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St George's CE Primary School, Chorley

Science Policy

Adopted by the Governing Body on:

Signed (Chair of Governors):



Date of Next Review 1st September 2024
(not more than 12 months from the publication date)

This document is available via the school website or from the school office on request

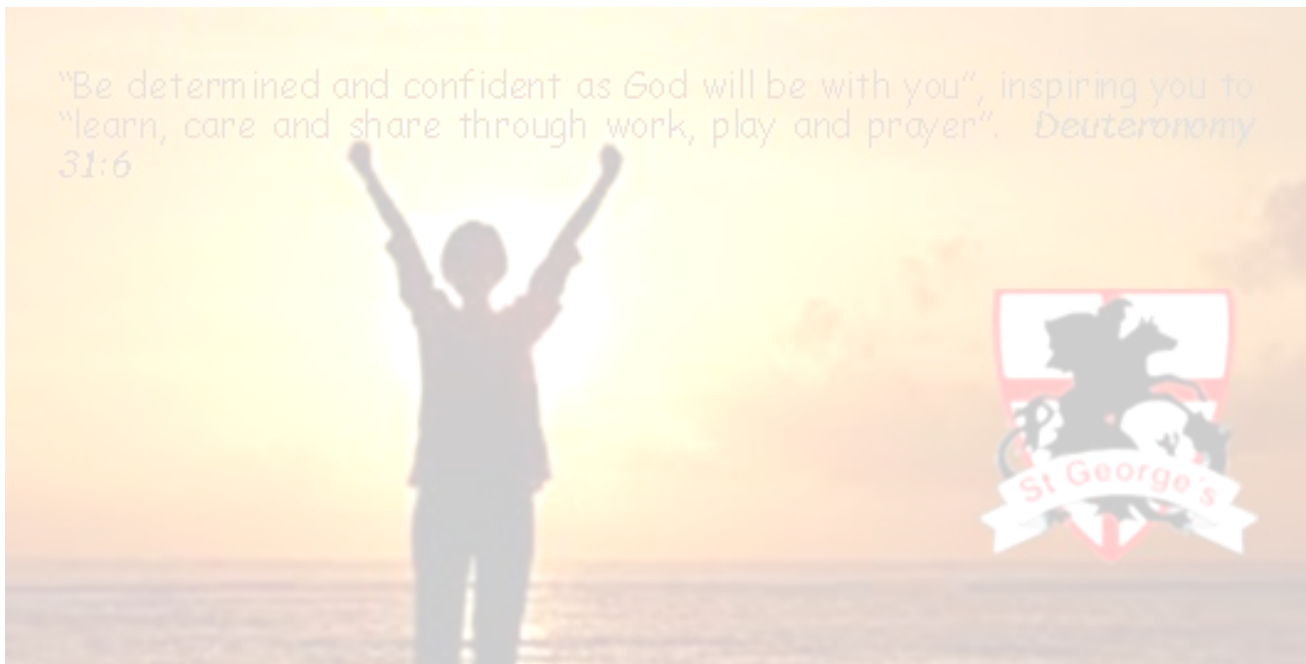




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Intent

What is the school's mission statement?

All that we believe at St George's, including our vision for science, is underpinned by our mission statement of “*Be determined and confident as God will be with you*”, *inspiring us to learn, care and share, through work, play and prayer*’.

What is the school's vision for the subject?

Science teaching and learning at St George's Primary School should ignite in children, a curiosity and wonder of the world around them. Our vision is underpinned by the belief that the science curriculum should foster a thirst for knowledge and create a learning environment whereby children are inspired and don't want to stop. To achieve this, children are encouraged to ask their own questions that fuel exploration, developing their ideas in a way that enables them to make sense of the world in which they live through investigation. Opportunity is given to work collaboratively with different peers and to explore concepts through discussion, allowing for the application and extension of scientific vocabulary as well as demonstrating and recording their learning in a variety of ways. Practical hands-on learning drives the science curriculum and, where possible, outdoor space is utilised in order to embed learning and allow for application of skills and knowledge. In using technology to enhance learning, we hope to nurture and develop scientific minds for both now and for the future. We believe these opportunities will create confident, analytical and inquisitive learners for life.

Our Science Principles

Created together, both staff and children believe that Science at St Georges is at its best when:

- Children are working practically.
- Children utilise the whole school grounds for learning.
- Children are engaged, inspired and don't want to stop.
- Children can remember what they have learnt.
- Children record our learning in a variety of ways.
- Children are all confident using scientific equipment.
- Children work with different groups and collaborate.
- Children have the opportunity to discover for ourselves: we ask and answer our own scientific questions and share our ideas.
- Children learn and can apply new scientific vocabulary.
- Children use technology to enhance our learning.
- Children can apply our learning to the world around us.



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How was the curriculum for the subject designed? (Including statutory requirements)

The Science Curriculum has been designed in consultation and discussion with the Governing Body, parents through a parental voice questionnaire, Lancashire Consultants from the Professional Development Service, and Teaching Staff.

The school uses the National Curriculum for Science as the primary basis of its curriculum planning. We carry out our curriculum planning in science in two phases (long-term and short-term). The yearly long-term plan maps the scientific topics studied in each half term during the year. These cover the National Curriculum expectations for both Key Stage 1 and Key Stage 2 in terms of both substantive and disciplinary knowledge. We also ensure that the curriculum for EYFS covers the goals set out in the EYFS framework under Section 7: Understanding the World. The science subject leader works this out in conjunction with teaching colleagues in each year group. In some cases we combine the scientific study with work in other subject areas, at other times the children study science as a discrete subject. At least once per year, the science topic being studied should tie in with the overarching curriculum theme for that half term in order to give children to apply their scientific knowledge across the curriculum and vice versa.

The long-term plan also includes all the objectives covered across the year. These are taken from the National Curriculum and Lancashire Key Learning documents. The Science Curriculum at St Georges is reviewed annually to ensure that children in mixed age classes do not repeat learning and to ensure that there is progression both as children head into a mixed age class and leave a mixed age class. Scientific skills may be repeated but through a different scientific topic or focus. The class teacher is responsible for writing the daily lesson plans for each lesson (short-term plans). These plans list the specific learning objectives, expected outcomes of each lesson and differentiated activities. Lesson objectives should be two-fold; a question to generate interest and a statement taken from the Lancashire Key Learning documents in order to ensure progression through both Key Stages. Our Science curriculum at St Georges has been designed with our vision and our principles at the forefront of our mind in order to help children learn and remember what they have learnt. The principles are referred to every lesson by both the teacher and the children.

How is our curriculum aspirational for all pupils including those with SEND and more able?

Expectations are high on all children at St George's within the Science curriculum. Children with SEND are fully catered for in Science lessons. We ensure that the Science Curriculum is accessible to all children, including pupils with SEND, by making suitable adjustments in order to tailor the curriculum to ensure children can access and indeed thrive in this subject area regardless of their learning needs.

For children who are deemed more able in Science, we want to deepen their knowledge and understanding. Questioning techniques are used to allow these children to apply their scientific knowledge and understanding to different contexts, sometimes requiring the children to manipulate



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their learning and apply to unknown or hypothetical situations. “What if” questions provide this opportunity to children as does other techniques detailed above.

Where can the long term, and/ or medium term plan be found?

A map of Science across the school, for both substantive and disciplinary knowledge, can be found in the Science Subject Leadership folder in Dropbox, on One Drive and on the school website. Long term planning for Science can be found on each classes Curriculum Map and medium/short term planning will be found alongside individual teachers planning for a particular half term. A school map of which Science topics are taught when can also be found on the school website.





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Implement

How is the subject implemented in the Early Years Foundation Stage?

We teach science in reception classes as an integral part of the topic work covered during the year. We relate the scientific aspects of the children's work to the objectives set out in the Early Learning Goals (ELGs) of the EYFS framework predominantly from Section 7: Understanding the World. Steps are then devised by the Early years staff which best suit our children and enable them to achieve the Early Learning Goals using the statements taken from Development Matters (See subject overview).

What professional development is offered to staff in relation to the subject?

Lancashire's Science Teaching and Learning Consultant delivers YTSA cluster meetings every year for the subject leader to attend, along with schools in the alliance, and to feedback into school. The subject leader also attends CPD courses run by Lancashire and feeds back to SLT before implementing actions. Regular staff meetings on Science are led by the Subject Leader and Local authority Science consultant, which include delivering CPD, training on new resources, moderation and updates to current best practise. Teaching staff have the opportunity to team teach with the subject leader along with continuous informal meetings and coaching throughout the year.

What resources are used to support the planning of the subject? (schemes of work etc)

Two fold Learning Objectives (Question and skill) are taken from The Lancashire Key Learning Document for Science. Although the school does not strictly follow the Lancashire Units of work, the Lancashire units of study for each year group are also available to aid planning. The school has also subscribed to the 'National Association for Science Education' which provides resources to help with planning such as the 'PLAN' resources and the year group matrices. Plan B is another resource available to help with planning along with the online resources 'Enquiring Science 4 all'.

How is learning sequenced to build on prior learning and prepare children for the next stage in their education?

We have planned the topics in Science so that they build on prior learning. Units begin with informal methods of assessment to understand where the children are in their learning and what they know and remember from the last time a topic was covered (ASE resources help staff know what the children should have covered in previous year groups and what they don't need to cover before the next year groups/key stage). We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit, and we also build progression into the science scheme of work, so that the children are increasingly challenged as they move up through the school. We use the Lancashire Key Learning Document to ensure that objectives are taken from specific year group content and that scientific skills are being advanced and built upon. The units of work are reviewed each year to ensure there is progression across all classes including mixed age classes.



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Support for children with special educational needs is implemented in Science through appropriate scaffolding of tasks, questions and activities. Teachers implement a variety of strategies to prevent barriers to these children's learning (such as Seesaw, verbal work, practical activities) and as such, children are included within the lesson and supported to do their very best and achieve their potential.

What resources are available to support the implementation of the subject?

Practical equipment and resources for science topics covered across the school are stored in the upstairs resource area. All cupboards and drawers are clearly labelled to ensure equipment can be returned to the correct place. Staff are to inform the science subject leader if resources need replacing. A copy of ASE's 'Be Safe' is also kept in the little classroom for staff to refer to when planning and executing science experiments and investigations.

How are parents involved in the subject?

Each year a parent questionnaire is sent home asking how they feel about the Science Curriculum in school and how inspiring they felt it is, and how they feel about their child's progress in Science. These are then used to inform action for the following year. Every child's Science Capital is important to us at St Georges therefore parents with careers related to Science or who work in any scientific area and welcomed into school to speak to the children and help them relate their learning to the outside world. Parents were welcomed into school as part of our STEM week to speak to the children about the role of science in their careers and to celebrate science with the children, increasing the children's science capital.

It is this subject's policy that at the beginning of each unit, scrap books are referred to, and content previously taught is revisited. It is also this subject's policy that there is an entry assessment of content, and previously taught content this should be lesson 1, and at the end of the topic, an exit assessment for the final lesson. This can take the form of verbal, mindmaps, menti, KWL, wordle, verbal etc. It may be useful to refer to key concepts, which are on the subject overview.



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Impact

How is progression helping children to acquire new skills and know and remember their learning?

To ensure that children acquire new skills each year, learning objectives are two fold – a question to spark curiosity and a scientific skill taken from the Long Term Plan which marries with appropriate statements from Lancashire's Key Learning Document. These are year group specific and so ensure that new skills are built upon and acquired as the children progress through the curriculum. Prior learning is built upon when topics are revisited in another year group and teaching staff can use the ASE planning resources to ensure progression and teach new scientific skills even when teaching a topic that may have been introduced in a previous year group.

In order to ensure children remember their learning, each class is taught science weekly rather than blocked. We use a variety of teaching and learning styles in science lessons to help children remember their learning. Our principal aim is to develop children's knowledge, skills, and understanding. Sometimes we do this through whole-class teaching, while at other times we engage the children in an enquiry-based research activity. We encourage the children to create and ask their own, 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 to research and explore scientific concepts. They take part in role-play and discussions, and they present reports to the rest of the class. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, for example, investigating a local environmental problem, or carrying out a practical experiment and analysing the results.

What are pupil attitudes to this subject, how are they gathered and how does pupil voice influence subject development and improvement?

Pupils attitudes to Science are very positive, indeed one response that appears continuously from the children is that they would like more Science lessons in the week and that they enjoy the practical element of Science.

Pupils responses towards Science are gathered every year in the form of a pupil voice. A group of children are selected from across the school and discuss a range of questions with the subject leader around understanding, challenge and enjoyment of the subject. These answers then feed into the action plan for the upcoming year.

How do children record their learning?

Teachers are encouraged to use a variety of methods to record and evidence learning in Science. Formal methods of recording, such as work in each child's science book, are not always necessary as each class has a floor book. This can be used to record and evidence class and group learning and to set a differentiated task for a particular group of children. Similarly, the floor book should be used to



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show a variety of learning tasks and to show a wider picture of Science throughout the year. Seesaw can also be used to evidence learning in science as well as for setting activities for the children.

How is feedback given to children?

Teachers will assess children's work in science by making informal judgements during lessons and giving verbal feedback where appropriate. On completion of a piece of work, the teacher assesses it, and uses this assessment to plan for future learning. Written or verbal feedback is given to the child to help guide his/her progress in line with the school marking policy. Detailed marking is not necessary if a child has received verbal feedback within the lesson.

How and when is the subject assessed?

The assessment policy for Science is in line with the school assessment policy and summative and formative assessments should be made as follows:

At the end of a unit of work, the class teacher makes a summary judgement about the work of each pupil in relation to the National Curriculum levels of attainment and records those who are deemed to be working above age related expectations and those who are deemed to be working below on their long term plans. We use these judgements as the basis for assessing the ability of each child. Teachers make an assessment of the children's ability in science at the end of Key Stage 1 and Key Stage 2. We report the results of these judgements to parents.

How do assessments impact future learning?

This method of assessing aids next terms planning for differentiation purposes and is also then available to the next teacher at the end of the year. Children's science books will also be passed on to the next class teacher rather than being sent home at the end of the academic year. KS2 assessment data will also be used as a basis to invite those deemed to be working at greater depth to a KS2 STEM club to extend their learning and challenge their thinking in different contexts.

How and when is the curriculum map reviewed?

The curriculum is reviewed every year. Assessment data, pupil voices and parent questionnaires feed into any changes made as do any changes to the class structure for the next academic year. The curriculum map is checked against Long Term Plans and cross referenced with the National Curriculum and the Lancashire Key Learning Document.