

Science Curriculum Map



CLOVER Principles

Intent, Implementation and Impact

EYFS Framework

National Curriculum

Whole school overview

Progression of Knowledge and Skills

Progression of Vocabulary

C	<ul style="list-style-type: none"> - Making connections between what we are learning about and how this relates to our community - Appreciate science in our community - Work with others to enquire, investigate and interpret scientific information - Celebrate science and scientists within our own community
L	<ul style="list-style-type: none"> - Working and learning with others to investigate - Learning to learn that questioning why and how things happen - Developing specific enquiry skills such as questioning, predicting, testing, recording and interpreting - Finding out about scientific phenomena in different ways and from different sources
O	<ul style="list-style-type: none"> - Open up opportunities for us to become scientists ourselves - Use new equipment or technologies - Exploring and investigating unknown ideas - Use educational visits to inspire us to develop a love and appreciation of science in our world.
V	<p>All our values will be taught throughout the whole of the science curriculum, however certain key values will be taught more explicitly.</p> <ul style="list-style-type: none"> - We are Curious - Science at FVIS encourages children to be excited and curious about natural phenomena - We are Brave - our Science curriculum encourages children to try new things and explore new opportunities - We are Kind - our Science curriculum teaches us to show respect and care for our world and our local environment - We Try our Best - we use our experiences to help us learn - We Work Well Together - we work in partners, groups and as a class to explore Science. We learn from each other and others too - We are Honest - We are honest when recording our results, even when they are not what we are expecting.
E	<ul style="list-style-type: none"> - We use the environment to observe and compare seasonal changes - Using Science as a vehicle to learn about our environment - Using Science to connect to the environment around us - Our outside environment is used as a learning space
R	<ul style="list-style-type: none"> - Trying out new things - Investigating to find answers to things we want to know about - Sharing our own ideas with others - Using new resources or equipment

Intent

At Fetcham Infant School, we provide children with a progressive and exciting science curriculum which inspires them to develop a lifelong love and curiosity for the world around them. We would like to support our children to be curious learners, to have the confidence to explore and to be the next generation of scientists. In our whole school commitment to achieve this, we aim to:

- provide an engaging and practical learning environment, which is progressive across all year groups. Our science curriculum aims to build the foundations for understanding the world, through the disciplines of biology, chemistry and physics
- develop a sense of excitement and curiosity about natural phenomena and allow children to explore their own and other's ideas through active engagement in learning experiences
- enable children to play, have opportunities to explore, observe, investigate, repeat, problem solve and represent and make sense of themselves and their world
- our Science curriculum aims to encourage critical thinking and empowers pupils to think about the 'how's and whys' of the world around them
- provide children with first-hand, meaningful activities which they can relate to their own experiences and interests
- provide opportunities for children to develop knowledge and understanding of key scientific ideas
- develop an awareness and sensitivity to the living and non-living environment by accessing the outside environment
- develop a responsibility for their own health and safety and that of others when undertaking scientific activities
- get children thinking and acting as young scientists, carrying out their own experiments, inferring their own conclusions and understanding the relevance of their discoveries to the world in which they live
- support children to be equipped to meet the changes and challenges in their life ahead
- encourage our children to be inquisitive and interested
- Our Science curriculum is inclusive and meaningful so all children experience the joys of Science and make associations between their science learning and their lives outside the classroom
- most importantly, we aim to make science fun!

Implementation

All children will be given a wide range of opportunities for investigation, experimentation and evaluation, so that they will develop a lasting interest in scientific discovery, understanding and knowledge.

Our high quality science education will provide the foundations for understanding the world through the disciplines of biology, chemistry and physics. We believe that science is a vital element in a child's education; enhancing respect, understanding and a growing awareness of their world and future sustainability issues we face.

Our science curriculum will enable children to acquire knowledge about:-

- Scientific enquiry
- Life and living processes
- Materials and their properties
- Physical processes
- Related Scientific vocabulary
- Scientists through history

Our science curriculum will enable children to develop skills in:-

- Asking questions and exploring possible answers
- Observing changes over time, noticing patterns and using simple equipment
- Making comparisons and discussing similarities and differences
- Estimating and testing
- Identifying, naming, grouping and classifying
- Suggesting answers to questions
- Gathering and recording data
- Using secondary sources of information to gather information

Effective Teaching and Learning of science

Science has a high priority in our school and is covered through:-

- full coverage of the science National Curriculum and the EYFS Curriculum.

- carefully planned sequences of learning, which consolidate pupil understanding and allows them to put into practise what they have learned.
- practical lessons which allow the children to develop their scientific skills in a safe environment.
- taking the opportunity to learn in our extensive outdoor learning environment, both of our own school and wider locations.
- providing progressive, relevant, differentiated by support and challenge, evaluation and assessment, validated by appropriate record keeping.
- responding to pupils' diverse learning needs.
- supporting pupils to overcome potential barriers to learning, such as mobility, manipulative skills, vision or hearing, so that they can participate as fully and as safely as possible in experimental work.
- active scientific experiences in the Early Years, taking account of the EYFS Curriculum Guidance (Understanding the World)
- displaying scientific vocabulary and modelling stem sentences in discussions so that children use this when communicating their understanding.
- creating learning environments which facilitate effective learning and the constant promotion of the subject throughout the whole school.
- using focused talk, allowing the children to verbalise and discuss their understanding.
- teachers model and use stem sentences to scaffold the learning and draw out key concepts.
- encouraging teachers to use innovative and creative lesson formats to engage children, using both inside and outdoor learning opportunities.
- storing well organised and high quality Science resources centrally so all staff can easily access them.

Impact

Our approach results in an engaging and active education that provides children with high-quality scientific skills, knowledge and understanding. Teachers observe children's knowledge and progression through questioning, listening to group discussions and the written work that children produce. Our frequent use of the Outside area ensures that children learn about the world around them through first hand experiences. Using our carefully planned and well sequenced lessons, children develop the understanding of how science and scientists have changed our world and how important they are in our everyday lives. As our children engage in a range of styles and areas of learning, as well as research topics, their understanding is nurtured and grows. The children gain insight through their experiences and these in turn, form part of a memorable and relevant part of their Scientific development.

Level Expected at the End of EYFS

Understanding the World (The 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.

Personal, Social and Emotional development (Managing Self)

- Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

End of Key stage expectations			
By the end of Year 1 pupils should be taught to:		By the end of Year 2 pupils should be taught to:	
Plants	<ul style="list-style-type: none"> • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • identify and describe the basic structure of a variety of common flowering plants, including trees 	Plants	<ul style="list-style-type: none"> • observe and describe how seeds and bulbs grow into mature plants • find out and describe how plants need water, light and a suitable temperature to grow and stay healthy
Animals including humans	<ul style="list-style-type: none"> • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • identify and name a variety of common animals that are carnivores, herbivores and omnivores • describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) 	Animals including humans	<ul style="list-style-type: none"> • notice that animals, including humans, have offspring which grow into adults • find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene

	<ul style="list-style-type: none"> • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense 		
Everyday materials	<ul style="list-style-type: none"> • distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • describe the simple physical properties of a variety of everyday materials • compare and group together a variety of everyday materials on the basis of their simple physical properties 	Use of everyday materials	<ul style="list-style-type: none"> • identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
Seasonal changes	<ul style="list-style-type: none"> • observe changes across the 4 seasons • observe and describe weather associated with the seasons and how day length varies 	Living things and their habitats	<ul style="list-style-type: none"> • explore and compare the differences between things that are living, dead, and things that have never been alive • identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • identify and name a variety of plants and animals in their habitats, including microhabitats • describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food

Working scientifically – Key stage 1

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways;
- observing closely, using simple equipment;
- performing simple tests;

- identifying and classifying;
- using their observations and ideas to suggest answers to questions;
- gathering and recording data to help in answering questions.

Science Curriculum Overview

Whole school Science unit outline						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	Seasonal changes Animals including humans Living things and their habitats Plants	Seasonal changes Living things and their habitats	Seasonal changes Materials Changing states of matter	Seasonal changes Animals including humans Materials	Seasonal changes Animals including humans Plants Living things and their habitats	Seasonal changes Animals including humans States of matter Light
Year 1	Seasonal changes	Everyday materials	Sensitive bodies	Comparing animals	Introduction to plants	Investigating science through stories
Year 2	Habitats	Microhabitats	Uses of everyday materials	Life cycles and health	Plant growth	Plant based materials

	Year R	Year 1	Year 2
<p>Autumn 1</p>	<p>Listen and respond to songs, rhymes, stories and non-fiction texts to develop knowledge about the natural world.</p> <p><u>In Weekly Woodland Learning:</u></p> <p>Explore the natural world and make observations of plants, animals, weather and changing seasons.</p> <p>Through learning our Woodland Learning rules, recognise how to: care for our environment, keep safe and take supported risks.</p> <p>Explore, recognise and name seasonal changes.</p> <p><u>Seasonal Changes</u></p> <p>We are learning...</p> <p>To recognise changes outside in Autumn.</p> <p>Observe and describe daily weather.</p> <p>To know that Harvest is a significant time of change in the natural world and understand why it is celebrated.</p> <p>Key Vocabulary:</p>	<p><u>Seasonal Changes</u></p> <p>We are learning...</p> <p>To identify how the weather changes across the four seasons.</p> <p>To identify events and activities that take place in different seasons.</p> <p>To recognise how trees change across the four seasons.</p> <p>To recognise that daylight hours change across the four seasons. To record data in a pictogram.</p> <p>To observe changes across the four seasons. To gather and record data about how seasons change over time.</p> <p>To plan and carry out a weather report.</p> <p>Key Vocabulary conclusion, data, deciduous tree, evergreen tree, pictogram, predict,</p>	<p><u>Habitats</u></p> <p>We are learning...</p> <p>To identify some of the characteristics of living things.</p> <p>To recognise the difference between things that are alive, were once alive or have never been alive. To classify objects into groups.</p> <p>To identify plants and animals in different habitats.</p> <p>To identify how a habitat provides animals and plants with what they need to survive. To carry out research to find answers to questions.</p> <p>To recognise how animals and plants depend on each other.</p> <p>To recall how animals get their food from plants and other animals.</p> <p>Key Vocabulary</p>

	<p>Summer, day, Spring, dark, Autumn, light, Winter, night, season, weather</p> <p><u>Animals including humans-</u> Recognise and name familiar animals (rabbits and squirrels) and know facts about their habitat and diet.</p> <p>Recognise ways that I have changed since I was a baby (similarities and differences from the past and now).</p> <p>Explore using the five senses (investigate school environment, taste fruit/vegetables, feel clay). Begin to name the five senses.</p> <p>Key Vocabulary Herbivore, face, carnivore, hair, omnivore, baby, child, adult, change, touch, smell, taste, hear, sight</p> <p><u>Living things and their habitats</u> Explore habitats in our woods (Spider Web Hunt).</p> <p><u>Plants</u> Name and recognise some common fruits and vegetables.</p>	<p>record, season, sunrise, sunset, symbol, temperature, thermometer, weather</p>	<p>alive, analyse, camouflage, carnivore, classify, coastal, dead, depend, diet, energy, excretion, food chain, growth, habitat</p>
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	<p>Through stories (<i>Handa's Surprise</i> and <i>Oliver's Vegetables</i>) know some differences between the plants grown in England and in different countries.</p> <p>Key Vocabulary Tree, petals, trunk, fruit, branch, roots leaves, bulb, flowers, seed</p>		
Autumn 2	<p>Listen and respond to songs, rhymes, stories and non-fiction texts to develop knowledge about the natural world.</p> <p><u>In Weekly Woodland Learning:</u> Explore the natural world and make observations of plants, animals, weather and changing seasons.</p> <p>Through learning our Woodland Learning rules, recognise how to: care for our environment, keep safe and take supported risks.</p> <p>Explore, recognise and name seasonal changes.</p> <p><u>Seasonal changes</u> Observe and describe daily weather.</p> <p>Key Vocabulary: Summer, day, Spring, dark, Autumn, light, Winter, night, season</p>	<p><u>Everyday Materials</u></p> <p>We are learning...</p> <p>To identify everyday materials. To sort objects into groups based on the materials they are made from.</p> <p>To recognise the difference between objects and materials.</p> <p>To describe the properties of materials.</p> <p>To group materials based on their properties (absorbency). To make observations and record data.</p> <p>To group materials based on their properties (waterproofness). To plan a test and suggest what might happen.</p>	<p><u>Microhabitats</u></p> <p>We are learning...</p> <p>To classify a variety of minibeasts.</p> <p>To recognise how scientists answer questions.</p> <p>To recognise that living things live in habitats to which they are suited. To gather and record data to answer a question.</p> <p>To ask questions and plan how to carry out an experiment.</p> <p>To carry out an experiment and record data in a table.</p>

	<p><u>Living Things and Their Habitats</u> Learn to care for the natural world around me and how people in society have jobs to care for our natural world (introduce children to Percy the Park-Keeper stories and act out his jobs).</p> <p>Key Vocabulary: Tree, petals, trunk, fruit, branch, roots leaves, bulb, flowers, seed</p>	<p>To group materials based on their properties (toughness). To answer questions based on results.</p> <p>Key Vocabulary: absorbent, data, fabric, glass, group, material, metal, object, opaque, plastic, property, rock, tough, transparent</p>	<p>To identify a variety of flowering plants. Science in action: To understand the role of a botanist.</p> <p>Key Vocabulary: botanist, camouflage, characteristics, classification key, classify, comparative/fair test, conclusion, criteria, data, food chain, identify, invertebrate, method, microhabitat, method</p>
Spring 1	<p>Listen and respond to songs, rhymes, stories and non-fiction texts to develop knowledge about the natural world.</p> <p><u>In Weekly Woodland Learning:</u> Explore the natural world and make observations of plants, animals, weather and changing seasons. Through learning our Woodland Learning rules, recognise how to: care for our environment, keep safe and take supported risks. Explore, recognise and name seasonal changes.</p> <p><u>Seasonal Changes</u> Observe and describe daily weather.</p>	<p><u>Sensitive Bodies</u></p> <p>We are learning...</p> <p>To name parts of the human body. To sort body parts into groups.</p> <p>To name the body parts used for each sense. To spot patterns in data.</p> <p>To identify the body parts used for the sense of taste and touch. To use the senses to make observations.</p> <p>To identify the body parts used for the sense of smell and sight. To recognise</p>	<p><u>Uses of everyday Materials</u></p> <p>We are learning...</p> <p>To recognise that objects are made from materials that suit their uses. To recognise that objects can be grouped.</p> <p>To recognise that objects are made from materials that suit their uses.</p> <p>To recognise that the shape of some solid objects can be changed. To record data in a table.</p>

Observe signs of winter. Know some ways that changes in the natural world over Winter affect the behaviour of animals and humans (including hibernation). Know some ways that animals and humans can keep warm and healthy in winter - explored through outdoor learning activities, including making homes for hedgehogs and feed for birds, and through stories and non-fiction texts.
Learn the names of the seasons and know how some trees change through the 4 seasons (through the Stickman storybook and making a '4-season tree' picture).

Key Vocabulary:

Summer, day, Spring, dark, Autumn, light, Winter, night, season

Materials

Recognise and explore some different materials used for building (play and activities linked to houses in the *Three Little Pigs* story and bridges in the *Three Billy Goats Gruff* story). Recognise some materials in the immediate school environment and begin to describe their properties (e.g. strong, soft, see-through). Use a tally chart to

that scientists are always making new discoveries.

To identify the body part used for the sense of hearing. To investigate how sound changes as you move further away.

To recognise how the senses are used in everyday life. To recognise the importance of the senses in certain jobs.

Key Vocabulary:

action, bitter, blind, body, compare, data, direction, distance, feeling, group, hearing, investigation, loud, obstacle

To compare the suitability of materials for particular uses. To gather data and use it to answer a question.

To recognise that the strength of some materials can be changed. To record data in a block graph.

To compare the suitability of materials for particular uses. To recognise that some materials are harmful to the environment.

Key Vocabulary:

bend, block graph, elastic, fabric, flexible, glass, material, metal, object, plastic, property, pull, push, record

	<p>record the materials found in the school environment. Explore how different shapes and materials can be used to make a strong bridge. Test their own constructions (bridges) and observe the results.</p> <p>Key Vocabulary: material, metal, wood, rock, plastic, hard, glass, soft, paper, fabric, smooth, shiny, rough,</p> <p><u>Changing states of matter</u> Explore and use some vocabulary about the processes of melting and freezing. Conduct an experiment to find out the best way to 'free' the toys from the ice blocks. Observe and discuss the findings. Explore and describe how noodles change when hot water is added (irreversible change) to make them suitable to eat.</p> <p>Key Vocabulary: change, melt, freeze, water, ice, heat, hot, hard soft,</p>		
Spring 2	Listen and respond to songs, rhymes, stories and non-fiction texts to	<p><u>Comparing Animals</u></p> <p>We are learning...</p>	<p><u>Life Cycles and Health</u></p> <p>We are learning...</p>

<p>develop knowledge about the natural world.</p> <p><u>In Weekly Woodland Learning:</u></p> <p>Explore the natural world and make observations of plants, animals, weather and changing seasons.</p> <p>Through learning our Woodland Learning rules, recognise how to: care for our environment, keep safe and take supported risks.</p> <p>Explore, recognise and name seasonal changes</p> <p><u>Seasonal Changes</u></p> <p>Observe and describe daily weather. Observe and recognise early signs of Spring in woodland learning and through stories/texts such as One Springy Day (featuring Percy the Park Keeper).</p> <p>Key Vocabulary: Summer, day, Spring, dark, Autumn, light, Winter, night, season</p> <p><u>Animals including Humans</u></p> <p>Link to PSHE (Jigsaw Unit: Healthy Me): understand and describe ways for humans to keep healthy (diet, sleep, exercise, washing hands).</p>	<p>To identify and group animals.</p> <p>To describe a variety of animals.</p> <p>To compare the features of animals.</p> <p>To identify animals that are carnivores, herbivores and omnivores. To research using nonfiction texts.</p> <p>To recognise animals that make suitable pets. To gather and record data to help in answering questions.</p> <p>To describe and compare the structure of animals. To know about famous scientists throughout history.</p> <p>Key Vocabulary: amphibian, bird, block chart, body, carnivore, compare, data, diet, differences, feature, fish, group, herbivore, hunt</p>	<p>To identify different stages of the human life cycle.</p> <p>To know which offspring come from which parent animal.</p> <p>To observe and measure growth in humans. To use simple measuring equipment.</p> <p>To identify and list the basic needs for survival for humans and animals. To use secondary sources to research.</p> <p>To recognise the importance of exercise and personal hygiene. To make observations over time.</p> <p>To identify how to have a balanced diet. To interpret collected results.</p> <p>Key Vocabulary: adult, air, baby, basic needs, butterfly, child, carbohydrates, caterpillar, dairy, egg, exercise, fitness, food, frog</p>
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	<p>Key Vocabulary: Back, head, toes, ear, hands, eye, fingers, mouth, nose</p> <p>Dinosaurs: Know that dinosaurs once lived millions of years ago. Learn how scientists (palaeontologists) find out about dinosaurs (bones, fossils). Through learning about the diets of dinosaurs, know that some animals eat other animals and some animals eat only plants. Begin to use the terms herbivore and carnivore. Begin to ask our own questions to find out about dinosaurs and learn how we can find some answers using non-fiction texts and the internet.</p> <p>Key Vocabulary: Herbivore, face, carnivore, omnivore</p> <p><u>Materials</u> Link to Music - Explore and recognise how different materials can make different sounds.</p> <p>Key Vocabulary: Loud, quiet, volume, sound</p>		
Summer 1	Listen and respond to songs, rhymes, stories and non-fiction texts to	<u>Introduction to plants</u>	<u>Plant Growth</u>

<p>develop knowledge about the natural world.</p> <p><u>In Weekly Woodland Learning:</u> Explore the natural world and make observations of plants, animals, weather and changing seasons.</p> <p>Through learning our Woodland Learning rules, recognise how to: care for our environment, keep safe and take supported risks.</p> <p>Explore, recognise and name seasonal changes</p> <p><u>Seasonal Changes</u> Observe and describe daily weather. Explore and recognise changes from Spring to Summer. Recognise ways for humans to keep healthy in hotter weather (appropriate clothing, drink, sun protection).</p> <p>Key Vocabulary: Summer, day, Spring, dark, Autumn, light, Winter, night, season</p> <p><u>Animals including Humans</u> Identify and describe minibeasts. Compare and sort minibeasts using their own ideas.</p> <p>Recognise some similarities and differences between minibeasts,</p>	<p>We are learning...</p> <p>To identify plants in the school grounds. To plan an investigation.</p> <p>To identify parts of a flowering plant. To draw and label a diagram.</p> <p>To identify and name wild and garden plants. To sort flowers into groups.</p> <p>To identify and name deciduous and evergreen trees. To measure and compare leaves.</p> <p>To recognise that new plants come from seeds and bulbs. To recognise that observations do not always match predictions.</p> <p>To recognise the importance of a scientist's role. To use observations to find answers to questions.</p> <p>Key Vocabulary: data, deciduous, diagram, edible, evergreen, feature, fruit, flower, garden plants, grouping, growth, investigation, leaf, measure</p>	<p>We are learning...</p> <p>To recognise that seeds need certain conditions for growth. To plan comparative tests.</p> <p>To recognise that seeds and bulbs contain what they need to grow into a plant. To measure with a ruler.</p> <p>To describe what seeds need to germinate. To record data in a table.</p> <p>To describe the effect of light on plant growth. To observe using a magnifying glass.</p> <p>To identify stages of a plant's life cycle. To draw and label diagrams.</p> <p>To recognise what plants need for healthy growth. To recognise that humans have a responsibility to care for plants.</p> <p>Key Vocabulary: bulb, comparative test, conclusion, condition, diagram, energy, flower, germinate, growth, leaf, life cycle, measure, nutrient, observe</p>
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farm animals and pets.
Name and order stages in the life cycles of a frog and a butterfly.
Observe and know how to treat animals with care.

Key Vocabulary:

minibeast, life cycle, frog, tadpole, froglet, frogspawn, butterfly, pupa, caterpillar, chrysalis, wild, pet, fur, skin, hair, shell, eyes

Plants

Know what a plant needs to grow.

Key Vocabulary:

tree, petals, trunk, fruit, branch, roots, leaves, bulb, flowers, seed, stem, sunlight, soil, water

Living Things and Their Habitats

Observe daily growth and change in living things (bean plants and caterpillars in the classroom).
Describe immediate environment (in woods) using senses (I see, I hear...).
Explore plants and minibeasts through making observational drawings.

	<p>Know some ways to care for living things (plants, minibeasts, pets, farm animals).</p> <p>Explore and describe different habitats in the woods.</p> <p>Key Vocabulary: pet, wild, face, human, hair, leg, knee, animal, arm, fish, elbow, birds, back, head, toes, ear, hands, eye, fingers, mouth, nose, habitat, minibeast, light, water, food, soil, trees, plants, flowers</p>		
<p>Summer 2</p>	<p>Listen and respond to songs, rhymes, stories and non-fiction texts to develop knowledge about the natural world.</p> <p><u>In Weekly Woodland Learning:</u> Explore the natural world and make observations of plants, animals, weather and changing seasons.</p> <p>Through learning our Woodland Learning rules, recognise how to: care for our environment, keep safe and take supported risks.</p> <p>Explore, recognise and name seasonal changes</p> <p><u>Seasonal Changes</u> Observe and describe daily weather.</p>	<p><u>Investigating Science through Stories</u></p> <p>We are learning...</p> <p>To observe changes across the seasons. To spot patterns in data.</p> <p>To describe and compare the features of animals. To carry out research to find specific information.</p> <p>To identify differences in animal features. To use a ruler to measure.</p> <p>To describe the properties of everyday materials.</p> <p>To plan how to carry out a test.</p>	<p><u>Plant Based Materials</u></p> <p>We are learning...</p> <p>To describe how materials can be reused.</p> <p>To understand how the 3Rs contribute to sustainable products.</p> <p>To identify human-made and natural materials. To group based on characteristics.</p> <p>To identify suitable materials based on their properties. To perform a test and gather data.</p>

<p>Explore and recognise signs of Summer and the seasonal changes in the natural world around them (weekly woodland learning, Woodland Trust Summer Scavenger Hunt).</p> <p>Recognise some ways to keep healthy in hotter weather (appropriate clothing, drink, sun protection).</p> <p>Key Vocabulary: Summer, day, Spring, dark, Autumn, light, Winter, night, season</p> <p><u>Animals including Humans</u> Name and recognise some wild animals. Explore what 'camouflage' means and why animals do it.</p> <p>Key Vocabulary: wild, camouflage, protect, lion, tiger, elephant, monkey, fox, badger, owl, mouse</p> <p><u>States of Matter:</u> Learn how water is made clean and safe to drink. Perform an experiment and observe the findings (Filtering</p>	<p>To identify animals that are carnivores, herbivores and omnivores.</p> <p>Key Vocabulary: amphibian, bird, carnivore, compare, data, diet, difference, feature, fish, group, herbivore, hunt, life cycle, mammal, material, measure, natural, object, omnivore, pattern, predict, property, reptile, season, similarity, test, trunk, waterproof, weather</p>	<p>To identify a material to help plant growth. To use observations to answer a simple question.</p> <p>To choose materials to create a suitable plant pot. To identify and classify living things.</p> <p>Key Vocabulary: alive, bubble wrap, eco-friendly, dead, excretion, fabric, flexible, germinate, growth, human-made, life process, material, movement, natural, nutrition, paper, plastic, property, recycle, reduce, reproduction, reuse, seed, sensitivity, soil, strong, suitable, sunlight, tin foil, warmth, water, waterproof, wood</p>
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Water experiment, linked to learning about life in an African village).
Learn how to make salt dough.
Observe and describe how salt dough changes (irreversibly) when it is cooked.

Key Vocabulary:

water, clean, filter, change, hot, hard, soft.

Light

Recognise and explore light, dark and shadows. Explore and observe how shady places and sunny places are different.

Key Vocabulary:

Summer, day, Spring, dark, Autumn, light, Winter, night, season, shadows, shade.

Knowledge and Skills Progression

Area of Learning	Reception	Year 1	Year 2
		<p>*Starred knowledge is revisited in our Year 1 Making connections unit: Investigating science through stories.</p>	<p>*This knowledge is revisited in our Year 2 Making connections unit: Plant-based materials.</p>
Seasonal changes	<p>Autumn, Spring and Summer: Explore the natural world and make observations of plants, animals, weather and changing seasons.</p> <p>Explore, recognise and name seasonal changes.</p> <p>Observe and describe daily weather.</p> <p>Autumn 1: Observe and know some signs of Autumn. To know that Harvest is a significant time of change in the</p>	<p>Seasonal changes:</p> <p>*To know the name and order of the four seasons; spring, summer, autumn and winter.</p> <p>To know that it is unsafe to look directly at the Sun.</p> <p>*To know weather associated with the four seasons and how it changes (in the UK).</p> <p>To understand that day length varies across the four seasons, with fewer daylight hours in the winter and more in the summer.</p>	

natural world and understand why it is celebrated.

Spring 1:
Observe signs of winter. Know some ways that changes in the natural world over Winter affect the behaviour of animals and humans (including hibernation). Know some ways that animals and humans can keep warm and healthy in winter - explored through outdoor learning activities, including making homes for hedgehogs and feed for birds, and through stories and non-fiction texts.

Learn the names of the seasons and know how some trees change through the 4 seasons (through the Stickman storybook and making a '4-season tree' picture).

Spring 2:
Observe and recognise early signs of Spring in woodland learning and through stories/texts such as One Springy Day (featuring Percy the Park Keeper).

Summer 1:

	<p>Explore and recognise changes from Spring to Summer.</p> <p>Recognise ways for humans to keep healthy in hotter weather (appropriate clothing, drink, sun protection).</p> <p>Summer 2:</p> <p>Explore and recognise signs of Summer and the seasonal changes in the natural world around them (weekly woodland learning, Woodland Trust Summer Scavenger Hunt).</p> <p>Recognise some ways to keep healthy in hotter weather (appropriate clothing, drink, sun protection).</p>		
<p>Habitats</p>	<p>Autumn, Spring and Summer:</p> <p>Explore the natural world and make observations of plants, animals, weather and changing seasons.</p> <p>Recognise how to: care for our environment, keep safe and take supported risks.</p> <p>Autumn 2:</p> <p>Learn to care for the natural world around me and how people in society have jobs to care for our natural world</p>		<p>Habitats and Microhabitats:</p> <p>To know a variety of plants and animals and describe some differences.</p> <p>To know that a habitat is the environment where an animal or plant lives/grows, because it provides what they need to survive.</p> <p>To know that a micro-habitat is a very small habitat (e.g. stones, logs and leaf litter).</p>

	<p>(introduce children to Percy the Park-Keeper stories and act out his jobs).</p> <p>Summer 1:</p> <p>Observe daily growth and change in living things (bean plants and caterpillars in the classroom).</p> <p>Describe immediate environment (in woods) using senses (I see, I hear...).</p> <p>Explore plants and minibeasts through making observational drawings.</p> <p>Know some ways to care for living things (plants, minibeasts, pets, farm animals).</p> <p>Explore and describe different habitats in the woods.</p>		<p>To know that living things depend upon each other (e.g. for food, shelter.)</p> <p>Habitats:</p> <p>*To begin to understand some of the life processes, including movement, reproduction, sensitivity, growth, excretion and nutrition. *To know the difference between things that are living, dead, and things that have never been alive, using some of the life processes. To name a variety of habitats, including woodland, ocean, rainforest and coastal. To understand that a food chain can be used to show how animals obtain food from eating either plants and/or other animals.</p>
<p>Materials</p>	<p>Spring 1:</p> <p>Recognise and explore some different materials used for building (play and activities linked to houses in the <i>Three Little Pigs</i> story and bridges in the <i>Three Billy Goats Gruff</i> story).</p> <p>Recognise some materials in the immediate school environment and begin to describe their</p>	<p>Everyday materials:</p> <p>To know that objects are items or things. To know that a material is what an object is made from.</p> <p>To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p> <p>To know that property refers to how a material can be described.</p>	<p>Uses of everyday materials:</p> <p>*To know why objects are made from particular materials and to give examples of their suitability.</p> <p>*To know that one material can be used for a range of purposes (and to give examples.)</p> <p>*To know that different materials can be used for the same purpose (and to give examples.)</p>

	<p>properties (e.g. strong, soft, see-through).</p> <p>Use a tally chart to record the materials found in the school environment. Explore how different shapes and materials can be used to make a strong bridge. Test their own constructions (bridges) and observe the results.</p> <p>Explore and use some vocabulary about the processes of melting and freezing. Conduct an experiment to find out the best way to 'free' the toys from the ice blocks. Observe and discuss the findings.</p> <p>Explore and describe how noodles change when hot water is added (irreversible change) to make them suitable to eat.</p> <p>Spring 2: Link to Music - Explore and recognise how different materials can make different sounds.</p> <p>Summer 2: Learn how water is made clean and safe to drink. Perform an experiment and observe the findings (Filtering Water</p>	<p>To describe the physical properties of a variety of everyday materials.</p> <p>To understand that materials can be grouped based on their physical properties.</p>	<p>*To know why certain materials are unsuitable for particular objects.</p> <p>To know that a push or pull must be applied to change the shape of a solid object.</p> <p>*To know that solid objects can be squashed, bent, twisted or stretched.</p> <p>To know that different solid objects may take a different amount of force to change shape.</p>
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	<p>experiment, linked to learning about life in an African village). Learn how to make salt dough. Observe and describe how salt dough changes (irreversibly) when it is cooked.</p>		
<p>Animals including humans</p>	<p>Autumn 1: Recognise and name familiar animals (rabbits and squirrels) and know facts about their habitat and diet. Recognise ways that I have changed since I was a baby (similarities and differences from the past and now). Explore using the five senses (investigate school environment, taste fruit/vegetables, feel clay). Begin to name the five senses. Spring 2: understand and describe ways for humans to keep healthy (diet, sleep, exercise, washing hands). Dinosaurs: Know that dinosaurs once lived millions of years ago. Learn how scientists (palaeontologists) find out about dinosaurs (bones, fossils). Through learning about the diets of dinosaurs, know that some</p>	<p>Sensitive bodies: To know key parts of the human body (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth). To know the five main senses: sight, smell, hearing, taste and touch. To know that eyes are used for sight, the nose is used for smell, ears are used for hearing, the tongue and mouth are used for taste and the skin is used for touch. Comparing animals: *To know the main body parts of common animals (arms, legs, wings, tails, fins, head, trunk, horns/tusks, shell) *To know a variety of common animals (including fish, amphibians, reptiles, birds and mammals).</p>	<p>Lifecycles and health: To understand how living things change, and that animals have offspring that grow into adults. To know which offspring comes from which parent animal. To know the stages in some animal life cycles. To know that animals, including humans, need water, food and air to survive. To understand the importance of exercise, a balanced diet and hygiene for humans</p>

	<p>animals eat other animals and some animals eat only plants. Begin to use the terms herbivore and carnivore.</p> <p>Begin to ask our own questions to find out about dinosaurs and learn how we can find some answers using non-fiction texts and the internet.</p> <p>Summer 1: Identify and describe minibeasts. Compare and sort minibeasts using their own ideas. Recognise some similarities and differences between minibeasts, farm animals and pets. Name and order stages in the life cycles of a frog and a butterfly. Observe and know how to treat animals with care.</p> <p>Summer 2: Name and recognise some wild animals. Explore what 'camouflage' means and why animals do it.</p>	<p>*To know that a carnivore is an animal that eats other animals and give some examples.</p> <p>*To know that a herbivore is an animal that eats only plants and give some examples.</p> <p>*To know that an omnivore is an animal that eats both animals and plants, and give some examples.</p>	
<p>Plants</p>	<p>Autumn 1: Name and recognise some common fruits and vegetables. Through stories (<i>Handa's Surprise</i> and <i>Oliver's Vegetables</i>) know</p>	<p>Introduction to plants: To know a variety of common plants, and how they differ.</p>	<p>Plant growth: *To know that seeds and bulbs grow into seedlings by producing roots and shoots.</p>

	<p>some differences between the plants grown in England and in different countries.</p> <p>Summer 1: Know what a plant needs to grow.</p>	<p>To know that deciduous trees lose their leaves seasonally, but evergreen trees do not.</p> <p>*To know the basic structure (including leaves, flowers (blossom), fruit, roots, bulb, seed, trunk, branches, stem) of a variety of common plants, including flowering plants and trees.</p> <p>*To begin to understand how plants grow and change over time.</p>	<p>To know that seedlings grow into mature plants by developing parts such as roots, stems, leaves and flowers.</p> <p>*To know that seeds need water and warmth to germinate.</p> <p>*To know that plants need water, light and a suitable temperature for growth and health.</p>
<p>Posing questions</p>	<p>Autumn 1: Listen and respond to songs, rhymes, stories and non-fiction texts to develop knowledge about the natural world.</p> <p>Spring 2: Begin to ask our own questions to find out about dinosaurs and learn how we can find some answers using non-fiction texts and the internet.</p>	<p>Exploring the world around them and raising their own simple questions.</p> <p><i>(Seasonal changes, Introduction to plants, Investigating science through stories)</i></p> <p>Recognising there are different types of enquiry (ways to answer a question).</p> <p><i>(Sensitive bodies, Comparing animals, Introduction to plants, Investigating science through stories)</i></p> <p>Responding to suggestions on how to answer questions.</p> <p><i>(Everyday materials, Comparing animals, Introduction to plants,</i></p>	<p>Exploring the world around them and raising their own simple questions.</p> <p><i>(Habitats, Micro-habitats, Plant growth, Plant based materials)</i></p> <p>Recognising there are different types of enquiry (ways to answer a question).</p> <p><i>(Habitats, Micro-habitats, Uses of everyday materials, Life cycles and health, Plant growth, Plant based materials)</i></p> <p>Responding to suggestions on how to answer questions.</p> <p><i>(Micro-habitats, Plant growth, Plant based materials)</i></p>

		<i>Investigating science through stories)</i>	
Planning	<p>Spring 1: Test their own constructions (bridges) and observe the results. Conduct an experiment to find out the best way to 'free' the toys from the ice blocks. Observe and discuss the findings.</p> <p>Summer 2: Perform an experiment and observe the findings (Filtering Water experiment, linked to learning about life in an African village).</p>	<p>Beginning to recognise whether a planned test is fair <i>(Everyday materials, Investigating science through stories)</i></p> <p>With support, deciding if suggested observations are suitable. <i>(Everyday materials, Comparing animals, Introduction to plants, Investigating science through stories)</i></p> <p>Ordering a simple method. <i>(Introduction to plants)</i></p>	<p>Beginning to recognise whether a planned test is fair. <i>(Plant growth, Plant based materials)</i></p> <p>With support, deciding if suggested observations are suitable. <i>(Micro-habitats, Plant growth, Plant based materials)</i></p> <p>Ordering a simple method <i>(Micro-habitats)</i></p>
Predicting	<p>Spring 1: Test their own constructions (bridges) and observe the results. Conduct an experiment to find out the best way to 'free' the toys from the ice blocks. Observe and discuss the findings.</p> <p>Summer 2: Perform an experiment and observe the findings (Filtering Water experiment, linked to learning about life in an African village).</p>	<p>Suggesting what might happen, often justifying with personal experience. <i>(Seasonal changes, Everyday materials, Introduction to plants, Investigating science through stories)</i></p>	<p>Suggesting what might happen, often justifying with personal experience. <i>(Micro-habitats, Plant growth, Plant based materials)</i></p>

<p>Observing (Qualitative data)</p>	<p>Spring 1: Use a tally chart to record the materials found in the school environment. Explore how different shapes and materials can be used to make a strong bridge. Test their own constructions (bridges) and observe the results. Conduct an experiment to find out the best way to 'free' the toys from the ice blocks. Observe and discuss the findings.</p> <p>Summer 1: Observe and know how to treat animals with care. Observe daily growth and change in living things (bean plants and caterpillars in the classroom). Describe immediate environment (in woods) using senses (I see, I hear...).</p> <p>Explore plants and minibeasts through making observational drawings.</p> <p>Summer 2: Perform an experiment and observe the findings (Filtering Water experiment, linked to</p>	<p>Using their senses to describe, in simple terms, what they notice or what has changed.</p> <p><i>(Seasonal changes, Everyday materials, sensitive bodies, Comparing animals, Introduction to plants, Investigating science through stories)</i></p>	<p>Using their senses to describe, in simple terms, what they notice or what has changed.</p> <p><i>(Micro-habitats, Plant growth, Plant based materials)</i></p>
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	<p>learning about life in an African village).</p> <p>Recognise and explore light, dark and shadows. Explore and observe how shady places and sunny places are different.</p>		
<p>Measuring (Quantitative data)</p>		<p>Using non-standard units to measure and compare.</p> <p><i>(Sensitive bodies, Introduction to plants)</i></p> <p>Beginning to use standard units and read simple scales to measure and compare.</p> <p><i>(Investigating science through stories)</i></p> <p>Beginning to use simple measuring equipment to make approximate measurements</p> <p><i>(Investigating science through stories)</i></p>	<p>Using non-standard units to measure and compare.</p> <p><i>(Uses of everyday materials)</i></p> <p>Beginning to use standard units and read simple scales to measure and compare.</p> <p><i>(Life cycles and health, Plant growth)</i></p> <p>Beginning to use simple measuring equipment to make approximate measurements</p> <p><i>(Life cycles and health, Plant growth)</i></p>
<p>Researching</p>	<p>Begin to ask our own questions to find out about dinosaurs and learn how we can find some answers using non-fiction texts and the internet.</p>	<p>Gathering specific information from one simplified, specified source.</p> <p><i>(Seasonal changes, Introduction to plants)</i></p>	<p>Gathering specific information from one simplified, specified source.</p> <p><i>(Habitats, Micro-habitats, Life cycles and health, Plant based materials)</i></p>
<p>Recording (diagrams)</p>	<p>Summer 1:</p> <p>Name and order stages in the life cycles of a frog and a butterfly.</p>	<p>Drawing and labelling simple diagrams.</p>	<p>Drawing and labelling simple diagrams.</p> <p><i>(Plant growth)</i></p>

		<i>(Sensitive bodies, Comparing animals, Introduction to plants)</i>	
Recording (tables)	Spring 1: Use a tally chart to record the materials found in the school environment. Explore how different shapes and materials can be used to make a strong bridge. Test their own constructions (bridges) and observe the results.	Using a prepared table to record results including: <ul style="list-style-type: none"> ● Numbers. ● Simple observations. ● Tally frequency. <i>(Seasonal changes, Everyday materials, sensitive bodies, Introduction to plants)</i>	Using a prepared table to record results including: <ul style="list-style-type: none"> ● Numbers. ● Simple observation ● Tally frequency. <i>(Habitats, Micro-habitats, Uses of everyday materials, Life cycles and health, Plant growth, Plant based materials)</i>
Grouping and classifying	Summer 1: Identify and describe minibeasts. Compare and sort minibeasts using their own ideas.	Grouping based on visible characteristics. <i>(Everyday materials, sensitive bodies, Comparing animals, Introduction to plants, Investigating science through stories)</i> Organising questions to create a simple classification key - covered in Y2	Grouping based on visible characteristics. <i>(Habitats, Micro-habitats, Uses of everyday materials, Plant based materials)</i> Organising questions to create a simple classification key <i>(Micro-habitats)</i>
Graphing		Representing data using pictograms and block graphs <i>(Seasonal changes, Comparing animals)</i>	Representing data using pictograms and block graphs. <i>(Uses of everyday materials)</i>

<p>Analysing and drawing conclusions</p>	<p>Spring 1: Use a tally chart to record the materials found in the school environment. Explore how different shapes and materials can be used to make a strong bridge. Test their own constructions (bridges) and observe the results. Conduct an experiment to find out the best way to 'free' the toys from the ice blocks. Observe and discuss the findings.</p>	<p>Using their results to answer simple questions. <i>(Seasonal changes, Everyday materials, sensitive bodies, Comparing animals, Introduction to plants, Investigating science through stories)</i></p> <p>Beginning to recognise when results or observations do not match their predictions. <i>(Everyday materials, Introduction to plants, Investigating science through stories)</i></p>	<p>Using their results to answer simple questions. <i>(Micro-habitats, Uses of everyday materials, Life cycles and health, Plant growth, Plant based materials)</i></p> <p>Beginning to recognise when results or observations do not match their predictions. <i>(Micro-habitats, Plant growth, Plant based materials)</i></p>
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Vocabulary Progression

Reception	Year 1	Year 2
<p>Autumn 1: Summer, day, Spring, dark, Autumn, light, Winter, night, season, Herbivore, face,</p>	<p>Autumn 1: conclusion, data, deciduous tree, evergreen tree, pictogram, predict, record, season,</p>	<p>Autumn 1: alive, analyse, camouflage, carnivore, classify, coastal, dead, depend, diet,</p>

<p>carnivore, hair, omnivore, baby, child, adult, change, touch, smell, taste, hear, sight, Tree, petals, trunk, fruit, branch, roots, leaves, bulb, flowers, seed</p> <p>Autumn 2:</p> <p>Summer, day, Spring, dark, Autumn, light, Winter, night, season, Tree, petals, trunk, fruit, branch, roots, leaves, bulb, flowers, seed, material, metal, wood, rock, plastic, hard, glass, soft, paper, fabric, smooth, shiny, rough, change, melt, freeze, water, ice, heat, hot, hard, soft,</p> <p>Spring 1:</p> <p>Summer, day, Spring, dark, Autumn, light, Winter, night, season, material, metal, wood, rock, plastic, hard, glass, soft, paper, fabric, smooth, shiny, rough, change, melt, freeze, water, ice, heat, hot, hard, soft,</p> <p>Spring 2:</p> <p>Summer, day, Spring, dark, Autumn, light, Winter, night, season, back, head, toes, ear, hands, eye, fingers, mouth, nose Herbivore, face, carnivore, omnivore Loud, quiet, volume, sound.</p>	<p>sunrise, sunset, symbol, temperature, thermometer, weather</p> <p>Autumn 2:</p> <p>absorbent, data, fabric, glass, group, material, metal, object, opaque, plastic, property, rock, tough, transparent</p> <p>Spring 1:</p> <p>action, bitter, blind, body, compare, data, direction, distance, feeling, group, hearing, investigation, loud, obstacle</p> <p>Spring2:</p> <p>amphibian, bird, block chart, body, carnivore, compare, data, diet, differences, feature, fish, group, herbivore, hunt</p> <p>Summer 1:</p> <p>data, deciduous, diagram, edible, evergreen, feature, fruit, flower, garden plants, grouping, growth, investigation, leaf, measure</p> <p>Summer 2:</p> <p>amphibian, bird, carnivore, compare, data, diet, difference, feature, fish, group, herbivore, hunt, life cycle, mammal, material, measure, natural, object, omnivore, pattern, predict, property, reptile,</p>	<p>energy, excretion, food chain, growth, habitat</p> <p>Autumn 2:</p> <p>botanist, camouflage, characteristics, classification key, classify, comparative/fair test, conclusion, criteria, data, food chain, identify, invertebrate, method, microhabitat, method</p> <p>Spring 1:</p> <p>bend, block graph, elastic, fabric, flexible, glass, material, metal, object, plastic, property, pull, push, record</p> <p>Spring2:</p> <p>adult, air, baby, basic needs, butterfly, child, carbohydrates, caterpillar, dairy, egg, exercise, fitness, food, frog</p> <p>Summer 1:</p> <p>bulb, comparative test, conclusion, condition, diagram, energy, flower, germinate, growth, leaf, life cycle, measure, nutrient, observe</p> <p>Summer 2:</p> <p>alive, bubble wrap, eco-friendly, dead, excretion, fabric, flexible, germinate,</p>
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<p>Summer 1:</p> <p>Summer, day, Spring, dark, Autumn, light, Winter, night, season, minibeast, life cycle, frog, tadpole, froglet, frogspawn, butterfly, pupa, caterpillar, chrysalis, wild, pet, fur, skin, hair, shell, eyes, tree, petals, trunk, fruit, branch, roots, leaves, bulb, flowers, seed, stem, sunlight, soil, water, face, human, leg, knee, animal, arm, fish, elbow, birds, back, head, toes, ear, hands, eye, fingers, mouth, nose, habitat, food, plants</p> <p>Summer 2:</p> <p>Summer, day, Spring, dark, Autumn, light, Winter, night, season</p> <p>elephant, monkey, fox, badger, owl, mouse, water, clean, filter, change, hot, hard, soft, Summer, day, Spring, dark, Autumn, light, Winter, night, season, shadows, shade.</p>	<p>season, similarity, test, trunk, waterproof, weather</p>	<p>growth, human-made, life process, material, movement, natural, nutrition, paper, plastic, property, recycle, reduce, reproduction, reuse, seed, sensitivity, soil, strong, suitable, sunlight, tin foil, warmth, water, waterproof, wood</p>
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