John Bunyan Primary School & Nursery

Science
A Progression of Skills - Year 1

Working Scientifically	1. Use observations to suggest answers to questions. 2. Look closely, using equipment. 3. Collect and record data to help answer questions. 4. Ask questions and know they can be answered in different ways. 5. Carry out tests. 6. Name and group.
Plants	1. Name some common wild and garden plants, including deciduous and evergreen trees 2. Name and describe the basic structure of a variety of common flowering plants including trees.
Animals, including humans	1. Spot and name a variety of common animals 2. Spot and name a variety of common animals that are herbivores, carnivores and omnivores. 3. Describe and compare the structure of a variety of common animals. 4. Name, draw and label the basic parts of the human body and say which part of the body is to do with each sense.
Materials	1. Tell the difference between an object and the material from which it is made. 2. Name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. 3. Describe everyday materials 4. Make groups of materials based on what they are like.
Seasonal	1. Explain changes through autumn, winter, spring and summer 2. Describe the weather in autumn, winter, spring and summer and that the days get longer and shorter.

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Science
A Progression of Skills - Year 2

Working Scientifically	1. Ask questions and know they can be answered in different ways 2. Watch closely using equipment 3. Carry out tests 4. Name and group 5. Use my observations and ideas to suggest answers to questions. 6. Collect and record data to help answer questions.
Plants	1. Explain how seeds and bulbs grow into plants. 2. Describe how plants need water, light and a suitable temperature to grow and stay healthy.
Animals, including Humans	1. Explain that animals, including humans, have babies which grow into humans. 2. Explain the needs of animals, including humans, for survival. 3. Explain the importance of exercise, eating healthily and keeping clean.
Materials	1. Say why I would choose a material for a particular job. 2. Explain how objects from some materials can be changed.
Living Things and Their Habitats	1. Explain the difference between things that are living, dead and things that have never been alive. 2. Explain that most living things live in habitats which suit them and depend on each other. 3. Name some plants and animals in their habitats, including micro habitats 4. Explain how animals get their food from plants and other animals using a simple food chain.

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Science
A Progression of Skills - Year 3

Working Scientifically	1. Ask questions and use different types of scientific enquiries to answer them. 2. Set up simple practical enquiries, comparative and fair tests. 3. Make observations and take measurements using standard units, using a range of equipment, including thermometers and data loggers. 4. Gather, record, classify and present data in a variety of ways to help in answering questions. 5. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. 6. Report on findings from enquiries, including spoken and written explanations, displays or presentations of results and conclusions. 7. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. 8. Explain differences, similarities or changes related to simple scientific ideas and processes. 9. Use straightforward scientific evidence to answer questions or to support my findings.
Plants	1. Explain what different parts of flowering plants do. 2. Explore the requirements of plants for life and growth and how they vary from plant to plant 3. Investigate the way in which water is transported in plants. 4. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal
Animals, including Humans	1. Identify that animals, including humans, need the right type and amount of nutrition, and that they cannot make their own food; they get nutrition from what the eat. 2. Explain why humans and some other animals have skeletons and muscles.
Rocks	1. Examine and do practical experiments on various types of rocks in order to group them on the basis of their appearance and simple physical properties. 2. Simply describe how fossils are formed when things that have lived are trapped within rock. 3. Explain that soils are made from rocks and organic matter.
Light	1. Explain that I need light in order to see things and that dark is the absence of light. 2. Show that light is reflected from surfaces. 3. Explain that light from the sun can be dangerous and that there are ways to protect the eyes. 4. Show how shadows are formed when the light from a light source is blocked by a solid object. 5. Show that there are patterns in the way that the size of shadows change.
Forces and Magnets	1. Compare how things move on different surfaces. 2. See that some forces need contact between two objects, but magnetic forces can act at a distance. 3. Observe how magnets attract or repel each other and attract some materials and not others. 4. Compare and group some materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. 5. Describe magnets as having two poles 6. Predict whether 2 magnets will attract or repel each other

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Science
A Progression of Skills - Year 4

Working Scientifically	1. Ask relevant questions and use different types of scientific enquiries to answer them. 2. Set up practical enquiries, comparative and fair tests. 3. Make systematic and careful observations and take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. 4. Gather, record, classify and present data in a variety of ways to help in answering questions. 5. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar chart and tables. 6. Report on findings from enquiries, including spoken and written explanations, displays or presentations of results and conclusions. 7. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. 8. Identify differences, similarities or changes related to scientific ideas and processes. 9. Use scientific evidence to answer questions or to support my findings.
Animals, including humans	1. Explain some parts of the digestive system in humans. 2. Explain the different types of teeth in humans and what they do 3. Describe and explain a variety of food chains, naming producers, predators and prey.
Living Things and their Habitats	1. Show that living things can be grouped together in various ways. 2. Explore and use classification keys to help group, identify and name a variety of living things. 3. Explain that environments can change and that sometimes means that living things are put in danger.
States of Matter	1. Group materials together, according to whether they are solids, liquids or gases including tricky ones like gels, foams, mists and pastes. 2. Demonstrate and explain 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) 3. Correctly talk about the part played by evaporation and condensation in the water cycle and can show a link between the rate of evaporation and temperature
Sound	1. Explain how sounds are made, and show that some of them are linked to vibrations. 2. Explain that vibrations from sounds travel through a medium to the ear. 3. Find patterns between the pitch of a sound and features of the object that produced it. 4. Show that sounds get fainter as the distance from the sound source increases.
Electricity	1. Talk about common appliances that use electricity 2. Construct and draw with labels a simple series electrical circuit which includes cells, wires, bulbs, switches and buzzers. 3. Predict if a lamp will light or not in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery 4. Explain that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. 5. Show that some materials are conductors and some are insulators, and can explain that metals are good conductors.

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Science
A Progression of Skills - Year 5

Working Scientifically	1. Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. 2. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. 3. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. 4. Use test results to make predictions to set up further comparative and fair tests. 5. Talk about and present findings from enquiries, including conclusions, causal relationships and explanations of how reliable the information is. 6. Identify scientific evidence that has been used to support or refute ideas or arguments.
Animals including Humans	1. Describe the changes as humans develop to old age.
Materials	1. 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. 2. Explain that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. 3. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. 4. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. 5. Demonstrate that dissolving, mixing and changes of state are reversible changes. 6. 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.
Living Things & their Habitats	1. Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. 2. Explain how some animals and plants reproduce.
Materials and their Properties (Forces)	1. Explain that unsupported objects fall towards the Earth because of the force of gravity between the Earth and the falling object. 2. Demonstrate the effects of air resistance, water resistance and friction, which act between moving surfaces. 3. Show that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
Earth & Space	1. Describe the movement of the earth and other planets, relative to the sun in the solar system. 2. Describe the movement of the moon relative to the earth 3. Describe the sun, Earth and Moon as approximately spherical bodies. 4. Explain day and night and the apparent movement of the sun across the sky using the idea of the Earth's rotation.

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Science
A Progression of Skills - Year 6

Working Scientifically	1. Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. 2. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. 3. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. 4. Use test results to make predictions to set up further comparative and fair tests. 5. Talk about and present findings from enquiries, including conclusions, causal relationships and explanations of how reliable the information is. 6. Identify scientific evidence that has been used to support or refute ideas or arguments. 7. Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. 8. Use test results to make predictions to set up further comparative and fair tests.
Animals, including Humans	1. Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. 2. Recognise the impact of diet, exercise, drugs, and lifestyle on the way the body functions. 3. Describe the ways in which nutrients and water are transported within animals, including animals.
Living Things and their Habitats	1. Describe how plants, animals and micro-organisms are classified into broad groups according to common observable characteristics and based on similarities and differences. 2. Give reasons for classifying plants and animals based on specific characteristics.
Light	1. Show that light appears to travel in straight lines. 2. Explain that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. 3. Demonstrate and explain that we see things because light travel from light sources to our eyes or from light sources to objects and then to our eyes. 4. Demonstrate that light travels in straight lines to show why shadows have the same shape as the objects that cast them.
Electricity	1. Show that the brightness of a lamp or the volume of a buzzer depends on the number and voltage of cells used in the circuit. 2. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the n/off position of switches. 3. Draw a diagram using recognised symbols to represent a simple circuit
Evolution and Inheritance	1. Explain that the kinds of living things that live on the earth now are different from those that inhabited the Earth millions of years ago and that fossils provide this information. 2. Explain that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. 3. Give examples of how animals and plants are adapted to suit their environment in different ways and explain that adaptation may lead to evolution.