Singleton Church of England Primary School
Progression of knowledge
Science – Y4 (Cycle A)

	Year 4 – Unit 1 **Looking at States**	**Year 4 – Unit 2** **Teeth and Eating**	**Year 4 – Unit 3** **The Big Build**
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	solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle	digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, large intestine, incisor, canine, molar, premolar	practical work, fair testing, relationships, accurate, thermometer, data logger, stopwatch, timer, estimate, data, diagram, identification key, chart, bar chart, prediction, similarity, difference, evidence, information, findings, criteria, values, properties, characteristics, conclusion, explanation, reason, evaluate, improve
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 how to compare and group materials together, according to whether they are solids, liquids or gases. • Knows that some materials change state when they are heated or cooled, and can 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. • Knows some common conductors and insulators, and associate metals with being good conductors.	• Knows the simple functions of the basic parts of the digestive system in humans. • Knows the different types of teeth in humans and their simple functions. • Knows how to construct and interpret a variety of food chains, identifying producers, predators and prey.	• Set up simple practical enquiries, comparative and fair tests. (Investigation unit)
MAKING CONNECTIONS **Key knowledge**	**Year 2** • Knows and can compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Knows how to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching **Year 5** • Knows how to compare and group together everyday materials on the basis of their properties, including their hardness, solubility,	**Year 3** • Knows that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. • Knows that humans and some other animals have skeletons and muscles for support, protection and movement. **Year 5** • Knows the changes as humans develop to old age.	**Year 3** • Knows the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. **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.

	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. • Knows how to 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.		
Working Scientifically	• 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). • Ask relevant questions and use different types of scientific enquiries to answer them. • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	• Ask relevant questions and use different types of scientific enquiries to answer them. • Set up simple practical enquiries, comparative and fair tests. • Use straightforward scientific evidence to answer questions or to support their findings	• 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. • Use straightforward scientific evidence to answer questions or to support their findings.