Science Curriculum Overview 2022-23

Year	Term 1	Term 2	Term 3	Term 4 *British Science Week / Pupil Led Investigation*	Term 5	Term 6
FS **Following children's own interests and investigations**	**Theme: Ourselves/ International Term** **Key Question:** What do I like/ dislike about where I live? **Skills:** Create drawings and models of their environment. **Knowledge:** Identify features of the local environment.	**Theme: Celebrations/ Festivals** **Key Question:** Cooking: Why does that happen? **Skills:** Explore objects/ materials/ living things/ resources designed to model scientific processes. **Knowledge:** Notice changes.	**Theme: Buildings** **Key Question:** What makes a good building? **Skills:** Explain simple phenomena: How? Why? **Knowledge:** Talk about similarities, patterns and change.	**Theme: Transport** **Key Question:** Loose parts. I wonder…..? **Skills:** Explore objects/ materials/ living things/ resources designed to model scientific processes. **Knowledge:** Dependent upon the children.	**Theme: Minibeasts / Animals** **Key Question:** Are they the same? **Skills:** Listen and respond to stories about scientific processes/ events/ objects. **Knowledge:** Know about similarities and differences in relation to animals	**Theme: The Great Outdoors** **Key Question:** What do I notice? **Skills**: Qualitative Talk about similarities and differences. **Knowledge:** Know how environments differ. Talk about changes
1	**Theme:** Animals Including Humans **Key Question:** What are senses? **Skills:** Link senses to parts of the body. Investigate functions of body parts. **Knowledge:** Identify and name parts of the human body. Identify the 5 senses.	**Theme:** Animals Including Humans **Key Question:** How are animals different? **Skills:** Categorise animals by their structure and diet. Understand how to look after pets. **Knowledge:** Name different types of common animals (fish, bird, reptile etc). Name different diets (herbivore, carnivore, omnivore).	**Theme:** Seasonal Changes **Key Question:** Why do we have different weather? **Skills:** Collect data about the changing weather and seasons through observations. **Knowledge:** Name the 4 seasons and describe their properties. Name different types of weather. Daylight changes. *(This topic should be touched upon throughout the year).*	**Theme:** Pupil Led Investigations **Key Question:** Child-led, e.g. 'What makes the bounciest bubble?' How, what, why. **Skills:** Make simple predictions. Collect data and record findings. **Knowledge:** Dependent on investigations.	**Theme:** Plants **Key Question:** What are the parts of plants? **Skills:** Investigate planting seeds using different materials. Observe if and how a plant grows. Understand the parts of plants. **Knowledge:** Where plants grow; what plants and flowers need to grow; name the basic parts of flowers including trees; name common flowers and trees.	**Theme:** Everyday Materials **Key Question:** What is a material? **Skills:** Select appropriate materials using simple knowledge of its properties. **Knowledge:** Name and describe the simple properties of everyday materials such as wood, glass, metal and plastic. Compare objects based on their material.
; **2**	**Theme:** Plants **Key Question:** What do plants need to grow and be healthy? **Skills:** Recognise parts of the plants and their uses. Pupil led investigations on how best to grow seeds. Observe plant growth. Create graph of parts of plants. **Knowledge:** Parts of the plant. What parts of plants we eat. Seed dispersal.	**Theme:** Uses of Everyday Materials – Pupil Led Investigations **Key Question:** Child-led, e.g. 'What is the stretchiest fabric?' How, what, why. **Skills:** Devise and conduct investigations into properties and suitability of materials building on knowledge. Use and interpret bar graphs. **Knowledge:** Discover the bounciest ball; stretchiest fabric, etc. Others will be determined by children's own investigations.	**Theme:** Animals Including Humans **Key Question:** How do animals survive and reproduce? **Skills:** Record observations and make predictions by using existing knowledge. **Knowledge:** Describe an animal's life cycle. Identify the basic survival needs of animals and humans and the relationship between diet and exercise, and health.	**Theme:** Uses of Everyday Materials **Key Question:** How are different materials used and why? **Skills:** Make predictions and devise investigations about the suitability and properties of materials for different purposes, and the altering of materials. **Knowledge:** Name properties of materials and suggest uses. Categorise natural and man-made materials. Understand the recycling process of some materials. Explain how materials may change when heated.	**Theme:** Living Things and Their Habitats **Key Question:** Where, how and why do animals live? **Skills:** Explore different habitats and the animals that live there. Construct a simple food chain. Make links to the survival needs of animals. Construct a micro habitat suitable for a chosen animal. **Knowledge:** Explain how an animal survives in its habitat. Identify whether something is alive, dead, or has never been alive.	**Theme:** Living Things and Their Habitats **Key Question:** What lives in our seas and what do they eat? **Skills:** Explore and compare life in the Atlantic and Pacific oceans. Investigate waterproofing and streamlining. Create food chains and webs. **Knowledge:** Explore how different fish and mammals survive in the ocean. In depth investigation of the great barrier reef and its conservation.

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3	**Theme:** Rocks **Key Question:** Why and how are rocks formed? **Skills:** Simply describe and demonstrate how rocks are formed. Compare and group rocks based on properties. Record findings. **Knowledge:** Rock formation; types of rocks; rock properties; rock uses	**Theme:** Forces and Magnets **Key Question:** What are forces? **Skills:** Use scientific evidence to answer questions and support findings. Ask questions and use enquiries to answer them. Set up simple, fair practical enquiries. **Knowledge:** Understand different types of force (magnetism, touching). How objects move on different surfaces. Properties of magnetism, and facts relating to materials.	**Theme:** Animals Including Humans **Key Question:** How are bodies structured? **Skills:** Suggest healthy meals; explore alternative diets; understand traffic light system. Gather and record data in a variety of ways. **Knowledge:** Purpose of skeletons and muscles in animals in relation to body parts. Animals get nutrition from food. Healthy diets	**Theme:** Pupil Led Investigations **Key Question:** Child-led relating to topic or own ideas. **Skills:** Predictions, reasoning, data collection, beginning to analyse data, conclusions. **Knowledge:** Dependent on investigation choices.	**Theme:** Plants **Key Question:** Do all plants need the same things to be healthy? **Skills:** Explore requirements for healthy plants and how they vary depending on type of plant. Investigate how water is transported in plants. **Knowledge:** Describe functions of the parts of plants; life cycle / reproduction of plants.	**Theme:** Light **Key Question:** What can light do? **Skills:** investigate and measure shadows at different times and look for patterns. **Knowledge:** Understand that light is needed to see, for reflections and for shadows.
4	**Theme:** Sound **Key Question:** What is sound? **Skills:** Explain sound is produced by vibrations. Investigate different sounds produced by different materials. **Knowledge:** How sound travels best; how materials can alter sounds; descriptions of sounds (high, low, pitch etc).	**Theme:** Electricity **Key Question:** How does electricity work? **Skills:** Construct a simple circuit with switches; wire a plug; investigate how circuits can be altered. **Knowledge:** Give examples of electricity (batteries, mains etc) and what uses electricity. Safety awareness. How electricity works in a simple way. Insulator / conductor materials.	**Theme:** Animals Including Humans **Key Question:** How does food affect our bodies? **Skills:** Explain how the digestive system works; understand how teeth develop; explain the effects of different diets. Identify predators and prey. **Knowledge:** How the digestive system works; how diets affect the body including teeth; examine the difference between 3 core diets (herbivore, omnivore, carnivore).	**Theme:** Pupil Led Investigations **Key Question:** Child-led relating to topic or own ideas. **Skills:** Predictions, reasoning, data collection, beginning to analyse data, conclusions. **Knowledge:** Dependent on investigation choices.	**Theme:** Living Things and Their Habitats **Key Question:** How can we group living things, and why should we protect them? **Skills:** Classify living things; invertebrates hunt. **Knowledge:** Understand that environmental changes can be dangerous for living things and their habitats. Classification keys. Understand animals belong to different 'groups' and therefore have different needs and habitats.	**Theme:** States of Matter **Key Question:** What causes materials to change state? **Skills:** Observe changes of materials and investigate and measure temperatures. Classify materials. Investigate and observe evaporation. **Knowledge:** Which materials change state when heated / cooled and at what temperature. Understand the differences between solids, liquids and gases. Explain the water cycle in relation to evaporation and condensation.
5	**Theme:** Forces **Key Question:** What different forces are there, and can we change them? **Skills:** Predict and investigate gravitational forces, resistances and friction, and draw conclusions from experiments. **Knowledge:** Understand that gravity is a force and how it affects unsupported objects, understand how mechanisms	**Theme:** Earth and Space **Key Question:** How do the planets affect us on Earth? **Skills:** Explain day and night in relation to its rotations. Demonstrate movements of planets. **Knowledge:** Movement of planets in relation to each other and the Sun, and how this creates night and day. Movement of the Moon. Understand the Sun, Earth and	**Theme:** Properties and Changes of Materials **Key Question:** What happens when we make changes to everyday materials? **Skills:** Investigate dissolving and separating and reversing processes. Give reasons through testing for different material uses. Compare and group materials. **Knowledge:** Understand solutions are made by dissolving. Explain how new	**Theme:** Properties and Changes of Materials – Pupil Led Investigations **Key Question:** Child-led e.g. "What is the best thermal insulator for a lunch box?" "What is the best electrical conductor to make a bulb shine brightest?" **Skills:** Devise and conduct investigations into properties and suitability of materials building on knowledge. Predictions, reasoning, data	**Theme:** Living Things and Their Habitats **Key Question:** How do animals and plants reproduce? **Skills:** Investigate and describe comparisons between species. **Knowledge:** Understand how life cycles are different depending on the animal. Describe reproductive processes in living things.	**Theme:** Animals Including Humans **Key Question:** What happens when we get older? **Skills:** Observe changes and make comparisons. **Knowledge:** Understand the physiological changes to humans as they age.

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	can change the effect of forces.	Moon as approximately spherical bodies.	materials can be made through an irreversible process. Deeper understanding of material properties including conductivity and magnetism.	collection, beginning to analyse data, conclusions. **Knowledge:** Understand solutions are made by dissolving. Explain how new materials can be made through an irreversible process. Deeper understanding of material properties including conductivity and magnetism.		
6	**Theme:** Living Things and Their Habitats **Key Question:** How and why do we classify living things? **Skills:** Classify organisms, plants and micro-organisms by their characteristics. Identify organisms within their local area. **Knowledge:** Correct names and characteristics of organisms. Carl Linnaeus classification system. Links between micro-organisms and diseases. **Link to Kingswood**	**Theme:** Evolution and Inheritance **Key Question:** How do living things change over time? **Skills:** Observe and compare characteristics inherited between generations and make real-life links. Explain the process of natural selection and evolution. **Knowledge:** That humans and living things have evolved over time, and factors and behaviours affect changes. The work of Darwin. Plants and animals adapt to their environment. Living things produce offspring of some kind, not always identical to their parents.	**Theme:** Animals including Humans **Key Question:** What factors affect our health and how? **Skills:** Compare lifestyles and examine effects of different lifestyles on health. Explain and model the transportation of nutrients and water around the body. **Knowledge:** Understand the impact of diet, drugs, exercise and lifestyle on the health and function of the body. Identify and name parts of the human circulatory system and describe different functions. **Link to PSHCE**	**Theme:** Pupil Led Investigation **Key Question:** Child-led relating to topic or own ideas. **Skills:** Predictions, reasoning, data collection and recording, analyse data, conclusions. **Knowledge:** Dependent on investigation choices.	**Theme:** Light **Key Question:** How does light help us see? **Skills:** Explain complex processes about how we see objects and shapes. **Knowledge:** Recognise that light appears to travel in straight lines and understand that we see due to light reflections in the eye. Understand that light travels.	**Theme:** Electricity **Key Question:** How do we alter circuits? **Skills:** Investigate and give reasons for variations in brightness and volume within circuits. **Knowledge:** Understand what factors affect volume and brightness. Correct symbols and scientific language within circuitry.