Singleton Church of England Primary School
Progression of knowledge
Science – Y6 (Cycle B)

	Year 6 – Unit 1 **Electricity**	Year 6 – Unit 2 **Light**	Year 6 – Unit 3 **Classifying Living Things**
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	Plants Living Things and Their Habitats Animals Including Humans Evolution and Inheritance Seasonal Changes Materials Rocks Light Forces Sound Electricity	Plants Living Things and Their Habitats Animals Including Humans Evolution and Inheritance Seasonal Changes Materials Rocks Light Forces Sound Electricity
KEY VOCABULARY	circuit diagram, circuit symbol, voltage	straight lines, light rays	vertebrates, fish, amphibians, reptiles, birds, mammals, warm-blooded, cold-blooded, invertebrates, insects, spiders, snails, worms, flowering, non-flowering, mosses, ferns, conifers
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 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. • Know and use recognised symbols when representing a simple circuit in a diagram • Knows that circuit diagrams can be used to construct a variety of more complex circuits predicting whether they will 'work' • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit.	• 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 shape as the objects that cast them	• 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.
MAKING CONNECTIONS **Key knowledge**	**Year 4** • Identify common appliances that run on electricity. • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • Knows whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. • Knows that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • Knows some common conductors and insulators, and associate metals with being good conductors.	**Year 3** • Knows that we need light in order to see things and that dark is the absence of light. • Knows that light is reflected from surfaces. • Knows that light from the sun can be dangerous and that there are ways to protect their eyes. • Knows that shadows are formed when the light from a light source is blocked by an opaque object. • Find patterns in the way that the size of shadows changes.	**Year 5** • Knows the differences in the life cycles of a mammal, an amphibian, an insect and a bird. • Knows the life process of reproduction in some plants and animals.
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. • Plan different types of scientific enquiry 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 when appropriate / Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.	• Give reasons for classifying plants and animals based on specific characteristics. • Identify scientific evidence that has been used to support or refute ideas or arguments

	• 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.	• 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.	• Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • 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.