Science Progression of Skills

Strand	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	- Observe different types of plants. - Grow plants and know that they need water to grow.	- 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.	- Observe and describe how seeds and bulbs grow into mature plants. - Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	- Identify and describe 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. - 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.			
Animals including Humans	EYFS: Animals excluding humans Recognise things as living - Understand that living things can eat, swim and fly. - Make observations of animals and plants. - Discuss how eating fruit and vegetables keeps us healthy. -Talk about members of their family. - Name and describe people who are familiar to 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. - 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.	- Find out about and 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. Notice that animals, including humans, have offspring which grow into adults.	- 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. - Construct and interpret a variety of food chains, identifying producers, predators and prey.	- Describe the changes as humans develop to old age.	- 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. - 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.

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Living Things and their Habitats	- Recognise some environments that are different to the one where they live. - Name and describe animals that live in different habitats while reading books. - Describe how animals are looked after when they live in an outside habitat. - Describe habitats. - Draw information from a simple map. - Explore the natural world around them. - Describe what they see, hear and feel whilst outside.		- Explore and compare the differences between things that are living, dead, and things that have never been alive. - 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. - 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.		- 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 to living things.	- 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.	- 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.
Materials, Rocks and States of Matter	- Find similarities and differences in a range of objects and sort them. - Discuss materials they use to draw with. - Reuse materials and talk about what can happen to care for the natural world. - List the properties a material has. - Compare and describe how a material changes over time.	- Distinguish between an object and the material from which it is made. - 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. - Compare and group together a variety of everyday materials on the basis of their simple physical properties.	- 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	- Compare and group together different kinds of rocks on the basis of their appearance and similar physical properties - Describe in simple terms how fossils are formed where things that have lived are trapped within rock - Recognise that soils are made from rocks and organic matter	- 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.	- Compare and group together everyday materials on the basis of their properties, including hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. - 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 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.	

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Light and Sound	-Talk about shadows that are indoors and outside. - Identify the light source and the object which is making the shadow. -Identify that see-through objects make pale shadows and non-see-through objects make dark shadows. - Describe what they see, hear and feel while outside. - Talk about changes to shadows when the clouds cover and uncover the sun. -Describe how things sound. - Identify the source of sounds. - Describe how to make sounds. - Explore the natural world around them.			- Notice that light is reflected from surfaces - Find patterns in the way that the size of shadows change. - Recognise that they need light in order to see things, and that dark is the absence of light. - 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.	- Identify how sounds are made, associating some of them with something vibrating. - Recognise that vibrations from sounds travel through a medium to the ear. - 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. - Recognise that sounds get fainter as the distance from the sound source increases.		- 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. - 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. - Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Forces and Magnets	- Discuss how changing objects caused them to sink or swim. - Discuss how changing cars affected how they rolled down ramps/gutters. - Compare how objects feel with/without parachutes. - Discuss how objects move when affected by the wind. - Explore the natural world around them.			- 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.		- 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	
Seasonal Changes and Earth and Space	- Notice and talk about changes in weather. - Explore the natural world around them. - Understand the effect of changing seasons around them. - Describe what they see, hear and feel whilst outside. - Observe changes in the sky in the day and at night. - Explore the natural world around them.	- Observe changes across the four seasons. - Observe and describe weather associated with the seasons and how day length varies.				- 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.	

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Electricity					- Identify common appliances that run on electricity - Know how to construct a simple series electrical circuit and demonstrate this, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers - 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 - Know and identify 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 - 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

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Working scientifically	*- Ask simple questions and be curious about the world around them.* *- Make observations of themselves and their environment using mirrors and magnifying glasses.* *- Look closely at similarities, differences, patterns and change.* *- Name and sort familiar objects including plants, animals and a range of items.* *- Gather simple data and with support discuss how it answers a question.* *- With support from the teacher, discuss what went well/not so well.*	*- Begin to ask simple questions about materials, plants, seasonal changes and common animals and recognise that they can be answered in different ways.* *- Observe materials and plants closely, using simple equipment e.g. magnifying glasses.* *- Observe seasonal changes outside over time within the local community.* *- Perform simple tests with support with materials e.g. absorbency, strength, stiffness.* *- Make comparisons using "biggest", "smallest", "best" or "worst".* *- Gather and record data in prepared tables and pictograms to answer questions.* *- Identify and classify materials, seasons, weather and food using sorting hoops and boxes where the headings are given.* *- Use their observations and ideas to suggest answers to questions.*	*- Ask simple questions and begin to recognise that they can be answered in different ways when learning about animals, plants, habitats and materials.* *- Observe plant growth and their needs closely and measure these using non-standard units of measurement e.g. cubes, fingers, counting leaves.* *- Perform simple tests with everyday materials e.g. Can it bend? Can it be squashed?* *- Gather and record data in tables, pictograms, bar charts and tally charts with headings.* *- Identify and classify living things, animals and materials using Venn diagrams and tables where the teacher has decided on the headings.* *- Use their observations and ideas to suggest answers to questions.* *- Write their method out only when they have helped create it.*	*- Ask questions and use different types of scientific enquiries to answer them when investigating animals, rocks, light and forces.* *- With support, choose from a limited range of resources to set up simple practical enquiries, comparative and fair tests when investigating rocks, soils, light and forces.* *- Make systematic and careful observations of plants and take accurate measurements using standard units (ml, l, cm, m) and a range of equipment (ruler, measuring cylinder) with support to choose the scale/unit.* *- Gather and record data in prepared tables, tally charts and bar charts where headings are sometimes given.* *- Identify and classify plants, animals, rocks and materials using Venn diagrams and tables where children decide on the headings.* *- Record findings with structured sentences and labelled diagrams, keys, bar charts, and tables which include simple scientific language.* *- Make a prediction prior to the enquiry and evaluate this at the end using some scientific language.* *- Report on comparative findings from enquiries. Include results, conclusion and possible explanation of results.* *- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Be able to suggest how human error/poor investigative process may have contributed to these.*	*- Ask relevant questions and use different types of scientific enquiries to answer them when investigating living things, habitats, electricity, sound and states of matter.* *- Choose from a controlled range of resources to set up simple practical enquiries, comparative and fair tests with support when investigating sound, teeth and processes which convert solids to liquids etc.* *- Make systematic and careful observations and take accurate measurements using ml, l, cm, m using a range of equipment including thermometers and data loggers with children suggesting units and scale.* *- Gather and record data in a variety of ways; tables, tally charts and bar graphs where template is given without headings.* *- Identify and classify sounds, states of matter, insulators and conductors and animals using Venn and Carroll diagrams where children decide headings.* *- Record findings independently using simple scientific language, drawings, diagrams, keys, bar charts and tables.* *- Make predictions using scientific language and sensible ideas; evaluate this at the end.* *- Report findings from enquiries using oral and written explanations.* *- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.* *- Suggest future adaptations to the enquiry to improve results and recognise where the process needed improving.*	*- Begin to plan different types of scientific enquiries in response to a scientific experience/simulation to answer their own questions.* *- With support, recognise and control variables and children begin to use the language of variables when learning about animals, living things, earth and space and materials.* *- Choose from a wide range of resources to set up simple practical enquiries, comparative and fair tests when investigating sound, teeth and processes which convert solids to liquids etc. Children begin to correctly identify the type of enquiry they have chosen.* *- Take measurements using a range of scientific equipment given (e.g. force metre, tape measure) and choose an appropriate scale with support, with increasing accuracy and precision, taking repeat readings when appropriate.* *- Gather and record data and results of increasing complexity with some support using scientific diagrams, tables, scatter graphs, bar and line graphs.* *- Identify and classify states of matter and animals using Venn diagrams, Carroll diagrams and classification keys.* *- Use test results to make predictions which could be answered by changing the scientific enquiry slightly.* *- Report and present findings from enquiries, including conclusions and causal relationships in oral and written forms such as displays and other presentations.* *- Use scientific evidence to answer questions or to support their findings.*	*- Independently plan different types of scientific enquiries to answer questions, including recognising and controlling variables when learning about living things, animals, evolution, light and electricity.* *- Children take precise measurements using a range of equipment which they have selected, in order to give the most precise results with a suitable scale.* *- Independently classify common plants, and living things into vertebrates and invertebrates using classification keys with their own headings.* *- Independently record data and results using a range of methods appropriate to the enquiry.* *- Make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).* *- Use test results and scientific knowledge to make predictions and set up further comparative and fair tests.* *- Report and present findings from enquiries, sometimes to an audience, including conclusions, causal relationships and explanations of and degree of trust in results, in a range of forms.* *- Identify scientific evidence that has been used to support or refute ideas or arguments and understand that new discoveries constantly change scientific understanding.*