Singleton Church of England Primary School
Progression of knowledge
Science – Y3 (Cycle B)

	Year 3 – Unit 1 **Rocks, Soils and Fossils**	**Year 3 – Unit 2** **Light and Shadows**	**Year 3 – Unit 3** **How Does your Garden Grow?**
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	rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorbs water, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, types of soil (e.g. peaty, sandy, chalky, clay)	light, light source, dark, absence of light, surface, shadow, reflect, mirror, Sun, sunlight, dangerous	photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport
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 and historical knowledge of the period, such as historical narrative, significant events or people, period features, chronology and substantive concepts. In this progression map, you will find a concise summary of the substantive knowledge for each unit.	• Knows how to - Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. • Knows in simple terms how fossils are formed when things that have lived are trapped within rock. • Knows that soils are made from rocks and organic matter.	• 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.	• Knows and can describe the functions of different parts of flowering plants: roots, stem / trunk, leaves and flowers. • Investigate the way in which water is transported within plants. Set up simple practical enquiries, comparative and fair tests. • Knows the requirements of plants for life and growth (air, light, water, nutrients from soil and room to grow) and how they vary from plant to plant. • Knows the part that Flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
MAKING CONNECTIONS **Key knowledge**	Year 2 • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Year 6 • Knows that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	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 shape as the objects that cast them	Year 2 • Knows that plants may grow from either seeds or bulbs. • Knows that plants need water, light and a suitable temperature to grow and stay healthy. Year 4 • Knows that living things can be grouped in a variety of ways. (Y4 – Living things and their habitats) • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 – Living things and their habitats) • Knows that environments can change and that this can sometimes pose dangers to living things. (Y4 – Living things and their habitats)

Working Scientifically	• Ask relevant questions and use different types of scientific enquiries to answer them.	• Set up simple practical enquiries, comparative and fair tests. • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment including thermometers and data loggers.	• Set up simple practical enquiries, comparative and fair tests. • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.