



FULFEN
Primary School

Leading the way
to a brighter future

Love of Learning... Encouraging... Adaptable... Determination...

Science Policy

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Curriculum Aims

The 2014 national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- 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
- are equipped with the scientific skills required to understand the uses and implications of science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this

At Fulfen, we realise the importance of fostering a sense of excitement and curiosity about the universe and our role within it. Children gain a wide range of experiences through exploration, discovery and collaboration. Our science curriculum builds key knowledge and concepts whilst encouraging children to develop their scientific enquiry skills.

“Tell me and I’ll forget; show me and I may remember; involve me and I’ll understand.”
Benjamin Franklin

We believe that our inquisitive and analytical scientists will acquire the skills to have:

- The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings.
- Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations.
- Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings.
- High levels of originality, imagination or innovation in the application of skills.
- The ability to undertake practical work in a variety of contexts, including fieldwork.
- A passion for science and its application in past, present and future technologies.

Curriculum Organisation and Planning

Our school curriculum map is carefully designed using the Chris Quigley scheme for science and meets all objectives set out in the National Curriculum for science and the EYFS Framework. The KS1 science curriculum builds on the children’s prior knowledge they gain from ‘Understanding the World’ in Early Years. At Fulfen, children also have the opportunity to expand their scientific knowledge and understanding through our ‘Fulfen Science Week’. During science lessons, children are exposed to specific science skills, making links to ‘Working scientifically’ and ‘Scientific enquiry’ categories. The science skills categories are:



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- Asking & Answering Questions
- Observing
- Planning
- Identifying & Classifying
- Equipment & Measuring
- Recording & Reporting
- Analysing Data
- Drawing Conclusions
- Predicting
- Evaluating

These skills categories are referred to and displayed during each lesson so that children are aware of the science skill they are working on at any time. As these are used across Years 1 to 6, children begin to make important scientific connections throughout their units of work.

The Chris Quigley Scheme

All lessons follow a clear structure which are mapped out on medium term plans, using the planning template available on the OneDrive. Science lessons follow this format:

- Sticky starter (Recap of learning from their current unit, previous units from the year group and previous learning from other year groups to ensure that knowledge sticks)
- Teacher input/Practical Investigation or Exploration
- Record findings or learning in books or on iPads (there should be a minimum of 3 pieces of written work per unit and Seesaw to be used to evidence work where appropriate)
- Big Picture Moment! (This makes reference to potential job opportunities or practical uses of the learning they have just gained, and therefore increases children's science capital)
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By following the Chris Quigley science scheme of learning, teachers can plan and adapt their science teaching to allow for 'basic' knowledge to be acquired but to also stretch children by diving into 'advancing' and 'deepening' elements of the unit of work. This allows for teachers to both support and challenge children during science lessons.

Once teachers have mapped out their science unit on their medium term planning document, they produce a knowledge organiser to match the objectives that will be covered. The knowledge organisers focus on the key learning that will take place, the vocabulary that will be used and the scientists they will refer to or study during the unit. These knowledge organisers are placed into science books at the beginning of the unit and are sent to parents via Seesaw for the children to use throughout the unit and teachers display the knowledge organiser on screen during every lesson.

Science lessons at Fulfen provide children with opportunities to embed their learning from a range of other subjects. Science allows children to practise maths skills, such as statistics by



recording data in charts and graphs. Children consolidate their reading and writing skills when discovering new information and drawing conclusions about scientific concepts.

All science resources are stored with the science subject lead so that resources can be carefully and regularly monitored.

Where appropriate, teachers organise science visits or for visitors to come into school to inspire children and create a 'buzz' for science.

Use of Technology

iPads are used in lessons as a tool to assist with learning and to make tasks more efficient or more effective. Pupils can creatively apply what they have learnt to enable them to know and remember more as well as develop critical thinking and creative skills. Technology is used to capture pupils' imagination; support learning by removing the cognitive load; deepen understanding or scaffold learning within a lesson. Technology is used in science to:

- Complete sorting or matching activities
- Annotate and highlight information
- Take photographs and label
- Collating ideas
- Recording verbal responses to tasks
- Videoing practical investigations
- Creating digital outcomes (E.g. narrating over a video, explaining a process, animating)
- Assist children with additional needs

Assessment and Feedback

Assessment

Teachers use 'Assessment for Learning' at all times during science lessons to address misconceptions that arise, further consolidate learning and challenge children further. Children's science understanding is assessed at the beginning of a science unit by completing a 'Start of Unit Assessment'. In KS1, this may be a collective mind map in which a whole class discussion has taken place and ideas are recorded by the teacher. In KS2, this may be a mind map that the children create themselves but a collective or 1:1 mind map will be created for children where necessary. This assessment gives teachers a fantastic starting point as they will gauge how much the children already know about the subject and can adapt their planning where appropriate to enhance learning. When the unit is complete, teachers and children then complete an 'End of Unit Assessment' in the same way as the 'Start of Unit Assessment'. By doing this, it is evident that children have made progress in their understanding of science and are more confident in using scientific vocabulary to express this increased understanding. These assessments are evidenced in children's books.




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Statutory assessment within science requires teachers to assess the children at the end of Key Stage 1 and Key Stage 2. Year 2 and Year 6 teachers will use the 'Teacher Assessment Framework' to make a judgement as to whether children are working at the expected level, or are not working at the expected level in science. Teachers will use the evidence they have accumulated within the final year in that key stage and will reflect upon assessments made throughout the key stage to inform their decision.

Feedback

Feedback is given to pupils in order to further their learning and improve their thinking. Our regular, timely feedback has an impact on pupils' future performance and gives children the responsibility for improving their own work. Some of the ways in which pupils receive feedback:

- Live marking;
- Verbal comments and questions;
- The use of marking codes against written work;
- Up to three misspellings of age-related words and homophones are indicated by the teacher for children to correct;
- Next steps stickers to move the learning on, which pupils respond to in pencil;
- Comments left on Seesaw to move learning on , which are responded to with a comment from the pupil;

Monitoring and Evaluation

The Senior Leadership Team and Science Lead manage a programme of monitoring and evaluation of the teaching and learning in the school through:

- implementing of a monitoring cycle
- monitoring of planning
- book looks / Seesaw monitoring
- learning walks

Our science curriculum is also regularly reviewed for effectiveness by class teachers to see if children have learnt what was intended. For example, if an end of unit test showed that children had a misconception about life cycles of animals then they would modify the way in which that concept would be taught for the next cohort of children. This results in us constantly adapting to improve our curriculum to ensure it evolves and keep it ambitious.

Roles and Responsibilities

Governing Board

The governing board will monitor the effectiveness of this policy and hold the headteacher to account for its implementation.



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The governing board will also ensure that:

- A robust framework is in place for setting curriculum priorities and aspirational targets
- Enough teaching time is provided for pupils to cover the National Curriculum and other statutory requirements
- Proper provision is made for pupils with different abilities and needs, including children with special educational needs (SEN)
- The school implements the relevant statutory assessment arrangements
- It participates actively in decision-making about the breadth and balance of the curriculum
- It fulfils its role in processes to disapply pupils from all or part of the National Curriculum, where appropriate, and in any subsequent appeals

Headteacher

The headteacher is responsible for ensuring that this policy is adhered to, and that:

- All required elements of the curriculum, and those subjects which the school chooses to offer, have aims and objectives which reflect the aims of the school and indicate how the needs of individual pupils will be met
- The amount of time provided for teaching the required elements of the curriculum is adequate and is reviewed by the governing board
- Where appropriate, the individual needs of some pupils are met by permanent or temporary disapplication from all or part of the National Curriculum
- They manage requests to withdraw children from curriculum subjects, where appropriate
- The school's procedures for assessment meet all legal requirements
- The governing board is fully involved in decision-making processes that relate to the breadth and balance of the curriculum
- The governing board is advised on whole-school targets in order to make informed decisions
- Proper provision is in place for pupils with different abilities and needs, including children with SEN

Subject Lead

The role of the Science lead is to:

- Improve the quality of teaching and learning in science throughout the school; from EYFS to Year 6. This will be achieved by consistently monitoring the subject and participating in regular CPD and research tasks. Monitoring the subject will involve:



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- Pupil conversations/conferencing regarding areas of science
- Organising and analysing resources
- Analysing end of key stage data
- Observing teaching and learning from Early Years to Year 6
- Leading staff meetings to deliver curriculum updates for science
- Monitoring children's work in both books and on seesaw and checking that marking is in line with school policy
- Meeting regularly with SLT to reflect on the strength and weaknesses within the subject
- Use time effectively, to manage and make improvements to the delivery of science at Fulfen

Other Staff

Other staff will ensure that the school curriculum is implemented in accordance with this policy.

Scaffold and Challenge

Teachers set high expectations for all pupils. They will use appropriate assessment to set ambitious targets and plan challenging work for all groups, including:

- More able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds
- Pupils with SEN
- Pupils with English as an additional language (EAL)

Teachers will plan lessons so that pupils with SEN and/or disabilities are scaffolded in order that they can study science wherever possible and ensure that there are no barriers to every pupil achieving.

Teachers will also take account of the needs of pupils whose first language is not English. Lessons will be planned so that teaching opportunities help pupils to develop their English, and to support pupils to take part in all subjects.

Further information can be found in our statement of equality information and objectives, and in our SEN policy and information report.

In planning work, the teachers will aim:

- To provide breadth and balance of activities for all children;
- To provide a differentiated science curriculum to meet the needs of all the children through the continuity of experiences;



- To set suitable learning challenges for individuals or small groups of children where necessary;
- To respond to pupils' diverse learning needs;
- To liaise with the SENCo to ensure that provision is made for all children with SEND;
- To relate activities for SEND children to their Personal Learning Plan targets;
- To overcome potential barriers to learning and assessment for individuals and groups of pupils;
- To provide scaffolding for pupils where necessary.

Spoken Language

The national curriculum for science reflects the importance of spoken language in pupil's development across the whole curriculum - cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and presenting scientific justification, argument or proof/their ideas. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion and carefully tailored questions to probe and remedy any misconceptions.

British Values & Culture

British Values

Our school reflects the British values in all that we do. We aim to support our children throughout their primary school journey so they can develop into safe and caring individuals who will become democratic, responsible and tolerant adults who will make a positive difference to the society they live in. Some of the ways in which British values are embedded within science are:

Democracy:

- Take the views of other into account
- Take turns and instructions from others

The Rule of Law:

- Understand the importance of safety rules when working scientifically
- Know that there are consequences in the rules not being followed

Individual Liberty:

- Making their own choices when planning investigations
- Sharing different points of view
- Devising own ways to present information and findings



Tolerance:

- Learning about worldwide scientific discoveries
- Show understanding when discussions arise concerning religious and scientific beliefs

Mutual Respect:

- Working collaboratively
- Discussing findings with others
- Being encouraging towards others (one of our key LEAD values)

Culture & Diversity

Cultures are embraced in Science at Fulfen, as we study a range of scientists from a variety of cultural backgrounds. Here at Fulfen, we avoid stereotypical views of scientists by introducing children to scientists such as: Jane Goodall, David Attenborough, Carl Linnaeus, Charles Darwin, Brian Cox, Beatrix Potter, Jagadish Chandra Bose, Thomas Edison, Isaac Newton, and many more! By doing this, we are teaching the children that scientists can be from different backgrounds but still achieve incredible things

This policy links to the following policies and procedures:

- EYFS Policy
- SEND Policy
- Health and Safety Policy
- Equality Information and Objectives

Legislation and Guidance

This policy reflects the requirements of the [National Curriculum programmes of study](#), which all maintained schools in England must teach.

It also reflects requirements for inclusion and equality as set out in the [Special Educational Needs and Disability Code of Practice 2014](#) and [Equality Act 2010](#), and refers to curriculum-related expectations of governing boards set out in the Department for Education's [Governance Handbook](#).

