

Weare Science Progression in Skills

Science					
Year 1		Year 2		Year 3	Year 4
Coverage	<ul style="list-style-type: none"> • Plants • Animals including Humans • Everyday Materials • Seasonal Changes 	<ul style="list-style-type: none"> • Living things and their habitats • Plants • Animals including Humans • Everyday Materials 	<ul style="list-style-type: none"> • Plants • Animals including Humans • Rocks • Light • Forces and magnets 	<ul style="list-style-type: none"> • Living things and their habitats • Animals including Humans • States of Matter • Sound • Electricity 	
Skills – Working Scientifically	<p>Through practical science methods, the processes and skills should be developed aligned to the study content focusing upon:</p> <ul style="list-style-type: none"> • Asking simple questions • Observing closely, using some simple equipment • Performing simple tests • Identifying and classifying • Using observations and ideas to suggest answers to questions. • Begin to make records of findings in appropriate forms. 	<p>Through practical science methods, the processes and skills should be developed aligned to the study content focusing upon:</p> <ul style="list-style-type: none"> • Asking simple questions • Observing closely, using some simple equipment • Performing simple tests • Identifying and classifying • Using observations and ideas to suggest answers to questions. • Gathering and recording data to help in answering questions and consider presenting findings • Start to consider the idea of fair testing. 	<p>Through practical science methods, the processes and skills should be developed aligned to the study content focusing upon:</p> <ul style="list-style-type: none"> • Asking relevant questions • Setting up simple practical enquiries, comparative and fair tests. • Making accurate measurements using standard units, using some equipment. • Gathering, recording, classifying and presenting data in a variety of ways to help with answering questions. • Recording findings using simple scientific language, drawings, labeled diagrams, bar charts and tables. • Reporting on findings from enquiries, including oral and written explanations, displays, or presentations of results and conclusions. • Using results to draw simple conclusions and suggest improvements. • Identifying differences, similarities or changes relates to simple scientific ideas and processes. <p>Using straightforward scientific evidence to answer questions or to support their findings.</p>	<p>Through practical science methods, the processes and skills should be developed aligned to the study content focusing upon:</p> <ul style="list-style-type: none"> • Asking relevant questions • Setting up simple practical enquiries, comparative and fair tests. • Making accurate measurements using standard units, using some equipment. • Gathering, recording, classifying and presenting data in a variety of ways to help with answering questions. • Recording findings using simple scientific language, drawings, labeled diagrams, bar charts and tables. • Reporting on findings from enquiries, including oral and written explanations, displays, or presentations of results and conclusions. • Using results to draw simple conclusions and suggest improvements. • Identifying differences, similarities or changes relates to simple scientific ideas and processes. <p>Using straightforward scientific evidence to answer questions or to support their findings.</p>	

Plants			
	Year 1	Year 2	Year 3
Coverage	<p>Pupils should be taught to:</p> <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 	<p>Pupils should be taught to:</p> <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 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal
Notes and guidance (non-statutory)	<ul style="list-style-type: none"> Pupils should use the local environment throughout the year to explore and answer questions about plants growing in their habitat. Where possible, they should observe the growth of flowers and vegetables that they have planted. They should become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures (including leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem). <p>Pupils work scientifically by:</p> <ul style="list-style-type: none"> observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees. Pupils might keep records of how plants have changed over time, for example, the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants. 	<ul style="list-style-type: none"> Pupils should use the local environment throughout the year to observe how plants grow. Pupils should be introduced to the requirements of plants for germination, growth and survival, as well as the processes of reproduction and growth in plants. <p>Note: seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them.</p> <p>Pupils work scientifically by:</p> <ul style="list-style-type: none"> observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy 	<ul style="list-style-type: none"> Pupils should be introduced to the relationship between structure and function: the idea that every part has a job to do. They should explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction. <p>Note: pupils can be introduced to the idea that plants can make their own food, but at this stage they do not need to understand how this happens.</p> <p>Pupils work scientifically by:</p> <ul style="list-style-type: none"> comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertilizer discovering how seeds are formed by observing the different stages of plant life cycles over a period of time looking for patterns in the structure of fruits that relate to how the seeds are dispersed. They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.

Animals, including Humans

Year 1		Year 2		Year 3		Year 4	
Coverage	<p>Pupils should be taught to:</p> <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) identify, name, draw and label the basic parts of the human body and say which part of the body is links with each sense 	<p>Pupils should be taught to:</p> <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 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat identify that humans and some other animals have skeletons and muscles for support, protection and movement 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey 			
Notes and guidance (non-statutory)	<ul style="list-style-type: none"> Pupils should use the local environment throughout the year to explore and answer questions about animals in their habitat. They should understand how to take care of animals taken from their local environment and the need to return them safely after study. Pupils should become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets. Pupils should have plenty of opportunities to learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes. <p>Pupils work scientifically by:</p> <ul style="list-style-type: none"> using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells 	<ul style="list-style-type: none"> Pupils should be introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans. They should also be introduced to the processes of reproduction and growth in animals. The focus at this stage should be on questions that help pupils to recognise growth; they should not be expected to understand how reproduction occurs. The following examples might be used: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult. <p>Pupils work scientifically by:</p> <ul style="list-style-type: none"> observing, through video or first-hand observation and measurement, how different animals, including humans, grow asking questions about what things animals need for survival and what humans need to stay healthy suggesting ways to find answers to their questions. 	<ul style="list-style-type: none"> Pupils should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions. <p>Pupils work scientifically by:</p> <ul style="list-style-type: none"> identifying and grouping animals with and without skeletons and observing and comparing their movement exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy, and design meals based on what they find out. 	<ul style="list-style-type: none"> Pupils should be introduced to the main body parts associated with the digestive system, for example: mouth, tongue, teeth, oesophagus, stomach, and small and large intestine, and explore questions that help them to understand their special functions. <p>Pupils work scientifically by:</p> <ul style="list-style-type: none"> comparing the teeth of carnivores and herbivores and suggesting reasons for difference finding out what damages teeth and how to look after them. They might draw and discuss their ideas about the digestive system and compare them with models or images. 			

Living things and their habitats

		Year 2	Year 4
Coverage		<ul style="list-style-type: none"> • Pupils should be taught to: • 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 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • recognise that living things can be grouped in a variety of ways • explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • recognise that environments can change and that this can sometimes pose dangers to living things
	Notes and guidance (non-statutory)	<ul style="list-style-type: none"> • Pupils should be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy. • They should raise and answer questions that help them to become familiar with the life processes that are common to all living things. • Pupils should be introduced to the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'microhabitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter). • They should raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other, for example, plants serving as a source of food and shelter for animals. • Pupils should compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest. <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> • sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts. • They should describe how they decided where to place things, exploring questions like: 'Is a flame alive? Is a deciduous tree dead in winter?' and talk about ways of answering their questions. • They could construct a simple food chain that includes humans (eg, grass, cow, human). • They could describe the conditions in different habitats and microhabitats (under log, on stony path, under bushes) • find out how the conditions affect the number and type(s) of plants and animals that live there. 	<ul style="list-style-type: none"> • Pupils should use the local environment throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat. • They should identify how the habitat changes throughout the year. Pupils should explore possible ways of grouping a wide selection of living things that include animals, flowering plants and non-flowering plants. • Pupils could begin to put vertebrate animals into groups, for example: fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects. <p>Note: plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, for example ferns and mosses.</p> <ul style="list-style-type: none"> • Pupils should explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation. <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> • using and making simple guides or keys to explore and identify local plants and animals • making a guide to local living things • raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.

Programme of Study Specific to Year 1

Seasonal Changes

Coverage

- Pupils should be taught to:
- observe changes across the 4 seasons
 - observe and describe weather associated with the seasons and how day length varies

Notes and guidance
(non-statutory)

- Pupils should observe and talk about changes in the weather and the seasons.
- Note: pupils should be warned that it is not safe to look directly at the sun, even when wearing dark glasses.
- Pupils might work scientifically by:
- making tables and charts about the weather; and making displays of what happens in the world around them, including day length, as the seasons change.

Programmes of Study Specific to Year 3

Rocks		Light	Forces and Magnets
Coverage	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by a solid object find patterns in the way that the size of shadows change 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> compare how things move on different surfaces notice that some forces need contact between 2 objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing
Notes and guidance (non-statutory)	<ul style="list-style-type: none"> (Linked with work in geography), pupils should explore different kinds of rocks and soils, including those in the local environment. <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Pupils might research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. Pupils could explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water. They can raise and answer questions about the way soils are formed. 	<ul style="list-style-type: none"> Pupils should explore what happens when light reflects off a mirror or other reflective surfaces, including playing mirror games to help them to answer questions about how light behaves. They should think about why it is important to protect their eyes from bright lights. They should look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change. <p>Note: pupils should be warned that it is not safe to look directly at the sun, even when wearing dark glasses.</p> <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes. 	<ul style="list-style-type: none"> Pupils should observe that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing). They should explore the behaviour and everyday uses of different magnets (for example, bar, ring, button and horseshoe). <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> comparing how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces, and gathering and recording data to find answers to their questions exploring the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and those that are not looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.

Programmes of Study Specific to Year 4

States of Matter		Sound	Electricity
Coverage	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> compare and group materials together, according to whether they are solids, liquids or gases observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify how sounds are made, associating some of them with something vibrating recognise that vibrations from sounds travel through a medium to the ear find patterns between the pitch of a sound and features of the object that produced it find patterns between the volume of a sound and the strength of the vibrations that produced it recognise that sounds get fainter as the distance from the sound source increases 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors
Notes and guidance (non-statutory)	<ul style="list-style-type: none"> Pupils should explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container). Pupils should observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled. <p>Note: teachers should avoid using materials where heating is associated with chemical change, for example, through baking or burning.</p> <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> grouping and classifying a variety of different materials exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). They could research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. They might observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting. 	<ul style="list-style-type: none"> Pupils should explore and identify the way sound is made through vibration in a range of different musical instruments from around the world find out how the pitch and volume of sounds can be changed in a variety of ways. <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. They might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They could make and play their own instruments by using what they have found out about pitch and volume. 	<ul style="list-style-type: none"> Pupils should construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices. Pupils should draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage as these will be introduced in year 6. <p>Note: pupils might use the terms current and voltage, but these should not be introduced or defined formally at this stage. Pupils should be taught about precautions for working safely with electricity.</p> <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.