

## **SCIENCE SCHEME**

### **Whole School Scheme of Work and approach**

The school have invested in the Empiribox programme. Empiribox recognise that only a small percentage of primary school teachers have a science background and that many often lack confidence teaching this subject. With the new National Curriculum asking schools to teach the scientific method as well as the basic science knowledge, many teachers feel at a loss as to what to do in classes. The Empiribox system addresses these issues by giving full CPD accredited training to teachers each term, yearly for KS1, designed to increase confidence and understanding of science.

Every term, Empiribox supply all the equipment and teaching resources to ensure that teachers have the tools at their fingertips to easily do engaging and inspirational science throughout the year.

### **Planning/Knowledge Organisers**

The detailed lesson plans can be downloaded from the Empiribox website; these should then be adapted for each year group. In addition, knowledge organiser sheets and flashback questions are used in each new unit. The knowledge organisers include the main objectives, key vocabulary, and any links to scientists. These are then stuck into pupils' exercise books at the start of each unit. The science plans always include many ideas for cross-curricular opportunities. Each class is expected to tweet a selection of photographs to showcase the practical science experiments carried out in our school.

### **Key Stage One**

There are 6 units in the rolling 2-year scheme for key stage one. Year 1 & 2 teach the same units together, with extension and differentiation depending on each year group. The units include 12 lessons and there is a text, poem or song to hook the children in. The lessons are very practical and introduce the children to key scientific concepts. A photo journal should be kept to log the practical experiments carried out by the children.

### **Key Stage Two**

Key stage two follows a 4-year rolling scheme, with detailed lesson plans for each year group. The units are more clearly defined as Chemistry, Physics or Biology and there is a clear progression of the scientific skills being taught throughout the year. There are 12 lessons per unit, and the final lessons are a pupil-lead full investigation.

<b>KS1</b>		Knowledge & skill focus		
<b>Year</b>		<b>Autumn</b>	<b>Spring</b>	<b>Summer</b>
<b>Year 1</b> <b>2021- 2022</b>	<b>Knowledge</b>	Changing Materials	Our Living Earth	Habitats and Seasonal Change
	<b>Skill focus</b>	Identifying and classifying	Observing	Creating and using data
<b>Year 2</b> <b>2022 – 2023</b>	<b>Knowledge</b>	Mixtures and Potions: an intro to chemistry	Plants and Trees	Toys: and intro to physics
	<b>Skill focus</b>	Identifying and classifying	Observing	Creating and using data

		Subscription Term		
Year	School Name	Autumn	Spring	Summer
Year of subscription	St Joseph's Catholic Primary School	First Term	Second Term	Third Term
		(Physics)	(Chemistry)	(Biology)
Year 1 2021 - 22	Knowledge	Forces, Magnetism & Simple Machines	States of Matter	Plants
	Science Skills	Planning	Data	Evaluation
Year 2 2022 - 23	Knowledge	Sound	Properties & Changes of Materials	Animals Including Humans
	Science Skills	Planning	Data	Evaluation
Year 3 2023 - 24	Knowledge	Electricity	Rocks	Living Things & Evolution
	Science Skills	Planning	Data	Evaluation
Year 4 2024 - 25	Knowledge	Light, Earth & Space	Irreversible Changes	Living Things, Habitats & Lifecycles
	Science Skills	Evaluation	Planning	Data

## Assessment

There are two lists of assessment criteria for scientific skills in each key stage. These should be completed for each child at the end of each year and built upon until the end of the key stage. In addition, objectives for each child are ticked off the unit knowledge organiser cover sheets during or at the end of each topic. The skills spreadsheets and knowledge learning objectives completed will inform the end of year assessment grade for each child. Empiribox also supply end of Key Stage assessment tests, which can be used in years 2 and 6 to inform final teacher assessment grades.

## KS1 National Curriculum Strands

### KS1 Working Scientifically

- Asking simple questions and recognising that they can be answered in different ways
- Observing closely, using simple equipment
- Performing simple tests
- Identifying and classifying
- Using their observations and ideas to suggest answers to questions
- Gathering and recording data to help in answering questions.

### **British Science Week**

We recognise National Science week in March, usually with an in-house competition. Extra Scientific activities and assemblies about scientists who changed the world are planned for this week. Details are given about the British Science Week official poster competition, which may interest those pupils with a real passion for science.

### **Lower KS2 Working Scientifically**

- asking relevant questions and using different types of scientific enquiries to answer them
- Setting up simple practical enquiries, comparative and fair tests
- 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
- 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
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identifying differences, similarities or changes related to simple scientific ideas and processes
- Using straightforward scientific evidence to answer questions or to support their findings.

### **Upper KS2 Working Scientifically**

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments.