Curriculum Progression Map

St Mary and St Joseph's RC Primary School
Science Progression Grid – Year 4

Biology

Life processes	Structure and function	Classification	Life cycles	Interdependence
• Animals and humans have teeth to help them eat • Food is broken down further in the stomach and intestine and absorbed into the blood stream with water		• Plants and animals can be grouped using a wider range of characteristics • Keys are used for the identification of animals and plants		• Nutrients made by plants move to primary consumers and then to secondary consumers through food chains

Chemistry

Describing and using materials	Changing materials	Mixing and separating materials
• Materials can be solids, liquids or gases	• Some materials change state when heated or cooled Heating causes melting and evaporation Removing heat causes condensing and solidifying (freezing)	

Physics

Light	Sound	Electricity	Forces	Earth in space
	• Sounds are made when something vibrates • Sounds get fainter the further they are from the source • The volume of a sound can be changed • The pitch of a sound can be changed	• Electrical appliances need a source of electricity to work • A complete circuit is needed for an electric current to flow • A circuit is made up of different components • A switch opens and closes a circuit • Some materials are better conductors than others		

Working Scientifically

Approaches to enquiry	Asking questions	Planning
Children should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them including: • observing changes over time • noticing patterns • grouping and classifying things • carrying out simple fair tests • finding things out using secondary sources of information	**Ask relevant questions** • Recognise questions that can be investigated scientifically and those that cannot • Ask a clear scientific question • Recognise when questions can be answered by first hand or second sources of evidence	**Use different types of scientific enquiries to answer them** • identify different ways to answer a question • Choose the most appropriate method **Set up simple practical enquiries, comparative and fair tests** • Decide what observations to make, how often and what equipment to use • Decide what measurements to take, how long to make them for and whether to repeat them • Decide what sorting or classification criteria to use • Recognise when a simple fair test is necessary • With help, decide what variables to change and

		measure
Collecting data	**Presenting data**	**Concluding**
Make systematic and careful observations where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • Use a range of equipment including data loggers to collect data using standard measures • With support take accurate measurements on measuring equipment, recognising when to repeat them • Carry out simple tests to sort and classify materials according to properties or behaviour **Gather data in a variety of ways to help in answering questions** • Gather data to answer questions from a variety of sources including using textbooks, simple keys, electronic media, first hand observation, practical activity and data collected by others	**Record data in a variety of ways to help in answering questions** • Make notes • Record data in tables and bar charts • Use graphs produced by data loggers **Classify in a variety of ways to help in answering questions** • Use Carroll diagrams, and Venn diagrams to classify • Use and make simple keys to identify and classify **Present data in a variety of ways to help in answering questions** • Drawings, labelled diagrams • Bar charts, bar line graphs, simple scatter graphs and tables using ICT where appropriate	**Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions** • Draw simple conclusions about changes observed and link these to scientific ideas • Refer to a table or graph when reporting findings • Begin to use and interpret graphs produced by data loggers • Draw a simple conclusion about similarities and differences identified and link these to scientific ideas • Draw conclusions about simple patterns between two sets of data • Draw simple causal conclusions from fair tests • Draw conclusions from data from different secondary sources **Identify differences, similarities or changes related to simple scientific ideas and processes** • Make links between: o observed changes o similarities and differences o simple patterns between two sets of data o simple causal relationships o data from secondary sources • and simple scientific ideas and processes **Use straightforward scientific evidence to answer questions or to support their findings** Refer to evidence from practical tests and observations or from secondary data sources when answering questions or explaining findings • Use simple scientific language in a range of oral and written presentations suitable for different audiences to present findings
Evaluating	**Key scientific vocabulary**	
Use results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions • Make predictions for new values within or beyond the collected data collected • Identify new questions arising from the data	Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar, swallow, gulp Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats, ecological, deforestation, population Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating, increase, decrease, rate, steam, substance, refrigerate	

• Find ways of improving enquiries	Volume, Vibration, Wave, Pitch, Tone, Speaker, travel, insulation, fainter Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, appliances, component, devices