**Childwall CE Primary School - Science Progression Ladder**

| Skills of a Year 1 Scientist: | Skills of a Year 2 Scientist: | Skills of a Year 3 Scientist: |
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| • Asks simple scientific questions.<br>• Uses simple equipment to make observations.<br>• Carries out simple tests.<br>• Identifies and classifies things.<br>• Suggests what they have found out.<br>• Uses simple data to answer questions<br>• Names a variety of common wild and garden plants.<br>• Names the petals, stem, leaf and root of a plant.<br>• Names the roots, trunk, branches and leaves of a tree.<br>• Names a variety of animals including fish, amphibians, reptiles, birds and mammals.<br>• Classifies and names animals by what they eat (carnivore, herbivore and omnivore).<br>• Sorts animals into categories (including fish, amphibians, reptiles, birds and mammals).<br>• Sorts living and non-living things.<br>• Names the parts of the human body that they can see.<br>• Links the correct part of the human body to each sense.<br>• Distinguishes between an object and the material it is made from.<br>• Names wood, plastic, glass, metal, water and rock.<br>• Describes the properties of everyday materials.<br>• Groups objects based on the materials they are made from. | • Asks simple scientific questions.<br>• Uses simple equipment to make observations.<br>• Carries out simple tests.<br>• Identifies and classifies things.<br>• Suggests what they have found out.<br>• Uses simple data to answer questions<br>• Identifies things that are living, dead and never lived.<br>• Describes how a specific habitat provides for the basic needs of things living there (plants and animals).<br>• Identifies and names plants and animals in a range of habitats.<br>• Matches living things to their habitat.<br>• Describes how animals find their food.<br>• Names some different sources of food for animals.<br>• Explains a simple food chain.<br>• Describes how seeds and bulbs grow into plants.<br>• Describes what plants need in order to grow and stay healthy (water, light & suitable temperature).<br>• Explains the basic stages in a life cycle for animals, including humans.<br>• Describes what animals and humans need to survive.<br>• Describes why exercise, a balanced diet and good hygiene are important for | • Asks relevant scientific questions.<br>• Uses observations and knowledge to answer scientific questions.<br>• Sets up a simple enquiry to explore a scientific question.<br>• Sets up a test to compare two things.<br>• Sets up a fair test and explains why it is fair.<br>• Makes careful and accurate observations, including the use of standard units.<br>• Uses equipment, including thermometers and data loggers to make measurements.<br>• Gathers, records, classifies and presents data in different ways to answer scientific questions.<br>• Uses diagrams, keys, bar charts and tables; using scientific language.<br>• Uses findings to report in different ways, including oral and written explanations, presentation.<br>• Draws conclusions and suggests improvements.<br>• Makes a prediction with a reason.<br>• Identifies differences, similarities and changes related to an enquiry.<br>• Describes the function of different parts of flowering plants and trees.<br>• Explores and describes the needs of different plants for survival.<br>• Explores and describes how water is transported within plants.<br>• Describes the plant life cycle, especially the importance of flowers.<br>• Explains the importance of a nutritious, balanced diet.<br>• Explains how nutrients, water and oxygen are transported within animals and humans.<br>• Describes and explains the skeletal system of a human. |

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| • Observes and comments on changes in the seasons.<br>• Names the seasons and suggests the type of weather in each season. | humans.<br>• Identifies and names a range of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard.<br>• Suggests why a material might or might not be used for a specific job.<br>• Explores how shapes can be changed by squashing, bending, twisting and stretching. | • Describes and explains the muscular system of a human.<br>• Describes the purpose of the skeleton in humans and animals.<br>• Compares and groups rocks based on their appearance and physical properties, giving a reason.<br>• Describes how fossils are formed.<br>• Describes how soil is made<br>• Describes and explains the difference between sedimentary and igneous rock.<br>• Describes what dark is (the absence of light).<br>• Explains that light is needed in order to see.<br>• Explains that light is reflected from a surface.<br>• Explains and demonstrates how a shadow is formed.<br>• Explores shadow size and explains.<br>• Explains the danger of direct sunlight and describe how to keep protected.<br>• Explores and describes how objects move on different surfaces.<br>• Explains how some forces require contact and some do not, giving examples.<br>• Explores and explains how objects attract and repel in relation to objects and other magnets.<br>• Predicts whether objects will be magnetic and carry out an enquiry to test this out.<br>• Describes how magnets work.<br>• Predicts whether magnets will attract or repel and give a reason. |
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| Skills of a Year 4 Scientist: | Skills of a Year 5 Scientist | Skills of a Year 6 Scientist: |
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| • Asks relevant scientific questions.<br>• Uses observations and knowledge to answer scientific questions.<br>• Sets up a simple enquiry to explore a scientific question.<br>• Sets up a test to compare two things.<br>• Sets up a fair test and explains why it is fair.<br>• Makes careful and accurate observations, including the use of standard units.<br>• Uses equipment, including thermometers and data loggers to make measurements.<br>• Gathers, records, classifies and presents data in different ways to answer scientific questions.<br>• Uses diagrams, keys, bar charts and tables; using scientific language.<br>• Uses findings to report in different ways, including oral and written explanations, presentation.<br>• Draws conclusions and suggests improvements.<br>• Makes a prediction with a reason.<br>• Identifies differences, similarities and changes related to an enquiry.<br>• Groups living things in different ways.<br>• Uses classification keys to group, identify and name living things.<br>• Creates classification keys to group, identify and name living things (for others to use).<br>• Describes how changes to an environment could endanger | • Plans different types of scientific enquiry.<br>• Can control variables in an enquiry.<br>• Measures accurately and precisely using a range of equipment.<br>• Records data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.<br>• Uses the outcome of test results to make predictions and set up a further comparative fair test.<br>• Reports findings from enquiries in a range of ways.<br>• Explains a conclusion from an enquiry.<br>• Explains causal relationships in an enquiry.<br>• Relates the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory.<br>• Reads, spells and pronounces scientific vocabulary accurately.<br>• Describes the life cycle of different living things, e.g. mammal, amphibian, insect bird.<br>• Describes the differences between different life cycles.<br>• Describes the process of reproduction in plants.<br>• Describes the process of reproduction in animals.<br>• Creates a timeline to indicate stages of growth in humans.<br>• Compares and groups materials based on their | • Plans different types of scientific enquiry.<br>• Can control variables in an enquiry.<br>• Measures accurately and precisely using a range of equipment.<br>• Records data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.<br>• Uses the outcome of test results to make predictions and set up a further comparative fair test.<br>• Reports findings from enquiries in a range of ways.<br>• Explains a conclusion from an enquiry.<br>• Explains causal relationships in an enquiry.<br>• Relates the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory.<br>• Reads, spells and pronounces scientific vocabulary accurately.<br>• Classifies living things into broad groups according to observable characteristics and based on similarities & differences.<br>• Describes how living things have been classified.<br>• Give reasons for classifying plants and animals in a specific way.<br>• Identifies and names the main parts of the human circulatory system.<br>• Describes the function of the heart, blood vessels and blood.<br>• Discusses the impact of diet, exercise, drugs and life style on health.<br>• Describes the ways in which nutrients and water are transported in animals, including humans.<br>• Describes how the Earth and living things have changed over time.<br>• Explains how fossils can be used to find out about the past.<br>• Explains about reproduction and |

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| living things.<br>• Identifies and name the parts of the human digestive system.<br>• Describes the functions of the organs in the human digestive system.<br>• Identifies and describe the different types of teeth in humans.<br>• Describes the functions of different human teeth.<br>• Uses food chains to identify producers, predators and prey.<br>• Constructs food chains to identify producers, predators and prey<br>• Groups materials based on their state of matter (solid, liquid, gas).<br>• Describes how some materials can change state.<br>• Explores how materials change state.<br>• Measures the temperature at which materials change state.<br>• Describes the water cycle.<br>• Explains the part played by evaporation and condensation in the water cycle.<br>• Describes how sound is made.<br>• Explains how sound travels from a source to our ears.<br>• Explains the place of vibration in hearing.<br>• Explores the correlation between pitch and the object producing a sound.<br>• Explores the correlation between the volume of a sound and the strength of the vibrations that produced it.<br>• Describes what happens to a sound as it travels away from its source.<br>• Identifies and names appliances that require | properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets).<br>• Describes how a material dissolves to form a solution; explaining the process of dissolving.<br>• Describes and shows how to recover a substance from a solution.<br>• Demonstrates how materials can be separated (e.g. through filtering, sieving and evaporating).<br>• Knows and can demonstrate that some changes are reversible and some are not.<br>• Explains how some changes result in the formation of a new material and that this is usually irreversible.<br>• Discuss reversible and irreversible changes.<br>• Gives evidenced reasons why materials should be used for specific purposes.<br>• Describes and explains the movement of the Earth and other planets relative to the Sun.<br>• Describes and explains the movement of the Moon relative to the Earth.<br>• Explains and demonstrates how night and day are created.<br>• Describes the Sun, Earth and Moon (using the term spherical).<br>• Explains what gravity is and its impact on our lives.<br>• Identifies and explains the effect of air resistance.<br>• Identifies and explains the effect of water resistance.<br>• Identifies and explains the | offspring (recognising that offspring normally vary and are not identical to their parents).<br>• Explains how animals and plants are adapted to suit their environment.<br>• Links adaptation over time to evolution.<br>• Explains evolution.<br>• Explains how light travels.<br>• Explains and demonstrates how we see objects.<br>• Explains why shadows have the same shape as the object that casts them.<br>• Explains how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.<br>• Explains how the number & voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.<br>• Compares and give reasons for why components work and do not work in a circuit.<br>• Can draw circuit diagrams using correct symbols. |

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| electricity to function.<br>• Constructs a series circuit.<br>• Identifies and names the components in a series circuit (including cells, wires, bulbs, switches and buzzers).<br>• Draws a circuit diagram.<br>• Predicts and tests whether a lamp will light within a circuit.<br>• Describes the function of a switch in a circuit.<br>• Describes the difference between a conductor and insulators; giving examples of each. | effect of friction.<br>• Explains how levers, pulleys and gears allow a smaller force to have a greater effect | |