**SACRED HEART SCIENCE CURRICULUM COVERAGE**

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|  | **WORKING SCIENTIFICALLY KEY STAGE 1** | **WORKING SCIENTIFICALLY LOWER KEY STAGE 2** | **WORKING SCIENTIFICALLY UPPER KEY STAGE 2** |
| **PLAN** | choose the resources they need for theirchosen activities and say when they do or don’t need helpknow about similarities and differences in relation to places,objects, materials and living thingsmake observations of animals and plants explore a variety of materials, tools and techniques,experimenting with colour, design, texture, form and function.select and use technology forparticular purposesrepresent their own ideas, thoughts and feelings through design and technology, art,music, dance, role play and storiestalk about the features of their own immediate environment and how environments might vary from one another  explain why some things occur and talk about changes | asking simple questions and recognising that they can be answered in different waysobserving closely, using simple equipmentperforming simple testsidentifying and classifyinggather and record data to help in answering questions.using their observations and ideas to suggest answers to questionsgathering and recording data to help in answering questions | asking relevant questions and using different types of scientific enquiries to answer themsetting up simple practical enquiries, comparative and fair testsmaking systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggersgathering, recording, classifying and presenting data in a variety of ways to help in answering questionsrecording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tablesreporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusionsusing results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questionsidentifying differences, similarities or changes related to simple scientific ideas and processesusing straightforward scientific evidence to answer questions or to support their findings. | planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessarytaking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriaterecording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphsusing test results to make predictions to set up further comparative and fair testsreporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentationsidentifying scientific evidence that has been used to support or refute ideas or arguments |
| **DO** |
| **RECORD** |
| **REVIEW**  |
| **RECEPTION**  | **YEAR 1** | **YEAR 2** | **YEAR 3** | **YEAR 4** | **YEAR 5** | **YEAR Y6** |
| **AUTUMN TERM** | **One Marvellous Me**ELG: **Explore the natural world around them, making observations and drawing pictures of animals and plants.**Focus on the human skeleton and naming bones.**Let’s Celebrate:** **Explore the natural world around them, making observations and drawing pictures of animals and plants.** Recognises the changes since birth. | **All About Me** Focus on our senses and the basic parts of the human body. Discover the changes our body makes as we grow and also how humans can mimic nature. **Uses of Everyday Materials**Categorise materials, working out those that are suitable for different purposes. Begin to understand how magnets work. Identify natural and man-made materials and the different tests we can use to see if a material is suitable for a task. Encourage the recycling and reusing of materials. | **Growth**Learn how to notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) and finally learn how to describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.**The Uses of Everyday of Materials.** Learn how to: identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Learn how to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.This is the third unit the children have covered on materials and builds on the knowledge they have covered during year 1. | **What Makes Us?**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. Learn how to identify that humans and some other animals have skeletons and muscles for support, protection and movement.**Rocks** Learn how to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Learn how to describe in simple terms how fossils are formed when things that have lived are trapped within rock. Learn how to recognise that soils are made from rocks and organic matter.Although the topic of rocks has been raised when exploring materials during years 1 and 2, this is the first-time children explore the properties of rocks and how they have been formed and how they can be used. | **Food and Digestion**Learn how to: describe the simple functions of the basic parts of the digestive system in humans; identify the different types of teeth in humans and their simple functions; and finally, construct and interpret a variety of food chains, identifying producers, predators and prey.**States of Matter** Compare and group materials together, according to whether they are solids, liquids or gases; 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); and finally, identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. | **Life Explorers** Describe the changes as humans develop to old age.**Changes of Materials**Describe how to recover a substance from a solution; demonstrate that dissolving, mixing and changes of state are reversible changes; and finally, they learn how to 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.This unit follows on from the States of Matter units children covered during year 4. | **Blood and Transportation**Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood; recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function; and finally, learn how to describe the ways in which nutrients and water are transported within animals, including humans.**Evolution and Inheritance**Explore the key concepts of evolution and inheritance by building upon previous topics, including animal characteristics and fossils. Learn about inherited traits and apply knowledge to various animals and plants, before being introduced to the work of Mary Anning and Charles Darwin. Through the presentations and tasks, learn about the fascinating history of the human race and discover links between extinct animals and those which are still living today. |
| **SPRING TERM** | **Space:** **ELG: Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.**Learn all about the Solar System, planets, The Moon, gravity, moon phases and space travel. **On the Farm:** **ELG; Explore the natural world around them, making observations and drawing pictures of animals and plants.** | **Exploring Everyday Materials**Delve deeper into the properties and qualities of different materials we use. Carry out testing, examining different materials and describing what materials look and feel like.**Seasonal change** Recognise different types of weather and how they happen. Observe the changes that occur over the seasons. Study of local climates and weather and how it is different around Earth. Observing weather types, recording and measuring temperatures and rainfall, as well as exploring how plants and animals may adapt to seasons. | **Life Cycles**Discover more about how humans grow from babies to adults, and compare this life cycle with that of other animals, such as frogs and butterflies. Consider the ways different organisms give birth, as well as metamorphosis by other creatures. Present their ideas using diagrams and craft materials. Observe phenomena and take measurements. **Living Things and Their Habitats**Explore and compare the differences between things that are living, dead, and things that have never been alive. They learn how to identify and name a variety of plants and animals in their habitats, including microhabitats; and describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. | **Forces and Magnets** Learn how to: compare how things move on different surfaces; notice that some forces need contact between 2 objects, but magnetic forces can act at a distance; and observe how magnets attract or repel each other and attract some materials and not others. Learn how to 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; describe magnets as having 2 poles and learn how to predict whether 2 magnets will attract or repel each other, depending on which poles are facing.**Light** Recognise that light is needed in order to see things and that dark is the absence of light; notice that light is reflected from surfaces; and recognise that light from the sun can be dangerous and that there are ways to protect the eyes. Learn how to recognise that shadows are formed when the light from a light source is blocked by an opaque object; and find patterns in the way that the size of shadows change. | **Electricity**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. Learn how to: identify 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; recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit; and finally, recognise some common conductors and insulators, and associate metals with being good conductors.**Sound** Identify how sounds are made, associating some of them with something vibrating; recognise that vibrations from sounds travel through a medium to the ear; find patterns between the pitch of a sound and features of the object that produced it; find patterns between the volume of a sound and the strength of the vibrations that produced it; and finally, recognise that sounds get fainter as the distance from the sound source increases**.** | **Forces** Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object; identify the effects of air resistance, water resistance and friction, that act between moving surfaces; and finally, they learn how to recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.This unit builds on the Forces and Magnets topic they covered during year 3.**Earth and Space**Learn more about the Earth and the celestial bodies in our solar system. Start with an exploration of each planet - from Mercury to Neptune - this unit then explores how scientific ideas surrounding Earth's movement and placement have changed and developed over time. Complete an assortment of fascinating Mission Assignments - such as making a papier-mache model of the solar system - to deepen understanding of the Moon, time zones and the night and day cycle. | **Electricity**Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit; learn how to 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; and finally, they use recognised symbols when representing a simple circuit in a diagram.This unit builds on the Electricity topic they covered during year 4.**Light**Recognise 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; and finally, children learn how to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.This unit builds on the light unit children covered during year 3. |
| **SUMMER TERM** | **Reception Down at the ELG: Bottom of the Garden:** **Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.****Explore the natural world around them, making observations and drawing pictures of animals and plants.** **Dinosaurs**: **ELG: Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them including the seasons and changing states of matter.** | **Plants** Begin to know the parts of a plant, understand the conditions a plant needs for healthy growth and see how they change over time. Think about plants that are grown as crops, and how we use them as food. Grow and observe the growth of their own plants.**All About Animals**Know more about animals, focus on how to care for pets and other animals in different ways. Basic identification of animals, through to how animals and pets grow. Discover the basics of genetics, by studying characteristics that animals gain from their parents. Develop an understanding of different species and encourage care and preservation of animals. | **Plants** Observe and describe how seeds and bulbs grow into mature plants; and find out and describe how plants need water, light and suitable temperature to grow and stay healthy.This second unit on plants and builds on the knowledge children have covered during their unit on plants in year 1.**Habitats Around The World**Learn about habitats and appreciate that environments are constantly changing. Explore the rainforest and its problems and describe life in the ocean. Discover the Arctic and Antarctic habitat and create a model of a chosen habitat. | **Plants**Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. 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. Learn how to investigate the way in which water is transported within plants and finally learn how to explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.This third unit on plants and builds on the knowledge children have covered during their unit on plants in Year 1 and 2.**Scientific Enquiry**Scientific Enquiry’ takes children through six lessons where they learn the scientific skills they will need to apply during each unit of learning during key stage 2. ( See working scientifically KS 2) | **Living things and their Habitats**Recognise that living things can be grouped in a variety of ways; and explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.**Habitats – Conservation**Learn how to recognise that environments can change and that this can sometimes pose dangers to living things.Although this is the fourth time children will visit the topic of living things and their habitats this is the first time a focus has been placed on conservation. | **Properties of Materials**Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets; know that some materials will dissolve in liquid to form a solution, use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating; and finally, earn how to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.This unit builds on the States of Matter units children covered during year 4 and compliments the Changes of Materials unit covered during year 5.**Studying Living Things**Learn about the work of Sir David Attenborough and Dame Jane Goodall to understand far more about the animal kingdoms we have on Earth. Think further about life cycles, as well as different forms of reproduction in animals and plants. Develop their research skills, build models and continue to practice drawing diagrams and graphs. | **Living Things and their Habitats**Identify the kingdoms of life and to classify living things within those kingdoms. The children will be introduced to the Linnean system of classification and will be able to develop their practical scientific skills though investigating mould growth on bread and mushroom spore dispersal.**Looking After Our Environment**To further develop children's working scientific skills. Children explore: the core concepts – ' what the climate is, how it changes, the difference between a man-made and natural environment and where different types of animals live'.During year 3 children completed a unit on Scientific Enquiry and during year 4 they explored the topic of the environment. |