	**Forces** **Unit 2 (6 lessons)** NC Link: Forces • Unsupported objects fall towards Earth because of the force of gravity acting between Earth and the falling object. • Air resistance, water	**Materials** **Unit 3 (10 lessons)** NC Link: Properties and changes of materials • The properties of materials include their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. • The particular uses of everyday materials, including metals, wood, and plastic depend on their properties.	**Life Cycles** **Unit 4 (6 lessons)** NC Link: Living things and their habitats • There are differences in the life cycles of mammals, amphibians, insects, and birds. • Plants and animals produce offspring by the life process	**Growing older** **Unit 5 (6 lessons)** NC Link: Animals, including humans • Humans experience a number of changes as they develop to old age. • Puberty. • Adolescence.

	• The rotation of Earth results in day and night, and the apparent movement of the Sun across the sky.	resistance, and friction act between moving surfaces. • Some mechanisms including levers, pulleys, and gears allow a smaller force to have a greater effect.	• Some materials will dissolve in liquid to form a solution. • Mixtures can be separated using filtering, sieving, and evaporating. • Dissolving, mixing, and changes of state are reversible changes. • Changes that result in the formation of new materials are not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	of reproduction.	
Year 6	**<u>Light</u>** **<u>Unit 1 (6 lessons)</u>** NC Link: Light • Light travels in straight lines. • Objects are seen because they give out or reflect light into the eye. • We see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. • As light travels in straight lines shadows have the	**<u>Classification</u>** **<u>Unit 2 (6 lessons)</u>** NC Link: Living things and their habitats • Living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants, and	**<u>Evolution and inheritance</u>** **<u>Unit 3 (10 lessons)</u>** NC Link: Evolution and inheritance • Living things have changed over time. • Fossils provide information about living things that inhabited Earth millions of years ago. • Living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • Animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	**<u>Electricity</u>** **<u>Unit 4 (6 lessons)</u>** NC Link: Electricity • The brightness of a lamp or the volume of a buzzer is associated with the number and voltage of cells used in the circuit. • Switches can be used to turn components on and off in a circuit. • Circuit symbols are used when representing a simple circuit in a diagram.	**<u>Circulatory system and lifestyle</u>** **<u>Unit 5 (6 lessons)</u>** NC Link: Animals, including humans • The main parts of the human circulatory system include the heart, blood vessels, and blood. • Nutrients and water are transported within animals, including humans, in the blood. • Diet, exercise, drugs, and lifestyle can all affect the

	same shape as the objects that cast them.	animals.			way our bodies function.