Science

Skills Progression Years F - 6

Year	Working Scientifically	Living Things	Materials	Physical Processes
F	To show curiosity about objects, events and people. To use their senses to explore the world around them. To make their own predictions and test their own ideas.	To comment and asks questions about aspects of their familiar world such as the place where they live or the natural world. To talk about some of the things they have observed such as plants, animals, natural and found objects. To talks about why things happen and how things work. To develop an understanding of growth, decay and changes over time. To shows care and concern for living things and the environment. To make observations of animals and plants and explain why some things occur, and talk about changes.	To choose different materials for a particular purpose. To understand and talk about similarities and differences in relation to different materials.	To comment and asks questions about aspects of their familiar world such as the place where they live or the natural world. To make observations and talk about the features of their own immediate environment and how environments might vary from one another.

1	Suggest what might happen and ways to test ideas. Make observations using appropriate senses. Explore using the five senses. Make simple comparisons and groupings. Communicate findings in simple ways. Collect evidence to try answer a question	**Plants** 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. **Animals, Including Humans** 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.	**Everyday Materials** 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.	**Seasonal Changes** Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.

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2	With help, suggest some ideas and questions. Think about how to collect evidence. Suggest what might happen Think about and discuss whether comparisons and tests are fair or unfair. Make observations and comparisons using simple equipment , following simple instructions. Use first-hand experience and, with help, simple information sources to answer questions. Record findings in simple ways including tables, graphs etc. Say whether what happened was what was expected and draw simple conclusions.	**Plants** 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. **Animals, Including Humans** 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). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **Living Things and their Habitats** Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including micro-habitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	**Uses 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.	

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3	Respond to suggestions. With help, put forward ideas about testing. Make predictions. With help, consider what constitutes a fair test. With help, plan and carry out a fair test. Make observations and comparisons. Measure length, volume of liquid and time in standard measures using simple measuring equipment. Use first-hand experience and simple information sources to answer questions. Communicate findings in a variety of ways. Say whether what happened was what was expected. With help, identify simple patterns and suggest explanations.	**Plants** 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** 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	**Rocks** Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter.	**Light** Recognise that they need light in order to see things and that dark is the absence of light. Notice 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 light from a source is blocked by a solid object. Find patterns in the way that the size of shadows change. **Forces and Magnets** Compare how things move on different surfaces. Notice some forces need contact between 2 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.

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4	Recognise why it is important to collect data to answer questions. Suggest questions that can be tested. Put forward ideas about testing and make predictions. With help, consider what constitutes a fair test. Make relevant observations and comparisons. Make measurements of temperature, time and force as well as measurements of length. Begin to think about why measurements of length should be repeated. With help, carry out a fair test recognising and explaining why it is fair. Explain why the evidence shows in a scientific way and whether it supports predictions. Suggest improvements in their work.	**Animals, including Humans** Describe the simple functions of 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. **Living Things and their Habitats** 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.	**States of 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 the temperature at which this happens in degrees Celsius. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	**Sound** 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 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. **Electricity** Identify common appliances that run on electricity. Construct a simple series circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether 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 common conductors / insulators and associate metals with being good conductors.

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5	Recognise that scientific ideas are based on evidence and creative thinking. Make predictions based on scientific knowledge. Suggest methods of testing including a fair test. Suggest how to collect evidence. Select suitable equipment. Carry out a fair test explaining why it is fair. Understand why observations and measurements need to be repeated. Select information from provided sources. Identify simple trends and patterns. Communicate findings in a variety of ways including in tables, bar charts and line graphs, whilst making appropriate use of ICT. Identify trends and patterns and offer explanations for these. To draw conclusions and communicate them in appropriate scientific language. Suggest improvements in their work giving reasons.	**Animals, including Humans** Describe the changes as humans develop to old age. **Living Things and their 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.	**Properties and Changes of Materials** Compare/group together materials on the basis of their properties, including their hardness, solubility, transparency, conductivity 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: using filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials	**Forces** 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. **Earth and Space** 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.

			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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6	Consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new ideas and explanations for phenomena. Make predictions based on scientific knowledge and understanding. Suggest methods of testing including a fair test and how to collect evidence, ensuring it is sufficient and appropriate. Carry out a fair test identifying key factors to be considered. Make a variety of relevant observations and measurements using simple apparatus correctly. Decide when observations and measurements need to be checked, by repeating, to give more reliable data. Select information from a range of sources. Identify simple trends and patterns. Communicate findings in tables, bar charts and line graphs, making appropriate use of ICT. Identify trends and patterns and results that do not appear to fit the pattern. Provide explanations for differences in observations and measurements. Draw conclusions and communicate them in appropriate scientific language. Make practical suggestions for improving methods in their work giving suggestions.	**Animals, Including Humans** 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 and the way their bodies function Describe the ways in which nutrients and water are transported within animals including humans **Living Things and their Habitats** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms , plants and animals Give reasons for classifying plants and animals based on specific characteristics **Evolution and Inheritance** 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.		**Light** 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. **Electricity** 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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