



FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
BIOLOGY						
Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal.	Plants	Plants	Plants			
Understand the key features of the life cycle of a plant and an animal.	Animals Including Humans	Animals Including Humans	Animals Including Humans	Animals Including Humans	Animals Including Humans	Animals Including Humans Evolution and Inheritance
Begin to understand the need to respect and care for the natural environment and all living things.		Living Things and Their Habitats		Living Things and Their Habitats	Living Things and Their Habitats	Living Things and Their Habitats
CHEMISTRY						
Explore collections of materials with similar and/or different properties. Talk about the differences between materials and changes they notice.	Everyday Materials	Everyday Materials	Rocks	States of Matter	Properties and Changes of Materials	
PHYSICS						
Understand the effect of changing seasons on the natural world around them.	Seasonal changes				Earth and Space	
Explore and talk about different forces they can feel.			Forces and Magnets		Forces	
			Light	Sound		Light
				Electricity		Electricity

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KS1				
Knowledge			Skills	Vocabulary
Y1	Plants	Identify and name a variety of common and wild garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees	Ask simple questions and recognising that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Be able to identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answer questions.	deciduous, coniferous, evergreen, roots, stem, stalk, branch, leaves, petals, fruit
	Animals Inc. Humans	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 and label the basic parts of the human body and say which part of the body is associated with each sense.		Fish, amphibians, reptiles, birds, mammals, Carnivores, Herbivores, Omnivores, tame, wild, nocturnal, Body, human ,nose, ear, mouth, hands, Feet, torso, head, skull, sense, smell, touch, hear, taste, sight, David Attenborough
	Everyday Materials	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.		Materials, wood, plastic, metal, glass, liquid, gas, water, rock, Stretch, stiff, bend, waterproof, shiny, flexible, hard, soft, absorbs
	Seasonal Changes	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.		Season, Autumn, Winter, Spring, Summer, fall, weather, temperature, thermometer, weather symbol,
Y2	Plants	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.	Ask simple questions and recognising that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Be able to identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answer questions.	deciduous, evergreen, blossom, bulb, trunk, stem, bud, woodland, habitat, oxygen, measure, dissect, germinate, seeds, indigenous, suited, root, crown,
	Animals Including Humans	Notice that animals have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food, air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		exercise, proteins, carbohydrates, fats, nutrition, hygiene, balanced diet, energy, hydrate(hydration),
	Everyday Materials	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.		Metal, plastic, wood glass, brick, rock, paper, card, Charles Macintosh, John McAdam, John Dunlop Rip, squashing, bending, twisting, stretching, states, shapes, suitability, absorbent,
	Living Things and their Habitats	Explore and compare 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 – meeting the 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, identify and name different sources of food.		Habitat, micro habitat, Rivers, woodland, ponds, sea, desert, rainforest, species, microhabitats, Food chain, Predator, Prey, source, mini-beast dead, alive, light, water air, warmth, offspring, survival,

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LKS2				
Knowledge			Skills	Vocabulary
Y3	Plants	Identify and describe the functions of different parts of a plant. Explore what different plants needs for growth and life and how this varies from plant to plant. Investigate the way water is transported within plants. Explore life cycles of flowering plants, i.e. pollination, seed formation and dispersal.	Respond to suggestions Begin to put forward ideas about testing. Make predictions. Begin to consider what constitutes a fair test. With support, plan and carry out a fair test. Make observations and comparisons. Use simple measuring equipment for length, volume and time. Communicate findings in a variety of ways. Begin to draw simple conclusions. Begin to identify simple patterns and suggest possible explanations.	Roots, stem/trunk, leaves and flowers, air, light, water nutrients, transported, life cycle, pollination, seed formation, seed dispersal, stigma, anther.
	Animals Inc. Humans	Identify that humans and animals have skeletons and muscles and what these are for (support, protection, movement) Identify different nutrition animals and humans need and that they cannot make their own food; they get nutrition from what they eat.		Nutrition, skeleton, muscles, protection, diet, joint, pelvis, cartilage, rib cage, tendon, spine.
	Rocks	That soils are made from rocks and organic matter. The basics of how fossils are formed. Soil is made from rocks and organic matter.		Fossils, trapped, organic, absence, crystals, sedimentary, metamorphic, igneous.
	Light	That we need light to see objects. Light is reflected from surfaces. Light from the Sun can be dangerous and how to protect our eyes. Shadows are formed when light is blocked. Find patterns in how shadows change.		Reflected, surfaces, opaque, transparent, translucent, convex, concave, shadows, light source Isaac Newton
	Forces and Magnets	Objects move differently on different surfaces. Some forces need contact but others do not i.e. magnetic forces. Magnets have two poles. Magnetics both attract and repel each other. Identify and know 'everyday' objects that are magnetic and those which aren't. Group the materials accordingly.		Magnetic, forces, attraction, attract, repel, poles.
Y4	Living Things and their Habitats	Recognise living organisms are grouped in different ways. Explore and use classification keys to group, identify and name living things in the local and wider environment. That environments change and how these changes affect living organisms.	Recognise the importance of collecting data to answer questions. Suggest questions to be tested. Make predictions explaining reasons for these. State what constitutes a fair test within the unit context. Make relevant observations and comparisons. Use a range of measuring equipment for temperature, time and forces. With support, communicate why measurements may need to be repeated. With support, carry out a fair test explaining what makes it a fair test.	Classification, keys, digestion, stomach, acid, pancreas, oesophagus, intestine, organ.
	Animals Inc. Humans	The basic parts of the digestive system. Identify the different types of teeth humans have and their function. Construct and interpret food chains containing producers, prey and predators.		Incisor, molar, premolar, canine. Food chain, producer, predator, prey.
	States of Matter	Compare and group materials that are solid, liquid and or gas. Some materials change state when heated/cooled. Measure or research the temperature this happens to water in °C. Explain how evaporation, condensation is part of the water cycle. Associate rate of evaporation with temperature.		Solids, liquids, gases, state of matter, evaporation, condensation, precipitation, substance.
	Sound	How sound is made i.e. vibration and that the vibrations travel to the ear. Find patterns between the pitch (frequency) of the sound and features of the object that produces it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Sound volume becomes fainter as the distance increases from sound source.		Vibration, pitch/frequency, volume, strength, application, insulator, outer and inner ear, cochlea, auditory, hammer Alexander Graham Bell

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	Electricity	Name common devices that need electricity to work. Construct a simple series electrical circuit identifying names of the basic parts – cell, wires, buzzer, switch and bulb. That a switch opens and closes a circuit – associate this with whether or not a lamp will light in a simple series circuit. Know common conductors and insulators of electricity (associate metals with being good conductors. Link to basic safety i.e. not to put water near plugs as this is a good conductor of electricity.	Explain what the evidence shows from testing and link this back to predictions made earlier. Begin to suggest improvements for future experiments.	Circuit, cells, battery, wires, buzzers, switches, socket, conductor, insulator, appliances. Thomas Edison
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UKS2				
Knowledge			Skills	Vocabulary
Y5	Living Things and their Habitats	Differences in the life cycles of mammals, amphibians and birds. Explaining the life processes of reproduction of plants and animals.	Make predictions based on scientific knowledge. Suggest method of testing with clear reference to fair testing. Suggest how to collect evidence. Select suitable equipment. Carry out fair tests explaining why they are fair. Understand and begin to explain why observations and measurements need to be repeated. Communicate findings in different ways. Identify trend and patterns observed offering explanations for these. Communicate findings in tables, charts and graphs beginning to use ICT. Draw conclusions using appropriate scientific language. Suggests improvements for future experiments giving reasons.	Life cycle, amphibian, reptile, reproduction, gestation, classification, reproduction, puberty, embryo, toddler.
	Properties and Changes of Materials	Describe properties of everyday materials i.e. hardness, solubility, transparency, conductivity, response to magnets. Explain what a solution is and how recover a substance from one. Know how mixtures can be separated i.e. filtration, evaporation, dissolving. Demonstrate that dissolving, mixing and changes of state are reversible. Know some changes are irreversible and form new materials (eg. burning)		Properties, conductivity, thermal, magnetic. Dissolve, solution, mixture, separated, evaporation, reversible, irreversible.
	Earth and Space	Know that the Sun, Earth and Moon are roughly spherical. Describe the movement of the Earth and other planets in relation to the Sun. Explain the movement of the Moon to the Earth with relative times i.e. lunar month. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky (orbit)		Axis, spherical, clockwise, anticlockwise, rotation, gravity, orbit, solar system, lunar, crescent moon, gibbous moon, waxing, waning, eclipse.
	Forces	Objects fall due to gravity pulling them to the centre of the Earth. Identify the effects of air resistance, water resistance, and friction with 'real life' objects as examples. Recognise that some mechanisms, including levers, pulleys and gears allow a smaller force to have a greater effect.		Resistance, air resistance, water resistance, friction, Newton , Galileo . Mechanism, lever, pulley, gear, force, cam.
	Animals Inc. Humans	Describe the changes of humans as they age.		reproduction, puberty, embryo, toddler.
Y6	Living Things and their Habitats	How living organisms can be classified into different groups according to common observable characteristics including similarities and differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specifying characteristics.	Make accurate predictions based on scientific knowledge Suggest different methods of testing including a fair test. Suggest different ways of collecting evidence ensuring it is sufficient and appropriate. Carry out a fair test identifying key factors to be considered and considering possible pitfalls beforehand. Make a variety of relevant observations and measurements using varied equipment accurately.	Characteristics, micro-organisms, vertebrates, invertebrates, species, fungi, bacteria, algae, Protista.
	Animals Inc. Humans	Know the main parts of the human circulatory system. Name the main parts of a heart, describe the heart's functions, blood vessels and blood. recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function. Describe the way nutrients and water are transported within animals, including humans.		Circulatory system, blood, vessels, capillaries, ventricles, pulse, cardiovascular, aorta, veins,
	Evolution and Inheritance	Explain how living organisms have changed over time and that fossils provide information about creatures that lived millions of years ago. Living creatures provide offspring that have similar features to their parents but are not identical to them. Explain (using examples) how animals and plants are adapted to suit their environment and that adaptation may lead to evolution.		Fossils, adaptation, evolution, environment, inheritance, palaeontologist, Charles Darwin , Mary Anning , genes, chromosomes.

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	Light	Light travels in straight lines. Object are visible due to light reflects into the eye. Explain how we see objects with reference to light source, objects and eyes. Explain how shadows are formed and why some objects have them and others do not.	Decide when and how often observations and measurements need to be checked. Communicate findings in tables, charts and graphs making appropriate use of ICT.	Reflect, refract, sources, shadows, convex, concave, filters, lens, retina, cornea, iris, pupil, wave, source.
	Electricity	Use recognised symbols we drawing circuits. Associate the brightness of a lamp/volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function increase and decrease the brightness/volume of a bulb/buzzer, the on/off position of switches.	Identify, trends, patterns and results that appear to be anomalies and suggest reasons for these. Provide explanations for difference in observations and measurements. Draw conclusions and communicate these in detail using appropriate scientific language. Make practical suggestions for improving methods in their work.	Circuit, parallel, conductor, insulator, series, volts, fuses, Thomas Edison, turbine, generator.

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WORKING SCIENTIFICALLY SKILLS PROGRESSION				
Skill	EYFS	KS1	Lower KS2	Upper KS2
Autumn 1 Prediction and Questioning	<i>They talk about the features of their own immediate environment and how environments might vary from one another.</i> Give children 'Question Words' – How...? Will...? What....? Why....? Can they think of questions using those words? <i>I wonder what would happen if...? adult prompts, then child led.</i> Children ask and answer questions, using question prompts modelled by adults. Video children making their predictions Plenty of free play to develop curiosity - exploring immediate environment and familiar concepts – e.g. icy weather/ water running down pipes. Question, answer, think	<i>asking simple questions and recognising that they can be answered in different ways</i> Teacher sets up experiments at the start of the year. Focus is on prediction and where the experiment could go next, e.g. 'I wonder what happens if the water is hotter'. Write speech bubbles/thought bubbles and display in their books/working wall. Adult modelling of specific scientific questions/child led specific scientific questions. Adult modelling of answering scientific questions/child led answering of scientific questions. Video children making their predictions Science thinking cap or crystal ball – pass this object around the circle, what do you predict is going to happen? Predict, notice	<i>asking relevant questions and using different types of scientific enquiries to answer them</i> Stem sentences to encourage scientific questioning e.g. Will _____ affect _____? Prediction, investigate, affect, effect	<i>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</i> <i>using test results to make predictions to set up further comparative and fair tests</i> Having secondary data from tests or other classes – where would you take this next? Using this data, what do you think will happen? Hypothesis, opinion, enquiry, extend Child led questions, hypothesis, theory, debating, problem solving, prove it when predicting and making further predictions based on further results and evidence. Use of secondary data when predicting, e.g. graphs for prediction.

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Autumn 2 Method and Fair Testing	<i>explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</i> Children to write a simple sentence under photograph. Explore	<i>performing simple tests</i> Children begin to undertake experiments, scaffolded by adult, with adult led and questions, followed by child led questions. Teacher gives children a question and equipment and chn to plan their method. How could we test this? What are we expecting to see? Annotating photographs of them carrying out the investigation Drawing their method Discussion on fair testing and how we just change one thing – which thing are we going to change? Tell me two things we will keep the same. Equipment, test, method	<i>setting up simple practical enquiries, comparative and fair tests</i> Adult provides experiment for children to undertake and children encouraged to predict what will happen next and further questions to ask. Discuss how clear your method could be – if I gave your experiment method to someone else, they should be able to carry out the experiment for you because your instructions are so clear. Independent, child led, experiments with scaffolding where appropriate. Children organise experiment in groups. Children begin to undertake experiments in pairs and groups, at first modelled and scaffolded by adult, with child led and questions. Child generated questions and predictions. Adult led discussion, questioning and theorising about scientific concepts. Adult and child led discussion, questioning and theorising. Model an experiment with the question and then change everything. At the end, discuss how we don't know what caused this outcome because everything changed. Look at examples of methods from made-up children. Whose method shows fair testing? Comparative tests, fair test, variables	<i>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</i> Look at examples of methods from made-up children. Whose method shows fair testing? Vocab – independent and dependent variables Independent variables, dependent variables, controlled variable
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Spring 1 Observation	<i>Looks closely at similarities, differences, patterns and change.</i> <i>Children know about similarities and differences in relation to places, objects, materials and living things.</i> Look, closely, describe, different, same	<i>observing closely, using simple equipment</i> <i>identifying and classifying</i> Encouraging to observe closely, e.g. magnifying glasses, microscopes. Observe, notice, comparatives (bigger, smaller, hotter, colder, brighter)	<i>making systematic and careful observations</i> Understanding that people can observe and perceive things differently. When listening as observation, make sure same person makes the final observation. Recognise when secondary sources may help them to answer questions that cannot be answered through practical investigations. Magnify, observation, appearance, compare, similarities, difference, classification keys, secondary sources	Make careful observations. Discussions of whether observations are enough. Understanding that people can observe and perceive things differently. Perceive, interpret
Spring 2 Measuring accurately and recording	Using balance scales to compare weights. Using egg timer to compare times. Comparing heights Scales, timer, weight, height, beaker	<i>gathering and recording data to help in answering questions.</i> Tables might just be folded paper at the beginning, moving onto creating a group one out of masking tape on the table/carpet. Discussion about the left side of the table being what you are changing and the right side being the measurements. Ruler, tape measure, metre tick, centimetres, stop watch, seconds, minutes	<i>taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</i> Lessons on measuring accurately and what unit of measurement we will use Lessons on how to read scales and what scales tend to go up in (20, 25, 50 100, 500) Discussion about how the squares help us with the table and how the left side is usually what you change and the right column is the measurement. Accurate, thermometer, millimeters, metres, data loggers	<i>taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</i> Taking repeat readings and finding an average Covert, precise, repeat readings

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Summer 1 Graphs	Create a human bar graph. Who has blue eyes? Who has green eyes? Line children up like a bar graph. How many more children have brown eyes than blue eyes? Arranging objects/pictures to make a bar graph e.g. How many leafs could we find? How many flowers could we find? How many more flowers could we find than leaves? Group, count, comparatives (more/less, bigger/smaller)	<i>gathering and recording data to help in answering questions.</i> physical graphs - children lining up to create a human bar graph, using masking tape on the table to create axis with post-it labels along the bottom and numbers up the side Axis, title, table, block graph, tally chart, gather, record	<i>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</i> <i>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</i> Teacher draws out half the bar chart on squared paper and discussion about what they notice and chn finish it based on secondary data → in their science books Bar chart, axis labels, results, data, present	<i>recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</i> Line graphs to compare investigations Y axis, x axis,
Summer 2 Findings and drawing conclusions	<i>They select and use technology for particular purposes. Explain why some things occur, and talk about changes.</i> May use computers to type simple sentences. Video themselves/each other talking about what happened in their experiment. Draw changes they saw. Changes	<i>using their observations and ideas to suggest answers to questions</i> Post-it notes on Science working wall – tell me one thing you found out from that experiment. Generated texts from scientists – ‘I have heard that you have investigated____. Tell me what you have found out!’ Creating a guide based on what they found out e.g. which drinks are worse for your teeth. Compare, results, found out, patterns	<i>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</i> <i>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</i> <i>identifying differences, similarities or changes related to simple scientific ideas and processes</i> <i>using straightforward scientific evidence to answer questions or to support their findings.</i> Generated texts from scientists – ‘I have heard that you have investigated____. Tell me what you have found out!’ Creating a guide based on what they found out e.g. which drinks are worse for your teeth. Increase, decrease, evidence, conclusion, findings	<i>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</i> <i>identifying scientific evidence that has been used to support or refute ideas or arguments.</i> Generated texts from scientists – ‘I have heard that you have investigated____. Tell me what you have found out!’ Creating a guide based on what they found out e.g. which drinks are worse for your teeth. Presentations of findings to the class Research of other scientists Support, refute, reliable, prove, contradict

Throughout the year, we are constantly revisiting the skills we have learnt previously so children should be independent with those skills as the year goes on. By the end, the children should be able to carry out the skills without as much adult scaffolding.

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