

Science Curriculum Skills

	Asking questions, planning and predicting	Investigating, observing and measuring	Identifying, classifying and recording data	Drawing conclusions, noticing patterns and presenting findings	Using scientific evidence	Key vocabulary
EYFS	comment and ask questions about aspects of their familiar world, such as the place where they live of the natural world	<p>observe the physical effects of exercise on their bodies</p> <p>talk about some of the things they have observed, such as plants, animals, natural and found objects</p> <p>develop an understanding of growth, decay and changes over time</p> <p>show care and concern for living things and the environment</p>	talk about why things happen and how things work	<p>look closely at similarities, differences, patterns and change</p> <p>ELG: know about similarities and differences in relation to places, objects, materials and living things</p> <p>ELG: talk about the features of their own immediate environment and how environments might vary from one another</p>		<p>weather, sunny, raining, windy, snowy, dry, clear, cloudy, cold, warm, hot</p> <p>light, dark, sun, moon, stars, lamp, shadow, day, night</p> <p>bendy, stretchy, squishy, smooth, rough, hard, soft, see-through, feel, texture</p> <p>plant, flower, seed, leaves, green, roots</p> <p>egg, warm, bird, chick, crack</p> <p>same/different, like/dislike, notice,</p>
Year 1	<p>NC: asking simple questions and recognising that they can be answered in different ways</p> <p>explore the world around them, leading them to be curious and ask questions about what they notice</p> <p>begin to recognise ways in which they might answer scientific questions, and suggest simple ways to test ideas</p> <p>ask people questions</p> <p>suggest what might happen</p>	<p>NC: observing closely, using simple equipment</p> <p>NC: performing simple tests</p> <p>make observations using appropriate senses</p> <p>observe changes over a period of time</p> <p>experience different types of scientific enquires, including practical activities</p>	<p>NC: identifying and classifying</p> <p>NC: gathering and recording data to help in answering questions</p> <p>use simple features to group and classify things</p> <p>with support, begin to record simple data</p>	<p>NC: using their observations and ideas to suggest answers to questions</p> <p>begin to notice patterns and relationships</p> <p>begin to use simple scientific language to talk about what they have found out and how they found it out; communicate findings in simple ways</p>		<p>inventor, scientist, botanist, meteorologist, observe, explore, notice, record</p> <p>amphibians, birds, fish, mammals, reptiles, carnivore, herbivore, omnivore, sight, hearing, touch, taste, smell, head, neck, ear, mouth, shoulder, hand, fingers, leg, foot, thumb, eye, nose, knee, toes, teeth, elbow, torso, head, skull</p> <p>leaves, trunk, branch, root, seed, bulb, flower, petals, stem, wild, garden, weed, deciduous, evergreen</p> <p>object, material, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy/not bendy, waterproof/not waterproof, absorbent, opaque, transparent, paper, fabric, stone, brick, plastic, wood, metal, glass</p> <p>seasons, spring, summer, autumn, winter, weather, daylight, windy, sunny, overcast, snow, rain, temperature</p>
Year 2	<p>NC: asking simple questions and recognising that they can be answered in different ways</p> <p>suggest some ideas and questions linked to the science they are studying</p> <p>think about how to use different types of scientific enquiry in order to collect evidence and information to answer their own questions</p>	<p>NC: observing closely, using simple equipment</p> <p>NC: performing simple tests</p> <p>carry out simple practical tests, including comparative tests, using simple equipment to make observations and comparisons</p> <p>talk about the aim of the scientific tests they are working on</p>	<p>NC: identifying and classifying</p> <p>NC: gathering and recording data to help in answering questions</p> <p>use simple features to compare objects, materials and living things, and decide how to group them</p> <p>use simple secondary sources of information</p>	<p>NC: using their observations and ideas to suggest answers to questions</p> <p>with support, communicate their ideas and findings to a range of audiences in a variety of ways, using simple scientific language</p> <p>state whether what happened was what was expected</p>		<p>inventor, scientist, biologist, botanist, conservationist, observe, explore, notice, record, compare</p> <p>adult, develop, life cycle, offspring, reproduce, young, live young, diet, disease, energy, exercise, germs, hygiene, nutrition, pulse, heart rate</p> <p>materials, suitability, properties, waterproof, fabric, rubber, cars,</p>

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	<p>suggest what might happen</p> <p>think about and discuss whether comparisons and tests are fair or unfair</p>	<p>use simple measurements and equipment to gather data</p>	<p>record data in simple ways (e.g. tables)</p>			<p>rock, paper, cardboard, wood, metal, plastic, glass, brick, twisting, squashing, bending</p> <p>observe, grow, compare, record, predict, measure, diagram, germinate, germination, seed, sprout, dispersal, warmth, sunlight, water, temperature</p> <p>living, dead, never alive, depend, survive, habitat, micro-habitat, food, food chain, food sources, woodland, urban, coastal, rainforest, arctic, desert, ocean, river, mountain</p>
Year 3	<p>NC: asking relevant questions and using different types of scientific enquiries to answer them</p> <p>NC: setting up simple practical enquiries, comparative and fair tests</p> <p>start to raise their own relevant questions about the world around them</p> <p>start to make their own decisions about the most appropriate type of scientific enquiry that might use to answer questions</p> <p>recognise when a simple fair test is necessary and consider what constitutes a fair test</p> <p>make simple predictions</p>	<p>NC: making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, units a range of equipment, including thermometers and data loggers</p> <p>observe changes over time</p> <p>carry out simple comparative tests</p> <p>collect data from their own observations and measurements using notes, simple tables and standard units</p>	<p>NC: gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>NC: recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>group and classify things scientifically</p> <p>find things out using secondary sources of information</p> <p>help to make decisions about how to record, present and analyse data, including the use of drawings, labelled diagrams and tables</p>	<p>NC: reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>NC: using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>look for naturally occurring patterns and relationships</p> <p>draw simple conclusions</p> <p>use some scientific language to talk about what they have found out</p>	<p>NC: identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>NC: using straightforward scientific evidence to answer questions or to support their findings.</p> <p>use straightforward scientific evidence to answer questions</p> <p>recognise when and how secondary sources of information might help them to answer questions that cannot be answered through practical investigations</p>	<p>inventor, scientist, nutritionist, geologist, botanist, observe, explore, notice, record, compare, predict, group, classify, evidence, conclusion</p> <p>support, anchor, reproduction, fertilisation, pollination, dispersal, germination, transportation, root, stem, leaves, flower, nutrient, evaporation, energy, growth, seedling, carbon dioxide, oxygen, petal, stamen, carpel, sepal, ovule, stigma, style, anther, filament, photosynthesis</p> <p>force, push, pull, friction, surface, magnet, magnetic, magnetic field, pole, north, south, attract, repel, compass</p> <p>healthy, nutrients, nutrition, energy, carbohydrates, protein, fats, vitamins, minerals, water, fibre, vertebrates, invertebrates, skeleton, bones, joints, endoskeleton, exoskeleton, hydrostatic skeleton, skull, clavicle, ribcage, scapula, humerus, ulna, radius, pelvis, femur, tibia, fibula, muscles, tendons, contract, relax</p> <p>rocks, igneous, metamorphic, sedimentary, magma, lava, sediment, permeable, impermeable, density, durable, fossilisation, palaeontology, erosion, permeate, soil, baserock, sub-soil, top-soil, mineral, organic matter</p> <p>light source, dark, reflect, reflection, reflective, ray, mirror, bounce, visible, beam, sun, glare, travel, straight, opaque, shadow, block, transparent, translucent. pupil, retina,</p>

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<p>Year 4</p>	<p>NC: asking relevant questions and using different types of scientific enquiries to answer them</p> <p>NC: setting up simple practical enquiries, comparative and fair tests</p> <p>raise their own relevant questions in response to a range of scientific experiences</p> <p>help to make decisions about the most appropriate type of scientific enquiry they might use to answer questions; put forward ideas about testing</p> <p>recognise why it is important to collect data to answer questions</p> <p>help decide how to set up a fair test, making decisions about what observations to make, how long to make them for and the type of simple equipment that might be used</p> <p>make predictions</p> <p>identify new questions arising from their data</p>	<p>NC: making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, units a range of equipment, including thermometers and data loggers</p> <p>make systematic and careful observations</p> <p>carry out simple comparative and fair tests</p> <p>begin to think about why measurements should be repeated</p> <p>learn how to use new equipment, such as data loggers, appropriately</p>	<p>NC: gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>NC: recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>talk about criteria for grouping, sorting and classifying and use simple keys</p> <p>find things out using a range of secondary sources of information</p> <p>make own decisions about how to record, present and analyse data, including the use of drawings, labelled diagrams, bar charts and tables</p>	<p>NC: reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>NC: using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions</p> <p>use relevant scientific language to discuss their ideas and write about what they have found out for different audiences</p> <p>identify whether evidence supports predictions</p> <p>suggest improvements to investigations</p>	<p>NC: identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>NC: using straightforward scientific evidence to answer questions or to support their findings.</p> <p>make links between their own science results and other scientific evidence</p> <p>identify similarities, differences, patterns and changes relating to simple scientific ideas and processes</p>	<p>inventor, scientist, conservationist, environmentalist, biologist, observe, explore, notice, record, compare, predict, group, classify, evidence, conclusion, results, investigation, measurements</p> <p>herbivore, carnivore, omnivore, digestive system, tongue, mouth, teeth, oesophagus, stomach, gall bladder, small intestine, pancreas, large intestine, rectum, liver, tooth, canine, incisor, molar, decay, premolar, producer, predator, prey, consumer</p> <p>electricity, generate, renewable, non-renewable, electric current, appliances, mains, circuit, electrons, crocodile clips, wires, bulb, battery cell, battery holder, motor, buzzer, switch, conductor, insulator, component</p> <p>solid, liquid, gas, particles, state, materials, properties, matter, melting, freezing, water, ice, temperature, process, condensation, evaporation, water vapour, energy, precipitation, collection</p> <p>amplitude, volume, quiet, loud, ear, pitch, high, low, particles, instruments, wave, vibration, distance, soundproof, vacuum, eardrum,</p> <p>environment, flowering, nonflowering, plants, animals, vertebrates, fish, amphibians, reptiles, mammals, invertebrate, human impact, nature reserves, deforestation</p>
<p>Year 5</p>	<p>NC: planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>NC: using test results to make predictions to set up further comparative and fair tests</p> <p>explore and talk about their ideas, raising different kinds of scientific questions</p> <p>select and plan the most appropriate type of scientific enquiry to use to answer scientific questions, including comparative and fair tests</p>	<p>NC: taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>carry out a fair test, explaining why it is fair</p> <p>observe changes over different periods of time</p> <p>choose the most appropriate equipment to make measurements</p> <p>understand why observations and measurements need to be repeated</p>	<p>NC: recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>find things out using a wide range of secondary sources of information</p> <p>decide how to record and present data from a choice of familiar approaches, including tables, bar charts and line graphs, whilst making appropriate use of ICT</p>	<p>NC: reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</p> <p>identify patterns and trends and offer explanations for these</p> <p>look for causal relationships in their data and identify evidence that supports or refutes their ideas</p> <p>draw conclusions based on their data and observation</p>	<p>NC: identifying scientific evidence that has been used to support or refute ideas or arguments</p> <p>use primary and secondary sources of evidence to justify ideas</p> <p>identify evidence that refutes or supports their ideas</p>	<p>inventor, scientist, astronaut, astronomer, naturalist, observe, explore, notice, record, compare, predict, group, classify, evidence, conclusion, results, investigation, measurements</p> <p>solid, liquid, gas, particles, state, materials, properties, matter, melt, freeze, water, ice, temperature, process, condensation, evaporation, water vapour, energy, hardness, solubility, transparency, conductivity, magnetism, insulator, transparent, flexible, permeable, soluble, property, magnetic, hard, conductor, melting, freezing, evaporating, dissolving, dissolve, soluble,</p>

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	<p>make their own decisions about what observations to make, what measurements to use and how long to make them for</p> <p>make predictions based on scientific knowledge</p>			<p>use evidence and relevant scientific language and illustrations to discuss, communicate and justify their ideas</p> <p>suggest improvements to their work, giving reasons</p>		<p>insoluble, suspension, solution, chemical, physical, irreversible, reversible, separate, mixture, sieving, filtering, reactant</p> <p>sun, star, moon, planet, dwarf planet, axis, rotation, orbit, day, night, phases of the moon, constellation, waxing, waning, crescent, gibbous. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, solar system, spherical, geocentric, heliocentric, satellite,</p> <p>force, air resistance, water resistance, friction, buoyancy, streamlined, gravity, gravitational pull, weight, mass, Newtons, gears, pulleys, opposing, brake, mechanism, levers, cogs</p> <p>reproduction, asexual reproduction, sexual reproduction, offspring, fertilise, gestation, life cycle, monotreme, metamorphosis, pollination, pollen, petal, stamen, carpel, sepal, ovule, stigma, style, anther, filament</p> <p>fertilisation, prenatal, foetus, uterus, infancy, childhood, adolescence, adulthood, puberty, menstruation, breasts, penis, testes</p>
Year 6	<p>NC: planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>NC: using test results to make predictions to set up further comparative and fair tests</p> <p>ask their own questions about scientific phenomena</p> <p>suggest methods of testing including a fair test and how to collect evidence, ensuring it is sufficient and appropriate</p> <p>explain which variables need to be controlled and why</p> <p>make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them</p>	<p>NC: taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>carry out a fair test, identifying key factors to be considered</p> <p>explain how to use equipment accurately in order to achieve precise results</p> <p>decide when observations and measurements need to be checked by repeating and giving more reliable data, and understand why we take an average in repeat readings</p>	<p>NC: recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>use and develop keys and other information records to identify, classify and describe living things and materials</p> <p>recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact</p> <p>communicate findings in tables, bar charts, line graphs and scatter graphs, whilst making appropriate use of ICT</p>	<p>NC: reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</p> <p>identify patterns that might be found in the natural environment</p> <p>identify trends and results that do not appear to fit a pattern</p> <p>draw conclusions, using scientific knowledge and understanding to explain their findings</p> <p>use results to identify when further tests and observations might be needed</p> <p>discuss the degree of trust they can have in a set of results</p> <p>make practical suggestions for improving methods in their work</p>	<p>NC: identifying scientific evidence that has been used to support or refute ideas or arguments</p> <p>talk about how scientific ideas have developed over time</p> <p>use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas</p>	<p>inventor, scientist, physician, chemist, biologist, botanist, physics, chemistry, biology, observe, explore, notice, record, compare, predict, group, classify, evidence, conclusion, results, investigation, measurements, reliability</p> <p>light source, reflection, incident ray, reflected ray, mirror, bounce, visible, beam, sun, glare, travel, incidence, straight, opaque, shadow, block, transparent, translucent, absorb, emitted, scattered, refraction, spectrum, prism,</p> <p>electricity, circuit, cell, battery, symbol, current, amps, voltage, resistance, electrons, indicator, lamp, bulb, wire, motor, buzzer, switch, series circuit, parallel circuit, broken circuit,</p> <p>classify, sort, group, similarities, differences, compare, characteristics, observable, Linnean, classification, standard, domain, kingdom, phylum, class,</p>

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	<p>make predictions based on scientific knowledge and understanding</p>					<p>order, family, genus, species, vertebrates, invertebrates, mammals, bird, insects, reptiles, amphibians, fish, arachnids, annelids, crustaceans, echinoderms, molluscs, micro-organisms, fungus, bacteria, virus, microscopic, mould, cell, nucleus, DNA, plants, flowering, non-flowering, moss, fern, fruit</p> <p>offspring, inheritance, variations, characteristics, adaptation, acquired, environment, habitat, adaptive traits, inherited traits, evolution, natural selection, fossil</p> <p>circulatory system, heart, pulmonary, alveoli, gas exchange, blood vessels, artery, vein, capillary, oxygenated, deoxygenated, nutrients, oxygen, carbon dioxide, exchange, villi, muscle, kidneys, liver, lungs, exercise, drugs, alcohol, tobacco</p>
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