**Science Overview – Year Five**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Year Five** | **Properties and changes of materials**  \*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.  \*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, including through filtering, sieving and  evaporating  \*Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials including metals, wood and plastic. | **Properties and changes of materials**  \*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.  Pupils will learn about reversible changes, including evaporating, filtering, melting and dissolving. Pupils will also learn about changes which are not reversible such as: rust and burning.  Pupils will also learn about the different particles made up in a solid, liquid and gas and will be able to represent this through pictorial representations.  Finally, pupils will learn about everyday materials and will understand their different properties and purpose.  **Working Scientifically**  \*Record data – fair tests etc. through planting and growing cress and recording its growth over a period of time | **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.  Pupils will study and learn about different animal life cycles in a variety of living things. For example: tigers, snakes, pandas or giraffes. The pupils will also look at plants in the sensory garden.  Pupils will learn and be able to define the term ‘reproduction’ giving examples and drawing detailed diagrams to show reproduction. | **Animals, including humans**  \*Describe the changes as humans develop to old age.  Pupils will be able to draw a timeline to indicate stages of growth and development of humans.  Pupils should learn about the differences in bodily changes as you get older and the differences between boys/ men and girls/women. | **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 ideas of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.  Pupils will be introduced to the model of the Sun and Earth that enables them to explain day/night, 24 hours in day and the different seasons in the UK.  Pupils will learn the order of the planets in relation to the sun. They will also learn the names of the planets in the solar system. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. | **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 greater effect.  Pupils should explore falling objects and make parachutes using plastic bags to analyse and understand air resistance.  Pupils should explore the effects of air resistance in relation to aero planes, parachutes and potentially sycamore seeds.  They should experience forces that make things begin to move, get faster or slow down.  Pupils should explore the effects of friction on movement and find out how it slows or stops moving objects. Pupils will also be able to use real life examples to describe the risk of poor friction. For example - the lack of friction between car tyres and the road when there has been a large amount of ice on the roads.  Pupils should explore the effects of levers, pulleys and simple machines.  Pupils may learn about famous scientists such as Isaac Newton and his theory of gravitation. |

**Throughout the course of the year – pupils will also cover the working scientifically objectives as listed below:**

|  |
| --- |
| Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary |
| Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate |
| Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs |
| Using test results to make predictions to set up further comparative and fair tests |
| Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations |
| Identifying scientific evidence that has been used to support or refute ideas or arguments |