Saint Joseph's Catholic Voluntary Academy

How we teach Science at Saint Joseph's

A Lesson Handbook: Guidance and Resources for Teaching Staff

Vision: Intention, Implementation, Impact

Intent:

- It is our intention to provide a high-quality Science education that gives pupils the foundations needed to recognise Science in all aspects of their life.
- Teachers ensure that pupils have high-quality teaching and can link their own experiences to our exciting curriculum.
- The pupils are enquiry-based learners and experience research, investigations and evaluating all aspects of Science.
- Pupils are exposed to a wide range of scientific vocabulary which supports their science knowledge and understanding.

Implementation:

- At St Joseph's, we follow the National Curriculum supported by key skills and knowledge progression, including a list of rich vocabulary to teach.
- Our Science curriculum involves deep thinking and encourages higher level questioning to be discussed.
- Our Science lessons are sequenced carefully to ensure pupils have an excellent knowledge of topics being taught and are able to use their knowledge to answer scientific questions.

Impact:

- A successful approach to teaching Science will result in pupils becoming enthusiastic and engaged as well as providing the foundations for understanding the world and all of the changes happening around them.
- Pupils will know more and remember more through explicitly planned retrieval activities as well as a consistent approach to assessment across the school.
- Pupils will make a connection to Science learning from KS1 and these links will allow pupils to have a greater understanding of new Science topics.

Medium Term Planning: Steps in books

We use an individually designed Science curriculum, including long term and medium term plans which helps us to structure the weekly lessons.

We have a Science sticky knowledge document which structures the knowledge taught in each topic. The key vocabulary is mapped out and works alongside the sticky knowledge document.

Due to having mixed-year classes, we have 2 cycles: Cycle A and Cycle B. These alternate each year to ensure full coverage in Key Stage 1 and Key Stage 2.

Cycle A	Advent 1	Advent 2	Spring 1	Spring 2	Pentecost 1	Pentecost 2
Y1/2	Animals including Humans	Seasonal Change	Plants		All Living Things	
Y3/4	Forces	Animals including Humans	Electricity		Materials	Rocks
Y5/6	Materials	Forces	All Living Things		Light	

Cycle B	Advent 1	Advent 2	Spring 1	Spring 2	Pentecost 1	Pentecost 2
Y1/2	Animals including Humans	Materials	All Living Things		Plants	
Y3/4	All Living Thing	Light	Animals including Humans		Plants	Sound
Y5/6	Earth & Space	Evolution & Inheritance	Animals including Humans		Electricity	

	Each topic has a knowledge organiser which has the key vocabulary taught, the sticky knowledge and key questions. • Key Stage 1 and Lower Key Stage 2 use this on working walls and refer to this when something new is taught or during space learning sessions. • Upper Key Stage 2 use this in books and annotate with key knowledge taught.
Lesson Approach **Weekly Planning** **Adapted Learning**	We teach Science for one hour every week. For each Science topic, we have teacher notes to provide support for teachers, as well as key questions that build the sequence of learning. **Why do animals choose the habitats they have?** **Teacher Notes:** • Before focusing on underground animals, animals that live on the ground and those that live in trees, look at this general internet link about habitats: • video of animals that live in trees KS1 - Yahoo Video Search Results • Now watch the internet link about animals that live underground: • video of animals that live underground KS1 - Yahoo Video Search Results • Follow this internet link up with another internet link which focuses on why animals live underground: • video of animals that live underground KS1 - Yahoo Video Search Results • Introduce the term 'subterranean animals' • Children should then complete the chart about animals that live underground. • Watch the following internet link which looks at animals that live in trees: • video of animals that live in trees KS1 - Yahoo Video Search Results • Finally focus on four animals that live on the ground: • These are tigers; elephants; giraffes and snakes. • Children will find out about where they can be found; how they survive; what do they eat and do they have any predators. **Which animals live underground, on the ground and in trees?** The teacher will take the medium term plan, the teacher notes, sticky knowledge document and key vocabulary and create their weekly plans, ensuring that it is meeting the needs of all children in the class. Each lesson starts with a revisit question from the previous session, followed by the key vocabulary focus for the lesson.
Prior Learning/Recap	To start the lesson, there should be a recap of prior learning. We have a spaced learning Long Term Plan which allows children to revisit prior learning and embed their understanding of topics from previous years, as well as taught in their current year.
Key Vocabulary	The vocabulary for each lesson is included in the Medium Term planning PowerPoints. We also have a key vocabulary document which maps out all of the vocabulary taught in each year group, across all topics in our Science curriculum. Key vocabulary is included on the weekly planning and is put up on the working wall so that it is visible for all pupils.

Assessment	**Assessment for learning** We use live marking as a way of assessment for learning. We highlight the correct use of key knowledge and vocabulary in green and any incorrect knowledge and vocabulary in yellow highlighter. Purple pen is used by pupils to correct mistakes. Teachers may use feedback and marking sheets instead of live marking. These will highlight successes, those who need post teaching/intervention and any whole class feedback that can be given next lesson. **Characterising Learners:** Working Towards: making a lot of mistakes, require a lot of teacher directed questions to develop their conceptual understanding. Expected: Meeting the minimum expectation for each lesson. Greater Depth: These learners should access planned opportunities to dig deeper in their learning.
How do we cater for all pupils?	**Differentiate the learning environment** For learners working towards: • Create a safe environment where children can make mistakes. • Allow them time to process. For learners working at greater depth: • Make the environment less safe through questioning: "Are you sure?" "Is that always true?" "How do you know?" • Challenge their thinking. **Support for learners 'working towards'** These pupils will not be in a position to complete the final task on their own. • Give adult support through the independent task, so that it becomes another model or guided activity. • Provide additional scaffold through questioning or resources. • Break the task down for them into smaller steps. • Model how to respond when we don't understand something. **Digging Deeper: Catering for all pupils, including those working at Greater Depth** Challenge should be present throughout each aspect of the lesson, ***not seen as something which comes at the <u>end</u> of the sequence.*** Challenge may be present through the task itself, how the teacher asks for the task to be completed, or by supplementary questioning Additionally, opportunities to dig deeper within the learning objective should be provided wherever relevant. These should be open to all, but only once a pupil has demonstrated a sound understanding of the essential teaching point.

Homework	Homework Science homework may be given as part of the end of term project, completed over half term.