



| SKILLS LADDER - SCIENCE   |  |   |   |  |   |  |   |
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| Unit                      | EYFS   | Puffin - Year 1/2   |   | Swift Year 3/4   |   | Eagle Year 5/6                                     |   |
| Animals including humans  | Explore the natural world around them, making observations and drawing pictures of animals and plants.<br><br>Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. | The five senses and how we use these to find out about the world.                 | How do humans keep healthy? (Exercise, food, hygiene)   | Needing the right amount of nutrition.   | Simple functions of the basic parts of the digestive system.        | What are the changes as humans develop to old age? | The human circulatory system.   |
|                           |  | Identify and name common animals (fish, amphibians, reptiles, birds and mammals). | What are the basic needs for survival? (water, food, air)   | Get nutrition from what they eat.  | The different types of teeth in a human and their simple functions. |  | The functions fo the heart, blood vessels and blood.  |
|                           |  | Identify and name common animals (carnivores, herbivores and omnivores).          |   | Why do we have a skeleton and what does it protect?  | Construct and interpret a variety of food chains.                   |  | The impact of diet, exercise, drugs and lifestyle on the way the boys functions.  |
|                           |  | Describe and compare the structure of common animals.                             |   | How do animals move their muscles?   | Identify producers, predators and prey.                             |  | Ways nutrients and water are transported within animals including humans.   |
|                           |  |   |   | How do muscles work?   |   |  |   |
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| Plants                    | Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.   | Naming parts of a flowering plant and trees.                                      | How seeds and bulbs grow into mature plants.  | Explore the part the flower plays in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. |   |  |   |
|                           |  | What plants needs to grow well.   | Find out and describe how plants need water, light and suitable temperature to grow and stay healthy. | How water is transported through the plant.  |   |  |   |
|                           |  | What plants can you find by our school?   |   | The requirements of plants for life and growth (air, light, water, nutrients from soil and room to grow).                          |   |  |   |
|                           |  | Identify and name common wild and garden plants (deciduous and evergreen trees).  |   | How can this vary from plant to plant?   |   |  |   |
|                           |  |   |   | The job of roots, leaves and stems / trunk and flowers.  |   |  |   |
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| Evolution and inheritance |  |   |   |  |   |  | How living things change over time.   |
|                           |  |   |   |  |   |  | What information does a fossil provide? (information about living things that inhabited the Path millions of years ago) |
|                           |  |   |   |  |   |  | Living things produce offspring of the same kind but normally offspring vary and are not identical to their parents.    |
|                           |  |   |   |  |   |  | How animals and plants adapt to suit their environment.   |
|                           |  |   |   |  |   |  | How adaption leads to evolution.  |

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| <div> <div>Living things and their habitats</div> </div> |
| <div> <div>Materials</div> </div>                        |

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|  | Identify / name plants and animals including micro-habitats.   |  | Recognise that living things can be grouped in a variety of ways.                       | The difference between the life cycles of a mammal, an amphibian, an insect and a bird.   | 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. |
|  | Sort living, dead and never been alive things.   |  | How to use a key to identify local plants and animals.                                  |   |   |
|  | Describe how animals get food - food chain.  |  | That environments can change and that this can sometimes pose dangers to living things. | Describe the life processes of reproduction in some plants and animals.   | The reasons for classifying plants and animals (specific characteristics).  |
|  | The similarities and differences between local habitats and how it affects the animals and plants that live there.   |  | The ways we can protect living things and the environment.                              |   |   |
| Distinguish between an object and the material from which it is made.                                    | Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. |  |   | Compare and group together everyday materials on the basis of the properties including hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets. |   |
| Identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock. | Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.                                     |  |   | Some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.  |   |
| Describe the simple physical properties of a variety of everyday materials.                              |  |  |   | Separate solids, liquids and gases through filtering, sieving and evaporating.  |   |
| Compare and group together a variety of everyday materials based on their simple properties.             |  |  |   | Give reasons, based on evidence from comparative and fair tests, for the particular use of everyday materials including wood, plastic and metals.   |   |
|  |  |  |   | Demonstrate that dissolving, mixing and changes of state are reversible changes.  |   |
|  |  |  |   | Some changes result in the formation of new materials.  |   |
|  | Changes associated with burning and the action of acid on bicarbonate of soda are irreversible.  |  |   |   |   |

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| Seasonal changes |
| Rocks            |
| Light            |
| Sound            |

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| Observe changes across the four seasons.                           |  |  |   |  |  |
| Observe and describe weather associated with the seasons.          |  |  |   |  |  |
| Observe and describe how the day length varies baed on the season. |  |  |   |  |  |
|  |  | Compare and group together different kinds of rocks based on appearance and simple physical properties.  |   |  |  |
|  |  | Describe in simple terms how fossils are formed when things have lived and then are trapped within rock. |   |  |  |
|  |  | Recognise that soils are made from rocks and organic matter.   |   |  |  |
|  |  | Recognise the need for light to see things and that dark is the absence of light.                        |   |  | What direction does light travel?  |
|  |  | Light is reflected from surfaces.  |   |  | Objects are seen because they give out or reflect light into the eye.  |
|  |  | Light from the sun can be dangerous and that there are ways to protect our eyes.                         |   |  | How do we see things? (Light travels from light sources to our eyes or from light sources to objects and then our eyes)      |
|  |  | Shadows are formed when the light from light sources is blocked by a solid object.                       |   |  | Understand that light travels in straight lines which explains why shadows have the same shape as the object that cast them. |
|  |  |  | How are sounds made? (Vibration)  |  |  |
|  |  |  | Vibrations travel through a medium to the ear.  |  |  |
|  |  |  | Find patterns between the volume of a sound and the strength of the vibration.          |  |  |
|  |  |  | Find patterns between the pitch of a sound and features of the object that produces it. |  |  |
|  |  |  | What happens to sound as the distance from the sound source increases?                  |  |  |

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| Electricity |
| Forces      |

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|   |  |  | Common appliances that run on electricity.   |   | How does the number and voltage of cells effect the brightness of a lamp or the volume of a buzzer?   |
|   |  |  | Construct a simple series circuit.   |   | Compare and give reasons for variations in how components function including brightness of bulb, loudness of buzzer, on/off position of switches. |
|   |  |  | Identify the different parts to a circuit including cell, wires, bulbs, switches and buzzers.                                      |   | Recognise symbols when representing a simple circuit in a diagram.  |
|   |  |  | Identify whether a lamp will light in a series circuit based on whether or not the lamp is part of a complete loop with a battery. |   |   |
|   |  |  | Hoe does a switch work and will this light the lamp in the simple series circuit?  |   |   |
|   |  |  | What are the common conductors and isolators?  |   |   |
|   |  |  | Are metals good conductors?  |   |   |
| How do objects move?                    | What pushes and pulls?   | Compare how things move on different surfaces.   |  | Why do unsupported objects fall towards the Earth?  |   |
| How do you stop or slow down an object? | How can we control speed and direction of an object?                             | Some forces need contact between two objects but magnetic forces can act at a distance.                            |  | What are the effects of air resistance, water resistance and friction on moving surfaces?                 |   |
|   | How do they effect an object - can pushes and pulls change the shape of objects? | Magnets can attract or repel each other.   |  | That come mechanisms, including levers, pulleys and gears allow a smaller force to have a greater effect. |   |
|   |  | That magnets can attract some materials and not others.  |  |   |   |
|   |  | That agents have two poles.  |  |   |   |
|   |  | Predict whether two magnets will attract or repel each other based on which poles are facing.                      |  |   |   |
|   |  | Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet. |  |   |   |
|   |  | Identify some magnetic materials.  |  |   |   |

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| States of matter                |
| Earth and Space                 |
| Ideas and evidence in science   |
| Investigative skills - Planning |

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|  |   |  | <div>Compare and group materials together according to whether they are solids, liquids or gases.</div> <div>How some materials change state when they are heated or cooled.</div> <div>Measure or research the temperature at which this happens in degree Celsius.</div> <div>Identify the part played by evaporation and condensation in the water cycle.</div> <div>Associate the rate of evaporation with temperature.</div> |  |  |
|  |   |  |   | <div>Describe the movement of the earth and other planets, relative to the sun in the solar system.</div> <div>Describe the movement of the moon relative to the earth.</div> <div>Describe the sun, earth and moon as approximately spherical bodies.</div> <div>Why does the sun seem to move across the sky, rising the East and setting in the West?</div> <div>Why do we have daytime and night time?</div> |  |
| To collect evidence to try to answer a question.                     | To collect evidence to try to answer a question.  | To collect evidence in a variety of contexts to answer a question or test an idea. | To collect evidence in a variety of contexts to test an idea or prediction based on their scientific knowledge and understanding.   | To consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new ideas and explanations for phenomena.   | To consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new ideas and explanations for phenomena. |
| To test ideas suggested to them and say what they think will happen. | To suggest some ideas and questions based on simple knowledge and say how they might find out about them. | In a variety of contexts, to suggest questions and ideas and how to test them.     | To suggest questions that can be tested and make predictions about what will happen and some of which are based on scientific knowledge, to design a fair test to plan how to collect sufficient evidence.  | To make predictions of what will happen based on scientific knowledge and understanding and suggest how to test these.   | To decide how to turn ideas into a form that can be tested and, where appropriate, to make predictions using scientific knowledge and understanding.           |
|  | To say what they think might happen.  | To make predictions about what will happen.  |   | To use knowledge and understanding to plan how to carry out a fair test to how to collect sufficient evidence to test an idea.   | To identify factors that are relevant to a particular situation.   |

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|  |  |  | <div>To think about and discuss whether comparisons and tests are fair or unfair.</div>  | <div>To think about how to collect sufficient evidence in some contexts.</div>   | <div>In some contexts to choose what apparatus to use what to measure.</div>   | <div>To identify factors that need to be taken into consideration in different contexts.</div>  | <div>To choose what evidence to collect to investigate a question, ensuring the evidence is sufficient.</div>        |
|  |  |  |  | <div>To consider what makes a test unfair or evidence sufficient and, with help, plan fair tests.</div>                    |  |   | <div>To choose what equipment to use.</div>  |
| <div>Obtaining and presenting evidence</div>   |  | <div>To make observations using appropriate senses.</div>  | <div>To make observations, to make measurements in standard and non-standard measures.</div>                                       | <div>To make observations and comparisons.</div>   | <div>To make observations and comparisons of relevant features in a variety of contexts.</div>   | <div>To make relevant observations.</div>   | <div>To make a variety of relevant observations and measurements using simple apparatus correctly.</div>             |
|  |  | <div>To make some measurements of length using standard and non-standard measures.</div>   | <div>To make records of observations, and to present results in tables, drawings and block graphs using ICT where relevant .</div> | <div>To measure length, volume of liquid and time in standard measures using simple measuring equipment effectively.</div> | <div>To make measurements of temperature, time and force as well as measurements of length.</div>  | <div>To consolidate measurement of volume, temperature, times and length.</div>   | <div>To decide when observations and measurements need to be checked by repeating, to give more reliable data.</div> |
|  |  | <div>To present some findings in simple tables and block graphs using ICT where relevant.</div>                                    |  | <div>To present results in drawings, bar charts and tables using ICT where relevant.</div>                                 | <div>To think about why observations and measurements should be repeated.</div>  | <div>To measure pulse rate.</div>   | <div>To use tables, bar charts and line graphs to present results using ICT where relevant.</div>                    |
|  |  |  |  |  |  | <div>To present results in bar charts and tables using ICT where relevant.</div>  |  |
|  |  |  |  |  | <div>To present results in bar charts and line graphs using ICT where relevant.</div>  |   |  |
| <div>Considering evidence and evaluating</div> |  | <div>To make simple comparisons and groupings that relate to differences and similarities between living things and objects.</div> | <div>To make simple comparisons, identifying similarities and differences between living things, objects and events.</div>         | <div>To draw conclusions from results and begin to use scientific knowledge to suggest explanations for them.</div>        | <div>To identify simple trends and patterns in results presented in tables, charts and graphs and to suggest explanations for some of these.</div> | <div>To decide whether results support any prediction.</div>  | <div>To make comparisons, to evaluate repeated results.</div>  |
|  |  | <div>In some cases to say what their observations show and whether it was what they expected.</div>                                | <div>To say what results show.</div>   | <div>To make generalisations and begin to identify simple patterns in results in tables.</div>                             | <div>To explain what the evidence shows and whether it supports any prediction made.</div>   | <div>To begin to evaluate repeated results.</div>   | <div>To identify patters in results and results that do not appear to fit the pattern.</div>                         |
|  |  | <div>To draw simple conclusions and explain what they did.</div>   | <div>To say whether their predictions were supported.</div>  |  | <div>To link the evidence to scientific knowledge and understanding in some contexts.</div>  | <div>To recognise and make predictions from patterns in data and suggest explanations for these using scientific knowledge and understanding.</div> | <div>To use results to draw conclusions and to make further predictions.</div>                                       |
|  |  |  | <div>In some cases to use knowledge to explain what was found out and to draw conclusions.</div>                                   |  |  |   |  |
|  |  |  | <div>To explain what they did.</div>   |  | <div>To draw conclusions indicating whether these maths any prediction made.</div>   | <div>To say whether the evidence supports any prediction made.</div>  |  |
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