**Science Overview – Year Six**

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|  | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Year Six** | **Animals including humans**  \*Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.  \*Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.  \*Describe the way in which nutrients and water are transported within animals, including humans.  Pupils will learn about the circulatory system and the importance of the heart. They will be able to describe how the heart inhales oxygen and exhales carbon dioxide. Pupils will also be able to learn the importance of arteries, ventricles and veins.  Pupils will learn about the importance of a balanced diet and will be able to discuss the impact of drugs on our bodies.  Pupils should also understand how nutrients are transported within humans and investigate how food/water is digested through the digestive system.  Pupils will have a practical demonstration of a heart dissection with the Castle Manor Head Teacher. | **Light**  \*Recognise that light appears to travel in straight lines.  \*Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.  \*Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.  \*Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.  Pupils will learn the differences between ‘natural’ and ‘manmade’ sources of light and be able to identify natural and manmade light sources.  Pupils will be able to discuss and prove how light travels in a straight line from a light source such as: the sun or a torch.  Pupils will be able to describe and explain –through labelled diagrams -how light helps us to see and how it helps us to see different colours.  Pupils will be able to describe how ‘transparent’, ‘opaque’ and ‘translucent’ objects effect the size, shape and outcome of shadows. | **Evolution and inheritance**  \*Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.  \*Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.  \*Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.  Pupils will be able to recognise that things have changed over time by looking at, discussing and drawing different fossils. In doing so, pupils will be able to identify similarities and differences between animal and plant fossils.  Pupils will learn about Charles Darwin and his theory of evolution and his journey around the world.  Pupils will learn about how different animals -such as: camels, penguins, fish and lions – adapt to their environment and how their adaptive traits may lead to evolution. Finally, pupils will learn about animals – such as the dodo -that have gone extinct or animals whom are in danger of extinction such as the orangutan. | **Electricity**  \*Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.  \*Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.  \*Use recognised symbols when representing a simple circuit in a diagram.  Pupils will learn about the term ‘voltage’ and will be able to create electrical circuits consisting of buzzers, wires, cells, lamps and switches and describe how the current moves through the circuit.  Pupils will be able to make amendments to their electrical circuits and alter the brightness of a lamp/lamps. They will also be able to draw and describe electrical circuits using the correct symbols.  Pupils will be able to understand the importance of electricity in the world and will be able to discuss famous scientists and their impact on the development of electricity. These including Volta, Tesla and Franklin. | **Living things and their habitats**  \*Describe how livings things are classified into broad groups according to common observable characteristics and based on similarities and differences.  \*Give reasons for classifying plants and animals based on specific characteristics.  Pupils will be able to describe how living things are classified into broad groups related to their characteristics. They will be able to complete a detailed fact file on different animals of their choice through careful research.  Pupils will be able to go on a tour of the school to identify different plants and describe their different characteristics. | **Practical Science investigations related to the Curious Scientist programme**  **Preparation and revision for the end of KS2 Science Trust assessment** |

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

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| 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, scatter graphs, bar and line graphs |
| Recording data and results of increasing complexity using tables, scatter graphs, bar and line graphs |
| Recording data and results of increasing complexity using classification keys and tables, |
| 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 |