

Science Long Term Plan

Year Group	Autumn	Spring	Summer
Year 1	Forces and Space: Seasonal changes Reflecting on their own experiences, children learn about the four seasons and the weather associated with each. Pupils explore how seasonal changes affect trees, daylight hours and clothing choices. They plan and carry out their own weather reports, considering the knowledge required for this job. Materials: Everyday Materials Identifying and naming objects and the materials from which they are made. Pupils compare and group materials based on how they look and feel and carry out tests to sort materials based on unobservable properties.	Animals: Sensitive bodies Identifying and naming body parts and conducting practical activities with the senses to spot patterns and answer questions. Animals: Comparing animals Comparing and grouping animals based on similarities and differences in their characteristics, physical features and diets.	Plants: Introduction to plants Venturing outside, children identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. They use magnifying glasses to observe and name plant parts and sort leaves into groups based on appearance. Pupils investigate if beans need water for growth and identify edible plant parts. Making Connections: Investigating Science through stories Venturing outside, children identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. They use magnifying glasses to observe and name plant parts and sort leaves into groups based on appearance. Pupils investigate if beans need water for growth and identify edible plant parts.
Year 2	Living things: Habitats Considering the life processes that all living things have in common, pupils classify objects into alive, was once alive or has never been alive. They name plants and animals in a range of habitats and recognise how living things depend on each other. Pupils create food chains to show the sequence that living things eat each other. Living things: Microhabitats Building on their knowledge of habitats, pupils discover that microhabitats provide what minibeasts need to survive. They learn that scientists use a range of skills to answer questions and plan and carry out an experiment to find out the conditions woodlice prefer	Animals: Life cycles and health Identifying and describing the different stages of animal life cycles, including that of humans, recording and interpreting data to show growth in humans and explaining how to keep healthy. Materials: Uses of everyday materials Recognising that materials are suitable for specific purposes and understanding their properties, exploring how actions such as stretching and bending affect the shape of solid objects and comparing the suitability of materials by carrying out tests and recording data.	Plants: Plant growth Carrying out comparative tests, pupils discover the conditions required for seed germination. They use rulers to measure stem height and record data in a results table. Through practical investigation, pupils learn that plants need water, light and a suitable temperature to grow and stay healthy. Making connections: Plant-based materials Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.
Year 3	Animals: Movement and nutrition Studying the human skeleton, children identify key bones and explore how muscle changes result in movement.	Materials: Rocks and soil Observing the appearance and physical properties of rocks, children compare and group different rock samples.	Making connections: Does hand span affect grip strength?

	They learn about how the body uses energy, what constitutes a balanced diet in humans and how research contributes to nutritionist expertise. Forces and space: Forces and magnets By investigating motion on different surfaces, children learn about friction and compare its uses and disadvantages. They broaden their experience in working scientifically as they investigate contact and non-contact forces. Pupils explore the properties of different magnets and apply this to understand their uses.	They learn about how fossils and soils are formed and record soil drainage rates in a bar chart Energy: Light and shadows Identifying examples of light sources, children learn that light is needed to see and how its absence causes darkness. Children investigate reflection and shadow formation, including how different factors change the shadows observed. They explore how shadows can be used to entertain in the arts and create shadow puppets to recount how different people work or experiment with light.	Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills. Plants: Plant reproduction Explaining how plants reproduce in the context of the life cycle of a flowering plant, gathering data on plant growth and investigating the structure and function of the parts of a flowering plant.
Year 4	Food and the Digestive System Producers and consumers; Ecosystems; Food chains and food webs; Changes in ecosystems; Digestive system; Teeth types – incisors, canines, premolars, molars; Teeth health and dental hygiene; Working scientifically – Identifying and classifying, Observing changes over time, Comparative test, Pattern seeking, Research Energy: Electricity and circuits Exploring appliances in their setting that use electricity, children learn how to work with electricity safely and build circuits. Pupils investigate electrical conductors and insulators and explore the relationship between the number of cells and bulb brightness. Real scenarios and historical discoveries inform children about scientific progression and home safety.	States of Matter Classifying solids, liquids and gases; Unusual materials; Particle theory; Change of state; Melting, freezing, evaporation and condensation; States of water; Measuring temperature; Investigating melting; Line graphs; Researching melting and boiling points; Working scientifically – Observing changes over time, Identifying and classifying, Pattern seeking, Comparative test, Research Energy: Sound and vibrations Exploring different ways of producing sounds, children learn about the relationship between vibrations and what they hear. Pupils explore how pitch and volume can be altered and how sound can be insulated using different materials.	Animals: Classification and changing habitats Children explore different ways living things can be grouped and make classification keys. They study ways that habitats may change over time and understand that humans can have both positive and negative effects on their surroundings. Making connections: How does the flow of liquids compare? Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.
Year 5	Materials: Mixtures and separations Materials: Mixtures and separation Pupils explore different types of mixtures and the different methods that can be used to separate them. They dissolve a range of substances, identify different	Forces and space: Earth and space Children explore the movement of the celestial bodies in our Solar System, including the Earth and other planets and the Moon. They discover how the rotation of the Earth causes night and day and how sundials work. Pupils	Forces and space: Unbalanced forces Building on their knowledge of contact and non-contact forces, children explore gravity, friction, air resistance and water resistance in more depth and consider the effect of these forces being unbalanced. They plan investigations to further their understanding of the effects of these forces.

	solutions and investigate how temperature affects the time taken to dissolve. They design and create a water filter, sieve soil and evaporate solutions. Materials: Properties and change. Broadening their experience of the properties of materials, children investigate hardness, transparency and conductivity and consider how these properties influence the uses of materials. They explore reversible changes, including dissolving and changes of state. Children compare these to irreversible changes, including rusting, burning and mixing vinegar and bicarbonate of soda.	find out about the uses of satellites and the problem with space junk. Living things and their habitats: Life cycles and reproduction Comparing the life cycles of plants, mammals, birds, amphibians and insects. Investigating asexual reproduction in plants and comparing sexual and asexual reproduction.	Pupils test their ideas using models and compete to build the most effective pulley system. Animals: Human Timeline Studying human development and changes, children identify key stages and consider what data may help determine if a child is growing normally. They describe how puberty affects girls and boys and produce graphs to compare how gestation periods vary across different mammals, including humans. Making connections: Does the size of an asteroid affect the size of its impact crater? (1 lesson) Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.
Year 6	Living Things: Classifying Big and Small Children broaden their knowledge of how vertebrates, invertebrates, plants and micro-organisms are grouped using shared characteristics. They discover how Carl Linnaeus developed the Linnaean and binomial systems for classifying and naming living things. Pupils use and produce branching and number classification keys to sort and identify organisms. Energy: Light and Reflection Proving that light travels in a straight line, children use this information to explain observations of reflection and shadows. Pupils investigate the effect of moving an object away from the surface it casts a shadow on and the relationship between the incoming and reflected rays on a mirrored surface. Exploring real uses of mirrors allow children to apply what they have	Living Things: Evolution and Inheritance Studying patterns in humans and other species, children learn about characteristics that are inherited and those that are environmental. Through the eyes of Darwin and Wallace, pupils understand how observations lead to theories. By modelling finches' variation and natural selection, they begin to explain how species evolve and the role of fossil evidence that supports this theory. Energy: Circuits, Batteries and Switches Revisiting electrical circuits, children learn to draw conventional circuit diagrams and use models to explain current, resistance and voltage. They compare different batteries and relate this to the effects on bulb brightness. Pupils apply their knowledge of switches and electrical circuits to design and produce their own practical devices.	Animals: Circulation and Health Studying the human circulatory system, children learn about the role of the heart, blood and blood vessels and use models to demonstrate their function. They explore how lifestyle choices affect our health and use secondary sources to advise patients. Pupils devise their own investigation to look at the relationship between exercise and heart rate, applying their knowledge of variables and then analysing secondary data to understand fitness better. Making Connections: Are Some Sunglasses Safer Than Others. Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills