Millbrook Primary School Layer 2: Science Skills and Knowledge Progression

		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	Knowledge	• **Explore the natural world around them.**	• **Name a variety of common wild and garden plants, including deciduous and evergreen trees** • **Identify the basic structure of a variety of common flowering plants, including trees**	• **Know and describe how plants need water, light and a suitable temperature to grow and stay healthy.** • **Identify and name plants in their habitats (including microhabitats) – Living things and their habitats unit** • Understand the requirements for germination and plant health	• **Know and describe how plants need water, light and a suitable temperature to grow and stay healthy.** • **Know the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers** • **explore 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**		• **Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal (taken from LKS2 – Taught in Animals inc. Humans unit)**	
	Skills		• **Identify common wild and garden plants, including deciduous and evergreen trees** • **Describe the basic structure of a variety of common flowering plants, including trees** • Observe the growth of flowers and trees across the seasons • Describe how to group plants • Keep records of how plants change over time	• **observe and describe how seeds and bulbs grow into mature plants** • Record growth from seeds or bulbs over time • Comparative testing to see how light and water affect plant growth	• **Describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers** • **investigate the way in which water is transported within plants** • Compare the effect of different factors on plant growth • Observe how water is transported	•		

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living Things and their Habitats	Knowledge	• **Explore the natural world around them.**		• **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 Specific focus on hot vs cold countries and local habitats** • **Identify and name a variety of plants and animals in their habitats, including microhabitats**		• **Recognise that living things can be grouped in a variety of ways** • **Recognise that environments can change and that this can sometimes pose dangers to living things Link to local environment with Letcombe Brooke Project** • Identify changes within a local habitat • Explore examples of human impact, positive and negative, on habitats	• **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.** **Covered alongside animals including humans in T6**	• **Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals** • **Give reasons for classifying plants and animals based on specific characteristics.**
	Skills			• **Explore and compare the differences between things that are living, dead, and things that have never been alive** • **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** • Raise and answer questions about habitats in our local environment • Classify object by whether they are alive, were once alive or never alive		• **Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Specific focus on marine life when classifying** • Construct and interpret food chains		• Discuss and give reasons for classifying and grouping living things • Use classification systems to identify some living things in the immediate environment, including micro-organisms

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including Humans	Knowledge	• **Explore the natural world around them.**	• **Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals** • **Identify and name a variety of common animals that are carnivores, herbivores and omnivores** • Explore and answer questions about animals in a local habitat • Learn the names of the main body parts	• **Notice that animals, including humans, have offspring which grow into adults** • **Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)** • Recognise the process of growth in animals and humans	• **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.**	• **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** • Name and understand the functions of the mouth, tongue, teeth, oesophagus, stomach and small and large intestine	• **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.** • Understand the work of naturalists and animal behaviourists • Find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals	• **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**
	Skills	•	• **Describe and compare the structure of a variety of common animals** • **Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.** • Compare and contrast animals at first hand or through videos and photographs • Use senses to compare different textures, sounds and smells	• **Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.** • Ask questions about what things animals need for survival and what humans need to stay healthy	• Identify and group animals with and without skeletons • Compare and contrast the diets of different animals	• **Construct and interpret a variety of food chains, identifying producers, predators and prey.** • finding out what damages teeth and how to look after them	• Observe life-cycle changes in a variety of living things, • Compare life cycles of plants in UK with those in the Amazon • Compare how different animals reproduce	• **Describe the ways in which nutrients and water are transported within animals, including humans** • Explore the relationship between diet, exercise, drugs, lifestyle and health.

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Evolution and Inheritance	Knowledge				Fossils to be covered in Rocks unit.			• **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** • Appreciate that variation in offspring over time can make animals more or less able to survive in particular environments
	Skills							• Explore habitats and microhabitats to see how evolution has helped life to survive

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal Changes	Knowledge	• **Understand the effect of changing seasons on the natural world around them.** • **Describe what they see, hear and feel whilst outside.**	• **Observe changes across the four seasons** • **Observe and describe weather associated with the seasons and how day length varies.**					
	Skills		• Compare charecteristics acriss the 4 seasons • Create tables or charts to show weather changes					

		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Rocks	Knowledge	• **Explore the natural world around them.**			• **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**			
	Skills				• **Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties** • Identify and classify some types of rock and explain their uses			

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including Humans	Knowledge	• **Explore the natural world around them.**	• **Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals** • **Identify and name a variety of common animals that are carnivores, herbivores and omnivores** • Explore and answer questions about animals in a local habitat • Learn the names of the main body parts	• **Notice that animals, including humans, have offspring which grow into adults** • **Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)** • Recognise the process of growth in animals and humans	• **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.**	• **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** • Name and understand the functions of the mouth, tongue, teeth, oesophagus, stomach and small and large intestine	• **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.** • Understand the work of naturalists and animal behaviourists • Find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals	• **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**
	Skills	•	• **Describe and compare the structure of a variety of common animals** • **Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.** • Compare and contrast animals at first hand or through videos and photographs • Use senses to compare different textures, sounds and smells	• **Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.** • Ask questions about what things animals need for survival and what humans need to stay healthy	• Identify and group animals with and without skeletons • Compare and contrast the diets of different animals	• **Construct and interpret a variety of food chains, identifying producers, predators and prey.** • finding out what damages teeth and how to look after them	• Observe life-cycle changes in a variety of living things, • Compare life cycles of plants in UK with those in the Amazon • Compare how different animals reproduce	• **Describe the ways in which nutrients and water are transported within animals, including humans** • Explore the relationship between diet, exercise, drugs, lifestyle and health.

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Materials	Knowledge		• **Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock** • **Describe the simple physical properties of a variety of everyday materials**	• **Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses** • **Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.**		**States of Matter** • **Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.**	• **Know 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** • **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**	
	Skills		• **Distinguish between an object and the material from which it is made** • **Compare and group together a variety of everyday materials on the basis of their simple physical properties.** • Explore and experiment with a wide variety of materials	• Compare the uses of everyday materials in and around the school with materials found in other places • Carry out investigations to test the suitability of a material for a purpose		• **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)**	• **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** • **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**	

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light	Knowledge				• **Recognise that they need 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 their eyes** • **Recognise that shadows are formed when the light from a light source is blocked by an opaque object**			• **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.**
	Skills				• **Find patterns in the way that the size of shadows change.** • Look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change • Explore what happens when light reflects off a mirror		**From Y3 Curriculum: Find patterns in the way that the size of shadows change. As part of space unit, relating to time of day.**	• **Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes** • Investigate the relationship between light sources, objects and shadows by using shadow puppets. • Investigate and explain a range of phenomena, including rainbows.

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces	Knowledge				• **Compare how things move on different surfaces** • **Notice that some forces need contact between two objects, but magnetic forces can act at a distance** • **Describe magnets as having two poles**		• **Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object** • **Identify the effects of air resistance, water resistance and friction, that act between moving surfaces** • **Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect**	•
	Skills				• **Predict whether two magnets will attract or repel each other, depending on which poles are facing.** • **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** • explore the behaviour and everyday uses of different magnets • look for patterns in the way that magnets behave in relation to each other and what might affect this		• Experience forces that make things begin to move, get faster or slow down • Make a variety of parachutes and carry out fair tests to determine which designs are the most effective • Design and make products that use levers, pulleys, gears and/or springs and explore their effects	•

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sound	Knowledge	• Describe what they see, hear and feel whilst outside.				• Identify how sounds are made, associating some of them with something vibrating • Recognise that vibrations from sounds travel through a medium to the ear • Recognise that sounds get fainter as the distance from the sound source increases.		
	Skills					• 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 • make and play their own instruments by using what they have found out about pitch and volume		

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity	Knowledge					• **Identify common appliances that run on electricity** • **Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery** • **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**		• **Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit** • Learn how to represent a simple circuit in a diagram using recognised symbols
	Skills					• **Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers** • Draw circuits as a pictorial representation, not necessarily using conventional circuit symbols • Observe patterns, for such as bulbs get brighter if more cells are added, metals tend to be conductors of electricity, that some materials can and some cannot be used to connect across a gap in a 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.** • Construct simple series circuits, to help them to answer questions about what happens when they try different components

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Earth and Space	Knowledge						• **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** • Learn that the Sun is a star at the centre of our solar system and that it has eight planets • Find out about the way that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model	
	Skills						• **Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.** • Create simple models of the solar system	

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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically	Knowledge		• **Asking simple questions and recognising that they can be answered in different ways** • **Using their observations and ideas to suggest answers to questions** • Explore the world around them and raise their own questions • Recognise ways in which they might answer scientific questions		• **Asking relevant questions and using different types of scientific enquiries to answer them** • **Setting up simple practical enquiries, comparative and fair tests** • **Identifying differences, similarities or changes related to simple scientific ideas and processes** • **Using straightforward scientific evidence to answer questions or to support their findings.** • Use relevant scientific language to discuss their ideas and communicate their findings • Learn how to use new equipment, such as data loggers, appropriately		• **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** • Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions	
	Skills		• **Observing closely, using simple equipment** • **Performing simple tests** • **Identifying and classifying** • **Gathering and recording data to help in answering questions.** **These opportunities for working scientifically should be provided across years 1 and 2 so that the expectations in the programme of study can be met by the end of year 2. Pupils are not expected to cover each aspect for every area of study.**		• **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** **These opportunities for working scientifically should be provided across years 3 and 4 so that the expectations in the programme of study can be met by the end of year 4. Pupils are not expected to cover each aspect for every area of study.**		• **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** • **Identifying scientific evidence that has been used to support or refute ideas or arguments** • Set up comparative and fair tests and explain which variables need to be controlled and why • 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 **These opportunities for working scientifically should be provided across years 5 and 6 so that the expectations in the programme of study can be met by the end of year 6. Pupils are not expected to cover each aspect for every area of study.**	