



# Booth Wood Primary School

## Science curriculum map



### Year 1

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Everyday Materials</b>	<b>Seasonal Changes Autumn and Winter</b>	<b>Animals Including Humans</b>	<b>Plants</b>	<b>Seasonal Changes Spring and Summer</b>	<b>Scientists/Inventors</b>
Children will learn about everyday materials including wood, plastic, metal, water and rock. Children will learn to identify and name everyday materials and will have the opportunity to explore the properties of these materials. Children also will carry out a simple investigation to help them decide which material would be most suitable to use for an umbrella. At the end of the unit children apply their knowledge of everyday materials to sort objects by their properties. A range of learning activities are used in this unit including, discussions, labelling and matching activities, games, and an investigation to encourage where children have the opportunity to ask and find the answers to questions.	Children will learn what the word weather means and find out how different types of weather can be measured. Children will use a class weather station to observe measure and record the weather across the seasons. They will also observe changes across the seasons by exploring the signs of autumn and winter through nature and wildlife. A range of learning activities are used in this unit including observation, discussion and learning outside. Children also work scientifically by collecting, recording and interpreting simple data.	Children will learn about five of the groups that scientists use to classify animals: mammals, fish, birds, reptiles and amphibians. They will learn to identify the group an animal belongs to by its features and will classify animals according to their group. They will also learn about the different diets animals eat. Children will learn about the parts of the human body and have the opportunity to explore the five senses through a simple investigation. In the final lesson, children will use all their knowledge from this unit to classify animals according to their own criteria.	Children will learn to name the basic parts of a plant, including seeds. They will have the opportunity to plant their own seeds and to make observations of how they grow over time. Children will also learn to identify, name and describe a variety of garden and wild plants as well as evergreen and deciduous trees. In their final lesson, the children will use all of their knowledge gained throughout the topic to identify, compare and classify plants.	Children will continue to use a class weather station to observe, measure and record the weather in different seasons and will start to make comparisons between two seasons, as well as across all four seasons. They will also observe changes across the seasons by exploring the signs of spring and summer through nature and wildlife. A range of learning activities are used in this unit, including observation, discussion and learning outside. Children also work scientifically by collecting, recording and interpreting simple data.	Children will learn about famous scientists and inventors linked to the Y1 science curriculum. Children will learn about the inventions of Lego and ear muffs, and will explore the materials used to make them. They will investigate other materials that keep us warm, carrying out simple tests. Children will find out about the work of animal scientists, such as vets and zoo keepers. They will group and sort animals to make their own paper zoo, and will act in role as a vet, identifying the body parts of different animals. Children will have the opportunity to collect data when finding out about horticulturists and meteorologists. They will create bar charts of their favourite sensory plants, and make rain gauges to gather data on rainfall. Throughout the unit, children will work in a fun and hands on way to learn about scientists and inventors.

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### Year 2

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Use of Everyday Materials</b>	<b>Living Things and their Habitats</b>	<b>Plants</b>	<b>The Environment</b>	<b>Animals Including Humans</b>	<b>Scientists/Inventors</b>
Children will learn about the uses of everyday materials including wood, plastic, metal, glass, brick, paper and cardboard. Children then go on to compare the suitability of different everyday materials for different purposes. They explore how objects made of some everyday materials can change shape and how the recycling process is able to reuse some everyday materials numerous times. It finishes with children learning about new discoveries which have made over time with a specific focus on John McAdam. A range of learning activities are used in this unit including, discussions, debates, sequencing and a local walk where children work scientifically to identify the uses of everyday materials in the local area.	Children will learn about a variety of habitats and the plants and animals that live there. They learn to tell the difference between things that are living, dead and things that have never been alive, and apply this in a range of contexts. They make observations of a local habitat and the creatures that live there, investigating conditions in local microhabitats and how they affect the minibeasts found within them. This unit allows children to research a range of global habitats and how the living things that live there are suited to their environments, and also provides an introduction to the idea of dependency between plant and animal species.	Children will learn what plants need to stay healthy. They will have the opportunity to carry out their own investigations into what plants need to grow well. Children will also closely observe the inside of a seed and learn about the life cycle of a plant. They will also learn how plants look when they don't get the things they need. In their final lesson, children will learn how plants have adapted to live in different environments around the world.	This Environment Unit introduces children to the ecological challenges that face the modern world. Children undertake a range of activities that challenge them to engage with environmental issues and to understand the simple changes we can make to live more sustainable lives. Throughout the unit, learning is closely focused on the Working Scientifically strand of objectives, providing a range of opportunities for children to apply practical scientific methods and skills.	Children will begin by looking at animal young and comparing them to their adults. They will look at how animals change as they grow up and be introduced to the life cycles of several varied common animals, including humans. They look in detail at how humans change as they grow older, drawing on their own observations. Children are introduced to the three basic needs of animals for survival (water, food and air). They will apply this knowledge, alongside research from secondary sources, to suggest ways to look after pets. The unit ends with children looking at healthy lifestyles, including the importance of exercise, healthy eating and hygiene. These healthy living lessons develop 'working scientifically' skills through investigating the impact of exercise on our bodies and how handwashing is essential for good hygiene.	This 'Scientists and Inventors' unit will teach your class about famous scientists and inventors linked to the Year 2 science curriculum. Children will learn about the invention of the waterproof coat, and will explore other waterproof materials by carrying out simple tests. Children will find out about the work of doctors, and will learn about Elizabeth Garrett Anderson, the first woman doctor in Britain. Children will have the opportunity to create their own greenhouse based on the invention of the biomes at the Eden Project, and use their greenhouse to compare the growth of plants. They will learn about how germs are spread, looking at the work of Louis Pasteur and carrying out a fun experiment to prove how far germs can spread in a few minutes. Children will set up a small world to show the effects of water pollution, as discovered by Rachel Carson during her research on ocean

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					habitats. Finally, children will learn about the development of wind turbines and how this invention is used to generate power. Throughout the unit, children will work in a fun and hands-on way to learn about scientists and inventors.
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### Year 3

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Rocks</b>	<b>Animals Including Humans</b>	<b>Forces and Magnets</b>	<b>Light</b>	<b>Plants</b>	<b>Scientists and Inventors/recap</b>
Children will discover the different types of rocks and how they are formed. Children will compare and group rocks based on appearance and simple properties. They will learn how fossils are formed and learn about the contribution of Mary Anning to the field of palaeontology. Children will understand how soil is formed and then investigate the permeability of different types of soil.	Children will learn about the nutrients that different foods provide and how these nutrients help our bodies. They also explore how different animals eat different types of foods and need different proportions of nutrients. They understand what food labels on packaging show and gather information from food labels to help them to answer questions. In this unit, children also explore the different types of skeletons that animals have and compare these. They learn some names of bones in the human body and carry out an investigation to explore if	Children will learn about forces, friction and magnetic attraction. They will learn about forces in the context of pushing and pulling, and will identify different actions as pushes or pulls. The children will work scientifically and collaboratively to investigate friction, by exploring the movement of a toy car over different surfaces. They will work in a hands on way to identify magnetic materials. Furthermore, they will conduct an investigation into the strength of different types of magnet. The children will have chance to explore the way magnetic poles can attract	Children will learn about light, reflections and shadows. They will learn about different sources of light, and that we need light to see. The children will work scientifically and collaboratively to investigate reflective materials, in the context of designing a new book bag. They will work in a hands on way to play a range of mirror games, finding out more about reflective surfaces. Furthermore, they will learn that the sun's light can be dangerous, and will create an advert for a pair of sunglasses or a sun hat that they have designed. The children will have	Children will learn the names of different parts of plants, and the jobs they do. The children will work scientifically and collaboratively to investigate what plants need to grow well, and will present their findings to their classmates. Furthermore, they will have chance to predict what will happen in an exciting investigation into the transportation of water within plants. They will work in a hands-on way to identify the parts of a flower, and will explore the different stages of	Children will learn about the men and women who risked their lives to find new plants, and will design their own new plant, thinking about its requirements for life. Adult Guidance is included in Lesson 1 about Sir Joseph Banks. His involvement in the colonisation of Australia makes him a controversial scientist and it is important that the children recognise that we view all of his actions in a different way to how they were viewed in the past. The children will learn about Marie Curie and her work on radiation. They will find out how she developed the medical

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	<p>people with longer femurs jump further. They discuss how to plan a fair test and measure and record accurately. Children learn about how muscles help us to move and make a simple scientific model which they use to explain to a partner how skeletal muscles work</p>	<p>and repel in an exciting activity, making their own compass and using it to find hidden items. The children will use their understanding of magnetic attraction to design and create their own magnetic game. They will develop their scientific enquiry skills, making observations, predictions and conclusions.</p>	<p>chance to test which objects are opaque in an exciting investigation to design the most effective curtains, and will find out how shadows change when the distance between the object and light source changes. They will develop their scientific enquiry skills, making observations, predictions and conclusions.</p>	<p>the life cycle of a flowering plant.</p>	<p>use of x-rays and create their own x-ray model. Children will consider what plants need to grow well through exploring the life and discoveries of George Washington Carver. They will find out about William Smith and how he learnt that the fossils found inside rocks can be used to tell the age of the rocks as well as the modern-day applications of this. They will use his ideas to design their own island. Furthermore, they will learn about Inge Lehmann, the woman who discovered that the Earth's core is solid. The children will have chance to investigate how images change in convex and concave mirrors and will hear about the inventions and devices that use convex and concave mirrors. Children will complete a timeline of the first electromagnets, create their own electromagnet and test its strength. They will develop their scientific enquiry skills, making observations, predictions and conclusions. In the final lesson, they will explore where in the world discoveries and inventions were made and research how they were used to solve problems.</p>
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Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Living Things and their Habitats</b>	<b>Sound</b>	<b>Animals Including Humans</b>	<b>Electricity</b>	<b>States of Matter</b>	<b>Scientists and Inventors/recap</b>
<p>Children explore a variety of ways to identify, sort, group and classify living things. They learn how animals are split into 'vertebrates' and 'invertebrates' and begin to consider the differences between living things within these classifications. They use and create classification keys to group, identify and name living things from the local habitat and beyond. This unit also introduces children to the idea that environments are subject to human-made and natural changes, and that these changes can have a significant impact on living things. Throughout the unit children work scientifically by gathering, recording and presenting information in different ways.</p>	<p>Children will learn how vibrations cause sounds and how sounds travel, as well as how sounds can change pitch and loudness. The children will learn about how sounds are made, carrying out demonstrations of vibrations, and completing a sound survey of their school. They will work in groups to create a human model of the way particles pass sound vibrations on, and write and star in their own documentary explaining how sound travels. The children will work in a hands-on way to explore pitch, and will use their understanding of how high and low sounds are made to create their own set of pan pipes. They will have the opportunity to make a string telephone, and will use this to investigate how sounds change over distance and through different materials. The children will work scientifically and collaboratively to investigate the best material for soundproofing, in the context of making a music studio quieter. Finally, they will demonstrate their learning from the whole unit by designing and creating their</p>	<p>This unit focuses on the digestive system in humans and animals and the functions of teeth. Children will learn more about herbivores, carnivores and omnivores in the context of teeth, digestion and the food chain. In addition, they will extend their understanding of food chains to more complex chains and food webs.</p>	<p>Children will learn about common electrical appliances and how to construct simple series circuits. They will become familiar with the key words linked to the topic and how to apply them appropriately. Children will learn about cells, wires, bulbs and buzzers and about the different types of switches. They will be able to troubleshoot and identify whether or not a bulb will light in a simple series circuit and be able to identify a complete circuit. The children will also learn about conductors and insulators and know that metals are very good electrical conductors.</p>	<p>Children will learn about the differences between solids, liquids and gases, classifying objects and identifying their properties. The children will work scientifically and collaboratively to investigate the weight of a gas. Furthermore, they will have chance to find the ideal temperature to melt chocolate. They will explore in-depth how water changes state, exploring melting, freezing, condensing as well as a particular focus on evaporation. Finally, they will learn about the stages of the water cycle, creating mini water worlds and an interactive water wheel to represent the different stages.</p>	<p>Children will learn about famous scientists and inventors linked to the Y4 science curriculum. They will learn about the dangers posed to living things in Madagascar, and Gerald Durrell's conservation efforts on the island. The children will learn about Alexander Graham Bell and his invention of the telephone, as well as modern improvements on his invention by inventors like James West and Gerhard M. Sessler. Children will look at the early uses of solar energy in homes, invented and built by Maria Telkes and Eleanor Raymond, then build their own basic solar oven. The many inventions of Garrett Morgan will be looked at, followed by children building and evaluating their own traffic lights using basic electrical circuits. They will find out about the discovery of oxygen and carry out an experiment to investigate the effects of oxygen on burning objects. Furthermore, they will learn about Lord Kelvin, the man who determined the temperature of absolute zero. The children will explore the work of Thomas Edison and Lewis Latimer,</p>

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	own musical instrument that will play high, low, loud and quiet sounds.				carrying out an electricity hunt around school. Finally, children will find out about the invention of toothpaste, and will invent their own brand of toothpaste to compare against real brands. They will develop their scientific enquiry skills, making observations, predictions and conclusions.
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### Year 5

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Earth and Space</b>	<b>Properties and Changes of Materials</b>	<b>Living Things and their Habitats</b>	<b>Animals Including Humans</b>	<b>Forces</b>	<b>Scientists and Inventors/recap</b>
<p>This unit is the only Astronomy related science unit in the primary science curriculum. The aim is to give children a basic overview of Earth and its place in our Solar System.</p> <ul style="list-style-type: none"> <li>Describe the Sun, Earth and Moon as spherical.</li> </ul>	<p>Children will learn about different materials, their uses and their properties, as well as dissolving, separating mixtures and irreversible changes. The children will sort and classify objects according to their properties. They will explore the properties of materials to find the most suitable material for different purposes. The</p>	<p>Children will learn about the process of reproduction and the life cycles of plants, mammals, amphibians, insects and birds. The children will explore reproduction in different plants, including different methods of pollination and asexual reproduction. They will recap their work in Year 3 by playing a game to name the parts of a flower. The children will have the opportunity to take cuttings from plants, creating clones of the parent plant. They</p>	<p>This unit focuses on the changes that human beings experience as they develop to old age. It tackles some sensitive subjects including puberty and death. As such, it is advisable to consult your school sex and relationships education policy prior to teaching this unit.</p> <p>Children will learn about the life cycle of a human being. They will investigate the development of babies and compare the gestation period of humans and other animals. They will learn about the changes experienced during puberty and why these occur. The final investigation will be about the changes to the body as humans get</p>	<p>Children will learn about types of forces such as gravity, friction, water resistance and air resistance. Children will also learn about the use of mechanisms such as levers, gears and pulleys. The children will identify forces and find out about Isaac Newton and his discoveries about gravity, completing a comprehension about his life and his work. The children will look for patterns and links between the mass and weight of objects, using newton meters to measure the force of gravity. They will also work collaboratively to investigate air and water resistance, participating in challenges to design the best parachute</p>	<p>Children will learn about famous scientists and inventors linked to the Y5 science curriculum. They will learn about the life and work of David Attenborough and create a documentary about a living thing of their choice. The children will learn about how CSI technicians use scientific techniques to analyse evidence and prove or disprove theories. They will use chromatography to analyse the ink used in a spelling test and use this evidence to support their</p>

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<ul style="list-style-type: none"> <li>• Name the planets in the solar system independently.</li> <li>• Distinguish between heliocentric and geocentric ideas of planetary movement.</li> <li>• Explain that day and night is due to rotation of the Earth.</li> <li>• Support the idea that different places on Earth experience night and day at different times with evidence.</li> <li>• Report and present findings from enquiries.</li> <li>• Explain how the Moon moves relative to the Earth.</li> </ul>	<p>children will work scientifically and collaboratively to investigate the best thermal insulator to make a lunch box, making predictions and forming conclusions. Furthermore, they will have chance to find the best electrical conductor, in the context of making floodlights brighter. They will have the opportunity to work in a hands-on way to explore dissolving, identifying the different variables in their own investigations. They will find out about different ways to separate mixtures of materials, using filtering, sieving and evaporating. Finally, they will learn about irreversible changes, and participate in two exciting investigations to create new materials, including casein plastic and carbon dioxide.</p>	<p>will learn about different types of mammals and their different life cycles, making life cycle wheels to present their learning. Furthermore, the children will find out about Jane Goodall and her work with the now-endangered chimpanzees in Africa. They will explore metamorphosis in insects and amphibians, comparing their life cycles. Finally, the children will explore the life cycles of birds, and will write and star in their own wildlife documentary comparing the life cycles of different living things.</p>	<p>older, as well as comparing the life expectancy of different animals.</p>	<p>and boat. They will have the opportunity to work in a hands-on way to explore friction, developing their own brake pad for a tricycle or scooter. During some of the practical science work, the children will discuss how variables other than the one being tested can be kept the same to help make a test fair. Finally, they will find out about different mechanisms, including levers, gears and pulleys, and will design their own marvellous machine.</p>	<p>own theories. Children will find out about Margaret Hamilton and her invention of the software and computer code that enabled Apollo 11 to go the Moon. They will research into her achievements completing a timeline about her life. They will look at the classification of planets and create fact files on the planets in our solar system through finding out about Neil deGrasse Tyson's role in the reclassification of Pluto. The children will explore the Eva Crane's research into bees and will play a game about the life cycle of bees. Children will investigate the hardness of materials and consider Stephanie Kwolek's invention of Kevlar. Furthermore, they will learn about Leonardo da Vinci's ideas about the proportions of the human body seen in his work The Vitruvian Man. The children will measure their height, arm span and other measurements to see whether da Vinci's theories about proportion were accurate. Finally, the children will find out about the scientific theories surrounding the construction of Stonehenge. They will explore the evidence that suggests that Stonehenge could have been used as an astronomical calendar, and</p>
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					develop their own theories based on this evidence.
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### Year 6

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Light</b>	<b>Evolution and Inheritance</b>	<b>Animals Including Humans</b>	<b>Electricity</b>	<b>Living Things and their Habitats</b>	<b>Scientists and Inventors/ recap</b>
Children will learn about light, how we see, shadows, reflection and refraction. The children will learn how light travels and how this enables us to see objects. They will demonstrate their knowledge by making and starring in their own television programme. The children will have the opportunity to make a functioning periscope, finding out about mirrors and the angles of reflection and incidence. They will work scientifically and collaboratively to investigate refraction, carrying out some fascinating experiments into the effects of bending light. Furthermore, they will have chance to predict	Children will learn about variation and adaptation. They will be able to explore how both Charles Darwin and Alfred Wallace separately developed their theories of evolution. They will examine the scientific evidence from plants and animals that has been gathered to support the theory of evolution.	This unit teaches the importance of diet, exercise and lifestyle in the way that bodies function. In this unit, they learn about the three main parts of the circulatory system and the job of the heart. They also learn about what blood is comprised of and how it is transported around the body. Children carry out an investigation to explore how heart rate is affected by exercise. They discuss how to plan a fair test and measure and record accurately. Children learn the importance of exercise and conduct a survey to find the most popular exercise in their class. They then apply their understanding	Children will learn to represent circuits using symbols in a diagram. They will learn about two of the most important scientific inventors in the field of electricity – Thomas Edison and Nikola Tesla. Children will get the opportunity to develop their understanding of what electricity is and how to measure it. As well as conducting their own investigation, they will get the opportunity to create their own torch!	Children will learn about the classification of living things, including micro-organisms. The children will build on their work in Year 4 by sorting animals into groups based on their similarities and differences. They will extend their learning to find out about the standard system of classification first developed by Carl Linnaeus, choosing an animal and researching its classification. The children will have the opportunity to design their own ‘curious creature’ and classify it based on its characteristics. They will learn about micro-organisms and conduct an investigation into the growth of mould on bread. Furthermore,	They will learn about the life and work of Stephen Hawking and carry out an investigation into Hawking’s theories on black holes. The children will learn about Libbie Hyman, a zoologist whose work on invertebrates informs much of what we know about the characteristics and classification of these creatures. Children will look at the effects of cholesterol on the heart and blood vessels in the footsteps of Marie Maynard Daly. Your children will find out about Alexander Fleming and his discovery of penicillin and will interpret data in a scatter graph to come to a conclusion about the effects of penicillin. They

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<p>what will happen in an exciting investigation into the visible spectrum. They will work in a hands-on way to explore how light creates the colours we see, designing coded messages. Finally, they will learn about Isaac Newton and his theory of light and colour, performing a shadow puppet play about his discoveries and ideas.</p>		<p>by discussing different people's lifestyles and how this can affect their bodies. Finally, children will learn about drugs and alcohol and how they can have an impact on our bodies, specifically in relation to the circulatory system.</p>		<p>the children will use play dough to create a new single celled micro-organism and explain how it is classified and why. Finally, the children will put their learning into practice by creating a field guide to the living things in their local area, showing how and why each one is classified.</p>	<p>will look at the evidence for human evolution and will learn about Mary Leakey and her role in finding significant fossil evidence, and what her fossils prove about evolution. Children will explore the circulatory system and find out about the medical, and social, advancements made by Dr Daniel Hale Williams. Finally, children will find out about the life and work of Steve Jobs, and his development of new electronics and technologies.</p>
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