Science Long Term Plan

Yr. Group	Autumn		Spring		Summer	
EYFS	Discuss simple changes as they have grown from being a baby, both in their appearance and what they are able to do.	Sort and group materials and resources and talk about how they are similar or different. Explore the natural world around them, making observations and drawing pictures of animals and plants. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Sort magnetic and non-magnetic materials through play and exploration.	Identify common features for different groups of animals, including wild and domestic animals. Compare and group objects and materials according to simple given criteria. With support, observe, record and talk about materials and living things. – Nocturnal animals. Make a shadow bigger or smaller using toys, play equipment and a light source. Explore and describe electrical and non-electrical light sources. First Moon landing. Describe, predict and sort things that float and sink and talk about the forces that they can feel.	With support, observe, record and talk about materials and living things-animals and plants Observe and describe living things and their habitats within the local environment. Identify the best materials in which to make holes and tunnels. Make a shadow bigger or smaller using toys, play equipment and a light source.	Make observations about animals. Explain why some things occur, and talk about changes. Explain how living things are the same or different Look at the features of their own immediate environment and how environments might vary from one another.	Recognise and begin to talk about how their lives have changed as they have grown Explore their reflections and compare their physical appearance in the photograph with how they look now.
Year 1	Everyday Materials project This project teaches children that objects are made from materials. They identify a range of everyday materials and their sources. Children investigate the properties of materials and begin to recognise that a material's properties define its use. Science investigations How does it feel? investigate the properties of different everyday household materials using their sense of touch. What makes the loudest sound? Identify and name everyday materials then put them in a shaker to see which makes the loudest sound, relating this to their properties.		Animal Parts project This project teaches children about animals, including fish, amphibians, reptiles, birds, mammals and invertebrates. They identify and describe their common structures, diets, and how animals should be cared for. Science investigations What can worms sense? Conduct a series of tests to investigate the earthworms' senses. Human Senses project This project teaches children that humans are a type of animal known as a mammal. They name and count body parts and identify similarities and differences. They learn about the senses, the body parts associated with each sense and their role in keeping us safe. Science investigations Why do we have teeth? Sample different foods to investigate how we use our teeth to eat.		Plant Parts project This project teaches children about the growth of plants from seeds and bulbs. They observe the growth of plants firsthand, recording changes over time and identifying what plants need to grow and stay healthy. Science investigation What's in a bud? Dissect buds to see what they contain then predict what will happen to buds on twigs kept in water. Seasonal Changes project This project teaches children about the seasons, seasonal changes and typical seasonal weather and events. They learn about measuring the weather and the role of a meteorologist. Children begin to learn about the science of day and night and recognise that the seasons have varying day lengths in the UK. Science investigation Do pine cones know it is raining? Observe how pine cones change in different weather conditions. How do leaves change? Find leaves and observe how they change from being alive and healthy to broken down and decomposed	
	Plant Survival project This project teaches children about the growth of plants		Uses of Materials project This project teaches children about the uses of everyday		Habitat project	

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Year 3	Forces and Magnets projects This project teaches children about contact and non-contact forces, including friction and magnetism. They investigate frictional and magnetic forces, and identify parts of a magnet and magnetic materials. Science investigations Why do magnets attract and repel?. Observe magnet's magnetic fields to find out why they attract and repel each other. Can you block magnetism? Investigate magnetic objects and materials then plan their own investigation to test whether it is possible to block magnetism. What does friction do? Investigate friction and what it does by measuring how fast they travel down a slide on different materials. Animal Nutrition and the Skeletal System project This project teaches children about the importance of nutrition for humans and other animals. They learn about the role of a skeleton and muscles and identify animals with different types of skeleton. Science investigation What are our joints for? Investigate why bones need joints for movement.	Plant Nutrition and Reproduction project This project teaches children about the requirements of plants for growth and survival. They describe the parts of flowering plants and relate structure to function, including the roots and stem for transporting water, leaves for making food and the flower for reproduction. Science investigations What are flowers? Dissect a plant's flower to identify its main parts and learn what they are for. Why are trees tall? Suck up water through straws to investigate how water is transported in trees and plants. Rocks Science investigations What is sand? Observe how sand is made What is soil?. Mix water with soil samples from their local area to observe their individual components. How do fossils form? Learn about and model how mould fossils form	Light and Shadows project This project teaches children about light and dark. They investigate the phenomena of reflections and shadows, looking for patterns in collected data. The risks associated with the Sun are also explored. Science investigations Why do cat's eyes glow in the dark? Investigate the reflective properties of materials and find out why cat's eyes glow at night. Why do shadows change? Observe and learn why shadows move and change length during the day.
Year 4	Sound project This project teaches children about sound, how sound is made and how sound travels as vibrations through a medium to the ear. They learn about pitch and volume and find out how both can be changed. Science investigations How far can sound travel? Test different sounds to find out which travel furthest. How can we change a sound? Explore and listen carefully to the vibrations that produce a sound to find out what factors affect its pitch. States of Matter project How do smells get up your nose? Investigate how a gas travels through the air to reach our noses.	Grouping and Classifying project This project teaches children about grouping living things, known as classification. They study the animal and plant kingdoms and use and create classification keys to identify living things. Science investigations Are all sea creatures the same? Look at a range of real aquatic animals to observe, handle and ask about. Use classification keys to identify one animal and anatomical diagrams to explore its key features, finally sort the animals into groups. How does pollution affect habitats? Learn about different pollutants and their effect on the health, growth and survival of pondweed. States of Matter Science investigations Where does water go? Hang damp flannels in different conditions to observe the rate of evaporation.	Food and the Digestive System project This project teaches children about the human digestive system. They explore the main parts, starting with the mouth and teeth, identifying teeth types and their functions. They link this learning to animals' diets and construct food chains to show the flow of energy. Science investigation How does toothpaste protect teeth? Observe the effect of fluorinated toothpaste on the irreversible chemical reaction of calcium carbonate (eggshell) in acetic acid (vinegar). Electrical Circuits and Conductors project This project teaches children about electrical appliances and safety. They construct simple series circuits and name their parts and functions, including switches, wires and cells. They investigate electrical conductors and insulators and identify common features of conductors. It also teaches children about programmable devices. They combine their learning to design and make a nightlight. Science investigation Can you make a circuit with play dough? Use conductive and insulating dough to create circuits and invent their own switches.

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Year 5	Earth and Space project This project teaches children about our Solar System and its spherical celestial bodies. They describe the movements of the Earth and the other planets relative to the Sun, the Moon relative to Earth, and the Earth's rotation to explain day and night. Science investigations How do we know the earth is round? Replicate Aristotle's observations about how a boat travels over the horizon to identify that the Earth is spherical. How does the moon move? Learn about how the Sun, Earth and Moon move relative to each other. How do rockets lift off? Investigate levers and how they help to reduce the effort needed to bring about an effect.	Properties and Changes of Materials project This project teaches children about the wider properties of materials and their uses. They learn about mixtures and how they can be separated using sieving, filtration and evaporation. They study reversible and irreversible changes, and use common indicators to identify irreversible changes. Science investigations Do all solids dissolve? Test a range of solids to investigate which are soluble and which are not. Plan an investigation to find out which factors affect the rate a solid dissolves. Can you clean dirty water? Learn about and test different methods of separating mixtures. Use these methods to try and clean a sample of dirty water. Why does a compass always point north? Learn why compasses point north and make and improve simple compasses.	Forces and Mechanisms project This project teaches children about the forces of gravity, air resistance, water resistance and friction, with children exploring their effects. They learn about mechanisms, their uses and how they allow a smaller effort to have a greater effect. Science investigations Why do planets have craters? Drop a range of balls of different mass into a level mixture of flour and oats to observe the effect of gravity and see the relationship between mass and crater size. What do pulleys do? Use broomsticks to model how pulleys work and what they do. Human Reproduction and Ageing project This project teaches children about animal life cycles, including the human life cycle. They explore human growth and development to old age, including the changes experienced during puberty and reproduction Science investigations Why do birds lay eggs? Investigate the external and internal anatomy of a bird's egg. Learn about its different functions to see how the egg is essential for birds Do we slow down as we get older? Use a simple catching test to find out and compare the reaction times of people of different ages. reproduce
Year 6	Evolution and Inheritance project This project teaches children how living things on Earth have changed over time and how fossils provide evidence for this. They learn how characteristics are passed from parents to their offspring and how variation in offspring can affect their survival, with changes (adaptations) possibly leading to the evolution of a species. Science investigations Can we slow cooling down? Observe and measure how water cools then examine the effect insulation has on slowing the cooling. How does inheritance work? Investigate how offspring inherit traits from their parents. Why are things classified? Learn about the principles of classification and create their own keys to classify each other.	Electrical Circuits and Components project This project teaches children about electrical circuits, their components and how they function. They recognise how the voltage of cells affects the output of a circuit and record circuits using standard symbols. It also teaches children about programmable devices, sensors and monitoring. They combine their learning to design and make programmable home devices. Science investigations Can fruit light a bulb? Work with different fruit and vegetables to investigate how they can act as batteries capable of powering a circuit. Can you send a coded message? Make a circuit with a buzzer. Design and make a switch that allows you to send Morse code messages using their circuit.	Light Theory project This project teaches children about the way that light behaves, travelling in straight lines from a source or reflector, into the eye. They explore how we see light and colours, and phenomena associated with light, including shadows, reflections and refraction. Science Investigations What is a reflection? Children investigate how mirrors help us to see objects that are out of direct sight due to light being reflected. What colour is a shadow? Investigate shadows made by single, multiple and coloured light sources. Circulatory System project This project teaches children about the transport role of the human circulatory system, its main parts and primary functions. They learn about healthy lifestyle choices and