Science Progression Document

	Strand	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically	Planning and setting up enquiries	Use/ask more complex questions. Begin to follow instructions at a 3 word level. Understand 4 word level instructions. Uses a range of simple tools with support Independently choose simple tools for a purpose. Follow simple rules with adult support. Choose the tools and materials they need to achieve a goal.	Listen attentively and respond to what they hear with relevant questions, ask questions to clarify their understanding Follow three step instructions. Children talk about problems and come up with ideas to solve them. Process 4 step instructions Use a range of small tools Show an ability to follow instructions involving several ideas or actions	Ask simple questions and recognise that they can be answered in different ways	Ask simple questions and recognise that they can be answered in different ways	Asking relevant questions and using different types of scientific enquiries to answer them. Setting up simple practical enquiries, comparative and fair tests	Asking relevant questions and using different types of scientific enquiries to answer them. Setting up simple practical enquiries, comparative and fair tests	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
	Observing and measuring	Compare small sets of objects by processing language “more than”. Use everyday language to compare size To be able to sort by two properties at the same time Use measurement vocabulary to describe everyday objects such as heavy, tall, big, tiny, full, empty Make comparisons between size and length Make comparisons between weight and capacity. Uses equipment to investigate E.g. ipads and magnifying glasses.	Verbally count beyond 20 Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity Recognise commonality and make sets. Compare sets. E.g. same, more, fewe Use language to compare weight and height. Use measuring equipment and objects Use language to compare length and capacity Make increasingly detailed observational drawings and paintings of nature found objects and living things	Observing closely, using simple equipment performing simple tests identifying and classifying	Observing closely, using simple equipment performing simple tests identifying and classifying	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate

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	Recording	Makes some marks and begin to ascribe some meaning Write some letters from memory	Begin to show accuracy and care when drawing Beginning to use a pencil effectively and ascribe marks. Write recognisable letters, most of which are correctly formed Write simple phrases and sentences that can be read by others. Write labels	Gathering and recording data (Venn diagrams, drawings, tables, charts) to help in answering questions	Gathering and recording data (Venn diagrams, drawings, tables, charts) to help in answering questions	Gathering, recording, classifying and presenting data in a variety of ways to help in answering the question. Recording findings using simple scientific language, drawings, labelled diagrams and tables. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Gathering, recording, classifying and presenting data in a variety of ways to help in answering the question. Recording findings using simple scientific language, drawings, labelled diagrams, bar charts and tables, classification keys. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar graphs. Using test results to make predictions to set up further comparative and fair test	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs to dhow relationships and line graphs for continuous data. Using test results to make predictions to set up further comparative and fair tests
	Interpreting	Generate and complete causative questions Use vocabulary and ask questions when investigating.	Offer explanations for why things might happen, making use of recently introduced vocabulary Answer “tell me more” to extend responses. Use problem solving words and phrases in explanations. Articulate simple problem solving approaches	Using their observations and ideas to suggest answers to questions	Using their observations and ideas to suggest answers to questions	Reporting on findings from enquiries, including oral and written, displays or presentations of results and conclusions identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings	Reporting on findings from enquiries, including oral and written, displays or presentations of results and conclusions identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings	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	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
	Evaluating	Answer and ask why questions.	Make comments and ask questions to clarify understanding Answer open ended or speculative questions	Discuss their answers and refine their ideas	Discuss their answers and refine their ideas	Using results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests	Using results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests	Identifying scientific evidence that has been used to support or refute ideas or arguments	Identifying scientific evidence that has been used to support or refute ideas or arguments
Chemistry	Rocks		Describe changes of state with clay			Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter.			

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	States of matter	Explore freezing and melting.	Describe changes of state with ingredients and clay Describe and explain changes of state with chocolate Describe and explain changes of state with water				Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.		
	Materials	Sustain exploration of a wide range of intriguing objects such as feathers, shells, pieces of velvet, tissue paper etc Change the shape and texture of dough with hand actions to achieve an effect Combine malleable materials and loose parts, showing pleasure in effects created Follow adult prompts to explore simple sensory properties of everyday materials. Use simple adjectives to describe sensory properties of everyday materials Collect particular materials for a purpose Actively explore the properties of everyday materials through spontaneous experimentation Explore materials which float and sink. Explores a range of materials and are beginning to develop their own ideas independently.	Describe natural and manmade beach detritus and know the dangers to wildlife from man made rubbish. Recycling household waste kow what materials can be recycled and why its important	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.	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.			Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), 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 solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible. Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	

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Biology	Plants	Talk about the way a growing plant is changing	Name plants in allotment harvest Describe changes to trees and woodland plants in each season Know and demonstrate how to nurture edible plants	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Use the correct names to describe the basic structure of a variety of common flowering plants, including trees.	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	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.			
	Animals inc humans	Follow a tooth brushing routine. Begin to understand healthy food choices Managing own hygiene independently including toileting Talk about the way a growing animal is changing	Recognise body changes during exercise. Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. Identify healthy food Understand hand washing routine to keep us healthy Articulate and demonstrate teeth cleaning Know that children were babies in the past. Know that adults were children in the past. Describe how people change throughout their lives.	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	Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	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.	Describe the changes as humans develop to old age	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans.

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	Living things	Begin to use scientific vocabulary to talk about the environment Observe living things with adult support. Independently care for living things Describe and represent living things in different ways. Order the cycle of a living thing using pictures	Sequence the life of a baby bird from hatching to maturity Describe and recall the transition from caterpillars into butterflies		Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including 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		Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things.	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird* Describe the life processes of reproduction in some plants and animals* *To be taught after .98 of SRE curriculum	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**: Recognise that living things have 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 their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

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Physics	Forces	Develop techniques for working simple mechanisms. Use very simple action and reaction toys. Explore very simple joints and mechanisms in everyday objects and construction kits. Wrestle with more challenging mechanisms such as screw lids and more complex construction kits. Make mechanisms such as pegboard cogs and their simple construction kit components Demonstrate how to achieve a particular goal with pulley systems	Stack, aligning, balancing with magnetic joints Explore magnets and use simple terms to describe objects that are attracted to them. Understanding of the concept of floating and sinking.			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.		Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water-resistance and friction that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	
	Earth and space	Use terms day and night in relation to stories.	Children talk about night and day and order key events in their daily routines. Describe changes to trees and woodland plants in each season	Observe changes across the four seasons, through first hand observations, including collecting data. Observe and describe weather associated with the seasons. Observe and describe changes to day length, including how it varies across the seasons.				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 Sun, Earth 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	

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	Sound	Use hands to make sounds with very simple non-tuned Percussion Clap and stamp to music Distinguish between different instrumental sounds Name some percussion instruments and describe the sounds in simple terms. Play instruments with control to illustrate changes in dynamics and tempo	Pitch match during sections then whole melodies of four line songs Discuss the pitch contrasts in percussion				Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source		
	Light	Investigate light and dark	Knows how objects cast a shadow. Explores how light travels through different materials.			Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change.			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

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	Electricity						Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.		
Vocabulary									