

Science Policy

Gascoigne Primary School



article 28 (right to education)

Every child has the right to an education. Primary education must be free and different forms of secondary education must be available to every child. Discipline in schools must respect children's dignity and their rights. Richer countries must help poorer countries achieve this.

article 29 (goals of education)

Education must develop every child's personality, talents and abilities to the full. It must encourage the child's respect for human rights, as well as respect for their parents, their own and other cultures, and the environment.

article 31 (leisure, play and culture)

Every child has the right to relax, play and take part in a wide range of cultural and artistic activities.

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1. Purpose of the policy

This policy reflects the aims and values of Gascoigne Primary School. It ensures all stakeholders, including staff, governors, parents and pupils, are working towards the same goals.

Ensure you consider the potential audience for your policy and what information they will want. Your audience may include teaching and non-teaching staff, governors, parents and Ofsted inspectors.

The purpose of this policy is to:

- › Set out a framework for all teaching and non-teaching staff, giving guidance on planning, teaching and assessment.
- › Demonstrate adherence to the National Curriculum objectives and guidelines (if appropriate)
- › Provide clear information to parents and carers about what their children will be taught.
- › Allow the governing board to monitor the curriculum.
- › Provide Ofsted inspectors with evidence of curriculum planning and implementation.

This policy will be available on our school website [<https://www.gascoigneprimaryschool.co.uk/>].

2. Subject vision

Gascoigne Primary School values science because it makes an increasing contribution to all aspects of everyday life. All children are naturally curious about their environment and science is a practical way of finding reliable answers to questions we may ask about the world around us. Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills. The main aspects of science to be studied will be determined by the programmes of study of the National Curriculum 2014.

3. Aims and outcomes

The aims of science are to:

- › Prepare our children for life in an increasingly scientific and technological world today and in the future.
- › Help our children acquire a growing understanding of the nature, processes and methods of scientific ideas.
- › Help develop and extend our children's scientific concept of the world.
- › Build on our children's natural curiosity and develop a scientific approach to problems.
- › Encourage open-mindedness, self-assessment, perseverance and developing the skills of investigation – including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- › Develop the use of scientific language, recording and techniques.
- › Develop the use of computing in investigating and recording.
- › Make links between science and other subjects.

4. Teaching and learning

Science is taught by class teachers. Lesson plans are based on the subject's long-term plan and resources available, with objectives adapted to suit the stage of development for the pupils in each class. The teaching of science might involve:

- › Whole-class teaching
- › Small group discussions
- › Reading from textbooks
- › Handling equipment and resources
- › Looking at scientific photographs
- › Individual projects/research
- › Role play
- › Field trips
- › External speakers

Science is good when:

- We apply our 'working scientifically skills' to solve problems, explore, observe and investigate.
- We ask questions and work together to discover the answers
- Science has a wow factor and promotes a sense of awe and wonder
- Our learning is enhanced by outdoor learning; specialist visitors and we have access to quality resources
- We are involved in creating and carrying out investigations and can share and explain our ideas and conclusions
- A variety of teaching and learning styles are encouraged to be used in science lessons. Where possible, Science will be linked to other class topics.

Science will be taught as discrete units or lessons where needed to ensure coverage.

Lessons should have clear, specific learning objectives and these should be planned for weekly. Working scientifically objectives need to be carefully planned into appropriate lessons. Science investigations should be carried out regularly, at least one every half term to be fully written up, including predictions, fair testing, results, and conclusion. However, in addition to this, scientific skills should be embedded in all weekly lessons.

Children should be encouraged to work collaboratively in groups to plan out how they are going to carry out their investigation with the resources provided to ensure they take ownership of their investigative work. This can be done on laminated sheets/whiteboards at the start of any investigative work. Planning should also include the use of teaching and learning advocates to support and work with individuals or groups of children.

All year groups will ensure a balance between practical skills and knowledge. Children will be allowed to gain confidence and independence in carrying out practical investigations as well as recording observations, measurements and findings. There is a strong emphasis on the use of mathematical skills in science.

Relevant scientific vocabulary should be displayed and spelt correctly in all classrooms. Displays should also reflect Science teaching and learning.

5. Curriculum overview

Here at Gascoigne, pupils will follow a science curriculum that gradually develops learning, the outcome being the acquisition of knowledge and skills that enable each pupil to enquire about natural phenomena and understand the application of science. Through building up a body of key foundational knowledge and concepts, pupils 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 science can be used to explain what is occurring, predict how things will behave, and analyse causes.' (The National Curriculum in England Framework Document (DfE) 2014)

5.2 Key Stage (KS) 1

In KS1, pupils will:

The main focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them.

- They should be encouraged to be curious and ask questions about what they notice.
- They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and finding things out using secondary sources of information.
- They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.
- Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.
- Pupils should read and spell scientific vocabulary at a level consistent with their reading and spelling knowledge at Key Stage

5.3 Key Stage (KS) 2

Lower Key Stage 2 – Years 3 and 4

The main focus of science teaching in Lower Key Stage 2 is to enable pupils to broaden their scientific view of the world around them.

- They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions.
- They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple fair tests and finding things out using secondary sources of information.
- They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. 'Working scientifically' must always be taught through and related to substantive science content in the programme of study.
- Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing reading and spelling knowledge.

Upper Key Stage 2 – Years 5-6

The main focus of science teaching in Upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas.

- They should do this by exploring and talking about their ideas; asking their questions about scientific phenomena; and analysing functions, relationships and interactions more systematically.
- They should encounter more abstract ideas and begin to recognize how these ideas help them to understand and predict how the world operates.
- They should also begin to recognize that scientific ideas change and develop over time.

- They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out fair tests and finding things out using a wide range of secondary sources of information.
- Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.
- Pupils should read, spell and pronounce scientific vocabulary correctly. 'Working and thinking scientifically' must always be taught through and related to substantive Science content in the programme of study.

5.4 Programmes of study

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Animals including Humans. External body parts The five senses Observing and questioning Identifying/classifying animals	Seasonal Changes Seasons - Night and Day Observing change Communicating ideas		Plants Change / Identifying trees. Observing closely / Diagrams. Seasonal Changes Seasons - Night and Day Observing change Communicating ideas	Everyday Materials Identifying materials + properties. Comparing and grouping. Gathering data from simple tests	Everyday Materials Identifying materials + properties. Comparing and grouping. Gathering data from simple tests
Year 2	Living Things and Their Habitats. Caring for habitats Asking and testing questions. Observing, Classifying and Recording		Everyday Materials and Their Properties. Shaping and manipulating materials. Comparative and fair tests Explaining how and why.	Animals including Humans. Producing offspring Exercise, diet, and hygiene Observing, Recording data	Plants What plants need Scientific enquiries Identifying and classifying	
Year 3	Forces and Magnets Fair tests, Recording, Using evidence	Light and Shadow Drawing conclusions, Reporting findings, Raising questions	Plants Plant vegetables	Animals including humans. Nutrition and skeletons	Plants Harvest Vegetables	Rocks and Soils
Year 4	Animals including Humans. Teeth / The Digestive System	Electricity Constructing circuits, conductors, insulators, and switches.	States of Matter	Living Things and Their Habitats Classification of living things and food chains	States of Matter Comparative and fair tests	Sound Asking questions/ using scientific enquiries to answer them.
Year 5	Forces, Mechanisms Forces. Taking measurements/reporting and presenting findings	Properties of Materials: Properties + Changes	Living Things and their Habitats	Earth and Space	Properties and Changes of Materials (Part 2) Separation, dissolving, states of matter, reversible changes	Animals including Humans. Development of the Human body
Year 6	Evolution & Inheritance Revisit Y5 Earth & Space	Light/ Electricity	Animals Inc Humans Revisit Y3 & Y4 Animals Inc Human	Living Things & Their Habitats Revisit Y4 & Y5 Living Things & Their Habitats	Revision Revisit Y5 Properties & Changes in Materials & Forces	Revision Revisit Y4 States of Matter Revisit Y4 Sound

6. Cross-curricular links

Cross-curricular links science pervades as a driver subject in many topics within our curriculum at Gascoigne. We know that it is part of 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. The above list is not exhaustive and should be adapted to suit your specific context.

7. Assessment and recording

7.1 Assessment

Gascoigne Primary School uses assessment to enable staff to understand what pupils have learnt before, what they need to learn now and what they will learn next.

Much of the work done in science lessons is of a practical or oral nature and, as such, recording will take many varied forms thus making marking different. It is, however, important that written work is annotated regularly and clearly, as an aid to progression and to celebrate achievement. Practical science and investigative work may be evidenced through the use of photos with annotations in books. Guidance and exemplification materials to enable teachers to have a clearer understanding of National Curriculum expectations for meeting the expected standards can be found in the Association for Science Education Website (ase.org.uk/plan) Please also see the Assessment Policy for further information on quality feedback and assessment.

Formative assessment

Formative science assessment is ongoing and will be used to inform teachers in relation to their planning, lesson activities and differentiation.

Summative assessment

Summative assessment is completed termly, based on the scientific skills and knowledge strands that the unit requires to be completed. This should be recorded on the Science assessment grid to inform about gaps and any reteaching or retrieval activities that may be required should be administered to supplement learning.

At the end of each school year, pupils will be assessed within 1 of the following bands:

- Pre-Key Stage (PKS)
- Working Towards the curriculum (WT)
- Working at Expected (EXP)
- Working at Greater depth (GDS)

Marking

Children receive regular feedback and marking, which follows the school's marking policy.

7.2 Recording

In Science, pupils will record their learning in the following ways:

- Science exercise books.

This may take the form of photographs, pictures, notes or written work, and may be worksheet-based or fully independent.

8. Resources

8.1 Textbooks and other equipment

At Gascoigne, no specific schemes of work are followed for science. Instead, lessons are planned and adapted according to the needs of the class, with guidance provided on the Medium-Term-Plan to support planning.

Science equipment may be used in lessons to help conduct investigations and to allow children to work scientifically.

8.2 External speakers, local museums, trips

Gascoigne Primary School uses school trips to enhance our curriculum, and any outside speakers, where applicable, may be invited to further engagement with science.

9. Roles and responsibilities

9.1 Headteacher

The headteacher at our school will:

- › Support the subject leader but also hold them to account for the effectiveness of science
- › Support staff through the provision of training and resources
- › Monitor the planning and delivery of science
- › Ensure the requirements of the National Curriculum are met
- › Ensure this policy is reviewed according to the timescales set out

9.2 Subject leader

The subject leaders at our school will:

- › Prepare and review subject policy and curriculum plans
- › Promote the study of the subject throughout the school
- › Monitor the teaching and assessment of the subject
- › Attend appropriate CPD
- › Stay informed regarding developments in the study and teaching of science
- › Evaluate resources
- › Provide training and CPD to staff on the subject curriculum and its delivery, and keep them informed about subject developments nationally
- › Assess the impact of the subject curriculum on pupils' learning and development
- › Make presentations to governors on the subject and how it is being taught

9.3 Link Governors

The link governors are responsible for curriculum, progress and achievement at our school will:

- › Monitor the impact of the subject across the school and on pupils
- › Monitor teacher workload and professional development
- › Ensure subject action plans are suitable
- › Monitor the quality of resources
- › Keep track of pupil and parent engagement with the subject
- › Keep up to date with the curriculum (what's taught, why it's taught, and how it's taught)

9.4 Classroom teacher

Classroom teachers at our school will:

- › Teach and assess the subject according to the principles laid out in this policy
- › Ensure learning is engaging and motivating
- › Report to the subject leader
- › Maintain subject knowledge and appropriate CPD

9.5 Parents

The parent community at our school will:

- › Make sure their children are prepared for learning
- › Monitor the completion of homework

10. Inclusion

Teachers set high expectations for all pupils in science. 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 special educational needs (SEN)
- › Pupils with English as an additional language (EAL)

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

Teachers will set suitable challenges to ensure high expectations are set for all pupils.

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 science.

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

11. Links to other policies

This subject policy links to the following policies and procedures:

- › Assessment & Feedback policy
- › SEND policy

12. Monitoring and review

This policy will be reviewed by staff and governors every 2 years.