



Eppleby Forcett and Middleton Tyas (EFMT)

Proud to be a Church of England Academies

Though it is the smallest of all seeds, yet when it grows, it is the biggest of all plants and becomes a tree, so that the birds come and make their nests in its branches.

(Matthew 13 vs. 31-32)

Science Procedure

Intent:

Our school vision drives our entire curriculum. We provide a safe place of learning - a happy sanctuary for children where EVERY unique individual will be nurtured to grow and flourish to achieve their full potential with confidence the intent of our Science teaching stems from the whole school curriculum intent to build on prior learning and reflect children's interests. We aim to make the children curious, independent, ambitious and appreciative learners, inspiring and nurturing each unique individual to achieve their full potential by encouraging and supporting them to explore the world around them as part of our, 'Roots to grow, wings to fly,' school aim.

Science teaches an understanding of natural phenomena and an appreciation of what is around us. It aims to stimulate a child's curiosity in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to stimulate ambitious, creative thought. Children learn to ask scientific questions and begin to appreciate the way science will affect their future.

The aims of Science lessons are to enable children to:

- ask and answer scientific questions.
- plan and carry out scientific investigations
- to acquire scientific knowledge and master scientific vocabulary
- to evaluate, evidence and present their results clearly and accurately.

Implementation

At Eppleby Forcett and Middleton Tyas, Science topics are taught within each year group in accordance with the National Curriculum. This curriculum is based on progression, where children can see Science in relation to real life. Cross-curricular science should still ensure coverage is achieved at the appropriate year.

- Topics are blocked to allow children to focus on developing their knowledge and skills, studying each topic in depth.
- Every year group will build upon the learning from prior year groups therefore developing depth of understanding and progression of skills.
- Teachers promote enjoyment and foster interest of the scientific disciplines; Biology, Chemistry and Physics.
- Children explore, question, predict, plan, carry out investigations and observations as well as conclude their findings.
- In order to support children in their ability to 'know more and remember more' there are regular opportunities to review the learning taken place in previous topics as well as previous lessons.

- At the start of each topic children will review previous learning and will have the opportunity to share what they already know about a current topic.
- To support teaching, teachers access a range of resources and planning from the PZAZ scheme of learning.
- Effective use of education visits and visitors are planned, to enrich and enhance the pupil's learning experiences within the Science curriculum such as links with Cummins who provide their successful Lego racers day and Croft Circuit experience.
- Effective modelling by teachers ensures that children are able to achieve their learning intention, with misconceptions addressed within it.
- Teachers use precise questioning in class to test conceptual knowledge and skills and children are regularly assessed to identify those children with gaps in learning, so that all children can access the curriculum.
- Cross-curricular links are planned for, with other subjects such as Maths, English and Computing.

Learning science is concerned with increasing pupils' knowledge of our world, and with developing skills associated with science as a process of enquiry. Our science curriculum develops the natural curiosity of each child no matter their demographic, encourages them to have respect for living organisms, and instil in pupils the importance of caring for the natural environment. We ensure all children (including our more able) are challenged with their learning and consider the scientific opportunities in the wider world.

Assessment is through summative and formative strategies. Children will have a knowledge mat at the start of their current topic in their books. Each child will complete a pre- and post-unit assessment from the PZAZ scheme of work. Our approach is to scaffold pupil's learning through a cycle of opportunities via a variety of learning styles including, 'Flashback,' experiments and research based tasks which also ensures opportunities to target any gaps and ensure all children (include our more able) are challenged with their learning.

The Early Years Foundation Stage Curriculum supports children's understanding of Science through the planning and teaching of 'Understanding the World.' Children find out about objects, materials and living things using all of their senses by looking at similarities, differences, patterns and change. Children are encouraged to be curious, to ask questions about why things happen and how things work as well as observing an understanding the effect of the changing seasons. Our children enjoy spending time outdoors so that they have a hands-on experience of the natural world around them, interacting with natural processes and learning new vocabulary to help them describe and recognise specific features of the world. Science is a core subject and must be taught weekly. In addition to that, science days are organised to further embed scientific enquiry and a love of science and cross curricular teaching opportunities are highly recommended across all year groups.

We use a variety of teaching and learning styles in science lessons based upon the PZAZ scheme of learning and welcoming ideas from the breadth of our teachers knowledge. We encourage children to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures, and photographs. They use ICT in science lessons where it enhances their learning and Scientific enquiry and reasoning can appear in any lesson across the curriculum.

We achieve this in a variety of ways by:

- Setting common tasks which are open-ended and can have a variety of responses.
- Providing visual support or practical resources to allow children to complete the same or similar activity independently.

- Asking differentiated levels of questions on what they are doing/finding out/have found out and challenging them to use accurate scientific vocabulary.
- Grouping children into mixed ability groups so that children can learn from each other's strengths.
- Providing resources of different complexity, matched to the ability of the child.
- Using classroom assistants to support the work of individual children or groups of children.
- Providing a variety of resources, some useful and some not necessarily needed for an experiment, so that children can explore and investigate in a productive manner.

Where appropriate, educational visits may be organised to enhance the teaching and learning in Science. Specialist Science workshops or experts in Science will be invited into school to offer enriching opportunities when appropriate. It is the teacher's responsibility to carry out necessary risk assessments and health and safety checks.

Impact:

Children's progress will be moderated by the teachers and the Science Subject Leader. Teacher questioning, discussion and observation can all form evidence to document progress on Insight. Evidence should also be taken from books. Evidence of learning will be demonstrated in pupil books including photographs, investigations and written up observations. Evidence of class learning may be demonstrated in the Class, 'Big Book,' to evidence learning around a particular objective.

The work of the science subject leader involves supporting colleagues in the teaching of science, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. Progress in Science will be tracked termly using Insight. Book scrutiny and evidence of differentiated and cross curricular teaching will be collected and shown in the subject leader's folder or on class displays. An annual summary of science is made, in which strengths and weaknesses in the subject are evaluated.

We, at Trinity Academy, view equal opportunities in the widest possible sense as embracing the well-being, contribution and development of all members of the school community irrespective of gender, race, religion, ability, disability, age or socio-economic group. Special care should be taken when planning work so that racial ethics are given consideration, especially in work connected with the human body and food. Science topics, where possible, incorporate multi-cultural themes.

At Eppleby Forcett and Middleton Tyas, we ensure that the children are taught to respect and protect our environment through reducing, recycling and reusing resources.

Appendix:

Non- negotiables:

Science 'Working Wall'	<ul style="list-style-type: none">• Work/visual aids linked to current unit to be displayed to support understanding.• Vocabulary posters to be displayed for the current unit- see PZAZ as these have words and definitions.• Working Wall/Visual Aids to be used in lessons (where appropriate) as part of teaching and learning.
Vocabulary	<ul style="list-style-type: none">• Vocabulary posters to be displayed- see PZAZ as these have words and definitions.
Presentation	<ul style="list-style-type: none">• High expectations for presentation of work.• Scientific enquiry type identified (more info to follow)• Presentation of experiment and findings- use PZAZ to support framework for findings.
Learning Objective/Question	<ul style="list-style-type: none">• Title for the lesson.• Where deemed beneficial- Learning objectives/ success criteria can be printed from PZAZ for some of the lessons. See resources section for each unit of work.
Mental and Oral Starter	<ul style="list-style-type: none">• Questions based on prior knowledge (opportunity to continually revisit challenging concepts).
Main Teacher Input	<ul style="list-style-type: none">• Scientific enquiry approach identified at the start of the lesson where applicable. (more info to follow)• Teacher modelling of concepts/skills (main teaching input).• Use of AFL/'Live Marking' to identify those who need support/challenge.• Differentiated tasks where appropriate.• Use PZAZ resources to support structure of lessons. Resource boxes available in staffroom cupboard.
Activities	<ul style="list-style-type: none">• Hands on learning where possible to really engage learners.• PZAZ is a great starting point for ideas.• Resource boxes in staff room for each unit.• Record using photographs in individual books and big books.
Assessment	<ul style="list-style-type: none">• Knowledge organisers at the start of each new unit. (From PZAZ)• EYFS Mind map of their initial ideas in big book- can be added to with Knowledge and Understanding of the world concepts.• Pre and post unit assessment used to improve children's learning (From PZAZ.)• Note scores to ensure progress and use to inform Insight.• Update Insight after a unit has been taught.• Intervention time used to support those with specific gaps or used as pre-learning for future lessons. (Use Insight to support)