Science progression 2023-2024

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	**Nursery** •Children will know that seeds can turn into plants (children will plant seeds/herbs). •Children will begin to understand how it takes time to grow fruit and vegetables (observational skills). **Reception** •Children will know how to care for a plant. •Children will plant and learn the life cycle of a sunflower. •Children will observe how a tree has changed over the four seasons.	*Common plants* *Plant structure* •Know and name a variety of common wild and garden plants •Know and name the petals, stem, leaves and root of a plant •Know and name the roots, trunk, branches and leaves of a tree **Observations over time** Changes to plants/ trees as they grow or in different seasons **Grouping and Classifying** Identify local trees and plants	*Plant and seed growth* *Plant reproduction* *Keeping plants healthy* Know the main parts of plants and trees including root, stem, leaf and petal leaf, twig, branch, root, trunk Know names of some trees in the locality Know and explain how seeds and bulbs grow into plants Know what plants need in order to grow and stay healthy (water, light & suitable temperature) **Fair testing** Investigate which conditions plants need to grow **Observation over time** Change in plant growth over time **Grouping and Classifying** Identify parts of a plant	*Plant life* *Basic structure and functions* Know the function of different parts of flowing plants and trees *Life cycle* *Water transportation* Know how water is transported within plants Know the plant life cycle, especially the importance of flowers **Observation over time** Observe how water travels up the stem **Research** Research different types of seed dispersal			
Vocabulary		Deciduous Evergreen Environment Blossom Petals root	Trunk twig branch root Stem leaf petal blossom bulbs woodland crown	pollination seed dispersal seed formation nutrients stigma anther			
Materials	**Nursery** •Children will know how materials change when cooking, cooling and heating (baking). •Name natural materials (during exploration of outdoor environment). **Reception** •Name and further investigate natural materials •Properties of materials: Children will explore floating and sinking and practice making predictions and conclusions. States of Matter •Investigate ice, fire and water (Link to superheroes and their characteristics/powers).	*Properties of materials* *Grouping materials* Know the name of the materials an object is made from Know about the properties of everyday materials **Comparative and Fair tests** Compare the suitability of everyday materials for a specific job, e.g., keeping us warm **Grouping and Classifying** Identify different materials based on their properties	*Identify different materials* *Name everyday materials* *Properties of materials* Know how materials can be changed by squashing, bending, twisting and stretching *Compare the use of different materials* *Compare movement on different surfaces* Know why a material might or might not be used for a specific job **Fair testing** Compare materials to see which is the most waterproof **Grouping and Classifying** Group different materials based on their properties		*Compare and group materials* *Solids, liquids and gases* *Changing state* *Water cycle* Know the temperature at which materials change state Know about and explore how some materials can change state Know the part played by evaporation and condensation in the water cycle **Observation over time** Measure temperature changes in water over time **Research** Research the water cycle and how it works **Grouping** Identify solids, liquids or gases	Properties and changes in materials *Compare properties of everyday materials* *Soluble/ dissolving* *Reversible and irreversible substances* Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets Know and explain how a material dissolves to form a solution Know and show how to recover a substance from a solution Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) Know and demonstrate that some changes are reversible and some are not Know how some changes result in the formation of a new material and that this is usually irreversible **Fair testing** Factors that affect the speed a solute dissolves in water, e.g., temperature **Observation over time** Observe over time the separation of a solute and solvent via evaporation **Grouping** Classify/ group materials as either soluble or insoluble	
Vocabulary		Plastic Stretch Stiff Metal Liquid Gas	*Stretching* *Squashing* *Bending* *John Dunlop* *Twisiting* *Charles Macintosh*		Evaporation Condensation Melting Solidifying Precipitation Degrees- Celsius	Dissolve Solubility Filtering Melting Separating thermal	

Animals including humans	**Nursery** •Children will know the names of body parts: heads, arms, hands, legs, feet, neck. •The 5 senses •The life cycle of a human •Children will know how to respect and care for living things such as animals. •Children will know that some animals can be kept as pets, some live on farms and some are wild animals •Children will know that a butterfly comes from an egg (the life cycle of a butterfly). •Small world animals and habitats **Reception** •Children will know the names of body parts: shoulders, elbows, knees, ankles. •The 5 Senses •Name and Identify woodland animals •Children will know about the impact of food and exercise on our bodies (linked to PSED) •The life cycle of a frog •Woodland animals and habitats	*Name common animals* *Carnivores, etc* Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds Know and classify animals by what they eat (carnivore, herbivore and omnivore) Know how to sort by living and non living things **Research using secondary sources** Research animals that live in a particular habitat **Grouping and Classifying** Group/ classify animals according to what they eat *Human body and senses* Know the name of parts of the human body that can be seen – shoulders, arms, elbows, stomach, hips, nipples Know which part of the body associated with each of the five senses – ears eyes nose mouth hands & fingers **Pattern seeking** Height and weight changes as we get older	*Animal reproduction* *Healthy living* *Basic needs* Know the basic stages in a life cycle for animals, (human focus primarily) Know why exercise, a balanced diet and good hygiene are important for humans **Investigation** Set up an investigation to find out who is the fittest in class **Grouping and Classifying** Identify the off-spring of different animals	*Skeleton and muscles* *Nutrition* *Exercise and health* Know about the importance of a nutritious, balanced diet Know how nutrients, water and oxygen are transported within animals and humans Know about the skeletal and muscular system of a human **Experimenting and Investigating** Find out how muscles work using balloons Carry out an investigation about exercise **Research** Find out about names of joints Find names of parts of skeleton	*Digestive system* *Teeth* *Food chains* Identify and name the parts of the human digestive system Know the functions of the organs in the human digestive system Identify and know the different types of human teeth Know the functions of different human teeth Use and construct food chains to identify producers, predators and prey **Research** Research the different body parts involved in digestion **Grouping and classifying** Classify plants/ animals into either producer, consumer or predator **Investigation** Recreating a digestive system in class	*Changes as humans develop from birth to old age* Create a timeline to indicate stages of growth in humans **Research** Research changes in humans at different stages in our lives Research the life cycle of different animal groups **Grouping** Classify/ group and animal based on its group and species **Pattern seeking** Compare height with physical task e.g., distance a ball is thrown	*The circulatory system* *Water transportation* *Impact of exercise on body* Identify and name the main parts of the human circulatory system Know the function of the heart, blood vessels and blood Know the impact of diet, exercise, drugs and lifestyle on health Know the ways in which nutrients and water are transported in animals, including humans **Fair testing** Impact of exercise on the heart rate **Research** Research how drugs affect the body **Pattern seeking** Compare resting heart rate of different people
Vocabulary		Amphibians Reptiles Mammals Herbivore Carnivore Omnivore Toes fingers taste Touch hearing chest	Proteins Carbohydrates Off-spring Fats Nutrition hygiene	Skeleton Muscles Joint Cartilage Tendon spine	Oesophagus Pancreas Organ Intestine Molars canine	Puberty Gestation Reproduction Embryo Obese teenager	Atriums Cardiovascular Capillaries Pulse Ventricles Blook vessels
Seasonal Change	**Nursery & Reception** •Continuous discussion of the weather and seasons through the outdoor environment and provision **Reception** •Know the names of the 4 seasons and describe related weather	*The four seasons* *Seasonal weather* Name the seasons and know about the type of weather associated with each season Know the main months associated with each season **Observation over time** Changes in temperature throughout the year Changes in rainfall throughout the year **Pattern seeking** Length of daylight throughout the year Leaf colour and fall and different stages					
Vocabulary		Autumn Winter Spring Summer Temperature Weather symbol					

Living things and their habitats	(See Animals including humans)		*Alive or dead* *Habitats* *Adaptations* *Food chains* Classify things by living, dead or never lived Know how a specific habitat provides for the basic needs of things living there (plants and animals) Match living things to their habitat Name some different sources of food for animals Know about and explain a simple food chain Researching Research animals and how they adapt to their environment Grouping and Classifying Group animals based on their natural habitats		*Grouping living things* *Classification keys* *Adaptation of living things* Use classification keys to group, identify and name living things Know how changes to an environment could endanger living things Group materials based on their state of matter (solid, liquid or gas) **Research** Research the effect of climate change on animals around the world **Grouping** Classify plants/ animals into either producer, consumer or predator	*Life cycles – plants and animals* *Reproductive processes* *Famous naturalists* Know the life cycle of different living things e.g. mammal, amphibian, insect and bird Know the differences between different life cycles Know the process of reproduction in plants Know the process of reproduction in animals **Research** Research changes in humans at different stages in our lives Research the life cycle of different animal groups **Grouping** Classify/ group and animal based on its group and species **Pattern seeking** Compare height with physical task e.g., distance a ball is thrown	*Classification of living things and the reasons for it* Classify living things into broad groups according to observable characteristics and based on similarities and differences Know how living things have been classified Give reasons for classifying plants and animals in a specific way **Observation over time** Conditions needed for bread to go mouldy **Research** Research the different types of micro-organisms **Pattern seeking** Compare resting heart rate of different people
Vocabulary			Habitat Rainforest Desert Species Pond Indigenous		Flowering plants Invertebrates Insects Deforestation Pollution Industrial waste	Gestation Reproduction Embryo	Vertebrates Invertebrates Species Fungi Bacteria algae

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces & magnets				*Different Forces* *Magnets* Know about and describe how objects move on different surfaces Know how a simple pulley works and use to on to lift an object Know how some forces require contact and some do not, giving examples Know about and explain how magnets attract and repel Predict whether magnets will attract or repel and give a reason **Fair testing** Compare materials based on the amount of friction they generate **Grouping and Classifying** Group magnetic and non-magnetic materials		*Gravity* *Friction* *Forces and motion of mechanical devices* Know what gravity is and its impact on our lives Identify and know the effect of air and water resistance Identify and know the effect of friction Explain how levers, pulleys and gears allow a smaller force to have a greater effect **Fair testing** Shape of an object and the time it takes to travel through water **Pattern seeking** Surface material on a ramp and note the distance/ speed it travels	
Vocabulary				Repel Attract Pole Pulley Magnet magnetism		Friction Gravity Air resistance Water resistance Levers pulleys	
Electricity					*Uses of electricity* *Simple circuits and switches* *Conductors and insulators* Identify and name appliances that require electricity to function Construct a series circuit Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers) Predict and test whether a lamp will light within a circuit Know the function of a switch Know the difference between a conductor and an insulator; giving examples of each **Fair testing** Determine which materials are electrical conductors or insulators Predict and test whether a lamp will light within a circuit **Grouping and classifying** Classify/ group materials into electrical conductors or insulators		*Electrical components* *Simple circuits* *Fuses and voltage* Compare and give reasons for why components work and do not work in a circuit Draw circuit diagrams using correct symbols Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer **Fair testing** Effect of increasing voltage on the brightness of a bulb **Pattern seeking** Compare brightness of bulb in series and parallel circuits
Vocabulary					Circuit Conductor Insulator Battery Cells appliance		Series circuits Cells Generator Turbine Fuses Socket
Rocks				*Fossil formation* *Compare and group rocks* *Soil* Compare and group rocks based on their appearance and physical properties, giving reasons Know how soil is made and how fossils are formed Know about and explain the difference between sedimentary, metamorphic and igneous rock **Research** Research how fossils and different types of rocks are formed **Grouping and Classifying** Identify different rocks and the group they belong to			

Vocabulary				Sedimentary Metamorphic Igneous Crystals Fossil soil			
Light	**Reception:** •Children will explore light and dark. Children will identify different light sources including the sun and practice making predictions and conclusions.			*Reflections* *Shadows* Know that dark is the absence of light Know that light is needed in order to see and is reflected from a surface Know and demonstrate how a shadow is formed and explain how a shadow changes shape Know about the danger of direct sunlight and describe how to keep protected **Fair testing** Compare materials based on reflectiveness **Observation over time** Shadow length throughout the day **Grouping and Classifying** Group materials based on their opacity and transparency **Pattern Seeking** Object size compared to shadow			*How light travels* *Reflection* *Ray models of light* Know how light travels Know and demonstrate how we see objects Know why shadows have the same shape as the object that casts them Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc. **Grouping and Classifying** Group materials based on transparency **Pattern seeking** Compare distance from light source and shadow **Experimenting and investigating** Experiment to find out that light travels in straight lines
Vocabulary				Reflection Shadows Opaque Refraction Convex Concave			Retina Cornea Iris Pupil Lens Light wave
Sound	**Nursery & Reception** •Children will be introduced to the 5 senses.				*How sounds are made* *Sound vibrations* *Pitch and Volume* Know how sound is made, associating some of them with vibrating Know how sound travels from a source to our ears Know the correlation between pitch and the object producing a sound Know the correlation between the volume of a sound and the strength of the vibrations that produced it Know what happens to a sound as it travels away from its source **Fair testing** The affect of distance from the source on volume **Pattern seeking** Compare how length and width of tubes affect pitch		
Vocabulary					Pitch Volume Vibrating Frequency hammer		

Evolution & Inheritance	**Reception** •Children will Compare similarities and differences between dinosaurs- what they looked like/ ate (herbivores, omnivores and carnivores)					*Identical and non-identical off-spring* *Fossil evidence and evolution* *Adaptation and evolution* Know how the Earth and living things have changed over time Know how fossils can be used to find out about the past Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) Know how animals and plants are adapted to suit their environment Link adaptation over time to evolution Know about evolution and can explain what it is **Research** Research Charles Darwin and his work **Pattern seeking** Compare sculls/ body parts of animals as they have evolved	
Vocabulary						Off-soring Adaptation Evolution Inheritance Palaeontologist genotype	
Earth and Space	**Reception** •Children will know that there are 8 planets in the solar system and what gravity is.					*Movement of the Earth and the planets* *Movement of the Moon* *Night and day* Know about and explain the movement of the Earth and other planets relative to the Sun Know about and explain the movement of the Moon relative to the Earth Know and demonstrate how night and day are created Describe the Sun, Earth and Moon (using the term spherical) **Research** Research the planets in our solar system, including length of orbit **Pattern seeking** Dimensions associated with the Sun, Earth and Moon	
Vocabulary						Solar system Planet Spherical Crescent moon gibbous moon eclipse	

Working Scientifically		**Working Scientifically KS1** (adjusted to include reference to ***TAF end KS1 Science*** **2018-19 onwards**) *Teachers need to have evidence which demonstrates that the pupil meets all of the 'working scientifically' statements and all of the 'science content' taught in the final year of the key stage.* ***Using appropriate scientific language from the national curriculum,*** **Learners can:**		**Working Scientifically KS2** (adjusted to include reference to ***TAF end KS2 Science*** **2018-19 onwards**) *Teachers need to have evidence which demonstrates that the pupil meets all of the 'working scientifically' statements and all of the 'science content' taught in the final year of the key stage. Using appropriate scientific language from the national curriculum:*			
		YEAR 1	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**	**YEAR 6**
		•ask simple questions and recognise that they can be answered in different ways •observe closely, using simple equipment •perform simple tests •identify and classify •use my observations and ideas to suggest answers to questions •gather and record data to help me answer questions	•ask my own question about what I notice *•use different types of scientific enquiry to gather and record data, using simple equipment where appropriate, to answer questions:* •observing changes over time noticing patterns •grouping and classifying things •carrying out simple comparative tests finding things out using secondary sources of information •communicate my ideas, what I do and what I find out in a variety of ways	• Ask relevant questions and use different types of scientific enquiry to answer them • set up simple practical enquiries, comparative and fair tests • make systematic and careful observations • take accurate measurements, where appropriate, using standard units • use a range of equipment, including thermometers and data loggers • gather, record, classify and present data in a variety of ways to help in answering questions	• Ask relevant questions and use different types of scientific enquiry to answer them • set up simple practical enquiries, comparative and fair tests • make systematic and careful observations • take accurate measurements, where appropriate, using standard units • use a range of equipment, including thermometers and data loggers	• Plan different types of scientific enquiry to answer questions including recognising and controlling variable where necessary • take measurements, using a range of scientific equipment with increasing accuracy and precision, taking repeat readings where appropriate • record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs • use straightforward scientific evidence to answer questions or to support their findings.	• *Describe and evaluate my own and others' scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources* • *ask my own questions about the scientific phenomena that I am studying, and select the most appropriate ways to answer these questions, recognising and controlling variables where necessary (i.e. observing changes over*

			• record my findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • identify differences, similarities or changes related to simple scientific ideas and processes • use straightforward scientific evidence to answer questions or to support their findings.	• gather, record, classify and present data in a variety of ways to help in answering questions • record my findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • identify differences, similarities or changes related to simple scientific ideas and processes • use straightforward scientific evidence to answer questions or to support their findings.	• identify scientific evidence that has been used to support of refute ideas or arguments • identify differences, similarities or changes related to simple scientific ideas and processes. • use test results to make predictions to set up further comparative and fair tests • report and present findings, including conclusions, casual relationships and explanations of results report and present findings in oral and written forms such as displays and other presentations.	*different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests, and finding things out using a wide range of secondary sources)* • *use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate* • *record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs* • *draw conclusions, explain and evaluate their methods and findings, communicating these in a variety of ways* *raise further questions that could be investigated, based on their data and observations.*