



Science Policy



Reviewed: January 2019

RATIONALE

All pupils should be taught **essential aspects of the knowledge, methods and uses of science**. Through building up a body of **key foundational knowledge and concepts**, they should be encouraged to recognise the power of **rational explanation** and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how key foundational knowledge and concepts can be used for **explanation** of what is occurring, **prediction** of how things will behave, and **analysis** of causes. This foundational understanding should be consolidated through appreciation of specific applications in society and the economy.

AIMS

- To develop pupils' **enjoyment and interest** in science.
- To develop pupils' understanding of **key scientific concepts and scientific skills**.
- To enable pupils to effectively communicate scientific ideas by using **scientific vocabulary** through being challenged and thinking deeper.
- To develop **positive attitudes to science** which encourage collaborative learning and perseverance
- To develop pupils' awareness of how science influences and affects our everyday lives and therefore the **relevance** of their learning.
- To develop children's understanding of jobs that use scientific skills, using well-known scientists, visitors and inspirational ambassadors (including all genders and race).

THE SCIENCE CURRICULUM

Foundation Stage

- Science is taught in the Reception classes according to the Curriculum guidance for the Foundation Stage. It is incorporated in the **Early Learning Goal 'Knowledge and Understanding of the World'** in which pupils develop the crucial knowledge, skills and understanding that helps them make sense of their world.

Key Stages 1 and 2

- The knowledge and skills within The National Curriculum Programme of Study (2014) are met using **The Kent Scheme of Work for Primary Science** and appropriate cross curricular opportunities. (Appendix)
- Each year group will cover units of work as shown in our **Science Long Term Plan**. (Appendix)
- **Lesson plans** will identify the intended learning of both skills and knowledge. They will also take into account: how to engage the children in the lesson including deeper thinking and challenge for all children, resources required, how children will be organised, how the children will record, differentiation, use of ICT to support learning, particular vocabulary, and use of other adults.
- Links to other areas of the curriculum that enhance their understanding of science are identified and incorporated into planning.

APPROACHES TO TEACHING & LEARNING

Science is taught with an emphasis on the pupils engaging in **practical enquiry** to support/develop their understanding of **scientific concepts and skills**. Teachers use a range of strategies including: **exploration, drama, investigative enquiry, singing, ICT and illustrative enquiry**. Teachers ensure that some of the children's ideas are used as a basis for enquiry and challenged through deeper thinking.

Teachers will plan engaging scientific activities that will also:

- Encourage **collaborative learning** amongst the children
- Encourage independent learning, perseverance and responsibility
- Encourage children to explore, perform investigative practical work and solve problems through challenge and deeper thinking
- Encourage the use of scientific vocabulary
- Encourage children to ask and answer their own questions

Careful **planning and assessment** will enable children to progress **without repetition** of activities or content.

Pupils will be encouraged to develop the skills of:

Exploring and observing at first hand using all their senses.	Communicating scientific ideas orally, in writing and diagrammatically
Raising questions	Collecting data
Planning investigations	Interpreting scientific data
Predicting	Fair testing
Formulating hypotheses	Explain using scientific knowledge
Problem solving	Explaining and using scientific term
Evaluating	Sorting and ordering
Estimating	Drawing conclusions
Accurate measuring	Challenge/ deeper thinking questions

Differentiation, where appropriate, will allow all children to progress in their learning. Children will be encouraged to **record** in a range of ways. Teachers will carefully identify the reasons for a particular method of recording. Children will record independently when appropriate.

ICT

Pupils are taught to use a range of **ICT equipment** to enhance their scientific learning. E.g. 'Digi blu' cameras or ipads to record investigations, data loggers for accurate measurements of temperature and digital microscopes for close observation.

Programmes such as Excel are used to create graphs and charts to record results. iPads are used, in year groups where available, to support and enhance learning activities.

MONITORING OF ACHIEVEMENT AND ATTAINMENT

Teachers are required to develop a **breadth of evidence** relating to children's achievements. These could include: the children's science book, science class big book used by groups or the class, notes and assessment sheets used by the teacher, and electronic examples of children's learning (e.g. video, graphs, their own concept cartoons, etc). This information is used to inform Teaching and Learning.

- **Summative assessments** are made by class teachers at the end of each session taught, in line with assessment guidance provided by Kent. At the end of each term, teachers mark progress against the National Curriculum (2014) statements. This is uploaded on Target Tracker for individual pupil assessment. These assessments will be used to offer further challenge or support as required.
- Teaching staff will meet in order to **moderate their judgements**. Teachers will use their breadth of evidence to discuss reasons for awarding levels to children.
- The TLAs and Science Executive Leader track children's progress over time using Target Tracker assessments. They will identify any larger issues of science progress that need addressing within schools, with the support of the Executive Head and Lead Practitioner.
- **Marking** should include positively phrased comments, including successes and next steps. Developmental marking strategies should be used in line with the Trust marking policy.
- An update of science attainment is provided annually to parents on the end of year report.
- The science leader will perform **children conferences** throughout the year to assist the other teachers with making summative judgements, as well identify aspects of the children's learning that require developing.
- The science leader will analyse **end of Key Stage data**, and will use this to inform the other teachers as to how the children in the school are progressing from year to year.

MONITORING AND SUPPORTING THE DEVELOPMENT OF TEACHING AND LEARNING OF SCIENCE

- Each term the Headteachers will develop and undertake a **monitoring schedule**. This will include **work and planning scrutiny, professional dialogue with teachers, assessment monitoring, children conferencing and lesson observations**. The Headteachers will inform the science leader of the outcomes of their monitoring and monitoring will be used to identify areas of strength and where learning can be better developed in the future.
- Each year the science leader will check that every class has covered the aspects of science as indicated in the **long term plan**.
- The science leader will monitor the use of **science resources** (things, people, places and spaces, including appropriate use of ICT) throughout the year.
- The science leader, with support from all other staff, will ensure that there are adequate amounts of **resources**, and that all of these are stored in a manner that makes them easily accessible to all.
- The science leader will maintain a record of **wider opportunities** that have been provided for the children.
- The science leader will support colleagues with identifying ways to **enrich the coverage** of the science learning. This could include visits, visitors and competitions.
- Information from monitoring will be shared with staff and a report made to the governing body.

RESOURCES

- Class teachers are responsible for informing the Science Leader of **resources which are required** in order to deliver their planned topic.
- Resources are shared across the Trust.
- Information books on science topics are available in the school library and a range of non-fiction texts relating to science topics are available in classrooms and as part of the guided reading resources within the school.
- The **whole school environment** is used to maximum potential in order to support delivery of the science curriculum.
- School visits and extra-curricular activities are planned regularly to enhance learning and help the pupils to relate scientific enquiry to the real world.
- The **outside environment** is used to supplement artificial resources wherever possible.

HEALTH AND SAFETY

- The safe use of equipment and materials is promoted at all times. The Association for Science Education document '**Be safe**' has been adopted by the school as a realistic guide to primary school Health and Safety.
- All offsite visits or activities will require a risk assessment to be completed.
- **CLEAPSS** will be contacted by teachers should they have a query concerning health and safety.
- All accidents and incidents are reported to the Headteacher.
- Teachers are responsible to ensure any investigations carried are done so in a safe way for the protection of their class

ADDITIONAL EDUCATIONAL NEEDS

- The study of science is planned and differentiated to provide pupils with a suitable range of activities and support **appropriate to their abilities and needs**.
- Curriculum planning ensures that all pupils have an **equal opportunity** to take part in every aspect of the science curriculum.
- **Gender, disability and cultural differences** are reflected positively in the school.
- Provision will be made for all children by moving through the use of more challenging problems and investigations moving towards 'greater depth'

THE ROLE OF THE SUBJECT LEADER

- To undertake **monitoring** of standards in science and use this to inform the science action plan.
- Provide **leadership and management** of their subject to secure high quality teaching and learning.
- Play a key role in **motivating, supporting and modelling good practice** for all staff, including the organisation and presentations to staff for training.
- Take a lead in **policy** development and review
- To liaise with **outside agencies** and attend subject specific courses.
- To report to the Head teacher and Governing Body on science related issues.
- To plan and organise the allocation and purchase of resources in accordance with available budget.

POLICY REVIEW

The Board of Directors reviews and approves this policy every two years. It may, however, review this policy earlier than this if the government produces new regulations, or if it receives recommendations on how this policy might be improved.

This policy will be reviewed January 2021.