



Science – Progression of Skills

Purpose of study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Aims

The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. The most relevant statements for science are taken from the following areas of learning:

- Communication and Language
- Personal, Social and Emotional Development
- Understanding the World

Progression of Skills	Nursery	Reception	ELG	
Communication and Language	<ul style="list-style-type: none"> • Understand 'why' questions, like: "Why do you think the caterpillar got so fat?" 	<ul style="list-style-type: none"> • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts. 	Listening, Attention and Understanding	<ul style="list-style-type: none"> • Make comments about what they have heard and ask questions to clarify their understanding.



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<p>Personal, Social and Emotional Development</p>	<ul style="list-style-type: none"> • Make healthy choices about food, drink, activity and toothbrushing. 	<p>Know and talk about the different factors that support their overall health and wellbeing:</p> <ul style="list-style-type: none"> - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian 	<p>Managing Self</p>	<ul style="list-style-type: none"> • Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
<p>Understanding the World</p>	<ul style="list-style-type: none"> • Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Begin to make sense of their own life-story and family's history. • Explore how things work. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice. 	<ul style="list-style-type: none"> • Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them. 	<p>The Natural World</p>	<p>Explore the natural world around them, making observations and drawing pictures of animals and plants.</p> <ul style="list-style-type: none"> • 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.



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	<p>Golden words Working scientifically - look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group Plants -plant, leaf, stem, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead,soil, names of plants they grow Animals, including humans - egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, frog spawn, tadpole, froglet, frog, grow, change, die, names of animals and their young, fur, feathers, scales, tail, wings, beak, claws, paws, hooves, swim, walk, run, jump, fly, patterns, spots, stripes, grow, change, baby, toddler, child, adult, old person, smell, taste, touch, feel, hear, see, blind, deaf Living things and their habitats - natural, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones, same, different, pattern, leaf, stem, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead, soil Materials - mix, stir, cook, hot, oven, microwave, change, burn, melt, hard, runny, set, freeze, freezer, cold, blended, hard, soft, bendy, stiff, wobbly,wood, plastic,</p>	<p>Golden words Working scientifically - look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group Plants - tree, bush, herb, names of plants they see Animals, including humans - spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy,frost, puddles, windy, rainbow, animals, young, plants, flowers Living things and their habitats - names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice, hair (e.g. black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (e.g. blue, brown, green, grey), skin (e.g. black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman Materials - ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat,</p>		
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	paper, card, fabric	waterproof, soggy, not waterproof, best, change, change back Seasonal change - spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers		
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Key stage 1

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos. 'Working scientifically' is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

PROGRESSION OF SKILLS	Year 1	Year 2
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<p>Working Scientifically</p>	<ul style="list-style-type: none"> ● Ask simple questions and recognise that they can be answered in different ways ● Use simple equipment to observe closely ● Perform simple tests ● Identify and classify ● Use observations and ideas to suggest answers to questions ● Gather and record data to help in answering questions 	<ul style="list-style-type: none"> ● Ask simple questions and recognise that they can be answered in different ways including using scientific vocabulary ● Use simple equipment to observe closely including changes over time ● Perform simple comparative tests ● Identify, group and classify ● Use observations and ideas to suggest answers to questions noticing similarities, differences and patterns ● Gather and record data to help in answering questions including from secondary sources of information
	<p><u>Golden words</u></p> <p>observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing,picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore, equipment,resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions,interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources</p>	<p><u>Golden words</u></p> <p>observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing,picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore, equipment,resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions,interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources</p>
<p>Plants</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 	<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



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	<p><u>Golden words</u></p> <p>leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, names of trees in the local area, names of garden and wild flowering plants in the local area</p>	<p><u>Golden words</u></p> <p>light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling</p>
<p>Animals Including Humans</p>	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <ul style="list-style-type: none"> · 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 associated with each sense 	<p>Understand that animals, including humans, have offspring which grow into adults</p> <ul style="list-style-type: none"> · 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



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	<p><u>Golden words</u></p> <p>head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, names of animals experienced</p> <p>first-hand from each vertebrate group, parts of the human body including those within the school's RSE policy, senses, touch, see, smell,</p> <p>taste, hear, fingers, skin, eyes, nose, ears, tongue</p>	<p><u>Golden words</u></p> <p>offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/chicken,</p> <p>kitten/cat, caterpillar/butterfly), survive, survival, water, food, air, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g.</p> <p>meat, fish, vegetables, bread, rice, pasta, dairy)</p>
<p>Living things and their Habitats</p>		<p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p> <ul style="list-style-type: none"> · 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 micro-habitats · 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



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	<p><u>Golden words</u></p> <p>names of garden and wild flowering plants in the local area (Y1 - Plants)</p> <p>head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, names of animals experienced</p> <p>first-hand from each vertebrate group (Y1 - Animals, including humans)</p> <p>weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost,</p> <p>puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length (Y1 - Seasonal changes)</p>	<p><u>Golden words</u></p> <p>living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of</p> <p>local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny,</p> <p>wet, damp, dry, hot, cold, names of living things in the habitats and micro-habitats studied</p>
Materials	<p>Distinguish between an object and the material from which it is made</p> <ul style="list-style-type: none">· 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	<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· Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching



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	<p><u>Golden words</u></p> <p>object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft,</p> <p>stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through</p>	<p><u>Golden words</u></p> <p>opaque, transparent, translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching</p>
Seasonal Changes	<p>Observe changes across the four seasons</p> <ul style="list-style-type: none">· Observe and describe weather associated with the seasons and how day length varies	
	<p><u>Golden words</u></p> <p>weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost,</p> <p>puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length</p>	

Highlighted sections indicate skills needed to be at the expected standard.