Science Whole School Progression Document

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NATIONAL CURRICULUM	EYFS Key Stage 1: Pupils should be taught:	Key Stage 2: Pupils should be taught:
The national curriculum for science aims to ensure that all pupils: develop scientific knowledge and conceptual understanding. Develop understanding of the nature, processes and methods of science through different types of enquiries that help them to answer scientific questions about the world around them. Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future	❖ To experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. ❖ They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. ❖ Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.	❖ To broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. ❖ Pupils should identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles) or different materials are used for the same thing. ❖ They should think about the properties of materials that make them suitable or unsuitable for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials. ❖ They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. ❖ Exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, Pupils should construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices. ❖ They should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

AREA	Y1	Y2	Y3	Y4	Y5	Y6
Animals including humans EYFS To name and describe animals that live in different habitats. I describe different habitats. I recognise some environments that are different to the one in which I live. Including humans To describe people who are familiar to me. To learn about how to take care of myself.	To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. To know the structure of a variety of common animals. To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	To know that animals, including humans, have offspring which grow into adults. To know the basic needs of animals, including humans, for survival (water, food and air). To know the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	To identify that humans and some other animals have skeletons and muscles for support, protection and movement. To identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food.	To identify and name the parts of the human digestive system. To know the functions of the organs in the human digestive system. To identify and know the different types of teeth in humans. To know the functions of the different human teeth. To know how to construct and interpret a variety of food chains, identifying producers, predators and prey	To describe the changes as humans develop to old age.	To identify and name the main arts of the human circulatory system. To know the function of the heart, blood vessels and blood. To know the impact of diet, exercise, drugs and life style on health. I know the ways in which nutrients and water are transported in animals, including humans.
Plants	To know and name a variety of common wild and garden plants including deciduous and evergreen trees.	To observe and describe how seeds and bulbs grow into plants. I know what plants need in order to grow and stay healthy (water, light,	To know the functions of different parts of flowering plants and trees. To know what different plants need to help them survive for life		Plants Sexual and asexual Reproduction in plants –	

EYFS In EYFS children will have grown plants from seeds They will have observed plants and will know names such as leaf, flower, petal, etc. They will have walked in a woodland area or noticed trees in Forest School	To describe the basic structure of a variety of flowering plants, including trees.	suitable temperature).	and growth and how they vary from plant to plant. To understand pollination, seed formation and seed dispersal.		grow new plants from cuttings	

Living Things and their Habitats EYFS To explore the plants in the surrounding natural environment. To explore the animals in the surrounding natural environment. To explore plants and animals in a contrasting natural environment.		Classify living, dead and never alive. Microhabitats. Name some different sources of food for animals. Describe a simple food chain using the terms predator, prey and producer.		To group living things in different ways. To use classification keys to group, identify and name living things. To create classification keys to group, identify and name living things (for others to use). To know how changes to an environment could endanger living things.	To know the life cycle of different living things, mammal, amphibian, insect, bird. To know the differences between different life cycles. To know the process of reproduction in plants. I know the process of reproductions in animals.	To classify living things into broad groups according to observable characteristics and based on similarities and differences. To know how living things have been classified. To give reasons for classifying plants and animals in a specific way.

Materials EYFS To explore a range of materials, including natural materials. To make objects from different materials. To observe, measure and record how materials change when heated and cooled. To compare how materials change over time and in different conditions. To explore the natural world around me to describe what I see, hear and feel whilst outside.	To distinguish between an object and the material it is made from. To know the materials that an object is made from. To can identify and name a variety of materials such as wood, plastic, glass, metal, water and rock. To know about the properties of everyday materials. To group objects based on the materials they are made from. To observe and know about the changes in the seasons.	To identify and compare the suitability of a range of materials, including wood, metal, plastic, brick, glass, rock, paper and cardboard for particular uses. To know why a material might or might not be suitable for a specific job. To know how materials can be changed by squashing, bending, twisting and stretching			To know how a material dissolves to form a solution; explaining the process of dissolving. To show how to recover a substance from a solution. To know how some materials can be separated using knowledge of solids, liquids and gases to decide. To demonstrate how materials can be separated I know that some changes are reversible and some are not. To know how some changes result in the formation of a new material and that this is usually irreversible. To know about reversible and irreversible changes. To compare and group materials based on their properties.	
Electricity				To identify and name the appliances that require electricity to function. To construct a series		To know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.

				circuit. I identify and name the component in a series circuit To know how to draw a circuit diagram. To predict and test whether a lamp will light within a circuit. To know the functions of a switch in a circuit. To know the difference between a conductor and an insulator, giving examples of Each.		To compare and give reasons for why components work and do not work in a circuit including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. To draw circuit diagrams using correct Symbols.
Earth and Space EYFS To learn about the Earth, Sun, Moon, planets and stars. I learn about space travel. I explore the natural world around me. I describe what I see, hear and feel whilst outside.					To know about and explain the movement of the Earth and other planets relative to the Sun. To explain the movement of the Moon relative to the Earth. To demonstrate how night and day are created. To describe the Sun, Earth and Moon (using the term spherical).	

Seasonal Changes EYFS To play and explore outside in all seasons and in different weather. I observe living things throughout the year. I explore the natural world around me. I describe what I see, hear and feel whilst outside. I understand the effect of changing seasons on the natural world around me.	To observe and know about the changes in the seasons (all terms). To name the seasons and know about the types of weather in each season.					
States of Matter				To group materials based on their state of matter (solid, liquid, gas). To understand how		

				some materials can change state. To explore how materials change state. To measure the temperature at which materials change state. To know how to use equipment, including thermometers and data loggers to make measurements. To know about the water cycle.		
Evolution and Inheiritance						To know how the Earth and living things have changed over time. To know how fossils can be used to find out about the past. To understand how animals and plants are adapted to their environments. To link adaptation over time to evolution. To explain what evolution is.
Forces			To know about and describe how objects move on different surfaces. To know how some forces require contact but magnetic forces can act at a distance. and some do not, giving examples. To know about and explain how objects		To know what gravity is and its impact on our lives. To identify and know the effect of air resistance. To identify and know the effect of water resistance. To identify and know	

			attract or repel in relation to magnets and other objects. To predict whether objects will be magnetic and carry out an enquiry to test this out. To know how magnets work. To predict whether magnets will attract or repel and give a reason.		the effect of friction. To explain how levers, pulleys and gears allow a smaller force to have a greater effect	
Light and Sound EYFS To explore shadows. To explore rainbows. To describe what I see, hear and feel whilst outside. To listen to sounds outside and identify the source to make sounds to describe what I see, hear and feel whilst outside.			To know what dark is (the absence of light) and that light is needed in order to see. I know that light is reflected from a surface. To know and demonstrate how a shadow is formed and explore shadow size and explain the changes. To know the danger of direct sunlight and describe how to keep protected.	To know how sound is made associating some of them with vibrating. To know that vibrations from sounds travel through a medium to the ear how sound travels from a source to our ears. To know the correlation between pitch and the object producing a sound. To know the correlation between the volume of a sound and the strength of the vibrations that produced it. To know what happens to a sound as it travels away from its source.		To know how light appears to travel in straight lines. To know and demonstrate how we see objects. To know why shadows have the same shape as the object that casts them. To know how simple optical illusions work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.
WORKING SCIENTIFICALLY	Y1	Y2	Y3	Y4	Y5	Y6

EYFS 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.	ask simple questions recognising that they can be answered in different ways observe closely, using simple equipment perform simple tests identify and classify use observations and ideas to suggest answers to questions gather and record data to help in answering questions	ask simple questions recognising that they can be answered in different ways observe closely, using simple equipment perform simple tests identify and classify use observations and ideas to suggest answers to questions use gather and record data to help in answering questions	asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of	asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as

			results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions 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 explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.	comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments	displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments
VOCAB	Y1 - Y2		Y3 - Y4		Y5 - Y6	
Working scientifically	experience observe changes patterns grouping sorting classifying compare identify (name) data measure record equipment questions test investigate explore magnifying glass / hand lens same different		develop enquiry practical enquiry fair test comparative test relationships conclusion accurate thermometer data logger estimate data diagram key (identifying) table chart bar chart results predictions explanation reason similarity difference question evidence information findings criteria values properties characteristics		variables evidence justify accuracy precision scatter graphs bar graphs line graphs argument (science) causal relationship	

Animals including humans	names of common animals: fish, amphibians, reptiles, birds, mammals carnivores herbivores omnivores human body senses see hear feel smell taste habitat local environment pet wild animal insect minibeast food eat head neck body arms legs ears eyes nose mouth tongue hands feet fingers toes elbows knees hair teeth grow healthy offspring adults young water air survive exercise hygiene egg chick chicken caterpillar pupa moth butterfly tadpole frog frog spawn lamb sheep calf cow foal horse	nutrition diet skeleton muscles protection support movement bones skull shell digestive system stomach small intestine large intestine oesophagus types of teeth: molar, pre-molar, incisor, canine saliva	puberty gestation period circulatory system heart lungs blood vessels blood lifestyle disease water transportation nutrient transportation oxygen air breathing exercise diet drugs
Plants	plants wild plants garden plants evergreen trees deciduous trees common flowering plants flowers vegetables leaf/leaves flower blossom petal stem trunk branch root seed bulb bud growth grow habitat local environment leaf fall water light temperature healthy growth survive soil germinate stages of growth	air transport (water) life cycle pollination seed formation seed dispersal reproduce fertiliser functions nutrition	
Living things and their habitats	pond garden field park woodland sea shore river ocean forest rainforest stones rocks logs leaf litter habitat micro-habitat living dead not living alive healthy food food chain depend source of food shelter grow growth healthy	environment non-flowering plants ferns mosses flowering plants grasses vertebrate animals: fish, birds, mammals, amphibians, reptiles invertebrate animals: snails, worms, slugs, spiders, insects human impact – litter, deforestation, population increase, nature reserves	life cycles reproduction life processes sexual and asexual reproduction (plants) root cuttings classification microorganisms organisms evolution evolve adaptation variation inherit inheritance
Materials	everyday materials wood paper plastic metal glass water rock brick stone fabric material foil elastic dough rubber card cardboard clay object make/made hard/soft shiny/dull stretchy/stiff rough/smooth bendy/not bendy waterproof/not waterproof transparent/opaque absorbent/not absorbent squash twist bend stretch		properties hardness solubility transparency electrical conductivity thermal conductivity magnetism dissolve solution substance separating mixing filtering sieving reversible change burning rusting reactions irreversible change
Rocks and Soil		rock soil fossil organic matter grains crystals sedimentary rock	

States of Matter		solid liquid gas temperature heat (heating) cool (cooling) water cycle evaporation condensation melting freezing	
Earth and Space	spring summer autumn winter weather sun sunshine rain snow sleet ice frost fog cloud hot cold storm sky earth night day		Solar system, planets: Mercury, Venus, earth, Mars, Jupiter, Saturn, Neptune, Uranus moon stars spherical bodies rotation orbit satellite
Electricity		electricity simple circuit light bulb cell wire buzzer switch motor battery series circuit conductor insulator	voltage components symbols circuit diagram
Forces		forces push pull contact distance magnet bar magnet ring magnet horseshoe magnet attract repel poles (of magnets) magnetic materials move movement surfaces	friction levers pulleys gears springs gravity air resistance water resistance
Light and Sound		light dark (absence of light) reflect shadow opaque mirror reflective surface sound vibration vibrate pitch volume insulation	light sources periscope