Science Skills Progression Document

Nursery

Nursery SCIENCE Vocabulary					
Question	Why	Same	Organise	Plant	Look
Think	How	Different	Sort	Animal	Grow
Answer	Because	Change	Explore	Insect	Ask

	Skill/EYFS Framework Statement
C&L	Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"
PD	Make healthy choices about food, drink, activity and toothbrushing.
UTW	Use all their senses in hands-on exploration of natural materials.
	Explore collections of materials with similar and/or different properties.
	Talk about what they see, using a wide vocabulary. Begin to make sense of their own life-story and family's history.
	Explore how things work.
	Plant seeds and care for growing plants.
	Understand the key features of the life cycle of a plant and an animal
	Begin to understand the need to respect and care for the natural environment and all living things.
	Explore and talk about different forces they can feel.
	Talk about the differences between materials and changes they notice.

Nursery SCIENCE Experiences		
Talk about how they've changed since they were a baby Talk about the different people (older and younger) in their families Meet and talk to a Dentist Try a range of different fruits and vegetables and know that these are healthy foods. Talk about the weather	Explore simple mechanisms and ask questions about how things work Share a toy from home and talk about how it works Explore forces by playing with cars, ramps, balls and other physical games/activities Sort and organise items into different groups Build a range of items using junk modelling	Explore the EYFS area and wider parts of the school for different materials (e.g wood, stone, metal) Explore the EYFS area and wider parts of the school for different living things (e.g. insects & minibeasts) Build houses and bridges linked to familiar stories Plant and grow plants Meet and talk about a range of different animals

Science Skills Progression Document

Reception

Reception Core SCIENCE Vocabulary					
Question	Why	Same	Organise	Plant	Look
Think	How	Different	Sort	Animal	Grow
Answer	Because	Change	Explore	Insect	Ask

	Skill/EYFS Framework Statement
C&L	Learn new vocabulary.
	Ask questions to find out more and to check what has been said to them.
	Articulate their ideas and thoughts in well-formed sentences.
	Describe events in some detail.
	Use talk to work out problems and organise thinking and activities.
	Explain how things work and why they might happen.
	Use new vocabulary in different contexts
PD	Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian
UTW	Explore the natural world around them.
	Describe what they see, hear and feel while they are outside.
	Recognise some environments that are different to the one in which they live.
	Understand the effect of changing seasons on the natural world around them.
C&L	*Make comments about what they have heard and ask questions to clarify their understanding.*
PSED	*Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.*
UTW	*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 the seasons and changing states of matter.

Reception SCIENCE Experiences		
Use sentence stems to give increasing clear explanations and answer Talk about the seasons Think and talk about what they can see, hear & feel indoors and outdoors	Explore and talk about how their bodies feel when they've been exercising Build a Bug Hotel Go on a Nature Walk & Visit the Forest School Area Use magnifying glasses to observe things closely	Explore the EYFS area and wider parts of the school for different materials (e.g wood, stone, metal) Explore the EYFS area and wider parts of the school for different living things (e.g. insects & minibeasts) Plant and grow plants Meet and talk about a range of different animals

Science Skills Progression Document

KS1 (Yrs 1 & 2)

Year 1 & 2 Core SCIENCE Vocabulary					
Question	Identify	Sort	Chart	Property	Compare
Observe	Group	Predict	Data	Senses	Test
Record	Classify	Diagram	Material	Investigate	

	Skill/NC Statement
Working Scientifically	Ask simple questions and recognise that they can be answered in different ways
	Use simple equipment to observe closely
	Perform simple tests
	Identify and classify
	Use his/her observations and ideas to suggest answers to questions
	Gather and record data to help in answering questions
	Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum
	Use simple equipment to observe closely including changes over time
	Communicate his/her ideas, what he/she does and what he/she finds out in a variety of ways
	Perform simple comparative tests
	Identify, group and classify
	Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns
	Gather and record data to help in answering questions including from secondary sources of information

Year 1 Topics

	(Let's Play Together) **Everyday Materials**	(No Place Like Home) **Animals (including humans)**	(We Are Britain – Rights, Rules & Rulers) **Plants**
Know	- What observing and recording mean - How to use a magnifying glass - That objects can be made of different materials - That different materials have different properties ● *Colour, Texture, Weight,* - The names and properties of several materials ● *Paper, Wood, Metal, Stone, Sponge & Plastic* - That we can examine materials to explore their properties ● *Colour, Texture, Hardness* - That we can compare and group materials by their properties	- What 'Carnivore', 'Omnivore' and 'Herbivore' mean - The names appearance and diets of several common fish ● *Goldfish, Clownfish & Tuna* - The names, appearance & diets of common amphibians ● *Frogs, Salamander & Newt* - The names, appearance & diets of common reptiles ● *Lizard, Snake & Tortoise* - The names, diets and appearance & diets of common birds ● *Owl, Parrot & Seagull* - The names, appearance & diets of several mammals ● *Cat, Dog & Guinea Pig* - What the Five Senses are ● *Sight, Hearing, Touch, Taste & Smell* - The names and locations of basic parts of the human body ● *head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth* - How to create a labelled diagram	● What 'Deciduous' and 'Evergreen' mean ● The names & appearance of common deciduous trees *- (Check School Grounds)* ● The names & appearance of common evergreen trees *- (Check School Grounds)* ● The names & appearance of common garden/wildflower *- (Check School Grounds)* ● The names of the parts of a tree/plant ● *leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches & stem* ● How to draw observationally (what we can see vs what we imagine)
Skill	● Distinguish between an object and the material from which it is made. ● 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 name a variety of common animals including fish, amphibians, reptiles, birds and mammals. ● Group animals according to what they eat. ● Identify and name a variety of common animals that are carnivores, herbivores and omnivores ● Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). ● Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	● Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees ● Identify and describe the basic structure of a variety of common flowering plants, including trees
	● Ask simple questions and recognise that they can be answered in different ways ● Use simple equipment to observe closely ● Perform simple tests ● Identify and classify ● Use his/her observations and ideas to suggest answers to questions ● Gather and record data to help in answering questions		
Vocab	Wood, Plastic, Glass, Metal, Water, Liquid, Rock, Brick, Fabric, Sand, Paper, Soil, Hard, Soft, Elastic, Not Elastic, Shiny, Dull, Rough, Smooth, Flexible, Rigid, Transparent, Opaque, Insulated, Absorbent	Carnivore, Omnivore, Herbivore, Diet, Fish, Amphibian, Reptile, Bird, Mammal, Senses, Sight, Touch, Taste, Hear, Smell, Body, Head, Neck, Arms, Elbow, Knee, Eyes, Ears, Mouth	Plants, Shoot, Branch, Root, Stem, Trunk, Leaf/Leaves, Seed, Seedling, Weed, Grow, Living, Soil, Fruit, Evergreen, Deciduous, Wildflowers found in the School Environment, Trees found in the School Environment

	(Let's Play Together) **Seasons**	(No Place Like Home) **Seasons**	(We Are Britain – Rights, Rules & Rulers) **Seasons**
Know	● The names of the 4 Seasons ● That we are currently living through Autumn (Sept- Nov) and the weather usually associated with this ● That we are currently living through Winter (Dec - Feb) and the weather usually associated with this ● That the length of daylight changes with the seasons and is currently getting shorter ● That we can measure the weather by measuring rainfall	● The names of the 4 Seasons ● That we are currently living through Winter (Dec - Feb) and the weather usually associated with this ● That the length of daylight changes with the seasons and is currently getting shorter ● That we are currently living through Spring (March - May) and the weather usually associated with this ● That the length of daylight changes with the seasons and is currently getting longer ● That we can measure the weather by measuring temperature	● The names of the 4 Seasons ● That we are currently living through Spring (March - May) and the weather usually associated with this ● That the length of daylight changes with the seasons and is currently getting longer) ● That we are currently living through Winter (June - August) and the weather usually associated with this ● That we can measure the weather by measuring wind direction
Skill	● Observe changes across the four seasons. ● Observe and describe weather associated with the seasons and how day length varies.	● Observe changes across the four seasons. ● Observe and describe weather associated with the seasons and how day length varies.	● Observe changes across the four seasons. ● Observe and describe weather associated with the seasons and how day length varies.
	● Ask simple questions and recognise that they can be answered in different ways ● Use simple equipment to observe closely ● Perform simple tests ● Identify and classify ● Use his/her observations and ideas to suggest answers to questions ● Gather and record data to help in answering questions		
Vocab	season, seasonal, spring, summer, autumn, winter, orbit, tilt, warm, cool, wind, rain, sun, fog, snow, weather, rainfall, rain gauge	season, seasonal, spring, summer, autumn, winter, orbit, tilt, warm, cool, wind, rain, sun, fog, snow, temperature, thermometer, degrees Celsius	season, seasonal, spring, summer, autumn, winter, orbit, tilt, warm, cool, wind, rain, sun, fog, snow, wind, windspeed, windsock

Year 2 Topics

	(Is it because I'm a Londoner?) **Everyday Materials**	(Into the Unknown) **Animals (inc Humans)**	(How to Change the World) **Living Things & Habitats**

Know	- What a comparative test is
	- That different materials have different properties
	  ● *Hardness, Malleability, Water Resistance*
	- The names and properties of a wider range of materials
	  ● *Paper, Cardboard, Wood, Metal, Stone, Glass, Brick, Sponge & Plastic*
	- That we can test materials to explore their properties
	  ● *Hardness, Malleability, Water Resistance*
	- That materials are used for different purposes based on their properties
		- That living things create offspring
		- The life cycle of an amphibian (Frog)
		  ● *Spawn, Tadpole, Froglet, Frog*
		- The life cycle of a bird (Chicken)
		  ● *Egg → Hatching → Bird*
		- The life cycle of a Reptile (Lizard)
		  ● *Egg → Hatchling → Lizard*
		- The Life Cycle of a Mammal (Human)
		  ● *Baby → Child → Adult → Elderly Person (Check PSHE)*
		- That all living things have basic needs that need to be met for them to survive
		  ● *Water, Food and Air*
		- That Humans need exercise and a balanced diet to stay healthy
		- What the 4 main food groups are
		  ● *Fruit & Veg, Carbohydrates, Proteins, Dairy*
			- The difference between 'Alive', 'Dead' and 'Never Alive'
			- That different animals live in different habitats
			  ● *Seashore, Woodland, Desert, Rainforest, Ocean*
			- That some creatures in in 'microhabitats'
			  ● *Under Stones/Logs, In/on Plants/Flowers*
			- That some habits are under threat, and this threatens the animals that live there
			  ● *Melting Artic Ice & Deforestation*
			- How to create a simple food chain (linked to different habitats)

Skill	● Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses ● Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	● Understand that animals, including humans, have offspring which grow into adults. ● 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.	● 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 sources of food.
	● Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum ● Use simple equipment to observe closely including changes over time ● Communicate his/her ideas, what he/she does and what he/she finds out in a variety of ways ● Perform simple comparative tests ● Identify, group and classify ● Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns ● Gather and record data to help in answering questions including from secondary sources of information		
Voc	Wood, Plastic, Glass, Metal, Water, Liquid, Rock, Brick, Fabric, Sand, Paper, Soil, Hard, Soft, Elastic, Not Elastic, Shiny, Dull, Rough, Smooth, Flexible, Rigid, Transparent, Opaque, Insulated, Absorbent	Essential, Useful, Survive, Food, Water, Air, Shelter, Warmth, Hygiene, Fruits, Vegetables, Carbohydrates, Proteins, Dairy, Food Groups, Exercise, Bones, Muscles, Stamina, Lifecycle, Offspring	Alive, Dead, Never Alive, Habitat, Micro, Habitat, Seashore, Woodland, Desert, Rainforest, Ocean, Saltwater, Freshwater, Sea Ice, Deforestation, Food Chain, Producer, Consumer, Prey, Predator

a b			

	(Is it because I'm a Londoner?) **Seasons**	(Into the Unknown) **Plants**	
Know	● The names of the 4 Seasons and the weathers associated with them ● How the amount of daylight changes over the year ● How to set up a weather station ● How to take and record accurate measurements ● How to look for patterns in simple results	● The life cycle of a plant/tree Seed/Bulb → Shoot → Sapling/Seedling → Plant/Tree ● That plant needs water, light, nutrition and a suitable temperature to grow and stay healthy ● That plants absorb carbon dioxide from the air and expel oxygen ● That the study of plants is called botany ● What a comparative test is and why they are helpful.	
Skill	● Observe changes across the four seasons. ● Observe and describe weather associated with the seasons and how day length varies.	● Observe and describe how seeds and bulbs grow into mature plants. ● Describe how plants need water, light and a suitable temperature to grow and stay healthy, and describe the impact of changing these.	
	● Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum ● Use simple equipment to observe closely including changes over time ● Communicate his/her ideas, what he/she does and what he/she finds out in a variety of ways ● Perform simple comparative tests ● Identify, group and classify ● Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns ● Gather and record data to help in answering questions including from secondary sources of information		
Vocab	season, seasonal, spring, summer, autumn, winter, orbit, tilt, warm, cool, wind, rain, sun, fog, snow, weather-station, meteorology	Roots, Stem, Leaves, Flowers, Seeds, Shoot, Bulb, Sapling, Soil/Earth, Water, Warmth, Germination, Dispersal, Deciduous, Evergreen, Botanist, Deforestation	

Science Skills Progression Document

LKS2 (Yrs 3 & 4)

Year 3 & 4 Core SCIENCE Vocabulary					
Question	Observe	Enquire	Accurate	Key Diagram	Table
Prediction	Record	Compare	Measure	Graph	Conclusion
Plan	Research	Fair	Classify	Chart	Explanation

	Skill/NC Statement
Working Scientifically	Ask relevant questions and use different types of scientific enquiries to answer them
	Set up simple practical enquiries, comparative and fair tests
	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
	Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
	Identify differences, similarities or changes related to simple scientific ideas and processes
	Use straightforward scientific evidence to answer questions or to support his/her findings
	Ask relevant questions and use different types of scientific enquiries to answer them
	Set up simple practical enquiries, comparative and fair tests
	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using 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
	Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
	Identify differences, similarities or changes related to simple scientific ideas and processes
	Use straightforward scientific evidence to answer questions or to support his/her findings

Year 3 Topics			
	(Where We All Began) **Animals (Including Humans)**	(Life is a Journey) **Plants**	(We Are Britain – Out with the Old, In with the New) **Forces & Magnets**
Know	- The names of major bones in the Human Skeleton ● *Skull, Spine, Vertebra, Ribcage, Radius, Ulna, Humerus, Tibia, Fibula, Femur, Pelvis, Scapula* - That the skeleton provides protection for important organs ● *Skull Brain, Ribcage Heart & Lungs* - That the skeleton supports the body - That the skeleton, in conjunction with muscles, allows the body to move. - The names of common skeletal joints and their locations ● *Hinge (elbow) Sliding (wrist) & Pivot (neck)* - That muscles work through contraction and relaxation & in pairs. - The roles of the different food groups in keeping the body healthy ● *Fruit & Veg = Vitamins (Health) & Fibre (Digestion)* ● *Carbohydrates = Energy* ● *Proteins = Muscles and Repair* ● *Dairy = Calcium (Bones & Teeth)* ● *Fats & Oils = (Energy)* - How to design a balanced and healthy meal/menu	- The functions of the parts of plants ● *Roots = Support & Nutrition* ● *Stem/Trunk = Support* ● *Leaves = Convert Sunlight into Energy* ● *Flowers/Blossom = Attract insects for pollination* - That plants need air, light, water, nutrients from soil, and room to grow - That differing plants need differing amounts of air, light, water, nutrients and room. - That plants absorb water from the ground via the roots and transport it around the plant. - The parts of a flower and their role in pollination ● *Stem, Sepal, Petal,, Pistil & Pollen* - That plants disperse their seeds and this happens in different ways ● *Wind, Gravity, Explosion, Animal Digestion & Animal Attachment* - What dissection is and why it is used (linked to flower dissection)	- That different surfaces produce different amounts of friction - That magnetism is a force and can act at a distance - That not all metals are magnetic, and examples of both ● *Non-Magnetic/Non-Ferrous = Steel & Iron* ● *Magnetic/Ferrous = Aluminium & Copper* - That Magnets have two 'Poles' (North and South) and how these attract/repel each other - Common uses/application of magnets in everyday life. - That we should base predictions on our existing scientific knowledge and observations
Skill	● 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	● Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers ● Explore and describe 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.	● 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.
	● Ask relevant questions and use different types of scientific enquiries to answer them ● Set up simple practical enquiries, comparative and fair tests ● Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers ● Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables ● Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions ● Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions ● Identify differences, similarities or changes related to simple scientific ideas and processes ● Use straightforward scientific evidence to answer questions or to support his/her findings		

Vocab	Nutrition Diet Vitamins Minerals Fats Proteins Dairy Carbohydrates Skeleton Protect Support Bone Muscle Ligament Ball and Socket Joint Hinge Joint Sliding Joint Skull, Spine Vertebra Ribcage Radius Ulna Humerus Tibia Fibula Femur Pelvis Scapula	Plants Flowers Roots stem/trunk Leaves Anther Function Nutrition Support Dispersal Transportation Photosynthesis Air Light Reproduction Water Warmth Nutrients (from soil) Space/room Pollination Seed Dispersal Branch Petal Seeds Absorb Transport Evaporation Transpiration	Magnet Metal Iron Copper Aluminium Steel Brass Attract Repel Magnetic Pole North South Non-Magnetic Attraction Repulsion Force Push Stretch Squash Compress Twist Friction Newton Force Meter
	(Conflict & Compromise) **Rocks**	(Life is a Journey) **Light**	
Know	- That different types of rock have different properties - That there are three main types of rocks ● *Volcanic* ● *Sedimentary* ● *Metamorphic* - That we can learn about life in the past through studying fossils - That fossils are imprints of dead creatures (but not their actual remains/bones) - How fossils are formed and discovered ● *Death → Burial → Sedimentation → Permineralisation → Uplift → Exposure* - That soil is comprised of a mix of rocks and organic matter and how this happens over time - That we can use microscopes to closely observe materials	- That the Sun is the biggest source of light in our world, and it is dangerous to look straight at it,. - That light travels from a source in straight lines and reflects off of surfaces - That darkness is the absence of light - That shadows are formed when light is blocked between a source and a surface - How the size of a shadow is related to the distance between the source, the object casting the shadow and the surface is it cast upon - How the clarity of a shadow is related to the distance between the source, the object casting the shadow and the surface it is cast upon - How to carry out a systematic test (test, change variable, test, change variable, repeat)	
Skill	● 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.	● Recognise that he/she needs 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 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 changes.	
	● Ask relevant questions and use different types of scientific enquiries to answer them ● Set up simple practical enquiries, comparative and fair tests ● Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers ● Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables ● Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions ● Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions ● Identify differences, similarities or changes related to simple scientific ideas and processes ● Use straightforward scientific evidence to answer questions or to support his/her findings		

Vocab												
Rock	Sandstone	Limestone	Texture	Impermeable	Light	Vision	Light Source	Star	Torch	Transparent		
Soil	Chalk	Quartz	Surface	Igneous	Dark	Reflect	Natural	Sun	Candle	Opaque		
Slate	Clay	Marble	Porous	Volcanic	Shadow	Reflective	Scatter	Moon	Lamp	Emit		
Granite	Sand	Pebble	Permeable	Sedimentary	See	Surface	Absorb	Artificial	Translucent	Clarity		

Year 4 Topics

	(Myths, Legends & Monsters) **Animals (inc Humans)**	(When Disaster Strikes) **States of Matter**	(We Are the World – Global Connections) **Electricity**
Know	- The names and functions of different teeth ● *Incisor (Cutting)* ● *Canine (Gripping and Tearing)* ● *Pre-Molar (Mashing & Chewing)* ● *Molar (Mashing and Chewing)* - The roles of the different parts of the digestive system ● *Mouth & Teeth (Chewing)* ● *Oesophagus (Swallowing/Transport)* ● *Stomach (Digestion)* ● *Small & Small Intestines (Absorption)* ● *Colon (Excretion)* - That different animals have different teeth dependent on their diets - The roles of producers, consumers (primary, secondary & tertiary), prey, predators, apex predators & decomposers in food chains	- That materials can be classified as either solids, liquids of gases - The properties of solids – hold their shape, tightly packed molecules, - The properties of liquids – spread out to take the shape of their container, closely packed molecules. - The properties of gases – spread out to fill their container, molecules moving around freely. - That some materials change state when they are heated or cooled - How the water cycle functions	- That electricity travel in circuits, and always takes the easiest route - The names and functions of basic electrical components ● *Cell/battery, wires, bulb, buzzer, switch* - That circuits only function if they are closed, and the role of switches in opening/closing circuits. - How to construct a simple series circuit - That some materials conduct electricity well (conductors) whilst others do not (resistors) - Basic Home Electrical Safety ● *Plug Sockets, Bare Wires & Battery Disposal*
Skill	● 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	● 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.	● 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. ● 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
	● Ask relevant questions and use different types of scientific enquiries to answer them ● Set up simple practical enquiries, comparative and fair tests ● Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using 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 ● Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables ● Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions ● Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions ● Identify differences, similarities or changes related to simple scientific ideas and processes ● Use straightforward scientific evidence to answer questions or to support his/her findings		
Vocab	Digestive System, Organs, Mouth, Tongue, Salivary glands, Oesophagus, Stomach, Small/large intestine, Enzymes, Function, Teeth, Canin, Incisor, Premolar, Molar, Nutrients, Energy, Food chains, Herbivore, Carnivore, Omnivore, Predator, Prey, Consumer, Producer	Solid, Liquid, Gas, Melt, Freeze, Solidify, Evaporate, Condense, Molecule, Molecular Structure, Water Cycle, Transpiration, Precipitation, Surface Runoff, Infiltration, Percolation, Ground Water, Collection	Electricity, Electrical Circuit, Series, Battery, Bulb, Crocodile Clip, Buzzer, Motor, Switch, Break, Conduct, Conductor, Insulate, Insulator, Power, Bright, Dim, Socket, Shock, Electrocution, Cell

	(Myths, Legends & Monsters) **Living Things**	(When Disaster Strikes) **Sound**	

Know	- How to conduct a survey
	- How to collect samples using a 'pooter'
	- That living things can be split into increasing detailed classifications
	  ● *Plants Flowering & Non-Flowering*
	  ● *Vertebrates Mammals, Fish, Birds etc*
	  ● *Mammals Herbivores, Omnivores & Carnivores*
	  ● *Invertebrate's Molluscs, Siders & Insects*
	- How to use classification keys to accurately identify living things accurately
	- How to construct a classification key using branching questions
	- That changes in the environment effect habitats and the things that live there
	  ● *Negative – development, deforestation*
	  ● *Positive – nature reserves*
		- That sounds are created by vibrations traveling through a medium
		- That sounds travel differently through different mediums
		  ● *Air, Water and Solids*
		- That faster vibrations make higher pitched sounds, and slower vibrations make lower pitched sounds
		- That bigger vibrations make louder sounds, and smaller vibrations make quiet sounds
		- That sounds get fainter as the distance from their source increases
		- That some materials can insulate sounds better than others	

Skill	● 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 and have an impact on living things.	● Identify how sounds are made, associating some of them with something vibrating ● 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	
	● Ask relevant questions and use different types of scientific enquiries to answer them ● Set up simple practical enquiries, comparative and fair tests ● Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using 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 ● Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables ● Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions ● Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions ● Identify differences, similarities or changes related to simple scientific ideas and processes ● Use straightforward scientific evidence to answer questions or to support his/her findings		
Vocab	Habitat Nutrition Environment Keys Condition Consumer Producer Organism Predator Prey Food Chain Similar Different Alive Dead Never been alive Movement Reproduction Sensitivity Nutrition Excretion Respiration Growth	Volume Loudness Vibration Wave Pitch Tone Speaker Distance Travels Highest Lowest Loudest Quietest Sound source Produce Muffle Tuning Decibel Sine Wave Frequency Amplitude Acoustics Insulation	

Science Skills Progression Document

UKS2 (Yrs 5 & 6)

Year 5 & 6 Core SCIENCE Vocabulary					
Prediction	Repeat	Precise	Line Graph	Interpret	Prove
Plan	Identify	Diagram	Bar Chart	Conclusion	Refute
Variable	Compare/Comparative	Classification	Scatter Graph	Explanation	Inconclusive
Observation	Fair	Key	Plot	Relationship	
Record	Accurate	Systematic	Pattern	Evidence	

	Skill/NC Statement
Working Scientifically	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
	Use test results to make predictions to set up further comparative and fair tests
	Report and present 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
	Identify scientific evidence that has been used to support or refute ideas or arguments
	Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary
	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
	Use test results to make predictions to set up further comparative and fair tests
	Report and present 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
	Identify scientific evidence that has been used to support or refute ideas or arguments
	Describe and evaluate their own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources
	Group and classify things and recognise patterns.
	Find things out using a wide range of secondary sources of information
	Use appropriate scientific language and ideas from the national curriculum to explain, evaluate and communicate his/her methods and findings.

Year 5 Topics			
	(Conflict & Compromise) **Living Things & Habitats**	(Explorers or Intruders) **Properties of Materials**	(We Are Britain – What Makes Britain Great) **Animals (Inc Humans)**

Know	- The parts of a flower and their role in pollination/reproduction
	  ● *Stem, Sepal, Petal, Ovule, Pistil (Ovary, Stigma & Style), Stamen (Filament & Anther) Pollen*
	- The lifecycles of a range of plants and animals
	  ● *Flowering Plants*
	  ● *Mammals*
	  ● *Birds*
	  ● *Insect*
	  ● *Amphibians*
	- That some living things reproduce sexually (requires a male and female) and some asexually (can reproduce by themselves)
	- How to grow a new plant from cuttings
	- How plants disperse their seeds
	  ● *Wind, Water, Animal, Explosion*
		● That different materials have different properties
		  - *Solubility, Electrical Conductivity, Thermal Conductivity & Transparency*
		● The difference between solutions and suspensions
		  - *Solution = small particles & transparent*
		  - *Suspension = larger particles & cloudy/murky)*
		● That some materials are soluble and will dissolve in water
		● That some changes to materials are reversible
		  - *Some Mixtures/Solutions can be separated*
		● That we can separate materials in solutions and suspensions through sieving, filtering and evaporating
		● That some changes to materials are irreversible
		  - *Burning, Cooking & Rusting*
			● How the human body changes from birth to old age
			  - *Birth Baby Toddler Child Adolescent Adult Old Age*
			● How puberty changes human bodies change during adolescence
			  - *In line with RSHE Policy*
			● That not all animals develop and grow at the same rate

Skill	● Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. ● Describe the life process of reproduction in some plants and animals.	● 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. ● Recognise 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 changes ● 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.	● Describe the changes as humans develop to old age.
	● Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ● Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate ● Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs ● Use test results to make predictions to set up further comparative and fair tests ● Report and present 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 ● Identify scientific evidence that has been used to support or refute ideas or arguments		

Vocab																					
	Lifecycle	Sepal	Germinate	Pollinate	Baby	State	Liquid	Molecules	Insulator	Solution	Condense	Conception	Child	Adult	Acne	Breasts
	Reproduce	Petal	Germination	Pollination	Child	Change	Gas	Hardness	Rigid	Suspension	Reversible	Foetus	Childhood	Adulthood	Pubic Hair	Menstruation
	Reproduction	Ovary	Fertilise	Disperse	Adolescent	Evaporate	Melt	Soluble	Flexible	Sieve	Irreversible	Birth	Adolescent	Old Age	Testicles	Sperm
	Stamen	Pollen	Fertilisation	Dispersal	Adult	Condense	Freeze	Insoluble	Malleable	Filter		Baby	Adolescence	Life Cycle	Ejaculation	Fertility
	Stigma	Style			Dissect	Solid	Solidify	Conductor	Tough	Evaporate		Babyhood	Teenager	Puberty	Penis	

	(Conflict & Compromise) **Forces**	(Explorers or Intruders) **Space**	
Know	● That the force of Gravity pulls unsupported objects towards the Earth ● That air resistance acts upon objects moving through the air ● That water resistance acts upon objects moving through water ● That friction acts on things that move over surfaces ● That things float if they displace a greater weight of water than their own weight (up thrust) ● That forces can be increased through the use of levers, gears and pulleys	- That the Earth is a planet with the Solar System, which is itself a small part of the milky way galaxy, which itself is a small part of the Universe - The names and relative sizes of the planet sin the Solar System - That the planets in the Solar System orbit a star that we call 'The Sun' - That the moon orbits the Earth - That night and day are caused by the Earth spinning on its axis	
Skill	● Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. ● Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	● 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	
	● Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ● Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate ● Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs ● Use test results to make predictions to set up further comparative and fair tests ● Report and present 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 ● Identify scientific evidence that has been used to support or refute ideas or arguments		
Vocab	Force, Push, Pull, Twist, Friction, Air Resistance, Displacement, Water, Resistance, Buoyancy, Newtons, Force Meter, Surface Area, Resist, Streamlined, Lever, Pulley, Gear, Fulcrum	Earth, Sun, Moon, Planet, Spherical, Revolve, Orbit, Spin, Rotate, Axis, Sunrise, Sunset, North, South, East, West, Light Source, Shadow, Solar, System, Galaxy, Mercury, Venus, Mars, Jupiter, Saturn, Neptune, Dwarf, Planet, Pluto	

Year 6 Topics

	Our Ever Changing World **Evolution & Inheritance**	Light in the Darkness **Light**	(We Are The World – Take a Stand, Make a Change) **Living Things & Habitats**
Know	● That the fossil record shows that living things have changed and evolved over time - *Micro Evolution – change within a species* - *Macro Evolution - change to a new species* ● That evolution takes place through 'natural selection' ● That offspring are similar but can have slightly different traits to their parents that may make them more or less successful ● That evolution and natural selection lead to animals being better adapted to their environments ● About the life and work of Charles Darwin in recognising evolution and natural selection	● That light always travels in straight lines and this is why shadows take the form of whatever cast them. ● The parts of the eye and their functions - *Pupil (Allow light in)* - *Iris (Allows more/less Light in)* - *Lens (Focuses light)* - *Retina (Senses Light)* - *Rods (Detect Light & Dark)* - *Cones (Detect Colours)* ● That our eyes work when light enters them ● That 'white' light can be split into all the colours of the visible spectrum ● About the life and work of Alhazen in developing the field of optics	- How to conduct a wildlife survey - An overview of standard biological classification, and that each level becomes more specific from Kingdom (5 groups continuing all living things) to species (the exact name of one type of living thing) - *Kingdoms, Phylum, Class, Order, Family, Genus Species* - How to construct a classification key using branching questions - That changes in the environment effect habitats and the things that live there ● *Negative – Global Warming* ● *Positive – Re-Wilding* - About the life and work of Carl Linnaeus in pioneering the field of classification
Skill	● 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.	● 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. ● Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	● 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.
	● Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary ● Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate ● Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs ● Use test results to make predictions to set up further comparative and fair tests ● Report and present 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 ● Identify scientific evidence that has been used to support or refute ideas or arguments ● Describe and evaluate their own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources ● Group and classify things and recognise patterns. ● Find things out using a wide range of secondary sources of information ● Use appropriate scientific language and ideas from the national curriculum to explain, evaluate and communicate his/her methods and findings.		
Vocab	Change, Fossils, Offspring, Evolve, Evolution, Adaptation, Charles Darwin, Natural Selection, Theory, Vary, Non-identical, Characteristics, Environment, Conditions, Survival, Inheritance, Micro Evolution, Macro Evolution, Environment, Species, Genes, Genetics, Traits	Light, Beam, Reflect, Reflection, Opaque, Transparent, Translucent, Mirror, Source, Shadow, Block, Surface, Eye, Pupil, Cornea, Focus, Muscle, Lens, Retina, Rods, Cones, Spectrum, Wavelength, Angle of incidence /Reflection	Prediction, Plan, Variable, Observation, Record, Repeat, Identify, Compare/Comparative, Fair, Accurate, Precise, Diagram, Classification Key, Systematic, Line Graph, Bar Chart, Scatter Graph, Plot, Pattern, Interpret, Conclusion, Explanation, Relationship, Evidence, Prove, Refute, Inconclusive

	Our Ever-Changing World **Animals (Inc Humans)**	Light in the Darkness **Electricity**	
Know	● The Main organs of the circulatory system and their functions - *Heart, Blood Vessels - Arteries, Capillaries & Veins - & Lungs* ● The parts of the heart and their functions - *Chambers, Valves, Pulmonary Vein & Artery, Vena Cava (Superior & Inferior)* ● The impact of healthy/non-healthy diets on the Human body ● That animals absorb nutrients and water through the intestines via diffusion ● The impact of exercise on the Human Body ● That drugs can be helpful and harmful - *Medical drugs* - *Recreational Drugs* ● The impact of smoking on the human body and lungs	● The names and functions different types of electrical switch - *Momentary and Latching* ● How to draw an accurate circuit diagram using the correct electrical symbols - *Blub, LED, Switch, Cell/Battery, Buzzer* ● The difference between series and parallel circuits ● That the power of cells/batteries is measured as voltage ● The difference between voltage, current and resistance - Hosepipe illustration - Voltage = pressure (volts) - Current = flow rate (amps) - Resistance = pipe size (Ohms) ● How changing the voltage of cells in a circuit effects the brightness of a bulb	
Skill	● 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. ●	● Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. ● Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. ● Use recognised symbols when representing a simple circuit in a diagram. ●	
	● Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary ● Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate ● Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs ● Use test results to make predictions to set up further comparative and fair tests ● Report and present 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 ● Identify scientific evidence that has been used to support or refute ideas or arguments ● Describe and evaluate their own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources ● Group and classify things and recognise patterns. ● Find things out using a wide range of secondary sources of information ● Use appropriate scientific language and ideas from the national curriculum to explain, evaluate and communicate his/her methods and findings.		
Voc	Healthy, Balanced, Diet, Side Effect, Fats, Sugar, Starches, Food, Nutrition, Heart, Vena Cava, Atrium, Ventricle, Aorta, Chamber, Valve, Circulation/ Circulate, Heartbeat, Pulse, Rate, Muscle, Blood, Blood Vessel, Vein, Artery, Capillary, Lung, Breath, Respire, Grow, Activity	Electricity, Current, Voltage, Resistance, Volts, Amps Ohms, Circuit, Conductor, Insulator, Resistor, Symbol, Diagram, Component, Series, Parallel, Switch, Bulb, Motor, LED, Buzzer	

a b			