Marston Moreteyne School *Science* Curriculum- Based on the nine "Big Ideas"

Processes	Change	Investigation	Place	Creativity	Nature	Materials	Humankind	Comparison

The "Aspects" below are progressive and start from Nursery through to Year Four. They allow children to encounter and revisit their learning through a variety of subject lenses. Over time, these encounters help children to build conceptual frameworks that enable a better understanding of increasingly complexity.

Pattern Seeking
Children notice and describe patterns of weather and observe the changes in the seasons focusing on typical UK weather. Further exploration is made on shadows and light sources discovering how shadows change throughout the day. Children use a range of musical instruments to compare and find patterns in the volume of a sound, including different dynamics.

Changes
Winter and summer is focused on and children noticing the difference in the day length in relation to seasons. Objects and materials are explored by squashing, twisting, stretching, heating, cooling, mixing and decay, progressing to discussion about fossils and how they form and are preserved in rock. Change of state which is reversible or irreversible, including from solid to liquid and liquid to gas.

Earth
Children describe features of the Earth and explore naturally occurring soils and how different areas have different soil types. They develop this by investigating soils from the local environment. The water cycle is looked at, describing the processes of evaporation, condensation and precipitation

Phenomena
Children progressively discover natural phenomena such as weather, shadows, rainbows, clouds, flooding and waves. Shadows and light sources are taught with a focus on opaque and transparent objects which effect this. Vibrations and sound waves are explored through the use of models and instruments.

Forces
Floating and sinking is investigated with the use different objects. Measuring weather is made with use of a thermometer, a wind sock and a rain gauge. Forces are studied with the use of experiments with push and pull and magnetic forces. Electricity is understood through the use of a series circuit loop with power from a battery or cell.

Modelling
Exploring electrical circuits and their components - powering lights and buzzers and switches. An understanding of models and moving parts is shown.

Living Things
Children will find out about how all living things change and grow over time including discussion about decay. Investigation will be made on how plants grow from seeds and bulbs and how they germinate. The stages of the plant's life cycle are explored including pollination, flower production, seed formation and seed dispersal. Further discussion on Habitats and how they change over time either due to natural or human influences.

Questioning
A variety of question words are introduced and extended as children progress through the school. Focus is made on asking questions to find out about the world and can be answered by using scientific enquiry.

Measurement
The use of simple equipment to make measurements and observations of distance, height, weight and time. Measurement will then be taken in standard units to increase the accuracy of the measurements. The units becoming more accurate as they progress.

Investigation
Understanding that simple tests can be carried out by following a set of instructions. Predictions of what might happen in an investigation will be made. As children use their prior knowledge they will plan a set of instructions and plan a method for their own investigations. They will understand what a fair test is as they make scientific enquiries.

Observation
Objects, materials and living things looked at and compared according to their features. As this progresses more detailed observations are made regularly to identify changes over time.

Habitats
Children focus on the habitats of plants and animals, local habitats and habitats beyond locality. Learning includes how habitats change according to the seasons and also due to natural influences such as extreme weather and pollution changes. They will understand how animals and plants need to survive and must adapt to these changes. Lots of discussion is made on how humans can affect habitats in negative ways including land development and pollution; or in positive ways including bird boxes, ponds and wildlife gardens.

Report and Conclude
Children begin by making simple explanations for why things happen and begin to represent observations by making marks and creating simple charts. Progressing onto using results to answer questions and beginning to notice patterns and using simple scientific language. Over time simple conclusions will be made based on evidence and finally children will be able to identify next steps and make improvements.

Gather and Record Data
The focus is on gathering data by making marks and using objects and creating simple tables and pictograms. As progress is made children will record in a range of ways and with more accuracy. They will provide evidence and answer questions over time in a variety of ways.

Identification and Classification
Children gain an understanding of how plants and trees are living things, looking at parent and baby animals. They progress to learning about the six main groups of animals and life cycles. Further classification is made with animals having skeletons, no skeleton, endoskeletons or exoskeletons.

Parts and functions
Children learn the parts of plants, flowers and trees progressing to discuss the functions of the roots, stem, seeds and leaves. Discussion is made about what plants need to survive and grow. Animal body parts will be introduced and the similarities and differences between animal groups. The uses of the four different types of teeth are taught linking learning to the characteristics of carnivores, herbivores and omnivores.

Nutrition
An understanding of plants and trees as living things and progressing to discussion and learning about food chains, the understanding that animals cannot make their own food and need to get nutrition from the food they eat. They learn about animals that eat both meat and plants.

Survival
Discussion and focus is made on how plants and animals need food and water to survive. Children will be taught about the variety of needs plants and animals have in order to survive; including their habitat. Children develop an understanding of adaptation and how it helps an animal or plant survive in its habitat and taught that if living things are unable to adapt to changes within their habitat, they are at risk of becoming extinct.

Identification and Classification
Understanding that objects are made from different materials. This is taught progressively to include properties of materials. An understanding of foods such as ice and chocolate will melt, solidify or freeze at different temperatures. Discussion about how some materials can reflect the light. Materials will be grouped according to whether they are solids, liquids or gases.

Properties and Uses
Children develop the understanding that materials can be used for different things due to their properties; waterproof, opaque or transparent for example. They understand that physical properties of materials will make it suitable for a particular purpose. Magnetic properties are discussed and which metals are attracted to magnets. We focus on learning the three rock types; sedimentary, igneous and metaphoric. Electrical conductors and discussion of common insulators are looked at in detail.

Human Body
Children name basic body parts, learn the uses of body parts and the uses of the senses. They find out how humans need the skeleton and muscles for support, protection and movement.as well as naming major bones. The purpose of the digestive system, its main parts and each of their functions is taught progressively.

Staying Safe
Children will understand and follow simple rules and instructions in order to keep safe and stay safe. They will move on to learn that humans need water, food, air and shelter to survive, understand why light from the Sun can be dangerous. They will develop skills and work safely with electrical circuits.

Healthy Lifestyle
Good hand washing and hygiene practises throughout school, understanding the need to prevent the spread of germs.

Physical Things
Children compare and group objects according to their properties. They learn about how living things are alive and dead things are no longer alive. An understanding of magnets and how they have two poles are taught. Electricity is discussed in terms of energy and how electricity can also come from batteries.

Phenomena
Discovery and exploration of how shadows change according to the objects making them and how they change during the day. Children find out about volume, pitch and sounds and discover how friction occurs.

For I know the plans I have for you," declares the LORD, "plans to prosper you and not to harm you, plans to give you hope and a future. Jeremiah 29:11