

Science Progression Grid

As part of our school curriculum progression, we have identified key skills, knowledge and vocabulary that is taught in the EYFS as a foundation to support the learning of the National Curriculum and the next steps of learning in Year 1.

Science

Key skills I will have learnt	I will be able to	Vocabulary	<i>End of year assessment</i> Relevant Early Learning Goals
- That my actions have an effect on the world - To explore different resources and materials - To be inquisitive about the world around me - To make choices as a result of what I have learnt - To use different strategies to reach a goal - Begin to question my mistakes and think about how I can correct them - To review my progress and check how I am doing towards a goal - Begin to make links between ideas and what I know - To ask questions about things I do not understand	- Describe what I can see, hear and feel - Talk about my immediate environment for example weather, plants, objects, materials and places - Talk about how things grow (including people, plants and animals) and what they need - That some things eat plants, some eat meat and some eat both; some creatures come only come out at night - Recognise that some environments are different to the one in which we live	hear, see, smell, touch, taste Spring, Summer, Autumn, Winter windy, sunny, rainy, snowy, hot, cold, ice seed, bulb, roots, stem, leaf/leaves, flower, plant, tree, baby, child, adult, egg, water, light carnivore, herbivore, omnivore nocturnal habitat, sea, desert, forest, arctic	<u>Communication and language</u> - Make comments about what they have heard and ask questions to clarify their understanding - Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary - Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate <u>PSED</u> - Be confident to try new activities and show independence, resilience and perseverance in the face of challenge <u>Understanding the world</u> - Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps - 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 seasons and changing states of matter

Year 1	Autumn 1		Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Programme of study (substantive knowledge)	Physics - Seasonal Changes How does the weather change? -I can observe changes across four seasons. -I can observe and describe weather associated with the seasons and how day length varies	Biology- Animals Including Humans How are animals similar? How are they different? -I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals -I can identify and name a variety of common animals that are carnivores, herbivores and omnivores. -I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets	Biology- Animals Including Humans What can my body do? -I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Chemistry- Materials What are the items around us made of and why? I can distinguish between an object and the material from which it is made. -I can identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock. -I can describe the simple properties of a variety of everyday materials. -I can compare and group together a variety of everyday materials on the basis of their simple properties.	Chemistry- Materials How can I identify and describe different materials? -I can distinguish between an object and the material from which it is made. -I can identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock. - I can describe the simple properties of a variety of everyday materials. - I can compare and group together a variety of everyday materials on the basis of their simple properties.	Biology - Plants What’s growing in our gardens? -To identify and describe the basic structure of a variety of common flowering plants including trees. -To identify and name a variety of common wild and garden plants including deciduous and evergreen trees
	Vocabulary	weather, seasons, sunrise, sunset, day length	fish, amphibians, reptiles, birds, mammals, mini beast.	human, sweet, sour, salty, bitter.	hard, soft, stretchy, stiff, bendy, not bendy, waterproof, not waterproof, absorbent, rough, smooth, shiny, dull, see through, not see through.		Deciduous, Evergreen blossom, petal, trunk, branch, bud, fruit, bark.
	Working scientifically (disciplinary knowledge)	Observe similarities and differences. Predict colours in a leaf. Can explain what winter feels like. Labelled diagrams Evaluate test and suggest improvements Ask simple questions	Ask questions Venn diagrams Make comparisons and give reasons. Observe features of human body Carry out tests to compare and classify Make predictions using senses.	Ask questions Venn diagrams Make comparisons and give reasons. Observe features of human body Carry out tests to compare and classify Make predictions using senses.	Use observations to classify Record in a table Ask and answer questions Simple tests Make predictions on best materials. Evaluate test	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.	Make careful observations. I can explain how a seed grows. Draw and label a plant Label parts of a plant Ask yes and no questions to classify. Make simple predictions Gathering and recording data to help in answering questions.

Year 2		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Programme of study (substantive knowledge)	Vocabulary	Biology – Living Things and their Habitats What lives here? Explore and compare the differences between things that are living, dead and things that have never been alive. -Identify most living things live in habitats to which they are suited and describe how different habitats provide for basic needs of different kinds of animals and plants and how the depend on each other. -Identify and name a variety of plants and animals in their habitat, 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.	Chemistry – materials Can any material do any job? To identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper, cardboard for particular uses. I can find out how the shape of solid objects made from materials can be changed by squashing, bending, twisting and stretching.	Biology – animals including humans How does a baby animal grow into a healthy adult? I notice that animals including humans have offspring which grow into adults. -I can find out about and describe the basic needs of animals including humans for survival. Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene.	Biology – animals including humans How do I keep my body healthy? Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene.	Biology – plants Can you describe the stages of a seed growing? To observe and describe how seeds and bulbs grow into mature plants.	Biology – plants What do plants need to grow and stay healthy? -Find and describe how plants need water, light and a suitable temperature to grow and stay healthy.
		living, dead, never been alive, suited, food chain, shelter, local habitats, micro habitats, biome, adapted.	flexible, transparent/opaque, magnetic properties, suitable, unsuitable.	offspring, life cycle, reproduction, survival, growth, survival.	exercise, pulse, food types, balanced diet, hygiene, germs.	Seeds, temperature, healthy, germinate.	
		Identify and classify materials. Labelled diagrams Draw basic conclusions Carry out simple comparative tests. Predicting best material Evaluate findings of tests			Ask questions Draw basic conclusions Record observations Use tables and pictograms Interpret results Communicate findings	Identify animals and offspring Ask simple questions Communicate findings Sort food into groups and record Plan and carry out test Make simple predictions Evaluate test Answer questions using scientific knowledge.	Identify plants using observations Use a Venn diagram to sort and classify Make observations on how a plant grows Carry out simple tests Make basic predictions Communicate clearly how plants grow Ask questions to investigate Record results/accurate measurements

Year 3	Autumn 1		Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Programme of study (substantive knowledge)	Physics – light What can light do? -To recognise we need light in order to see things and that dark is the absence of light -Light is reflected from surfaces -Recognise that light from the sun can be dangerous and that there are ways to protect your eyes. -Recognise that shadows are formed when light from a source is blocked by an opaque object. -Find patterns in the way that the shadows change.	Chemistry – rocks Are all rocks the same? -To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. -To describe in simple terms how fossils are formed when things that have lived are trapped within rock. -To recognize that soils are made from rock and organic matter.	Physics – magnets Are all materials magnetic (including other magnets)? -Compare how things move on different surfaces. -Notice that some forces need contact between two 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 two poles. -Predict whether two magnets will attract or repel each other, depending on which poles are facing.	Biology – animals including humans How do I keep my body healthy? -I can 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.	Biology – animals including humans How do our bones help us move and what would happen if we didn't have a skeleton? -I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.	Biology – Plants Why are there different parts of a flowering plant? -I can identify and describe the functions of different parts of a flowering plant. -I can explore the requirements of plant life and growth. -I can investigate the way in which water is transported within plants -I can explore the part that flowers play in the lifecycle of flowering plants including pollination, seed formation and seed dispersal.
	Vocabulary	light source, absence of light, transparent, translucent, opaque, shadow, reflect, matt.	Igneous, Sedimentary, Metamorphic, minerals, permeability, durability, fossils, organic material.	Force, contact force, non-contact force, attract, repel, poles, magnetic force, friction	nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat.	endoskeleton, exoskeleton, hydrostatic skeleton, muscles, support, movement, protect, muscles, joints.	Photosynthesis, pollen, pollination, seed formation, seed dispersal- wind dispersal, animal dispersal, water dispersal, stamens, style.
	Working scientifically (disciplinary knowledge)	Raise questions when exploring materials and light. Make predictions based on scientific questions. Set up practical comparative tests using my own ideas. Record my results in a table. Interpret my results and report on patterns found. Evaluate my test and suggest improvements. Observe what happens when an object is moved closer to a light source.	Make careful observations and identify similarities and differences. Record classifications in a table, Venn or Carrol diagram. Record my results in a table Interpret the process of fossilisation using models and pictures. Ask questions to deepen my learning about rock formation. Set up tests to answer questions.	Observe different forces Evaluate my choices and suggest further improvements. Predict whether materials are magnetic or not. Plan a fair test Record my findings using scientific drawings Use models to explain findings.	Locate and label the bones in the body Answer questions about the uses of our bones. Record using labelled drawings and scientific language. Evaluate my design and suggest improvements. Make careful observations to sort animals into groups. Make predictions from questions raised. Use scientific language to discuss ideas. Record my results in a table. Record my results in a bar chart. Evaluate my learning using scientific language.	Record my findings using labelled scientific diagrams. Plan a comparative test. Interpret my findings using scientific knowledge. Explain in detail what pollination is. Evaluate my seed spinner and suggest improvements. Look carefully at seeds.	

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 4	Programme of study (substantive knowledge)	Biology - Animals including humans What happens to the food I have eaten and how do my teeth help? 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.	Chemistry - States of matter How does water exist in all 3 states of matter? 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. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Physics - Electricity How can I light up a bulb? Identify common appliances that run on electricity. Construct 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 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.	Physics – Sound What is sound and how does it travel? 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 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.	Biology – Living things and their Habitats How are living things classified? To recognise that living things can be grouped in a variety of ways. To explore and use classification keys to help group. Identify and name a variety of living things in the environment.	Biology – Living things and their Habitats Do habitats change? How can we help them? Recognise that environments can change and this can sometimes pose dangers to living things.
	Vocabulary	Digestive system, digestion, incisor, canine, molar, pre molar, producer, consumer, predator, prey.	gases, state, particles, water vapour, evaporate, condense, condensation, precipitation, Celsius.	appliances, mains, circuit cell, battery, switch, lamp, wire, buzzer, motor, conductor, insulator.	sound source, vibrate, vibrations, pitch, volume, insulation, decibels.	Human impact, classification keys, environment, deforestation nature reserves, extinction, endangered, migrate,	
	Working scientifically (disciplinary knowledge)	Observe the similarities and differences in human /animal teeth. Interpret and present learning of digestive system through models. Set up own test to see the effects of different liquids on tooth decay. Make predictions based on Knowledge of liquids to decay teeth. Record results in a table and bar graph. Ask questions to find out what animals eat. Evaluate learning	Make careful observations and Identify similarities and differences. Make predictions using straightforward evidence and observations. Use a thermometer to take accurate measurements. Interpret what I have observed using my own scientific knowledge. Set up tests to answer questions. Record using diagrams what I know about the water cycle.	Record my work using labelled drawings Make predictions using scientific language Interpret my results using my scientific knowledge Identify the properties of different materials. Pose scientific questions Record how electricity can help us.	Observe vibrations which cause sound. Measure distance to nearest cm. Set up tests to create the best string phone. Record results in a table and spot patterns. Record sound measured in DB in a table. Produce line graph. Evaluate musical instrument based on sound and knowledge of pitch. Observe how sounds are created. Set up own tests and record results.	Observe characteristics of living things Identify similarities and differences in characteristics. Gather and record data in a table. Record observations from scientific enquiry. Ask relevant questions to classify things Use evidence to answer questions and present findings. Record findings about endangered species	

Year 5	Autumn 1		Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Physics - Forces	Physics - Earth and Space	Chemistry – Properties of Materials	Chemistry – Properties of Materials	Biology – Living things and their Habitats	Biology – Animals including Humans	
	How useful are forces? I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	How and why do the spherical bodies move in our solar system? Describe the movement of the earth and other planets, relative to the sun in the solar system. Describe the movement of the moon relative to the earth Describe the Earth, Sun and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	How do we choose the materials needed for special jobs? Compare and group together everyday materials based on their properties, including hardness, solubility, transparency, conductivity and response to magnets. Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. Use knowledge of solid, liquid and gas to decide how mixtures might be separated including through filtering, sieving and evaporation.	Are all changes to materials reversible? Give reasons based on evidence from comparative tests for the particular uses of everyday materials including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials and this kind of change is not usually reversible including changes associated with burning and the action of acid on bicarbonate of soda.	Do all animals have young in the same way? Describe the differences in life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals.	How does a foetus grow? Describe changes as humans develop from birth to old age Identify and explain physical and mental changes that occur from birth to old age Understand the changes that happen during puberty	
	Vocabulary gravity, air resistance, water resistance, mechanisms, levers, pulleys, gears, mass.	spherical, solar system, rotation, orbit, axis, celestial body.	solution, soluble, insoluble, thermal, dissolve, reversible/not reversible, conductivity.			Fertilisation, asexual, stamen, pistil, metamorphosis.	Foetus, embryo, womb, gestation, puberty, adolescent, fertilised.
Working scientifically (disciplinary knowledge)	Observe different forces and measure the force using different equipment. Set up a test to change the speed of a pendulum. Interpret and communicate results from data using scientific vocabulary Plan different types of enquiry to answer a question. Take measurements using a range of scientific equipment. Record results in a table.	Raise questions and suggest reasons for similarities and differences. Use measurement to represent planets in a model Record my work using scientific diagrams and labels. Use a model to discuss, communicate and justify scientific ideas using scientific vocabulary. Present results in a variety of ways to answer a question. Plan own test and control variables.	Evaluate my test. Make predictions about which materials are soluble and insoluble. Use scientific language and illustrations to discuss, communicate and justify ideas. Make careful observations when heating solutions. Plan my own test based on how materials react with one another. Record results in a table			Use oral and written forms to report conclusions. Present data in a variety of different ways to help answer my questions. Ask relevant questions and find ways to answer them. Make accurate and relevant predictions. Suggest next steps based on the weakest aspects of the enquiry. Record my results using a bar chart and explain the results.	Raise questions and suggest reasons for similarities and differences. Use measurement to represent planets in a model. Record my work using scientific diagrams and labels. Use a model to discuss, communicate and justify scientific ideas using scientific vocabulary. Present results in a variety of ways to answer a question. Plan own test and control variables.

Year 6	Autumn 1		Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
	Programme of study (substantive knowledge)	Biology – Animals including Humans What does my blood do? -I can identify the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood. -I can describe the ways in which nutrients and water are transported within animals including humans. -I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.	Physics- Light How does the way light travels, help us see? -Recognise that light appears to travel in straight lines. -Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. -Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. -Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	Physics – Electricity How can circuits be changed? -To compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. -To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. To use recognised symbols when representing a simple circuit in a diagram	Biology – Living things and their Habitats How and why do we classify living things? -Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences including micro-organisms, plants and animals. -Give reasons for classifying plants and animals based on specific characteristics.	Evolution and inheritance What is evolution & how does it help survival? -Recognise that living things changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. -Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to parents. -Pupils might find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution. -Identify how animals and plants have adapted to suit their environment in different ways and that adaptation may lead to evolution.	Introduction to Secondary Science Units written by Ali Hodgson from CamVC concentrating on Science skills ready for secondary school.	
		Vocabulary	circulatory system, blood vessels, vein, artery, oxygenated, deoxygenated.	straight lines, refraction, spectrum, mediums, dense.	Voltage, components, series circuit, circuit diagram, Symbol. NB Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words cells and batteries are now used interchangeable.	micro-organisms, arthropods, crustaceans, arachnids, mollusc, microbe, virus, fungus, bacteria, vertebrate, invertebrate.	adaption inheritance DNA evolution extinct natural selection species variation	
			Working scientifically (disciplinary knowledge)	Use scientific diagrams Take accurate measurements Use labelled diagrams to explain Use models to explain my thinking Plan investigation and record results. Observe what happens using a model.	Use scientific models and labelled diagrams. Use diagrams to support explanation. Make careful observations. Draw diagrams with accuracy Make predictions based on Scientific Knowledge. Evaluate using scientific language	Answer questions by investigating Take accurate measurements Develop predictions Present results in line graph. Use diagrams to support explanation Scientific diagrams.	Record in a table Answer own questions. Use classification keys. Raise questions about animals to group. Observe and raise questions. Predict how microorganisms will decay food Evaluate effects of yeast.	Use ideas from secondary sources to explain ideas. Raise questions about a range of phenomena. Develop predictions which can be found in natural environments. Use scientific reasons to make overall comparisons. Use scientific diagrams to explain abstract concepts. Describe and evaluate my own and other people's scientific ideas.

