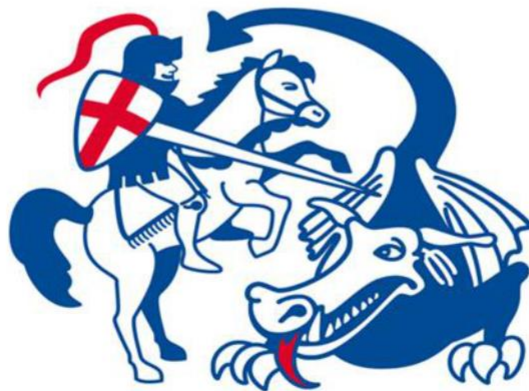


Science

Reviewed on: September 2021
To be reviewed: September 2022

St George's CEP School
Wrotham
Kent



Under the 1988 Education (reform) Act this Church of England Voluntary Controlled School is required to deliver the National and Basic Curriculum to all its pupils on or not exempted from it.

Rationale

At St George's Church of England Primary School, we believe that good teaching of Science offers pupils the opportunity to access a wealth of knowledge and information which contributes to a secure understanding of how and why things work like they do. Science explains the mechanics and reasoning behind the daily function of complex systems, including the human body. Through secure teaching, and making Science fun, children will love to learn about the wonderful subject of Science. They will be fully engaged and through the many practical opportunities that come with this subject, they will develop their understanding of the world and enhance their scientific vocabulary. Our aim is for Science to be a subject that children look forward to.

Aims:

- Children are encouraged to follow their own line of enquiry, by participating in child initiated experiments. They ask their own questions and select tools and equipment to conduct their experiments.
- Teachers have secure subject knowledge for their year group.
- Teachers set high expectations in all facets of the subject.
- Children are involved in practical activities to help consolidate or introduce their learning to a topic or unit of work.
- Teachers and children enjoy and are enthusiastic about Science lessons.
- Pupils are inquisitive and independent learners.
- Teachers plan experiments and practical activities well which enhances and extends children's learning.
- Opportunities are planned outside the timetabled session of Science (Science Week)
- Full use is made of the outside area where appropriate.
- Trips and visits are planned into the Science curriculum.
- Children are encouraged to research ideas and theories in order to explain results of their experiments or to extend their learning.
- Teachers and children are confident in using scientific vocabulary.
- Teachers create memorable Science lessons for the children.
- Formative assessment is used to plan lessons and to take the lessons in a different direction if required.
- Teachers use open ended questions to engage children and extend their thinking.
- Working scientifically principles are embedded into lessons.

Objectives:

The following **objectives** derived from the above aims will form the basis of our decisions when implementing a scheme of work. Assessment will also be related to these objects.

To develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of daily life.

- To develop a knowledge and appreciation of the contribution made by famous scientists to our knowledge of the world. This will include scientists from different cultures

- To encourage pupils to relate their scientific studies to applications and effects within the real world
- To develop a knowledge of the science contained within the 'Programmes of Study' of the National Curriculum

To build on pupils' curiosity and sense of awe of the natural world.

- To develop in pupils a general sense of enquiry which encourages them to question and make suggestions
- To encourage pupils to predict the likely outcome of their investigations and practical activities

To use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science.

- To provide pupils with a range of specific investigations and practical work which gives them worth-while experience to develop their understanding of science
- To develop progressively pupils' ability to plan, carry out and evaluate simple scientific investigations and to appreciate the differences between different forms of testing

Differentiation and Special Needs

To develop the ability to record results in an appropriate manner including the use of diagrams, graphs, tables and charts.

- To introduce pupils to the language and vocabulary of science
- To give pupils regular opportunities to use the scientific terms necessary to communicate ideas about science
- To develop pupils' basic practical skills and their ability to make accurate and appropriate measurements
- Within practical activities give pupils opportunities to use a range of simple scientific measuring instruments such as thermometers, force meters and data loggers to develop their skill in being able to read them

To develop pupils' use of information and communication technology (ICT) in their science studies.

- To give pupils opportunities to use ICT to record their work and to store results for future retrieval throughout their science studies
- To give pupils the chance to obtain information using appropriate websites

Principles of Teaching and Learning

The study of science will be planned to give pupils a suitable range of differentiated activities appropriate to their age and abilities. Tasks will be set which challenge all pupils, including the more able. For pupils with SEN the task will be adjusted or pupils may be given extra support. The grouping of pupils for practical activities will take account of their strengths and weaknesses and ensure that all take an active part in the task and gain in confidence.

Breadth and Balance

We will ensure that all staff, including those in a supportive role, has a clear idea of the concepts and skills to be taught. The importance of Attainment Target 1 (Skills), which has a fifty percent weighting at Key Stage 1 and a forty percent weighting at Key Stage 2, will be

stressed. The other Attainment Targets (AT2, AT3 and AT4) will be taught using an experimental and investigative approach.

We will select the content to ensure a balanced coverage of the National Curriculum Programmes of Study.

Knowledge Organisers

Knowledge Organisers is a document that contains key facts and information that children need to have a basic knowledge and understanding of a topic.

Each term the children will receive a Knowledge Organisers which includes:

- the essential facts about the topic, usually laid out in easily digestible chunks
- key vocabulary or technical terms and their meanings
- images such as maps or diagrams

The teacher and children will then refer to this throughout the topic.

Time Allowance per Year:

KS1 } 80 hours

KS2 } 90 hours

Variety

Pupils will be involved in a variety of structure activities and in more open-ended investigative work:

- Activities to develop good observational skills
- Practical activities using measuring instruments which develop pupils' ability to read scales accurately
- Structured activities to develop understanding of a scientific concept
- Open ended investigations
- Structured activities to interpret data and to draw conclusions consistent with the evidence relative to their knowledge

On some occasions pupils will carry out the whole investigative process themselves or in small groups.

Relevance

Wherever possible science work will be related to the real world and everyday examples will be used.

Cross Curricula skills and Links

Science pervades every aspect of our lives and we will relate it to all areas of the curriculum. We will also ensure that pupils realise the positive contribution of both men and women to science and the contribution from those of other cultures. We will not only emphasise the positive effects of science on the world but also include problems, which some human activities can produce.

Continuation and Progression

By careful planning, pupils' scientific skills and knowledge gained at Key Stage 1 will be consolidated and developed during Key Stage 2.

Pupils' in **Key Stage 1** will be introduced to science through focused observations and explorations of the world around them. These will be further developed through supportive investigations into more independent work at Key Stage 2.

The knowledge and content prescribed in the National Curriculum will be introduced throughout both key stages in a progressive and coherent way. How this is achieved is indicated in our scheme of work for science.

Equal Opportunities

Curriculum planning will ensure that all pupils have an equal opportunity to take part in the full scheme of work and its associated practical activities. Where appropriate, work will be adapted to meet pupils' needs and, if appropriate, extra support given. More able pupils will be given suitable challenging activities.

Gender and cultural differences will be reflected positively in the teaching materials used.

Health and Safety

A simple risk assessment will be carried out for all practical activities. The LA has adopted the ASE book 'Be Safe' as its model risk assessment and therefore this will be consulted where necessary. If an activity is not covered by 'Be Safe' then we will contact CLEAPSS (School Science Service help line 01895 251496) for further advice <http://www.cleapss.org.uk/about-cleapss>

Assessment, Recording and Reporting

Assessment opportunities will be identified within schemes of work. At Key Stage 1 the only statutory assessment for science is teacher assessment and therefore assessments will be recorded appropriately and some examples of work held in portfolios. Levels awarded will be related to the National Curriculum Level Descriptions and will be moderated across the school.

At **Key Stage 2** similar arrangements, using the assessment grids linked to the learning objectives in the Kent Scheme of Work, will be followed which will be used to determine the level of pupils' knowledge and skills.

Management and Administration

An annual key stage and/or phase meeting will be held to review the needs of science. Personal development of staff and training needs will be discussed. The science subject manager will organise and lead these meetings.

Role of the subject manager

The Governing Body has appointed **Mr M Jones to be the Science Co-Ordinator**, against a job description and to be responsible for:

The subject manager will:

- Provide professional leadership and management for science and will ensure that it is managed and organised so that it meets the aims and objectives of the school.
- Monitor teaching and learning within the subject and will initiate reviews of the scheme of work.
- Manage the resources for science and will maintain the stock to meet the needs of the curriculum
- Ensure there is a coherence of aims, objectives and teaching, thus ensuring the delivery of KS1 and KS2 **Science**
- Using QCA performance indicators to measure the success of the school's activities and pupils attainment
- Arrange regular in-service training for staff
- Report annually to the governing body about progress in this area

Also see science subject manager's job description.

Resourcing

In order to encourage an investigative approach to learning, all classrooms contain sufficient basic equipment to allow simple investigations, observations and measurements to be carried out in small groups.

The science subject manager will see that this level of resourcing is maintained and will administer the allocated budget for science.

More specialist pieces of equipment and those posing a potential safety risk will be held centrally and issued to staff when requested. Teaching materials and background information on science are kept in the staff room.

The science section of the school library is continuously being developed to reflect curriculum and teaching needs.

Review

The science subject manager will monitor classroom teachings in all year groups on a yearly basis. The effectiveness of the science curriculum will be evaluated in discussions with the head teacher, key stage coordinator and the science subject manager. Priorities for in service support and external review will be established. This evaluation will form the basis for an action plan that will then inform the school development plan.

This policy was originally written in June 1995 by Mr David Jones – Headteacher.

Review and updated in February 1998 by Mrs T Atton and in May 2001 by Miss E Wright.

Reviewed in Summer Term 2004, 2006 and 2008 (as linked to SDP by Mrs Atkinson).

Reviewed in Autumn Term 2016 by Mrs Atkinson.

Reviewed in Autumn Term 2017 by Mrs Atkinson.

Reviewed in Autumn Term 2018 by Mrs Allcorn.

Reviewed in Autumn Term 2019 by Mrs Allcorn.

Reviewed in Autumn Term 2020 by Mr M Jones.

Reviewed in Autumn Term 2021 by Mr M Jones.

