St John Bosco R.C Primary School
With Jesus in our hearts, we love pray, learn and play
Science Curriculum Map – Year 3

Scientific Enquiry

Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
How can a solar oven be made more effective: posing questions and writing predictions	Asking relevant questions and using different types of scientific enquiries to answer them	Asking relevant questions and using different types of scientific enquiries to answer them	solar renewable energy scientific investigation prediction plausible	Cardboard box (not too deep) with a lid, black paper or card, foil, a thermometer, sticky tape, straws and a variety of materials to test (such as cling film, fabrics, foil, paper, card and a piece of black bin bag). Optional: chocolate or marshmallows on a plate
How can a solar oven be made more effective: recording and presenting results	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	record results data table graph	Cardboard box (not too deep) with a lid, black paper or card, foil, a thermometer, sticky tape, straws and a variety of materials to test (such as cling film, fabrics, foil, paper, card and a piece of black bin bag). Optional: chocolate or marshmallows on a plate
Cleaning coins: writing a method and carrying out a practical test	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	acid alkali PH method practical	A PH testing kit (litmus paper and test indicator), small trays, measuring cylinders, dirty coins and a range of substances to test such as vinegar, oil, ketchup, citric fruit juice, fizzy drinks, toothpaste, soap and water
Cleaning coins: writing a conclusion	Identifying differences, similarities or changes related to simple scientific ideas and processes Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Identifying differences, similarities or changes related to simple scientific ideas and processes Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	conclusion evidence explanation compare enquiry	Writing tools
Making a cake: fair testing, controls and variables	Setting up simple practical enquiries, comparative and fair tests	Setting up simple practical enquiries, comparative and fair tests	baking measurements fair test control experiment variable	Butter, caster sugar, self-raising flour, eggs, vanilla extract, milk, a mixing bowl, a whisk, a wooden spoon, measuring jug, weighing scales, oven, 20cm cake tin (variables could also include baking powder, water and a selection of different flours, e.g. plain or gluten free)
Making a cake: scientific enquiry	Using straightforward scientific evidence to answer questions or to support their findings Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Using straightforward scientific evidence to answer questions or to support their findings Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	conclusive scientific knowledge equipment diagram collated	Butter, caster sugar, self-raising flour, eggs, vanilla extract, milk, a mixing bowl, a whisk, a wooden spoon, measuring jug, weighing scales, oven, 20cm cake tin (variables could also include baking powder, water and a selection of different flours, e.g. plain or gluten free)

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Animals, including humans				
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Explore the 5 key food groups	Identify 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	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	nutrition carbohydrate protein vitamin mineral	A selection of food for the class to sort into the 5 key food groups
Learn about the nutrition in the food we eat	Identify 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	Using straightforward scientific evidence to answer questions or to support their findings	nutrition label portion energy balanced diet	A range of food products containing nutrition labels
Learn about the different types of skeletons	Identify that humans and some other animals have skeletons and muscles for support, protection and movement	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	vertebrate invertebrate endoskeleton exoskeleton hydrostatic skeleton	Scissors and glue (optional), research resources: books or internet
Learn about the human skeleton	Identify that humans and some other animals have skeletons and muscles for support, protection and movement	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables	humerus ulna radius tibia fibular	Scissors, glue and split pins
Learn about animals and their skeletons	Identify that humans and some other animals have skeletons and muscles for support, protection and movement	Identifying differences, similarities or changes related to simple scientific ideas and processes	endoskeleton vertebrate skull rib cage spine	Scissors and glue
Explore the role of muscles	Identify that humans and some other animals have skeletons and muscles for support, protection and movement	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	muscle contract hamstrings biceps diaphragm	Split pins

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Rocks				
Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Explore the formation and properties of igneous rocks	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	igneous rocks intrusive igneous rock extrusive igneous rock crystals magma	Chocolate chips, coconut oil, ice cubes, cooking equipment (including a microwave or hob), caster sugar, golden syrup, bicarbonate of soda, a wooden spoon and a food container
Explore the formation and properties of sedimentary and metamorphic rocks	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	sedimentary rock metamorphic rock limestone marble sandstone	A selection of rocks to test, sandpaper, nails, small wooden spoons, water, pipettes, a bowl of water and a microscope or magnifying glass
Weathering and the suitability of rocks for different purposes	Explore how and why [rocks] might have changed over time (non-statutory)	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	weathering chemical weathering physical weathering biological weathering acid rain	Vinegar, a pipette, a selection of different rocks and colouring pencils
Explore how water contributes to the weathering of rocks	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	appearance texture submerged erosion receding	A variety of different rocks, bowls of water, weighing scales and a timer
Understand how fossils are formed	Describe in simple terms how fossils are formed when things that have lived are trapped within rock	Identifying differences, similarities or changes related to simple scientific ideas and processes	fossil extinct sediment embedded amber	Salt, flour, coffee grounds, cold coffee or water, a mixing bowl, a mixing spoon and objects to create imprints
Explore different types of soil	Recognise that soils are made from rocks and organic matter	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	decompose fragments clay soil chalky soil sandy soil	Samples of different soils (for instance, peat soil, clay soil, sandy soil, silt soil, loam soil or chalky soil), beakers, a measuring cylinder, filter paper, a funnel, a teaspoon, a magnifying glass and pipettes

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Forces and magnets

Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Explore contact and non-contact forces	Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	force contact force non-contact forces air resistance friction	A range of PE and playground equipment
Compare how things move on different surfaces	Compare how things move on different surfaces	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	motion surface resistance texture tilt	A toy boat (or wooden block), thick books, a stopwatch, a cardboard/wooden ramp, a selection of materials e.g. bubble wrap, cling-film, paper, felt and sandpaper (NB: any object can be timed moving down the ramp, but for a measurable effect, pick an object that slides - not rolls. Avoid toys with wheels or balls.)
Explore different types of magnets	Describe magnets as having 2 poles Predict whether 2 magnets will attract or repel each other, depending on which poles are facing	Setting up simple practical enquiries, comparative and fair tests	magnet attract repel bar magnet horseshoe magnet	Bar magnets and horseshoe magnets
Explore the properties of magnets and everyday objects that are magnetic	Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	magnetism magnetic magnetic field iron steel	A range of magnets and everyday classroom objects
Understand that magnetic forces can act at a distance	Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment	non-contact forces magnetism attract non-magnetic materials recycle	5 different types of magnet, paperclips, something to hold the magnet, a thin thread, tape and a ruler or tape measure
Explore the everyday uses of magnets	Describe magnets as having two poles	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	compass magnetic needle magnetic north direction orienteering	Compasses, clipboards and writing tools

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Plants				
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Compare the effect of different factors on plant growth	Explore 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	Asking relevant questions and using different types of scientific enquiries to answer them Setting up simple practical enquiries, comparative and fair tests	nutrients fertiliser nursery potassium stunted	Planting equipment, seeds
Identify and describe the functions of different parts of a flowering plant and how they are used in photosynthesis	Identify and describe the functions of different parts of a flowering plant	Making systematic and careful observations Reporting on findings from enquiries, including oral and written explanations	chlorophyl stomata xylem photosynthesis UV light	Onions and a glass of water
Investigate the way in which water is transported within plants	Investigate the way in which water is transported within plants	Making systematic and careful observations	xylem phloem absorb stomata transpiration	Celery in dyed water (prepared 2 days before), cut flowers, water and dye
Explore the part that flowers play in the life cycle of flowering plants	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	anther stigma style filament reproduction	Plasticine and a white board
Understand the pollination process and the ways in which seeds are dispersed	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	pollination pollen nectar seed dispersal pollinator	Equipment so pupils can create a class display
Compare the effect of different factors on plant growth	Explore 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	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	germination vulnerable anchor sapling formation	Plants from the experiment

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Light				
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Identify the difference between light sources and non light sources	Recognise that they need light in order to see things and that dark is the absence of light	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	light source natural artificial reflect	Glue and scissors
Explore the light that comes from the sun and how to stay safe	Recognise that light from the sun can be dangerous and that there are ways to protect their eyes	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	vitamin D ultraviolet rays sunburn exposure protection	UV beads, a range of sun creams with at least 3 different SPF values, black paper, sticky tack and a plate
Explore materials which are reflective	Notice that light is reflected from surfaces	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	fluorescent high visibility reflective surface materials	Torches and a range of materials to investigate, such as tin foil, paper, wood, metal and fabric
Discover how shadows are formed	Recognise that shadows are formed when the light from a light source is blocked by an opaque object	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	shadow opaque sundial rays blocks	Torch, opaque objects (enough for each child to have one), pencils and paper
Investigate how shadows change throughout the day	Find patterns in the way that the size of shadows change	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	position cast opposite direction length	Data from the shadow stick investigation, ruler and graph paper
Investigate how you can change the size of a shadow	Find patterns in the way that the size of shadows change	Identifying differences, similarities or changes related to simple scientific ideas and processes	size shape closer further puppet	Shadow puppet stage, lighting and handout with puppet silhouettes

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