Singleton Church of England Primary School
Progression of knowledge
Science – Y5 (Cycle B)

	Year 5 – Unit 1 **Out of this World**	**Year 5 – Unit 2** **Material World**	**Year 5 – Unit 3** **Circle of Life**
SUBSTANTIVE CONCEPTS Substantive concepts are concepts that children will come across repeatedly throughout their education in Science.	Plants Living Things and Their Habitats Animals Including Humans Evolution and Inheritance Seasonal Changes Materials Rocks Light Forces Sound Electricity Earth and Space	Plants Living Things and Their Habitats Animals Including Humans Evolution and Inheritance Seasonal Changes Materials Rocks Light Forces Sound Electricity Earth and Space	Plants Living Things and Their Habitats Animals Including Humans Evolution and Inheritance Seasonal Changes Materials Rocks Light Forces Sound Electricity Earth and Space
KEY VOCABULARY	Sun, Moon, Earth, planets (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, Solar System, rotate, star, orbit	thermal insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	the vocabulary to describe sexual characteristics in line with the school's RSE policy
SUBSTANTIVE KNOWLEDGE Substantive knowledge refers to the residual knowledge that children should take away from the unit after it has been taught. It consists of the core facts in terms of Scientific knowledge. In this progression map, you will find a concise summary of the substantive knowledge for each unit.	• Knows the movement of the Earth and other planets relative to the Sun in the Solar System • Knows the Sun, Earth and Moon as approximately spherical bodies • Knows the Sun, Earth and Moon as approximately spherical bodies. • Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky • Use the idea of the Earth's rotation to explain day and night. • Knows that Earth spins once around its own axis in 24 hours, giving day and night. • Know the sun appears to move across the sky from East to West and this causes	• Knows how to 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. • 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.	• Knows the life process of reproduction in some plants and animals. • Knows the differences in the life cycles of a mammal, an amphibian, an insect and a bird • Knows the changes as humans develop to old age.
MAKING CONNECTIONS **Key knowledge**	**Year 6** • Knows 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 shapes the objects that cast them	**Year 4** • Can compare and group materials together, according to whether they are solids, liquids or gases. • Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in • degrees Celsius (°C). • Knows the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	**Year 4** • Knows that living things can be grouped in a variety of ways. • Knows how to use classification keys to help group, identify and name a variety of living things in their local and wider environment. • Knows that environments can change and that this can sometimes pose dangers to living things. **Year 6**

		• Knows some common conductors and insulators, and associate metals with being good conductors.	• Knows that living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. • Give reasons for classifying plants and animals based on specific characteristics.
Working Scientifically	• Report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. • Identify scientific evidence that has been used to support or refute ideas or arguments • Take measurements, using a range of scientific equipment with increasing accuracy and precision, taking repeat readings when appropriate	• Use a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. / use 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 • Report and present 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. • Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. • Use test results to make predictions to set up further comparative and fair tests