Science Long Term Plan 2022 - 2023

	Autumn	Spring	Summer
F2	**Understanding the world:** Pupils must be supported in developing the knowledge, skills and understanding that help them to make sense of the world. Their learning must be supported through offering opportunities for them to use a range of tools safely; encounter creatures, people, plants and objects in their natural environments and in real-life situations; undertake practical 'experiments'; and work with a range of materials.		
1	**Who am I?:** Identify, name, draw and label the basic parts of the human body. Say which part of the body is associated with each sense. **Celebrations:** Say which part of the body is associated with each sense. Distinguish between an object and the material from which it is made. Describe the simple physical properties of a variety of everyday materials. Identify and describe the basic structure of a variety of common flowering plants.	**Polar Places:** Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple properties. Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Identify and name a variety of common animals that are carnivores, herbivores and omnivores. **Plants and animals:**	**On Safari:** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). **Holiday:** Distinguish between an object and the material from which it is made. Compare and group together a variety of everyday materials on the basis of their simple physical properties. Describe the simple physical properties of a variety of everyday materials.

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		Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and describe the basic structure of a variety of common flowering plants, including trees.	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock.
2	**Healthy Me:** Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. **Materials monsters:** Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be	**Squash, Bend, Twist and Stretch:** Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. **Our local environment:** Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including micro-habitats. Gather and record data to help in answering questions.	**Young gardeners:** Identify and name a variety of plants and animals in their habitats, including microhabitats. Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Compare the suitability of a variety of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. **Little Masterchefs:** Find out about, and describe the basic needs of animals, including humans, for survival (water, food and air).

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	changed by squashing, bending, twisting and stretching.	Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name the different sources of food.	Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
3	**Light and Shadows:** Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the sizes of shadows change. **Rocks and Fossils:** Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Recognise that soils are made from rock and organic matter. Describe in simple terms how fossils are formed when things that have lived are trapped within rock.	**Forces and Magnets:** Compare how things move on different surfaces. 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. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Predict whether two magnets will attract or repel each other, depending on which poles are facing. **How Does Your Garden Grow?:** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explain 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.	**Food and our Bodies:** Identify that animals, including humans, need the right types and amounts of nutrition, and that they cannot make their own food, they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement. **The Nappy Challenge:** Working scientifically foci- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Gather, record, classify and present data in a variety of ways to help answer questions.

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		Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Ask relevant questions and use different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and fair tests. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Ask relevant questions and use different types of scientific enquiries to answer them. Use straightforward scientific evidence to answer questions or to support their findings.
4	**Living Things:** Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things. **Looking at States:** Compare and group materials together, according to whether they are solids, liquids or gases.	**The Big Build:** Working scientifically foci- Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Use results to draw simple conclusions, make predictions for new values, suggest	**What's that Sound?:** Identify how sounds are made, associating some of them with something vibrating. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Find patterns between the pitch of a sound and features of the object that produced it. Recognise that sounds get fainter as the distance from the sound source increases. Recognise that vibrations from sounds travel through a medium to the ear.

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	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 (oC). Identify differences, similarities or changes related to simple scientific ideas and processes. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	improvements and raise further questions. Use straightforward scientific evidence to answer questions or to support their findings. **Teeth and Eating:** Identify the different types of teeth in humans and their simple functions. Describe the simple functions of the basic parts of the digestive system in humans. Construct and interpret a variety of food chains, identifying producers, predators and prey.	**Power it Up:** Identify common appliances that run on electricity. Pupils should be taught about precautions for working safely with electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.
5	**Out of this World:** Describe the movement of the Earth and other planets relative to the Sun in the Solar System. 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.	**Circle of Life:** Describe the life process of reproduction in some plants and animals. Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.	**Growing Up and Growing Old:** Describe the changes as humans develop to old age. **Amazing Changes:** Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated

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	Describe the movement of the Moon relative to the Earth. **Material World:** 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. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.	**Let's Get Moving:** Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	with burning and the action of acid on bicarbonate of soda.
6	**Classifying Living Things:** Give reasons for classifying plants and animals based on specific characteristics. Describe how living things are classified into broad groups according to common observable characteristics and based on	**Evolution and Inheritance:** Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.	**Electricity:** Use recognised symbols when representing a simple circuit in a diagram. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.

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	similarities and differences, including microorganisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics. **Healthy Bodies:** Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.	Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. **Light:** Recognise that light appears to travel in straight lines. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. 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. 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.	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. **The Titanic:** Working scientifically foci- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Use test results to make predictions to set up further comparative and fair tests. Report and present 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. Take measurements, use a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Identify scientific evidence that has been used to support or refute ideas or arguments.

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