

# St Joseph's Catholic Primary School

**Mater Christi Multi Academy Trust**

Loving, Living, Learning Together



At St. Joseph's Catholic Primary School, we believe that every child is a unique creation of God.

We promote respect and care for one another following in the footsteps of the family Jesus wants us to be.

Caring for one another is at the centre of our school life.

We promise to provide educational opportunities and experiences to enrich the learning and well-being of the children by following the teaching of Jesus Christ.

Our school values its partnership with the Parish community and MAT, together enabling our children to become rounded, confident individuals, with an understanding of Gospel values as preparation for the world of work and life.

## Science Policy

Written by:	Date reviewed:	Approved by:	Date for next review:
Nicole Dodd	February 2024		December 2024

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## 1. INTENT

### General Information

At St. Joseph's Catholic Primary School our vision is to give children a Science curriculum which enables them to acknowledge the relevance of the subject in the world and to make links to their everyday experiences within their locality. To achieve this, opportunities are given to create open-ended questions, investigate using a range of scientific skills and explore the possibilities, incorporate strong mathematical and literacy-based skills, as well as to learn about famous scientists and how their investigatory minds have shaped the world today and will continue to do so. We strive to celebrate the children's achievements when they use and apply their scientific knowledge and skills to answer a question or solve a problem. Our aim is to create engaging and interesting lessons for all, which are cross-curricular and build upon prior knowledge so that scientific language can be used confidently and in the correct context.

## 2. IMPLEMENTATION

### General Information

At St. Joseph's, the Science curriculum has been carefully mapped out so that links between other areas of the curriculum and the local area can be made, so that any knowledge learnt can be strengthened. We incorporate Science skills into most lessons and learn about a variety of scientists- past and present- who are linked to particular subject areas. Please see the Science medium term plans for more information. Science is taught weekly for at least 1 hour and there is a good standard of English and Maths within books. The school's marking policy is adhered to as normal within Science lessons.

## 3. Planning- previous learning, sequencing lessons and adaptive strategies

Before beginning a new topic, the children should be made aware of their previous learning e.g. plants in Y2, Y3 and plant lifecycles in Y5. To support finding out this prior knowledge, KS1 look at photographs linked to their unit and in KS2 a carousel activity is conducted. Then the children record what they think they know about the unit and what they would like to know. This helps find an accurate starting point for the children. Science starters may be used to recap knowledge from the previous year group- regardless of the link to the current unit. This keeps knowledge fresh for the children to make links.

The national curriculum for science aims to ensure that all pupils:

1. develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
2. develop understanding of the nature, processes and methods of science through **different types of science enquiries** that help them to answer scientific questions about the world around them

3. are equipped with the scientific knowledge required to understand the **uses and implications of science**, today and for the future. (This makes it meaningful).

Therefore, our medium-term plans ensure that the sequence of lessons includes all three of these aspects. Lessons gradually progress by building upon prior knowledge and skills. Science skills are integrated into each lesson wherever possible and so are links to the locality and everyday experiences. The skills should be used in order to find out the knowledge e.g. observe what happens between different poles on a magnet to know when they attract and when they repel.

To support the use and correct spelling of scientific vocabulary, relevant vocabulary is placed on science displays and on knowledge organisers in the form of a glossary that will be completed by each child in their own words or with the use of drawings. Incorrect scientific spellings are underlined and corrected, which supports the school's marking policy.

A range of adaptive teaching strategies are used during lessons to ensure all children, regardless of need, can achieve the objectives. Some examples include: addressing misconceptions, making vocabulary visual, questioning to assess understanding, peer support and scaffolds.

## 4. Inclusion

All children will be given equal learning opportunities irrespective of race, gender and learning ability. Science forms part of the School Curriculum Policy to provide a broad and balanced education for all children. Children with special educational needs, including the AGT, will be catered for by differentiation and adaptive teaching strategies, which will allow accessibility for all abilities of children. Some examples include: addressing misconceptions, making vocabulary visual, questioning to assess understanding, peer support and scaffolds. Teachers will ensure that both boys and girls are treated equally in a subject which traditionally has had a male bias.

For all children, especially EAL children, particular attention will be paid to the language of Science, including technical vocabulary, which unless well-developed can be detrimental to the whole process of understanding. Specific vocabulary should be displayed (on knowledge organisers and displays) and discussed with the children throughout a topic.

## 5. Scientific enquiry

There are 5 main types of enquiry:

1. Observation over time
2. Pattern seeking
3. Research
4. Comparative/ fair testing (continuous data)
5. Identifying, grouping and classifying

Each year group teaches each scientific enquiry at their own level and over numerous times throughout the year (see medium-term plans). Within each type of enquiry there are different skills that also need to be taught e.g. asking questions, recording data etc.

## 6. Contribution of the subject to developing other curriculum areas

The practical nature of Scientific Enquiry lends itself to developing a range of skills in other curricular areas:

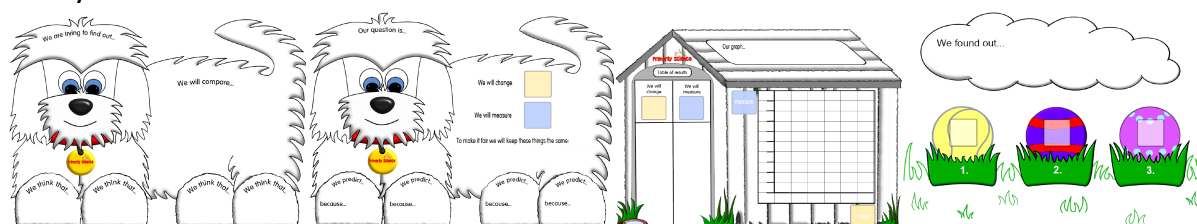
- Mathematical skills such as measuring, recording and data handling.
- Children use a range of Literacy skills including: reading for research and writing for conclusions.
- Art skills are encouraged as children draw their observations.
- Teaching a healthy lifestyle (including SRE and Drug Education) is a part of P.S.H.C.E. and Science. See SRE policy and Drug policy for more information.
- I.C.T. skills are used for recording, handling data, research and observations.

Our medium-term plans have been meticulously designed so that there are strong cross-curricular links with other subjects. Mathematical and literacy skills are taught to a high standard continuously throughout science.

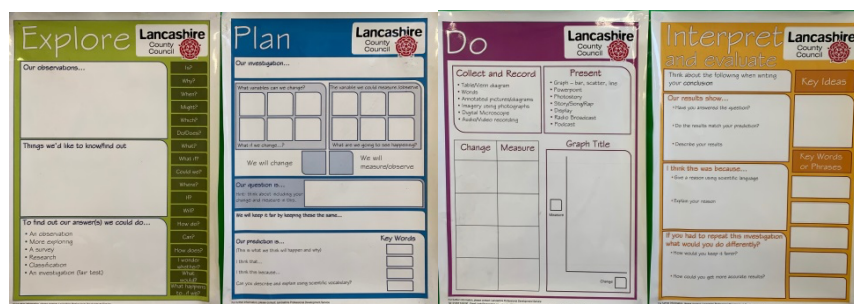
## 7. Investigations

When conducting a comparative or fair test investigation, planning sheets are used: Discovery dog for EYFS and KS1; and the Post-it note system for KS2. The investigations should be child-led wherever possible.

### EYFS/ KS1



## KS2



The whole process is recorded in floor books and completed every time with the children- verbally or written. Only one area is recorded within science books to evidence the focused skill.

To begin with, the teacher models the sheets and the process for an investigation. Then, in groups they begin to complete a section of the investigation together e.g. make a prediction or draw conclusions. Once the children are more confident, they begin to select a range of resources/ equipment to use. By the end of year 6, they should be able to plan and conduct their own investigation. This requires the investigation sheets to be embedded into each year group.

Training will be given to new staff, by the science subject leader, on how to use the investigation sheets.

## 8. Misconceptions

Misconceptions must be corrected via written or verbal feedback. The child may be given a next step to correct their misconception or to check their understanding now the misconception has been addressed. The misconception could be information or the incorrect use of vocabulary e.g. the magnets hold paperclips → the magnet attracts paperclips.

## 9. Next steps and challenges

Next steps are used to correct misconceptions and further learning, especially after an investigation. Sometimes challenges are used as next steps or incorporated into lessons where possible. Some examples of challenges we use at St. Joseph's are: What if...?, Big questions, Odd one out, PMI (Plus, Minus, Interesting point), Explorify and KS2 sampling questions.

## 10. Visitors and educational visits

Each year group organises at least one science related educational visit per year. In addition, it is the responsibility of the science subject leader to invite visitors into school to support the learning of science throughout the year for

all year groups, where possible. This could be a person who uses science as part of their career or an external agency, who leads science-related activities e.g. a STEM ambassador. Additionally, parents/ carers are invited to attend science lessons and activities during science week to promote the importance of science.

## 11. Displays

Classroom displays follow the school's display policy and the following should be included: title, knowledge and skills vocabulary, investigation posters, scientist of the week certificate and of the unit poster, images, children's learning and at least one book linked to the unit for the children to read at their leisure.

The hall science display should showcase one example of a science skill. This may be specific to show progression of the skills. The subject leader will ask for one example at least once a term.

## 12. Scientist of the week/ unit

After every lesson, one child is chosen to be scientist of the week for the skill focussed upon. The Scientist of the week is then awarded a certificate during the Friday celebration assembly and this is put on the newsletter. The following lesson they are able to wear a laboratory coat, which shows who the scientist of the week was.

The Scientist(s) of the unit should display a photograph and/ or name of the relevant scientists (see long term overview) for each unit so that they can make links to the importance of science in their lives.

## 13. IMPACT Assessment

Adaptive teaching strategies are used throughout lessons to assess a child's learning and inform future planning. A teacher's assessment includes observations, questioning, books and a focused assessment task for working scientifically.

Arbor is used throughout school, including EYFS, to assess Science termly against the National Curriculum objectives. This follows the children throughout school to support the next teacher and go towards the KS1 and KS2 frameworks for science.

## 14. Evidence of children's work

Floor books are used to record group work, practical activities, investigations, questions, ideas and show progression. It should showcase examples of children's learning, irrespective of their needs and abilities. When an investigation is conducted, the whole enquiry is documented in the floor book but the individual skill e.g. predicting or conclusions is recorded in the children's books. Work in the floor books should have the long date and a title. These books are used for scientific evidence and are moderated by the Science leader.

The Science hall display showcases one example of a science skill. This may be specific to show progression of the skills. The subject leader will ask for one example at least once a term.

## 15. Monitoring

The Science Leader will monitor learning environments and conduct a pupil conferencing at least once a year and monitor books and assess data once a term. The Science action plan will be updated regularly and RAG rated each term to check progress. The website will be kept up-to-date with Science activities happening within school, as well as science related educational visits and learning. The Science leader will share good practice and will moderate work alongside colleagues at least once a term, during staff meetings.

## 16. Resources

Resources are stored centrally on the Science shelves which are situated in 'the hive'. Excess resources can also be found in the Year 2 cupboard. Resources are separated into units, where appropriate. In addition, there is an extensive range of books relating to Science in the library. **Teachers should ensure that all resources are collected in advance of lessons and returned promptly.**

In the event of breakages, loss or need for renewal of any resource, please make a note of it, and pass on to the science leader. Also pass on any resource requests, with the topic it will be used for, and what key stage. There will be a recording sheet to document all resources needed.

KS1 will use Discovery Dog whilst KS2 will use the Post-It note format to plan, conduct and review a fair test. If another copy is required, they will be accessible from the server or from the resource cupboards.