



Westbury Infant School

Progression of Knowledge and Skills – Science

These principles and features characterise this approach and convey how our curriculum is implemented:

Intent – What do we want the children to learn?	Implementation – How will we deliver the learning?	Impact – What have the children achieved as a result?
The primary intent of the KS1 Science curriculum is to provide the foundations for understanding the world and to foster natural curiosity. The aim is to equip pupils with key knowledge, scientific skills, and a rich vocabulary that they can build upon as they progress. Key intentions include: Developing scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry, and physics. Encouraging curiosity about natural phenomena and the world around them, leading them to ask questions. Building foundational knowledge about living things, materials, and physical phenomena. Equipping pupils with essential skills for later life, and inspiring some to consider future careers in science.	Implementation focuses on the teaching strategies and learning opportunities provided to put the intent into action. In KS1, most learning should be through first-hand, practical experiences where children learn by doing it for themselves. Effective implementation strategies include: Hands-on, practical learning: Providing opportunities for children to observe phenomena and conduct simple tests and experiments. Working Scientifically: Skills are embedded within lessons and developed through different types of enquiries, such as: • Observing changes over time. • Noticing patterns. • Grouping and classifying things. • Carrying out simple comparative tests. Progressive Curriculum: Ensuring lessons build on prior learning and skills from the Early Years Foundation Stage (EYFS) to Key Stage 1. Vocabulary Development: Explicitly teaching and using subject-specific vocabulary to help children articulate their understanding. Varied Resources: Using a range of resources, including simple equipment, quality texts, photographs, and videos.	The impact defines the effect or influence the curriculum has had on the pupils' outcomes and development. Success is measured not just by academic results, but also by pupils' attitudes, skills, and readiness for their next stage of education. Desired impacts include: Confident and Inquisitive Learners: Children who are enthusiastic about science, confident in asking questions, and willing to investigate answers for themselves. Strong Knowledge and Understanding: Pupils demonstrate a solid grasp of key scientific concepts, which they can recall, apply, and explain. Developed Scientific Skills: Children are proficient in a range of "working scientifically" skills, such as planning simple investigations, making observations, and analysing results. Rich Scientific Vocabulary: Pupils can use a wide range of subject-specific language with confidence. Readiness for the Next Stage: The curriculum provides a strong foundation, ensuring pupils are ready for the demands of the Key Stage 2 Science curriculum.

Progression of Knowledge and Skills	EYFS In reception, I am an early scientist who is able to develop an inquisitive nature to explore the world around me. I will learn how to use my natural curiosity to ask how and why questions and be given the opportunities to explore these fascinations. I will use my senses and knowledge to find answers which in turn will deepen my understanding to make sense of the physical world. I am able to: • Ask questions about why things happen and how they work (why, what when questions). • Begin to look more closely at things to make more detailed observations. (The cat is black and has fur). • Talk about why things happen. • Talk about how things work. • Investigate objects and materials by using all my senses appropriately. • Describe the texture, smell, and shape of things. • Look closely at similarities between things and talk about them. • Look closely at differences between things and talk about them. • Look closely at patterns and begin to talk about them. • Look closely at changes and begin to talk about them. • Understand about seasonal changes and their regularity e.g., snow comes in wintertime because It's cold.	Key Stage 1 In KS1, I am scientist who uses my inquisitive nature to explore the world around me. I use my natural curiosity to pose questions and make predictions about their answers. I am inspired by the natural and manmade environments around me to investigate the world around me. I am excited by the possible outcomes of my scientific enquiries and can present my findings in a variety of ways. I enjoy sharing my findings with others. I am developing a resilience that allows me to redesign my investigation when it doesn't go to plan. I am able to: • Ask simple questions and recognising that they can be answered in different ways • Observe closely, using simple equipment • Perform simple tests • Identify and classify • Use observations and ideas to suggest answers to questions • gather and record data to help in answer questions.
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Assessment and Monitoring

What you will see in our classrooms:

- * The whole class working on the same science objectives.
- * Early graspers being challenged with tasks that develop depth.
- * Mixed ability groupings with children engaging in quality discussions.
- * Stem sentences used to support understanding and model correct scientific language.
- * Teachers moving around the room/environment, asking questions, assessing, providing support, developing vocabulary and language in conversation etc.
- * Promotion of a growth mindset and resilience. Mistakes are ok!
- * Hands on practical lessons.
- * Pre-teach sessions
- * EAL children with EMTAS support given vocabulary pre-teach.
- * Planning adapted when necessary, with a lesson set aside in the series to correct misconceptions.
- * Sticky Sticks being used to aid long term retention of key learning.
- * Science Subject Lead conducting pupil voice interviews throughout the year and dropping in to see Science in action and also monitoring books.

Living Things	Materials & Change	Seasons & Environments
Children develop knowledge of plants and animals through close observation, including how living things grow and change and how we can care for them.	Children explore familiar materials through first-hand experiences, noticing how they look, feel and sometimes change, including simple changes caused by warming and cooling.	Children observe the natural world over time, noticing seasonal change and developing the language and experience needed to compare familiar and contrasting natural environments.

Strand	Typical Starting Points	DP1	DP2	DP3	Statutory ELG
NATURAL WORLD KNOWLEDGE	• Enjoy exploring outdoors. • Notice things in the world around them. • Explore things using their senses. • Talk about things they see, hear, touch or find. • Notice when something changes.	• I know there are different plants and animals in the world around me. • I know plants and animals are living things that grow and change. • I know materials can look and feel different. • I know the weather changes and the world around me can look and feel different.	• I know plants and animals change as they grow. • I know living things need care to grow and stay healthy. • I know some materials change when we do things to them. • I know there are four seasons, and we can notice changes in the natural world as the seasons change.	• I know plants and animals have life cycles with stages of growth and change. • I know warming and cooling can cause some things to change, for example ice melting and water freezing. • I know seasonal changes happen across the year. • I know different environments can have different plants, animals and natural features.	The Natural World • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.
NATURAL WORLD SKILLS		• I can explore the natural world using my senses and talk about what I notice. • I can look closely at plants, animals and materials. • I can notice when something changes.	• I can observe a plant, animal or familiar environment over time and talk about changes I notice. • I can explore what happens when I do something to a material. • I can notice and talk about similarities and differences.	• I can describe changes I have observed as a plant or animal grows. • I can talk about the stages of a familiar life cycle. • I can observe and describe what happens when something melts or freezes. • I can describe some seasonal changes I have observed. • I can compare the natural world around me with a different environment.	

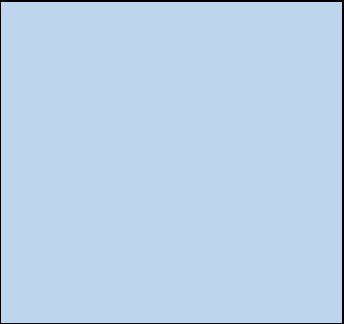
**ESSENTIAL
VOCABULARY**

No formal starting-point
vocabulary: vocabulary is
explicitly taught through the
Reception curriculum.

plant – a living thing that
grows
animal – a living thing
weather – what it is like
outside, such as sunny, rainy
or windy
grow – to get bigger or
develop

season – one of the four
parts of the year: spring,
summer, autumn or winter
change – when something
becomes different
compare – to notice what is
the same and what is
different

life cycle – the stages a living
thing goes through as it
grows and changes
melt / freeze – opposite
changes between a solid and
a liquid
environment – the
surroundings and natural
features of a place



Key Stage 1 – Knowledge – Cycle 1

Units of Work	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Science–Who lives in the animal kingdom and what do they look like? Animals including humans –I know the name of some mammals, reptiles, fish, birds and amphibians. –I know some common animals that are carnivores, herbivores and omnivores. –I know different parts of a human body and the sense they are associated with. Science–What changes happen in each season and why? Autumn – I know the features of autumn.	STICKY STICK RETRIEVAL	Science– What changes happen in each season and why? Winter – I know the features of winter. – I know the length of day varies in each season –I know the weather causes many other changes in the natural world –I know how to observe the changes between each season.	Science–What is growing in our local area? Plants –I know the identity of different plants, including deciduous and evergreen trees. –I know that plants have roots, stems, leaves and flowers, but these vary between plants.	Science – What changes happen in each season and why? Spring & Summer – I know the features of spring. – I know the features of summer. –I know the length of day varies in each season –I know the differences between the four seasons.	Science–What are materials and what are their properties? Everyday materials – I know the difference between an object and the material from which it is made. – I know the physical properties of everyday materials. – I know that a material in a different form can have different properties. – I know a variety of everyday materials
	<u>Vocabulary</u> Claw – one of the sharp curved nails at the end of each of the toes of some animals and birds Scales – one of the many small, flat pieces that cover the skin of fish, snakes etc Fur – the thick hair that covers the bodies of some animals Hooves – the hard part on the bottom of the feet of animals such as deer, horses and sheep Senses – one of five physical abilities to see, hear, smell, touch and feel		<u>Vocabulary</u> Weather – the conditions in the air above the earth such as wind, rain or temperature Sunrise – the time in the morning when the sun starts to rise in the sky Sunset – the time in the evening when you last see the sun in the sky Day – the period in 24 hours when it is naturally light Length – the measurement of something from end to end	<u>Vocabulary</u> Blossom – when a tree or plant blossoms, it produces flowers before producing fruit Petal – any of the usually brightly coloured parts that together form most of a flower Root – the part of a plant that grows down into the earth to get water and food, and holding the plant firm in the ground Trunk – the thick main stem of a tree, from which branches grow Bud – a small part of a plant, that develops into a flower or leaf	<u>Vocabulary</u> Weather – the conditions in the air above the earth such as wind, rain or temperature Sunrise – the time in the morning when the sun starts to rise in the sky Sunset – the time in the evening when you last see the sun in the sky Day – the period in 24 hours when it is naturally light Length – the measurement of something from end to end	<u>Vocabulary</u> Object – a thing that you can see or touch but is now usually a living animal, plant or person Waterproof – not allowing water to go through Absorbent – able to take liquid in through the surface and to hold it Rough – not even or smooth Dull – not clear, bright or shiny

Key Stage 1 – Knowledge – Cycle 2

Units of Work	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Science–Who lives here and why? Living things and habitats. –I know how to sort and classify things as living, dead or never alive. –I know the basic needs for animals and plants are food, water, shelter and air. –I know that a habitat is where an animal or plant lives. –I know that animals are suited to live in habitats that provide them with their basic needs. –I know that a microhabitat is a very small habitat where small creatures live. –I know that a food chains show who eats what. –I know that living things depend on their habitat.	Science– How do animals survive? Animals including humans –I know animals need food, water and air to stay alive. –I know that animals have babies and that babies grow into adults. –I know we need to keep clean to stay healthy. –I know we need to eat the right kinds and amounts of food to stay healthy. –I know we need to do exercise to stay healthy.	Science–How can materials be changed to be something different? Uses of materials –I know that everyday objects can be made from different materials. –I know how to choose which material is best for a job. –I know how to look closely at things and use what I see to answer questions. –I know how to choose which material is best for a job. –I know that some solid objects can change shape when I squash, bend, twist or stretch them. –I know what might happen when I test something.	Science–How do plants grow best? Plants –I know that seeds and bulbs grow into plants. –I know that plants change as they grow. –I know that plants need water, light and the right temperature to grow and stay healthy.	STICKY STICK RETRIEVAL	STICKY STICK RETRIEVAL
	<u>Vocabulary</u> Suitable – appropriate for a particular purpose Food chain – shows who eats whom Survive – to remain alive Conditions – the physical situation that something is in and affected by Damp – slightly wet	<u>Vocabulary</u> Hygiene – practices to maintain health and prevent the spread of diseases Growth – the process of increasing in size Offspring – the young of an animal Exercise – physical activity Food types (e.g. meat, fish, bread, vegetables, rice, pasta, dairy).	<u>Vocabulary</u> Opaque – materials that cannot be seen through Translucent – materials that allow light through Reflective – surfaces that send back light Flexible – the ability to bend easily without breaking Rigid – objects that are stiff or inflexible	<u>Vocabulary</u> Bulb – a round root of some plants from which the plant grows Germinate – to start growing Shoot – the first part of the plant to appear above the ground Shade – slight darkness caused by something blocking the direct light from the sun Seedling – a very young plant that has grown from a seed		

Key Stage 1 – Skills

	Year 1	Year 2
Working Scientifically	Ask simple questions, make observations and carry out simple tests with support.	Ask questions, make predictions, conduct investigations and explain findings with increasing independence.
Observing and Recording	Observe closely using simple equipment and record observations through pictures, labels and simple tables.	Make careful observations over time and record findings using a wider range of methods.
Identifying and Classifying	Identify and name common animals, plants, materials and seasonal changes.	Classify living things, habitats and materials using their characteristics.
Using Evidence	Use observations to answer questions and describe what happened.	Use observations and evidence to suggest explanations and identify patterns.
Animals Including Humans	Identify animals, classify diets and recognise body parts and senses.	Explain how animals survive, grow and stay healthy.
Plants	Identify common plants and describe their basic structure.	Explain what plants need to grow and observe how they change over time.
Seasonal Changes	Observe and describe changes across the four seasons.	Explain patterns and changes in weather, daylight and seasonal conditions.
Materials	Identify everyday materials and describe their properties.	Compare materials, explain their suitability and investigate how materials can change.
Living Things and Habitats	Recognise that living things exist in different environments.	Explain habitats, food chains and how living things depend on their environment.
Scientific Communication	Use simple scientific vocabulary to describe observations.	Use increasingly accurate scientific vocabulary to explain ideas and findings.