

Implementation

Reasoning Behind our Science Curriculum

| <u>Biology</u> | | <u>Physics</u> | <u>Chemistry</u> |
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| YEAR GROUP | TOPIC | We teach this because... | We teach this now because... |
| EYFS | Cycle A Autumn A - My Senses | The children begin to understand what their senses can do. They begin to name body parts related to their senses and understand how they help us. | It provides the children with a basic understanding of what their bodies can do and how they learn with their senses. This provides them with a firm foundation before exploring their bodies further. |
| | Autumn B - Materials -building a house | It allows children to look at the world around them and see how things are made and built in relation to making it personal to their immediate local area e.g. their house/ materials they use in daily life. | It provides the foundations for future learning about materials into KS1. |
| | Spring A - Opposites Hot and Cold, Light and dark, Frozen and Melted | Children need to begin to develop an understanding of key concepts such as these opposites. In particular, with hot and cold to identify the dangers of hot things at such a young age is essential. All of the 'opposite' topics help children understand what happens in daily life. | This topic gives a basic firm foundation approach to key concepts that will deepen and develop over time. |
| | Spring B - Lifecycles of animals and habitats | Life cycles of animals and habitats are necessary for children to make connections as to how animals change over time. They then relate it to how they change over time and make links and connections. | This topic allows the children to develop their understanding of how things grow and live on our planet. Providing future foundations for work in KS1 and KS2. |
| | Summer A - Pushes and pulls and making things move | Pushes and pulls are present in their everyday lives. Children need to be curious and ask questions as to how things work, this topic gives them first-hand experience at this. | It provides the foundations for all future forces work throughout KS1 and KS2. |
| | Summer B - Minibeast lifecycles and habitats | Children begin, using practical activities, such as exploring the outdoor areas to make connections as to how things grow and change over time. They read stories to help inspire such as David Attenborough Big Dreams for Little People. | This topic feeds into the Year 1 topic on weather and the seasons which explores the effects of these changes in more depth and by focusing on a wider range of locations. |
| | Cycle B Autumn A - Parts of my Body and Which material is best for..? | Children begin to point and name parts of their body through songs, books and activities. Materials are covered through books such as the Three Little Pigs. Children become aware and can identify materials in the world relevant to them, such as their home/clothing. | This topic is essential in ensuring firm foundations before other concepts are taught. |
| | Autumn B - Pushes and pulls magnetism | Children begin, using practical activities to develop an understanding of how things work. | It provides a basic foundation to help understand how things work. It provides the foundations for all future work on forces. |
| | Spring A - Growing plants - Life Cycles | Children to observe and plant from seeds to understand and observe the nature around. | As it fits in with seasons and lets them understand spring time. |
| | Spring B - Baby animals and change | Children to observe baby animals and their changes. Begin to make connections between themselves and animals and how we are different. | This topic fits in with spring time and allows children to observe things in the real world - how animals change. Links and connections to themselves. |
| | Summer A - What can my body do- keeping healthy | Children to start to understand the functions of their body and how to make good healthy eating choices. | Essential for children from a young age to start making healthy choices and to be exposed to the science talk regarding a healthy body. |
| | Summer B - Floating and sinking | Children begin, using practical activities in the areas and the outdoors to see what happens when things float and sink. | It provides opportunities to question why things happen and a foundation to learn to investigate and understand the world around them for future learning. |

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| Year 1 | Plants | It is important for children to identify things around them and understand how to care for living things. We encourage them to ask questions and sort information. | It provides a basic understanding of plants before moving onto understanding functions and parts of plants in Year 2. |
| | Animals including Humans | To teach children about a variety of common animals that they can find in the world around them. We teach them to label parts of the human body and understanding senses. | This topic helps the children prepare to learn about understanding their own bodies and how to look after it. (Builds on EYFS knowledge) |
| | Everyday Materials | It is important to show children what things are made of and to distinguish between the material and the object. To explore how the shapes of solid objects can change by twisting, stretching etc. | It helps build a basic foundation before exploring uses of everyday materials in more detail in Year 2. |
| | Seasonal Changes | For children to understand the change in seasons and the weather, and the impact it has on them. This includes observing weather and looking at how the day varies. | This is taught in Year 1 so that children build firm foundations on observing these changes before looking at other things such as light and the solar system. The seasonal changes topic also links to the biology and Geography strands. |

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| Year 2 | Living Things and Their Habitats | To show children what is dead or alive and for them to learn about where different animals live. | To ensure children gain the basic information before they start to classify. |
| | Plants | To show children how plants and seeds change and grow over time. To give them real life opportunities to grow and observe the world around them. | This provides a basic opportunity to look after and care for plants before learning about them in more detail. |
| | Animals including Humans | To show children how animals and humans change over time. | It provides a basic foundation of life cycles before looking at functions of the body and more detailed processes. |
| | Use of Everyday Materials | To understand what things are made of around them and what properties they have. | A basic understanding of materials before they can realise how materials can change. |

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| Year 3 | Plants | To understand in more detail the life cycle of plants including pollination, water transportation and functions of a plant. To allow children to explore their own questions that focus on nutrition and support. | To reinforce the knowledge from Year 2 of a plants functions and to expand on this in more detail. We teach this in Summer to ensure children gain the real life experiences of growing plants and observing them over a period of time |
| | Animals including Humans | It is important to understand what animals and humans need to survive. Children should understand their bodies, knowing that humans and animals have different skeletons and body functions. | We teach this now before children learn more in detail about the different parts of their bodies and looking after them. |
| | Rocks | To learn about different rocks and group them, including fossils. Children need to explore different rocks and soils in their local environment which links to work in Geography. | We teach this now to learn about the world around them after understanding basic materials in Year 2. |
| | Light | Children should understand why we have day and night and the dangers that the sun poses. They learn about light sources and shadows to understand the world around them and answer questions. | We teach this now to build on seasonal work in EYFS and Year 1. It builds strong knowledge ready to progress through the light topic in Year 6. |
| | Forces and Magnets | For children to understand how things can work around them in everyday life. They have opportunities to explore magnetism first and forces first hand and to see the effects that forces have on objects. | Before explaining forces in more detail such as learning about air resistance in Year 5. |

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| Year 4 | Living Things and Their Habitats | To teach children that they can classify different living things and to give reasons for their different characteristics. This all enables children to understand the world around them and the impact that the environment can have on living things and their habitats. | This is taught to have an understanding of living things before moving on to how they reproduce and grow over time |
| | Animals including Humans | To teach children to understand their own bodies and how it works. To understand different food chains and what affect they have on different animals. | Before children learn in more detail about reproduction and how humans develop over time next year. |
| | States of Matter | To teach children about grouping materials together, whether they are a solid, liquid and gas. Observe how materials change and identify the part played in the water cycle. | This helps them understand the world around them. It will also form a basic foundation for KS3. |
| | Sound | So that children understand how sounds are made and that they know they travel through a medium to the ear. They needs to be given chance to explore pitch and volume of sounds and whether variables such as distance has an impact. | As through music and exploration in EVFS children need to make these connections in a more detailed way. |
| | Electricity | To teach children about common appliances that run on electricity. To identify and know how parts of circuit work. | Before more detail of electrical circuits are taught in Year 6. |

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| Year 5 | Living Things and Their Habitats | As children need to know the life process of reproduction and growth in animals and humans | It is important to know this before learning in more detail how humans change over time in Year 6. |
| | Animals including Humans | To teach children how they will change over time. Children need to know the changes experienced in puberty to be able to understand themselves. | It is important for them to know what will happen to them as they get older and how they change. We teach this now before Year 6 teach more in depth about functions of the body. |
| | Properties and Changes of Materials | So children understand solids, liquids and gases and reversible changes. To know that these changes happen in everyday life such as dissolving. To use comparative and fair tests to group materials. | Children have got a basic knowledge of physical materials before teaching this so this topic builds on that to introduce more complex tests. |
| | Forces | It allows children to make secure connections between the force of gravity and the earth and forces in everyday life such as air resistance, friction. | So that children can understand how things around them work in more depth and that thy have opportunities to do this themselves. |
| | Earth and Space | It is important for children to understand the importance of the solar system so they can understand the world around them. | They can start observing for themselves in regard to the sun, moon and planet. They can understand why we have day and night. |

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| Year 6 | Living Things and Their Habitats | It is important for children to be able to know the difference between microorganisms, plants and animals and how to classify them. | As children should have a firm foundation of the different types of living things and their habitats. This builds upon their scientific skills to then classify based on specific characteristics. |
| | Animals including Humans | It is important for children to understand the difference between a healthy and unhealthy lifestyle. | As children are at a key age in their lives where they are becoming increasingly independent for taking responsibility for their own health. |
| | Evolution and Inheritance | To show children how living things have changed over time and how plants and animals are adapted to their environment in different ways | As children should have a good firm foundation from understanding living and non-living things and reproduction. |
| | Electricity | As children will get a foundation to understand and represent components using universal circuit symbols. | Giving them skills to see how things work and to understand reasons for variations in how components function. |
| | Light | To show children that light appears to travel in straight lines. They should use the idea that light travels in straight lines to explain why shadows have the same shape as the object that casts them. It is relevant to the children to understand everyday concepts. | This builds on the work from Year 3. Children have the opportunity to make predictions and talk about what happens, |