| KFJS<br>Science Curriculum Map | | | | |
|---|---|---|---|---|
| **In each project children will:** build excitement and curiosity about natural phenomena by using science to explain, predict and analyse the way things behave. | | | | |
| **Year 6** | | | | |
| **Project** | **Bright Sparks<br>Electricity** | **Life on Earth<br>Evolution and inheritance** | **All Mixed Up<br>Properties and changes of materials** | **The Circle of Life<br>Living things and their habitats** |
| **Key Question** | **How do we make a lamp shine brighter or a buzzer sound louder?** | **How can the environment effect the way plants and animals are today?** | **Why aren't all changes reversible?** | **Why are there different life cycles?** |
| **Essential understanding** | In diagrams, the basic parts (bulb, cell, wires, buzzer and switch) of a simple circuit are represented with symbols.<br>The number or voltage of cells in a circuit effects the brightness of bulbs or the volume of a buzzer. | Fossils provide information about animals/ plants that lived on the Earth millions of years ago.<br>Living things reproduce and create offspring, which are of the same kind to the parents but not normally identical.<br>Plants and humans have adapted to suit their environment and some adaptations can lead to evolution e.g. giraffe's neck. | Dissolving, mixing and changes of state are reversible changes.<br>Changes that result in the formation of a new material are irreversible examples of which are cooking, burning and action of acid on bicarbonate of soda. | The life cycles of amphibians, mammals, insects and birds differ.<br>Plants, animals and microorganisms are categorised into groups according to their characteristics such as vertebrate and invertebrate in animals. |
| | Children are able to ask scientific questions and plan scientific enquiries to answer them.<br>Selects the most appropriate equipment for their investigation.<br>Identifies scientific evidence that supports or refutes their ideas and arguments. | | | |
| **Objectives** | Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.<br>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers | Describe the changes as humans develop to old age.<br>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. | Compare and group together everyday materials on the basis of their properties including hardness, solubility, transparency, conductivity and response to magnets.<br>Know that some materials will dissolve in liquid to form a solution, | Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.<br>Describe the life process of reproduction in some plants and animals.<br>Describe how living things are classified into broad groups |

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| | and the on/off position of switches.<br>Use recognised symbols when representing a simple circuit in a diagram. | Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.<br>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. | and describe how to recover a substance from a solution.<br>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.<br>Give reasons based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic<br>Demonstrate that dissolving, mixing and changes of state are reversible changes<br>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. | according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.<br>Give reasons for classifying plants and animals based on specific characteristics. |
| **Working scientifically** | Take measurement using a range of scientific equipment with accuracy and precisions, taking repeat recordings when appropriate. | Identify scientific evidence that has been used to support and refute ideas or arguments. | Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.<br>Take measurement using a range of scientific equipment with accuracy | Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs and line graphs. |

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| | | | and precisions, taking repeat recordings when appropriate.<br>Use test results to make predications to set up further comparative and fair tests.<br>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust I results, in oral and written forms such as displays and other presentations. | Identify scientific evidence that has been used to support and refute ideas or arguments. |
| **Skills** | Draw a simple circuit representing basic parts (bulb, cell, wires, buzzer and switch) as symbols.<br>Understand how the number or voltage of cells in a circuit effects the brightness of bulbs or the volume of a buzzer. | Identify the life cycles of amphibians, mammals, insects and birds and understand how they differ.<br>Categorise plants, animals and microorganisms into groups according to their characteristics such as vertebrate and invertebrate in animals. | Explain the difference between reversible and irreversible changes and give examples. | Understand that fossils provide information about animals/ plants that lived on the Earth millions of years ago.<br>Understand living things reproduce and create offspring, which are of the same kind to the parents but not normally identical.<br>Explain how plants and humans have adapted to suit their environment and some adaptations can lead to evolution, e.g. the giraffe's neck. |

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| **Working scientifically** | Construct own questions, which can be tested, using prior knowledge and scientific vocabulary.<br>Systematically plan, set up and carry out an investigation to answer own question.<br>Plan and carry out a fair test, recognising and controlling variables.<br>Use conclusion to make further predictions and test these using comparative and fair tests. | Use labelled scientific diagrams, tables, bar, line and scatter graphs and classification keys to present findings which are of increasing complexity.<br>Share results and conclusions, including explanations, causal relationships and potential inaccuracies, using their choice of presentational and written methods, with increasing independence.<br>Find scientific evidence which supports and disproves own scientific ideas and arguments. | | Make a number of careful observations, explaining any abnormalities using technical language.<br>Independently decide when there is a need to make repeat observations and take repeat measurements, with precision.<br>Use a wider range of scientific language confidently in predictions, conclusions and when explaining what has been found to others.<br>Use knowledge of similarities and differences to inform reasoning and predictions. |
| **Assessment** | Children to plan and carry out a fair test independently demonstrating understanding of independent and controlled variables but to be assessed on their ability to reflect on and evaluate their results. | Identify the different stages in a life cycle of two different animals (one that goes through metamorphosis) and how they reproduce. | Give children a range of materials, mixtures and solutions. | Give children a picture of an animal and plant and its surrounding habitat |

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| **WTS** | Identify one controlled variable and able to show basic understanding of what they have learnt from their results | Able to put given stages of a life cycle in order and sort a group of animal cards with the way they reproduce. | Able to sort materials according to their state and identify if some changes are reversible. | Identify one way in which the animal or plant has adapted to its surrounding environment |
| **EXS** | Can reflect on results highlighting any anomalies and how this may have been influenced by how 'fair' their test was | Identify two animals with differing life cycles, recognise the stages and identify the way in which they reproduce. | Able to sort according to the state of a material and if it is a solution or mixture can identify some reversible and irreversible changes. | Identify two or three ways in which the animal has adapted to its environment demonstrate that this is a process over a long period of time |
| **GDS** | Reflect on results as above and relate them to wider scientific understanding. | As above with greater detail and make comparisons based on knowledge of classification. | As above and confidently identifies a range of both reversible and irreversible changes. | As above with greater detail and may even demonstrate difference in the way they have adapted in different locations e.g. Darwin's finches. |