SCIENCE CURRICULUM

Curriculum Flame

Science

Faith

The children will develop a respect for the people and the world around them as they will understand that they are God's creations.

Children will understand how to stay safe whilst conducting scientific experiments.

Lifelong Learners

Lessons are logically sequenced and progression is clear between the year groups.

Children are made aware as to why the Science they are being taught is relevant.

The children are provided with knowledge organisers to aid them in becoming more independent and to take ownership over their own learning.

The children are provided with regular opportunities of retrieval practice to ensure the information moves to the long-term memory

Key vocabulary will be used in all science lessons and will be referred to regularly.

Books will be used as a learning stimulus to ensure that reading remains prominent in all subjects.

Excellence for All

Science is taught every week throughout the school and is viewed as a core subject.

At St John Rigby, we believe that every child is a scientist. Children are encouraged to ask questions and work out how to find the answer themselves.

Children are stretched and supported appropriately according to their individual needs. Children will be challenged to deepen their understanding by asking in depth questions.

Vocabulary will be taught explicitly and will be consistently referred back to, so that all children understand how to use it effectively.

A Positive Contribution

The children will learn about the issues facing the world and how they can make a difference.

They will be encouraged to ask questions and discover the answers independently.

Children will learn about a range of diverse scientists' who have made a positive impact to society. This will also help to challenge stereotypes.

To improve aspirations and ambition the children will be provided with opportunities to enrich the science curriculum with trips, visits, demonstrations and inspirational speakers.

Children will be proud of the work they produce in Science.

Masters of Learning (metacognition – learning how to learn)

Children will be encouraged to take responsibility of their own questions. They should ask questions and be supported to find the answer for themselves.

Children will be provided with opportunities to present work in different ways.

The children will be encouraged to become more independent by developing critical thinking skills.

Links will be made between learning within and between year groups. Children will be encouraged to remember what they learnt in previous years.

St John Rigby Science Curriculum Overview

"Speak to the Earth and it shall teach thee." Jobs 12:8

Vocabulary		Key vocabulary is identifies for each year groups so that it is progressive and builds upon previous vocabulary. Vocabulary is threaded through the science curriculum so that the children are continually exposed to it over time. It is a key focus in our curriculum and is constantly referred to in lessons, investigations, displays and many more.
Texts		**A range of t**exts are used to **inspire and** engage the children in the **science units**. This **includes** non-fiction **and** fiction text.
Scientists		Within each unit, the work of a **significant** scientist is studied **as well as the impact their achievements have made on our lives today**. This is completed at different levels depending on the year group. The work of previously learnt-about scientists is also recapped. **A range of scientists are studied across the phases to include cultural diversity, scientists through history and to challenge stereotypes.**
Retrieval		Retrieval of key information and knowledge is at the forefront of science teaching **and learning**. Each unit has a **linked** knowledge **web which identifies key vocabulary,** scientists, diagrams, images and key **information to remember, all carefully planned to support the learning questions within each lesson.** These are in **pupil's** books, on science working walls and referred to often throughout. At the beginning of each science lesson **and throughout the unit**, retrieval **activities are completed**. These could involve a whole-class quiz, individual quiz, hot-seating, card sort, cut up images, odd one out, amongst others.
Key Concept Threads		**It is essential that** each unit will cover at least three of the **Working Scientifically** criteria: Fair testing, Research, Pattern Seeking, Identifying and Classifying, Research. **In addition to this, key concept threads will run across the science curriculum, focusing on: Significant People/Achievements, Living Things (Biology), Physical Processes (Physics), Chemical Processes and Materials (Chemistry)**
Learning Questions		Science lessons **are focused around enquiry and** have learning questions rather than learning objectives. E.g. **LQ: Which conditions are best for a seed to grow?** instead of **LO: To understand which conditions are best for seeds to grow.** This enables the child to learn to be a life-long learner through questioning their learning and being able to explain their answers. We also encourage them to think of their own learning questions through our system of 'Lead Learners'.
Lead Learners		At the beginning of each lesson, three children are chosen to be lead learners. **Each Lead Learner focuses on one of the following:**: 1) ***Vocabulary:*** This person writes down any key or new vocabulary mentioned in the lesson. The other children can share their ideas with the lead learner. 2) ***Key questions:*** Any questions that may have arisen from the lesson. The answers are not given by the teacher as the children are required to investigate the question. The answer may be found within the lesson or at another stage. It could involve another investigation either at home or at school to enable them to come to conclusions. 3) ***Links to previous learning:*** Links to previous science lessons this year or in previous years. It could also link with other subjects such as Geography, RE, Maths etc.
Planning & Resources		**Planning and resources for Science are created and organised to match the needs of the school and its pupils.** The following sites are used to support: https://explorify.wellcome.ac.uk/ ; www.Twinkl.co.uk , https://www.ase.org.uk/ ; www.stem.org.uk; www.ogdentrust.com
SMSC		Spiritual, Moral, Social and Cultural education is embedded throughout the Science curriculum, with children exploring a range of concepts including Beliefs around evolution, Learning about themselves and the world around them, Respecting living things and their environment, Working together with a common aim and Impact of scientists around the world on our ideas and understanding.
Values		British Values linked to Gospel values are explored through the Science curriculum in many ways. e.g. Everybody having a role in working for the common good, Each part to play in investigations and having the chance to carry out all roles, Being able to freely discuss thoughts & ideas, Respecting opinions and Understanding of how people's personal beliefs may clash with scientific findings.

St John Rigby Science Curriculum Overview

Year	Unit Focus		
Year R	**Understanding the World**		**Expressive Art & Design**
	The World	Technology	Exploring Media & Materials
	Biology	**Chemistry**	**Physics**
Year 1	**Animals (including Humans)** – Identification and classification of common animals (e.g. amphibian, carnivore) & The human body and its senses **Plants** – Common plants & Basic plant structure	**Everyday Materials** – Properties of materials & Grouping materials	**Seasonal Changes** – The four seasons & Seasonal Weather
Year 2	**Plants** – Plant and seed growth, Plant Reproduction & Keeping Plants Healthy **Animals (including Humans)** – Animal reproduction, Healthy living & Basic needs for survival **Living Things in their Habitats** – Classification of things (living, dead or never lived), Habitats, Adaptations (Habit & basic needs) & Food chains	**Use of Everyday Materials** – Compare use of different materials, Suitability based on properties of materials & How materials can be changed (e.g. by squashing, twisting)	
Year 3	**Plants** – Plant Life, including Life cycle & Structure and Function of different parts of a flowering plant, including water transportation **Animals (including Humans)** – Skeletons and muscles, Nutrition & Exercise and Health	**Rocks** – Soil, Fossil formation & Compare and groups rocks based on their properties	**Light** – Reflections & Shadows **Forces & Magnets** – Different forces (how objects move) & Magnets (including attract & repel)
Year 4	**Animals (including Humans)** – Digestive system, Teeth & Food chains **Living Things in their Habitats** – Classification keys & Adaptation (Changes to an environment)	**States of Matter** – Solids, liquid and gases, Compare & group materials based on their state, Changing State & Water cycle	**Sound** – How sounds are made, Sound vibrations & Pitch and volume **Electricity** – Uses of electricity, Simple circuits and switches & Conductors and insulators.
Year 5	**Animals (including Humans)** – **Living Things in their Habitats** - Life Cycles of plants and animals (including reproduction) & Famous naturalists	**Properties & Change of Materials (Reversible & Irreversible Change)** – Compare properties of everyday materials, Soluble/dissolving & Reversible and irreversible change	**Earth & Space** – Movement of Earth and the planets, Phases of the moon, Night & Day **Forces** – Gravity, Friction, Forces & motion of mechanical devices
Year 6	**Animals (including Humans)** – The circulatory system, Water transportation & Impact of exercise on the body **Living Things in their Habitats** – Classification **Evolution & Inheritance** Identical/Non-identical off-spring, Fossil evidence and evolution & Adaptation & evolution		**Light** – How light travels, Reflection & Ray models of light **Electricity** – Electrical components, Simple circuits and diagrams & Fuses and voltages