Science Long Term Plan

	Autumn		Spring		Summer	
EYFS	**All about Me** The human body: Facial features, body parts, the senses Seasons of the year; Autumn. Deciduous and evergreen trees. Observing leaves using magnifying glasses, leaves changing colour.	**Journeys** Forces: push, pull, twist Air transport Water transport Seasons of the year: Winter. Animal hibernation, why do some animals hibernate? How do other animals survive winter? Transport in the winter; snow ploughs, gritting roads, snow tyres. Changing state of matter; frost and ice- looking closely at ice, what happens when it warms? Why can we see our breath when it is cold?	**Space** Our planet Earth, land and sea, plants and animals, weather, gravity. The moon, the sun, the planets in our solar system, space travel, astronauts. Seasons of the year: Spring. The first signs of spring; snowdrops, cherry blossom, buds and flowers, birds nesting, bees, lighter evenings.	**Growing and Changing** Growing and changing; how people change as they grow, how animals change as they grow. Life cycles of a butterfly and/or frog. Identify and draw the following animals and their babies including but not limited to: Sheep and Lamb Cows and Calf Horse and foal Butterfly and Caterpillar Frog and tadpole Dog and puppy Cat and kitten Plants; how they grow from seeds and bulbs. What plants need to grow. Identify parts of plants including roots, stem and leaves. Identify trees and plants growing locally on the school grounds or in local parks. Draw pictures of local plants.	**Kings and Queens** Seasons of the Year: Summer. Signs of summer; flowers, warmer days, light evenings, butterflies, bees, birds. Design a garden for the Queen; what could we grow? What would we include? Sketch some ideas and write about the design.	**Stories from the Past** Seasons of the Year: Summer. How we stay safe in the sun; sunscreen, hats, sunglasses. Safety around water. Changing state of matter; Why do our ice lollies melt?
Year 1	**The Human Body** Naming parts of the body, the five senses and associated body parts, understanding sensory impairment.	**Animals and their Needs** Living things, naming animals, grouping animals, describing animals, how plants and animals obtain food, offspring, caring for animal babies, caring for pets.	**Seasons and Weather** The four seasons, tools to record the weather, daily weather and weather forecasts, weather symbols, weather around the world, floods and hurricanes.	**Taking Care of the Earth** The Earth's natural resources, conservation of natural resources, logging, recycling, how pollution is caused and can be prevented.	**Plants** What plants need to grow, the parts and functions of plants, food production, flowers and seeds, deciduous and evergreen.	**Materials and Magnets** Classification of materials, magnets, magnetic attraction.

Year 2	**The Human Body** The skeletal and muscular systems, exercise, digestive system and healthy eating, circulatory system, preventing illness, germs and disease, animals and their offspring.	**Living Things in their Environments** Habitats: rainforest, desert, meadow and underground habitats. Food chains, oceans and undersea habitats, deep ocean habitats and habitat destruction and damage.	**Electricity** Circuits, conductive and non-conductive materials, safety rules.	**Plants** Seeds and bulbs, plants and water, light, temperature, healthy plants.	**Materials and Matter** Comparing materials, changing materials, concepts of atoms, matter, solids, liquids, gases, measurements.	**Astronomy** Our solar system, orbit and rotation, sun, moon, planets, stars, constellations.
Year 3	**The Human Body** The digestive system, teeth and senses, a healthy diet, nutrition, vitamins and minerals, skeletons and muscles for support, protection and movement.	**Cycles in Nature** Seasonal cycles and plants, animal migration. Life cycles of a plant and a frog.	**Light** How light travels, shadows, transparent and opaque objects, reflection, mirrors: plane, concave, convex, how shadows change throughout the day.	**Plants** Functions of plants: roots, stem/trunk, leaves and flowers, Life and growth, variety of plants, water transportation, seed formation and dispersal.	**Rocks** Sorting rocks, how rocks are formed, hardness and permeability, fossils, soil.	**Forces and Magnets** Forces, friction, magnets, magnetic poles, magnetic fields, law of magnetic attraction, compasses.
Year 4	**The Human Body** The muscular system, the skeletal system, the nervous system, the digestive system, teeth.	**Classification of Plants and Animals** Cold-blooded or warm-blooded, vertebrates or invertebrates, characteristics of animal classes, classification of plants.	**Ecology** Habitats, interdependence of organisms and their environment, producers, consumers and decomposers, food webs, producers, predators and prey, human threats to the environment.	**Sound** How sound is created, how sound travels, sound waves, speed of sound, pitch, intensity, the human voice, hearing, the human ear.	**States of Matter and the Water Cycle** Change of state, evaporation, condensation, precipitation, humidity, groundwater.	**Electricity** Electric current, circuits, switches, conductors and insulators.

Year 5	**The Human Body:** Human growth stages, adolescence and puberty, The human reproductive system, The endocrine system.	**Materials** Properties- solubility, conductivity, flexibility, fair testing, solubility, separation of mixtures, reversible changes- dissolving, mixing, change of state.	**Forces** Gravity, friction, air resistance, water resistance, pulleys, gears and levers.	**Living Things** Life cycles of a mammal, an amphibian, an insect and a bird, life process of reproduction in some plants and animals, Photosynthesis, vascular and non-vascular plants.	**Astronomy** The Big Bang theory, gravity, the Universe, our Solar System, the moon and our galactic neighbourhood.	**Meteorology** Weather and climate, the atmosphere, the Ozone layer, air movement and wind direction, cold and warm fronts, thunder and lightning.
Year 6	**The Human Body** The circulatory system, the heart, the blood vessels, the blood, blood pressure and heart rate, changes to humans as we get older	**Classification of Living Things** Classifying organisms, plant and animal cells, fungi, protists, monera, taxonomy, Latin names, vertebrates.	**Electricity** Brightness, buzzers, voltage, switches, simple circuits and symbols	**Light** How light travels, Our eyes, light sources, shadows, periscopes	**Reproduction** Asexual reproduction, sexual reproduction in non-flowering and flowering plants, pollination, fertilisation, reproduction in animals, growth stages.	**Evolution** Fossils, adaptation, characteristics passing through generations, Mary Anning, Alfred Wallace, Charles Darwin, Darwin's sketches of finches.

Working Scientifically KS1	Year 1							Year 2				
	Human Body	Animals and their Needs	Seasons and Weather	Taking Care of the Earth	Plants	Materials and Magnets	The Human Body	Living Things and their Environments	Electricity	Plants	Materials and Matter	Astronomy
Statutory												
asking simple questions and recognising that they can be answered in different ways			✓		✓	✓	✓	✓		✓		✓
observing closely, using simple equipment	✓		✓		✓					✓	✓	✓
performing simple tests	✓				✓					✓	✓	✓
identifying and classifying	✓	✓		✓		✓			✓			✓
using their observations and ideas to suggest answers to questions		✓	✓		✓					✓	✓	✓
gathering and recording data to help in answering questions			✓		✓	✓				✓	✓	✓
Notes and guidance												
use simple features to compare objects, materials and living things and, with help, decide how to sort and group them, observe changes over time, and, with guidance, they should begin to notice patterns and relationships		✓			✓	✓						✓
ask people questions and use simple secondary sources to find answers	✓			✓			✓		✓			
use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out			✓		✓					✓	✓	✓
record and communicate their findings in a range of ways and begin to use simple scientific language (with help)		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓

Working Scientifically Lower KS2	Year 3							Year 4				
Statutory	The Human Body	Cycles in Nature	Plants	Light	Rocks	Forces and Magnets	The Human Body	Classification	Ecology	Sound	States of Matter and the Water cycle	Electricity
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 results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	✓				✓	✓						
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.					✓	✓						
Notes and guidance												
recognise when a simple fair test is necessary and help to decide how to set it up					✓	✓				✓	✓	✓
talk about criteria for grouping, sorting and classifying; and use simple keys	✓		✓		✓		✓					
collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data			✓		✓				✓			
make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used	✓				✓	✓			✓	✓	✓	
how to use new equipment, including thermometers and data loggers		✓				✓					✓	✓
collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data					✓	✓						
look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions		✓			✓			✓	✓	✓	✓	✓
making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done						✓			✓	✓		
use relevant scientific language to discuss their ideas and communicate their findings		✓				✓		✓		✓	✓	✓

Working Scientifically Upper KS2	Year 5							Year 6				
Statutory	Human Body	Materials	Living Things	Forces	Astronomy	Meteorology	The Human Body	Classification	Electricity	Light	Reproduction	Evolution
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 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	✓	✓	✓	✓	✓				✓	✓		
Notes and guidance												
plan the most appropriate type of scientific enquiry to use to answer scientific questions	✓	✓	✓	✓			✓					
recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why	✓	✓		✓					✓			
use and develop keys and other information records to identify, classify and describe living things and materials		✓	✓					✓		✓	✓	✓
make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them	✓	✓		✓	✓		✓		✓			
choose the most appropriate equipment to make measurements and explain how to use it accurately		✓				✓	✓					
decide how to record data from a choice of familiar approaches		✓		✓					✓			
look for different causal relationships in their data and identify evidence that refutes or supports their ideas	✓	✓		✓	✓				✓			
use their results to identify when further tests and observations might be needed	✓	✓		✓			✓		✓			
talk about how scientific ideas have developed over time	✓				✓					✓		