Holbrook Primary Progression of Skills Knowledge and Understanding Document in Science

Skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Planning and predicting	1. **Ask questions** Demonstrate curiosity about the world around them.	1. **Ask questions** *Ask simple questions stimulated by their exploration of their world and recognise that they can be answered in different ways.*	**1. Ask questions** *With support, suggest some ideas and questions about their experiences and observations. Suggest ways to discover an answer or solve a problem, recognising that some can be answered in a variety of ways.*	**1. Ask questions** *Respond to suggestions. Within a group, suggest relevant questions that can be explored further using different types of scientific enquiry.*	**1. Ask questions** *Ask relevant questions that can be answered by the appropriate scientific enquiry, research or experiment.*	**1. Ask questions** *Refine a scientific question so that it can be investigated, choosing an appropriate type of scientific enquiry to provide the best evidence.*	**1. Ask questions** *Consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new ideas and explanations for phenomena. Recognise scientific questions which do not yet have definitive answers and use a range of scientific enquiries to explore possible answers.*
	2. **Make predictions** With support or prompting, talk about what they think might happen based on their own experiences.	**2. Make predictions** *Suggest what might happen and ways to test ideas.*	**2. Make predictions** *Suggest what might happen. Think about and discuss whether comparisons and tests are fair or unfair.*	**2. Make predictions** *Use straightforward scientific evidence to make predictions.*	**2. Make predictions** *Use straightforward scientific evidence to make further predictions. Use results to make predictions for new values and raise further questions.*	2. **Make predictions** *Recognise when scientific evidence supports an idea or not and use this to support predictions. Use test results to prompt new questions and make predictions for setting up further tests.*	2. **Make predictions** *Identify scientific evidence that has been used to support or refute ideas or arguments and use this to support predictions. Use test results to make predictions for setting up further comparative and fair tests.*

Investigating and observing	3. Decide how to carry out an enquiry Respond to prompts to say what happened to objects, living things or events. Describe what they see, hear and feel whilst outside. 4. Take measurements Use senses and simple equipment to explore the world around them, e.g. binoculars and magnifying glasses.	3. Decide how to carry out an enquiry *Test and explore using the five senses to make close observations. Make simple comparisons and groupings.* 4. Take measurements Observe objects, living things, events and the world around them closely, using their senses and simple equipment. Make measurements using nonstandard units of measure.	3. Decide how to carry out an enquiry *Make observations and comparisons using simple equipment, following simple instructions. Use first-hand experience and, with help, use simple information sources to answer questions.* 4. Take measurements Observe closely and use equipment provided for observation and measuring correctly. Make measurements using non-standard and standard units of measure	3. Decide how to carry out an enquiry *With support, consider what constitutes a fair test. Plan and carry out simple practical enquiries, comparative and fair tests relevant to the questions or ideas they are investigating.* 4. Take measurements *Use a range of equipment for measuring and observing, including thermometers and data loggers. Take simple, accurate measurements and/or careful observations using whole number standard units relevant to questions or ideas under investigation.* .	3. Decide how to carry out an enquiry *Plan and carry out simple practical enquiries, comparative and fair tests relevant to the questions or ideas they are investigating. Identify one or more control variables from those provided when conducting a fair test.* 4. Take measurements *Make systematic and careful observations of objects, living things and events. Choose from a range of provided, appropriate equipment for measuring and observing, including thermometers and data loggers. Take accurate measurements using more complex standard units and parts of units.*	3. Decide how to carry out an enquiry *Plan enquiries, deciding when it is appropriate to carry out a fair test or another type of practical enquiry from a range suggested. Identify one or more control variables in investigations when conducting a fair test.* 4. Take measurements *Take measurements using a range of scientific equipment with increasing accuracy and precision, identifying the ranges and intervals used. With support, recognise that some measurements and observations may need to be repeated.*	3. Decide how to carry out an enquiry *Recognise significant variables in investigations, selecting the most suitable to investigate. Controlling variables where appropriate. Recognise which type of practical enquiry is most appropriate to the question or idea being investigated, before planning and carrying out the enquiry.* 4. Take measurements *Correctly choose and use appropriate equipment to support observation and data collection with increasing accuracy. Decide when observations and measurements need to be checked, by repeating and being able to explain how this impacts on data collection.*
Recording, analysing and	5. Record data Talk to an adult about what has been found/found out.	5. Record data *Communicate findings in simple ways on templates*	5. Record data *Gather and record data in appropriate ways with*	5. Record data *Gather and present evidence and data using*	5. Record data *Gather and present simple scientific data in a variety of ways as*	5. Record data *Select appropriate ways of gathering and presenting scientific*	5. Record data *Decide on the most appropriate formats to present sets of*

evaluating	6. **Present data** Talk to an adult about what has been found/found out. 7. **Answer questions using data** With support, explain why some things occur.	*provided for them to help in answering questions.* 6. **Present data** *Collect evidence, record and communicate data to try to answer a question. Draw or photograph evidence and label with support.* 7. **Answer questions using data** *Begin to notice patterns.* *With support, talk about what they have found out and how they found it out. Using the appropriate schemata linked to their topic to explain the process.*	*increasing independence to help in answering questions.* 6. **Present data** *Report on and record findings as drawings, photographs, labelled diagrams, orally, as displays or in simple prepared tables or charts.* *7.* **Answer questions using data** *Use understanding of what has been observed or own experience/ideas to answer questions. Use schemata taught appropriately*	*simple scientific language and vocabulary as writing, drawings, labelled diagrams and displays and through computing, keys, bar charts or tables .* 6. **Present data** Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions with support/as a group. Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables with support/as a group. *7.* **Answer questions using data** *Say whether what happened was what was expected. With help, identify simple patterns and suggest explanations always linking back to prior learning.*	*Y3, including tables and bar charts where intervals and ranges are agreed through discussion, to help in answering questions.* 6. **Present data** *Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.* *7.***Answer questions using data** *Use results to answer questions.* *8*	*data through models, writing, drawings, displays, computing, tables or graphs (choosing appropriate ranges and intervals). Use correct scientific symbols where appropriate in recording.* 6. **Present data** *Present findings in written form, displays and other presentations including orally, explaining results and conclusions drawn from results. Identify causal relationships in reporting outcomes where appropriate.* *7.* **Answer questions using data** *Use results to answer questions.*	*scientific data, such as using line graphs for continuous variables. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.* **Present data** *Report and present findings from enquiries, including conclusions, causal relationships and explanations of results in oral and written form, such as displays and other presentations.* *7.* **Answer questions using data**. *Identify trends and patterns and results that do not appear to fit the pattern. Provide explanations for differences in observations and measurements.*

	8. Draw conclusions With support, talk about what they have found out or what they think might happen next/ change based on their own experiences.	**8. Draw conclusions** Use their ideas to suggest answers to questions. Say what has changed when observing objects, living things or events.	**8. Draw conclusions** *Respond to suggestions to identify some evidence needed to answer a question*	**8. Draw conclusions** *Demonstrate understanding of a concept through the use of appropriate schemata.* *9. Evaluate their enquiry Use results of enquiries to consider whether they meet predictions and explain why.*	**8.Draw conclusions** *Identify and use straightforward scientific evidence to support and explain their findings.* *9.Evaluate their enquiry Use results to suggest improvements. Demonstrate an understanding of a concept through the use of appropriate schemata.*	*8..Draw conclusions* *Recognise when scientific evidence is for or against an argument.* *9.Evaluate their enquiry* *Recognise that the test may need improvements to improve reliability.*	**8. Draw conclusions** *Draw conclusions and communicate them in appropriate scientific language.* *9.Evaluate their enquiry* *Make practical suggestions for improving methods in their work. Compare their results with others and give reasons why they may be different.*
Schemata (links to transferable knowledge) And links to RoK focus	Aut 1 - Woodland Rangers topic – season change and the making observations of the natural World. Including plants and animals. Aut 2 - Space – exploring different environments and changes in the moon. Keeping healthy – astronaut health checks.	***Year 1 & 2 Autumn A:*** *Let's Celebrate* *Use Harvest festival to learn about the parts of a plants and which parts are edible. Identify trees in our grounds, lining to Autumn. Identified wild animals found in Uk linking to text grandpa's garden. Classify into types of animals Link to Habitats. Sort materials for reflective materials for staying safe on Bonfire night. Santa and Elves to sort presents made from different materials into the right sacks. Make a waterproof hood.*		***Year 3 & 4: Autumn A:*** *Disaster Strikes* *Romans – Make wax tablets, observing the change in state of liquid ino solids when hating wax, observe water boiling and forming water vapour and then condensation. Create fair tests to see which vegetable produces the strongest dye when boiled. Record temperatures of water when boiled and frozen. Investigate Mount Vesuvius and the reasons why it erupted. Observe how sound travelled in the Colosseum. What had the Romans learned about Sound? Investigate how sound travels in order to explain how an amphitheatre works.. Write an explanation text about volcanoes.*		***Year 5 & 6:*** ***Autumn A:*** ***The World at War*** *Animals and habitats: what animals lived in the trenches? Research the kingdom Monera, unicellular organisms which include bacteria found in the trenches causing diseases that were threats to soldiers in the trenches in WW1 e.g. trench fever, influenza etc. Trip to the Imperial War museum.* *Light: Which materials are best suited to black out curtains?*	

		Autumn B *Once Upon a Time:* *Use text Jim & Beanstalk to investigate and sort plants. Draw and label beans. Plant beans and onions. Find out what plants need to grow well.* *Bug hunt to compare with Spring and Summer bug hunts.* *Visit a castle and look at building materials. Design a modern castle, looking at the properties of materials. Set up practical enquiries, comparative and fair tests around suitable materials to build a castle.* *Investigate the link between how far a bow is pulled back to how far it travels (forces). Build a trebuchet to inevtigate how the weight of a missile impacts on the distance it travels.*	***Autumn B*** ***The Rise of Humans*** *Walk to Holbrook Creek to investigate and classify the local bedrock. Through erosion of the cliffs, observe different layers of soil and rock. Investigate the soil found in the hollow.*	***Autumn B*** ***Magical /Enchanted Forests*** *Living things and their habitats/properties of materials. Use of the hollow, school pond and other local environments for research. What properties do natural materials have? How can the use of natural materials help to save or destroy our world?*
	Spr 1 - Watch Us Grow topic – exploring how plants and humans grow and change over time. Spr 2 -.Great Globetrotters - Exploring animals and humans and their environments around the world.	***Spring A*** ***Treasure seekers*** *Test materials to see which make the best shadow for Peter Pan. Visit Christchurch Mansion and look at materials that toys were made from. Identify common flowering plants. Describe and compare common animals and their basic needs. Compare living dead and alive things. Describe how animals obtain their food from plants. Look at simple food chains.*	***Spring A*** ***Island Worriors*** *Investigate and compare the teeth of a lion with a human. Visit a zoo, grubs workshop. Research different habitats of animals in the zoo. What animals are indigenous to our island? Why? Visit the hollow and other local wildlife spots to investigate habitats.*	***Spring A*** ***Saving the Planet/defining the future*** *Look at evolution including adaptation linking to changes in the planet e.g. pollution, global warming to how organisms adapt. Children will predict what changes they think animals will need to have made to survive in the future. The topic of animals and habitats runs throughout the year and will link to changes and habitat destruction e.g. pollution, deforestation etc. and the impact on biodiversity, extinction etc.* *Autumn2, electricity: future inventions and inventions that help the planet e.g. electric cars etc.*

		Spring B ***Superheroes*** *Identify materials that burn easily (y2 link to autumn term) (fire of London) Identify solids and liquids. Staying healthy and keeping fit. Locating our pulse and observing what happens before and after exercise.*	***Spring B*** ***Going Green? Holiday here!*** *The Lake District* *Forces & Magnets: how does a compass work? How were the mountains formed? Link to previous term's knowledge.* *What minerals and vitamins do the vegetables in Beatrix Potter's garden give us.? Create a healthy meal to provide energy for a mountain walk.. What plants grow in the Lake District? What conditions do they need? How are they different from plants grown locally?*	***Spring B*** ***Digging up the Past*** *Changes of materials /Animals incl humans*
	Sum 1 *– Circus Entertainers.* ***Sun 2 -*** Summer Holidays –looking at sea animals and their habitats.	***Summer A*** ***We are Eco Warriors*** *Local walk to the river.* *Identify local wild and garden plants.* *Look at animals in different habitats worldwide. Comparing those from hot and cold countries.* *Test fabrics for wallets.* *Label parts of a human body. Identify senses and learn the importance of exercise and hygiene.* ***Summer B*** ***What a Waste*** *Sort and classify materials into recyclable etc.* *Local walk: naming a variety of garden and wild plants. Look at local habitats. Label parts of a human body. Identify senses*	***Summer A*** ***Greek Myths and legends*** *What animals were found in ancient Greece?* *Classify animals by their uses.* *Make an electric Olympic torch.* ***Summer B*** ***Ancient Egypt*** *What plants grew in ancient Egypt. How are these plants pollinated? Make an Egyptian fruit salad.* *Disect and label the parts of a plant and its fruit.* *How did the Egyptians tell the time? Make an Egyptian sundial.*	***Summer A*** ***Round the World in 62 days'*** *Research and investigate climatic zones/biomes - habitats around the world and river habitats. Trip to local river.* *Look at animals incl humans which will link in to diet, exercise and healthy lifestyle.* ***Summer B*** ***The British Empire*** *Earth & Space: look at the space race and world domination.* *Forces: link into the DT which is mechanics.*

		and learn the importance of exercise and hygiene.		
Halliards	*Forest school focused on seasonal change, materials, plants, birds and minibeasts. Changing colours in leaves.* *Woodland Walk – Aut 1 signs of Autumn – securing forest school knowledge – animal tracks, evergreen and deciduous trees.* *Mission Space – Aut 2 - keeping Healthy Nurse visit.* *Watch us grow Spr 1 - –Farm/field trip to see plants/animals growing.* *Globe trotters – Aut 2 - Wildlife park visit. Observing large animals from around the world.* *Holbrook Creek walk – Sum 2 – looking at a water based environment.*	***Forest school:*** fire-lighting materials, eg dry materials from the forest school floor (sorting and classifying) Classifying trees in the hollow, observing changes that happen through seasons Mini bug hunts and habitats found in the hollow **English** links to all areas of science **Maths** Data handling: tables and simple bar graphs **Computing**: Microbits: global goals, sea turtles (coding) **Muisc:** pitch in birdsong **PSHE:** Healthy Me – link to Animals Including Humans. Changes – life cycles and reproduction Teamwork, working cooperatively Climate – our impact on the planet **French** vegetable names **Art** observational drawings of plants – Georgia O'keefe, sketches by Darwin. Leaf prints **History** Darwin (Treasure Seekers) Famous female scientists e.g. Elizabeth Garrett Anderson. **Geography** working scientifically links closely with fieldwork in the study of plants. The geographical features of a country are studied along with the plants and animals that choose that habitat for their survival.	***Forest school:*** fire-making link to changing of state, sounds and acoustics of the hollow. Test seed dispersal with different shapes and sizes, hunting for seeds, roots and shoots, investigating parts of plants, light: shadows. investigate layers of soil and sediment **English** links to all areas of science **Maths** Venn diagrams (states of matter) Data handling, bar charts & line graphs. ElectricityL measurement Forces: units of measure & graphs Number sequencing: patterns in nature **Music** Sound dynamics **PSHE:** Healthy Me – link to Animals Including Humans. Changes – life cycles and reproduction Teamwork, working cooperatively Climate – our impact on the planet **French** animals and habitats. Fruits **Art** observational drawings **History** – famous scientists from history, William Smith (Rocks) and Andre-Marie Ampere's work on electromagnetism. **Geography** Rocks and soils	***Forest school:*** habitats: classification, bio-diversity changes: reversible and non-reversible changes – what damage to we do in the hollow? Bird watching from the bird hide; functions of the plants in the hollow, photosynthesis **English** links to all areas of science **Maths:** Data handling, graphs, measuring. **PSHE:** Healthy Me – link to Animals Including Humans. Changes – life cycles and reproduction Teamwork, working cooperatively Climate – our impact on the planet **French** planets (y6) weather (y5) **History** –famous scientists such as Edward Jenner (discovered the first vaccine), Mae Jemison (first black woman astronaut) and Marie Curie. Study of fossils as evidence of the pas. **Geography** Field work and study of loval environment

		Sporting success: *Through the promotion and informing the children about healthy living in science and the daily implementation of the daily mile across the school we have been awarded the Gold Sports mark award.*					
		Pupil voice: *Across the school the children have a variety of ops to take on leadership roles and responsibilities. The School council and eco committee work on conservation of the school grounds (litter picks) tree planting, raising awareness of the importance of recycling and reusing plastic* ***Food for Life:*** *whole school focus on improving school nutrition through taking an active part in growing vegetables on our own patch. Links to nutrition taught in both keystages and the study of plants.*					
Schema words	***Woodland, landscape, micro, deciduous, evergreen, predator prey, natural, manufactured, nature, rural.***	Record, map, data, compare, contrast, describe, suitable, shelter, healthy, observe,	*appearance, attract, environment,*	*artificial, ray, artificial, ray,*			
Science Curriculum Key Vocabulary Progression Chart							
Subject specific Terminology	**EYFS** root, seed, nuts, trunk, branch, bark, stalk, senses, seasons, habitat, micro-habitat, changing, observe, leaves, nocturnal, hibernate, migrate.	***Year 1*** ***Animals Including Humans*** *common animals, fish, amphibians, reptiles, birds, mammals, carnivores, herbivores, omnivores, structure, human, nose, ear, tongue, fingers, eye,*	***Year 2*** ***Animals Including Humans*** *Survival, offspring, kitten, calf, puppy food chain, prey, predator, camouflage, protection, grow, adults, nutrition,*	***Year 3*** ***Animals Including Humans*** *nutrition, skeleton, muscles, support, protection, movement, exoskeleton, vertebrate, invertebrate, functions,*	***Year 4*** ***Animals Including Humans*** digestive system, mouth, tongue, teeth, oesophagus, stomach, small and large intestine, acid, enzyme, absorb,	***Year 5*** ***Animals Including Humans*** *transportation, nutrients, circulatory system, variations, Reproduce, sexually, fertilise, pollination, sperm, metamorphosis, asexual, plantlets,*	***Year 6*** ***Animals Including Humans*** *oxygenated, deoxygenated, Valve, exercise, respiration circulatory system, heart, lungs, blood vessels, blood, artery,*

		touch, smell, hear, see, sense, sight, hearing, flavour, head,neck, ear, mouth,shoulder, hand, leg, foot, thumb, knee, toes, teeth,elbow,	balanced diet, reproduce, hygiene,exercise, nurture	omnivore, herbivore, carnivore, carbohydrates, protein, fats, vitamins, minerals, water, fibre, bones, joints, endoskeleton, hydrostatic, contract, relax	molars, pre-molars, canine, incisor,	secondary sources, puberty, enable, characteristics,	vein, pulmonary, alveoli, capillary, digestive, transport, gas exchange, villi, nutrients, water, oxygen, alcohol, drugs, tobacco. ***Evolution and Inheritance*** adaptation, evolution, characteristic, reproduction, genetics, survival
		Living Things and their habitats diagram, chart, biology, chemistry, physics, seasons, habitat, micro-habitat, classify, investigate, predict.	***Living Things and their habitats*** Life processes, food chain environment, ecosystem, food sources, habitat, microhabitat, depend, survive, living, dead, woodland, meadow, hedgerow, pond	***Living Things and their habitats*** hibernate, digestion, nutrients, producer, predator, prey, carnivore, omnivore, herbivore, evaporate, habitat, impact, migrate	***Living Things and their habitats*** vertebrates, invertebrates (+ 1 example of each) environment, habitat, classification key	***Living Things and their habitats*** Vertebrates, amphibians, invertebrates, classification,	***Living Things and their habitats*** characteristic, classification, organism, microorganism
		Materials wood, object, plastic, glass, paper, metal, rock, hard, soft, rough, smooth, shiny, dull,	**Materials** Suitability, suitable, unsuitable, brick, fabric, elastic, foil, property, solid, waterproof, absorbent,	***Materials – Rocks & Soils*** Mary Anning, fossil, palaeontology, preserved, organisms, ammonite, rocks, appearance, physical	***States of Matter*** solid, liquid, gas, particle, solidify, melt, vapour, water cycle, evaporate, condense,	***Materials – properties and changes*** properties, hardness, solubility, transparency, conductivity (electrical	***Light*** refraction, reflection, spectrum, rainbow, reflection,

		bendy, stiff , water proof	opaque, transparent, translucent, reflective, flexible, rigid, properties,squash, bend, flexible, twist, stretch push, pull, roll, slide, bounce	*properties, fossils, formed, soils, organic matter, grains, crystals, hard, soft, shiny, dull, rough, smooth, absorbent, not absorbent, permeable, man- made, natural, loam, clay, sandy, igneous, metamorphic, sedimentary, lava, magma, volcanic, palaeontology.*	*condensation, degrees celsius, absorbent, classify, precipitation, state, temperature*	*and thermal), magnets, repel, attract, dissolve, solution, substance, separated, filtering, sieving, evaporating,* reversible, *vapour, irreversible, melting, rust, Spencer Silver, Ruth Benerito,*	*periscope, opaque, translucent, transparent.*
		Plants Flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, bulb	**Plants** Growth, germinate, light, temperature, photosynthesis, reproduce, lifecycle	***Plants*** *Photosynthesis, pollination, dispersal, fertilise, chlorophyl*	***Electricity*** *insulation, conductor, appliance, device, component, cell, circuit*	***Earth and Space*** *Earth, sun, moon, solar system, axis of rotation, day, night, phases of the moon, star, constellation, comparative, orbit, rotate, zone, in relation to, gravity, , theory, hypothesis.*	***Electricity*** *circuit - series, parallel voltage, volts, amps, thermal, electrical insulator, conductor, dissolve, solution, soluble,*
		Seasonal change season, spring, summer, autumn, winter, month, year, day, night, sun, moon, light, dark		***Forces*** *force, repel, magnetic force, pole,*	***Sound*** *retention, source, observe, source, vibrate, pitch, volume*	***Forces*** *air resistance, water resistance, friction, gravity lever, gear, pulley, Newtons, mechanisms*	
Core Assessment :	**EYFS**	**Year 1**	**Year 2**	**Year 3& 4 (cycle A)**	**Year 3 & 4**	**Year 5(Cycle A)**	**Year 6 (Cycle B)**

Evidence & application of knowledge	***ELGs*** *Children at the expected level of development will: - 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.*	***Developing:*** *Beginning to produce some of the evidence below.* ***Expected****: a pupil must meet* ***all*** *of the 'working scientifically' statements and all of the 'science content' below.* ***Greater Depth:*** *100% plus the ability to apply their knowledge to making predictions to the outcome of tests and to draw simple conclusions.*	***Developing (WTS):*** *Some of the evidence below, but is not yet asking questions or able to explain what they have found out and link their results to their predictions.* ***Expected (EXS)****: a pupil must meet* ***all*** *of the 'working scientifically' statements and all of the 'science content' below.* ***Greater Depth (GDS):*** *All of the objectives below and confidently apply their scientific knowledge to make predictions, draw conclusions and begin to raise further questions.*	***Developing:*** *Beginning to produce some of the evidence below.* ***Expected****: a pupil must meet* ***all*** *of the 'working scientifically' statements and all of the 'science content' below.* ***Greater Depth:*** *In addition to the evidence below a pupil will be able to lead an investigation, to form conclusions and begin to raise further questions.*	***Developing:*** *Beginning to produce some of the evidence below.* ***Expected****: a pupil must meet* ***all*** *of the 'working scientifically' statements and all of the 'science content' below.* ***Greater Depth:*** *In addition to the evidence below a pupil will be able to lead an investigation, to form conclusions and begin to raise further questions.*	***Developing:*** *Beginning to produce some of the evidence below.* ***Expected****: a pupil must meet* ***all*** *of the 'working scientifically' statements and all of the 'science content' taught in the final year of the key stage.* ***Greater Depth****: In addition to evidence of the objectives below, they readily raise questions of their own about the phenomena that they are studying and draw conclusions from their tests that relate back to their predictions and pose new questions.*	***Year 6 Expected(EX)*** *A pupil must meet* ***all*** *of the 'working scientifically' statements and all of the 'science content' taught in the final year of the key stage.* ***Greater Depth (GDS)*** *A pupil will have evidence of all of the objectives below plus a sound knowledge of the topics studied which they apply to explaining concepts, forming a hypothesis, carrying out fair tests and forming a conclusion that may lead to further questions.*
		Plants I can identify and name a variety of wild and garden plants including deciduous and evergreen trees. I can name and describe trees and other plants that I see regularly and their key features	**Plants** I can describe the basic needs of plants for survival and the impact of changing these and the main changes as seeds and bulbs grow into mature plants **Animals Including Humans** I can identify that humans and some other animals have skeletons and	**Living Things and Their Habitats** I can recognise that living things can be grouped in a variety of ways I can explore and use classification keys to help group, identify and name a variety of living things in their local environment I can recognise that environments can change and that this can	**Plants (cycle B)** I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers I can nvestigate the way in which water is transported within plants I can explore the part that flowers play in the	**Living Things and their Habitats** I can describe the life process of reproduction in some plants and animals I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird I can describe the life process of reproduction in some plants and animals	**Light** I can recognise that light appears to travel in straight lines I can 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 I can explain that we see things because light travels from light sources to our eyes or from light

		e.g. the shape of the leaves, the colour of the flower/blossom I can point out trees which lost their leaves and those that kept them the whole year. I can sort and group parts of plants using similarities and differences. I can collect information on features that change during the year I can use photographs to talk about how plants change over time using the appropriate scientific vocabulary. **Everyday Materials** I can sort, label and describe the properties of different materials using the appropriate vocab. I can choose an appropriate method for testing an object for a particular property I can use test evidence to answer questions about properties e.g.	muscles for support, protection and movement I can 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 I can name and locate parts of the human body, including those related to the senses and describe the importance of exercise, along with a balanced diet and hygiene for humans I can describe the basic needs of animals for survival and the main changes as young animals, including humans, grow into adults **Living Things and Their Habitats** I can identify whether things are alive, dead or have never lived. I can group animals according to what they eat, describe how animals get their food from other animals and/or from plants, and use simple food chains to describe these relationships	sometimes pose dangers to living things **Animals Including Humans** I can describe the simple functions of the basic parts of the digestive system in humans I can construct and interpret a variety of food chains, identifying producers, predators and prey Can sequence the main parts of the digestive system and describe what happens in each part I can identify the different types of teeth in humans and their simple functions I can explain how the teeth in animal skulls show they are carnivores, herbivores or omnivores. **States of Matter** I can compare and group materials together according to whether they are solids, liquids or gases I can name properties of solids, liquids and gases observe that some materials change state	life cycle of flowering plants including pollination, seed formation and seed dispersal **Animals including humans** I can identify that humans and some other animals have skeletons and muscles for support, protection and movement I can 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 I can describe the simple functions of the basic parts of the digestive system in humans I can identify the different types of teeth in humans and their simple functions **Rocks** I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	I can explain the difference between sexual and asexual reproduction and give examples of how plants reproduce in both ways. **Animals, including humans (this builds on the learning in Living things and their habitat)** I can describe the changes as humans develop to old age, including the changes that take place in boys and girls during puberty. I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. I can describe the ways in which nutrients and water are transported within animals including humans I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function **Properties and Changes of Materials** I can compare and group together everyday materials on the basis of their properties, including their hardness, solubility,	sources to objects and then to our eyes I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them **Electricity** I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit I can 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 I can use recognised symbols when representing a simple circuit in a diagram **Evolution and Inheritance** I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents I can identify how animals and plants are adapted to suit their environment in

		Which cloth is the most absorbent? **Animals and Humans** I can name and locate parts of the human body, including those related to the senses I can describe and compare the observable features of animals from a range of groups I can group animals according to what they eat I can talk about my findings from investigations using appropriate scientific vocabulary. **Seasonal Changes** Can observe changes across the four seasons and describe seasonal changes I can observe and describe weather associated with the seasons and how day length varies. **Working scientifically Y1:** I can ask simple questions and recognising that they can be answered in different ways	I can name different plants and animals and describe how they are suited to different habitats **Materials** I can distinguish objects from materials, describe their properties, identify and group everyday materials and compare their suitability for different uses. **Working scientifically y2:** I can use appropriate scientific language I can ask my own questions about what I notice I can use different types of scientific enquiry to gather and record data, using simple equipment, to answer questions, observe changes over time, noticing patterns, group and classify things, carry out simple comparative tests, find things out using secondary sources of information I can communicate my ideas, what I do and what I find out in a variety of ways.	when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius. I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature I can measure temperatures using a thermometer I can explain why there is condensation on the inside the hot water cup but on the outside of the icy water cup From their data, can explain how to speed up or slow down evaporation **Sound** I can identify how sounds are made, associating some of them with something vibrating I can recognise that vibrations from sounds travel through a medium to the ear I can find patterns between the pitch of a sound and features of the object that produced it I can find patterns between the volume of a sound and the strength of	I can explain how a fossil is formed I can devise tests to explore the properties of rocks and use data to rank the rocks I can link rocks changing over time with their properties e.g. soft rocks get worn away more easily **Light** Can describe how we see objects in light and can describe dark as the absence of light Can state that it is dangerous to view the sun directly and state precautions used to view the sun, for example in eclipses Can define transparent, translucent and opaque Can describe how shadows are formed by objects blocking light. Can describe patterns in visibility of different objects in different lighting conditions and predict which will be more or less visible as conditions change Can clearly explain, giving examples, that objects are not visible in complete darkness	transparency, conductivity (electrical and thermal), and response to magnets I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating I can demonstrate that dissolving, mixing and changes of state are reversible changes I can 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	different ways and that adaptation may lead to evolution I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. **Working Scientifically** I can 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 I can 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 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)

		I can observe closely, using simple equipment I can perform simple tests I can identify and classify I can use my observations and ideas to suggest answers to questions I can gather and record data to help in answering questions		the vibrations that produced it. I can recognise that sounds get fainter as the distance from the sound source increases **Electricity** I can recognise some common conductors and insulators, and associate metals with being good conductors I can name the components in a circuit I can make electric circuits I can control a circuit using a switch I can communicate structures of circuits using drawings which show how the components are connected I can add a circuit with a switch to a DT project and can demonstrate how it works. **Working Scientifically Y3:** I can ask relevant questions and use different types of scientific enquiries to answer them I can set up simple practical enquiries, comparative and fair tests	Can describe and demonstrate how shadows are formed by blocking light Can describe, demonstrate and make predictions about patterns in how shadows vary **Forces and magnets** I can 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 I can name a range of types of magnets and show how the poles attract and repel I can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets I can use my results to describe how objects move on different surfaces I can explore how like poles repel and unlike poles attract and name unmarked poles **Working Scientifically Y4:** I can ask relevant questions and using	**Earth and Space** I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system I can describe the movement of the Moon relative to the Earth I can describe the Sun, Earth and Moon as approximately spherical bodies I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky **Forces** I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces. I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. **Working Scientifically:**	I can use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate I can record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs I can draw conclusions, explain and evaluate their methods and findings, communicating these in a variety of ways I can raise further questions that could be investigated, based on their data and observations.

				I can make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers I can gather, record, classify and present data in a variety of ways to help in answering questions I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions I can identify differences, similarities or changes related to simple scientific ideas and processes I can use straightforward scientific evidence to answer questions or to support their findings	different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests I can make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers I can 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 I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, I can take 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 I can use test results to make predictions to set up further comparative and fair tests I can 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 identifying scientific evidence that has been used to support or refute ideas or arguments	

					I can identify differences, similarities or changes related to simple scientific ideas and processes I can use straightforward scientific evidence to answer questions or to support their findings		
Core Assessmnet	*Termly Topic book scrutiny* *Regular feedback during tasks and teacher observations.* *Deep dive in EYFS*	Deep Dives; Termly science book scrutiny Scrutiny of science linked to termly topics Regular feedback, marking and next steps for writing; planning scrutiny					