

Science Policy

INTRODUCTION

This policy outlines the learning, teaching, organisation and management of science at Cotswold Chine School.

The implementation of this policy is the responsibility of all teaching staff. The responsibility for monitoring and review rests with the science coordinator.

The aims of teaching Science are

- To develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- To 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
- To ensure that learners are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future
- To increase knowledge and understanding of social, moral, spiritual and cultural (SMSC) values.
- To increase knowledge and understanding of British Values, Britain and the world.
- To promote Personal, Social, Health and Economic (PSHE) Education.

Progression in Science

Students at Key Stage 2 and 3 follow a rolling programme based on their starting point, which has been assessed against the new national curriculum (2014), and is assessed on entry for new students from September 2015. Students at Cotswold Chine are typically working within levels 1 to 4, and therefore teaching is differentiated to allow students to gain skills and obtain secure knowledge within their level, making progress each lesson. Teachers may draw on Units from previous or later years to ensure they match and develop the skills of each Student within their class group.

In Key Stage 4, students follow a two year programme based on the Edexcel specifications for GCSE science and AQA specification for Entry Level Science. Post 16 students have further opportunities to enter GCSE/Entry Level/Unit Awards, depending on previous accreditation gained. They may also re-sit examinations to improve their grades or enter for the higher tier/double award GCSE examination where possible.

Organisation of teaching

Science is taught to each class group by teachers who have appropriate subject knowledge in this specialist subject area. When engaging in practical work class groups may be further divided into smaller groups in order to ensure there is adequate supervision of all students. The Science Curriculum is overseen by the Science Coordinator in consultation with the Curriculum Coordinator and the Head Teacher.

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Planning

Students are assessed by the schools special needs advisor in physics, chemistry and biology topics from the new national curriculum (2014) to provide a starting level for each student. Progress in learning is measured against this starting level and evaluated against an aspirational level for students of the same age.

Teachers plan science lessons using the new National Curriculum (2014). Teachers use formative assessment at the introduction and conclusion of units of work in order to plan differentiated lessons with focused learning objectives which allow all students to make progress.

'Working scientifically' is embedded iteratively throughout the areas of learning in key stage 2 and 3; this focuses on the key aspects of scientific enquiry which enable pupils to investigate and answer scientific questions.

Please refer to the curriculum map for details of the specific areas of learning covered at each stage.

Assessment

Students are assessed by the schools special needs advisor in physics, chemistry and biology topics from the new national curriculum (2014) to provide a starting level for each student. Progress in learning is measured against this starting level and evaluated against an aspirational level for students of the same age.

Teachers use the Edexcel progression product to assess progress for each student each term, assessing progress in learning from formative assessments of existing knowledge and subsequent learning for each unit of work. The principle used when assessing students' work is '*assessment for learning*' (see *School Assessment Policy*). Teachers give ongoing feedback to students by highlighting their achievements and giving constructive advice regarding future areas for improvement. Students are given many different opportunities to present their ideas, knowledge and understanding. These include practical work, posters, role play, oral contributions, drama and written work.

At present Key stage 2 uses the rising stars assessment scheme, and Key stage 3 uses the Edexcel assessment scheme for summative assessment. The scheme includes end of topic and year tests.

Cross Curricular Links

The Science Scheme of Work links with many other areas of the curriculum:

- Geography: there are strong links between the effects of science on the environment. Units that have strong links are those on energy, renewable and non-renewable energy sources, habitats, rocks and weathering and the rock cycle and weather systems.
- PSHE: The unit on 'reproduction' is intended to link with sex and relationship education within the PSHE curriculum. 'Microbes and disease' relates to the transmission of disease. 'Fit and Healthy' and 'Digestion' relate to the importance of a healthy lifestyle and covers areas such as smoking, alcohol and drugs that link both to Science and PSHE.
- Citizenship: The growing importance of collective responsibility for keeping the environment stable and clean. Subjects such as how waste, tourism and pollution affect the eco-system are looked at with some emphasis on controversial topics such as how foxhunting affects food webs; ethics versus the long-term benefits of stem-cell technology

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and the democratic structure of global climate change meetings such as the G8 and Kyoto Summits.

- Literacy: There are opportunities to develop speaking and listening skills through discussion and argument; to expand vocabulary through key word lists; to improve writing skills through answering questions, organising work in paragraphs and developing written arguments, and to read a range of texts.
- Numeracy: skills in numeracy are developed through opportunities to measure and use a range of units; to construct tables, and to collect, display and analyse a range of data.
- Computing: Opportunities are available for students to word process work; to find information from electronic sources; to use spreadsheets; databases and graphs, and to use data logging, simulation and modelling.

Community links

The School's local area provides many opportunities to extend science lessons beyond the confines of the classroom. Bristol Zoo and @ Bristol provide opportunities to explore a range of habitats and physical phenomena. The School's links with Paradise House and access to Box Woods gives opportunities for students to really explore and understand how plants grow, as well as understanding how different species adapt to their environment. Additionally, the local area is rich in a variety of habitats which range from the open grasslands of Minchinhampton Common to the deciduous woodlands and rivers found within the valleys of Stroud. Opportunities to extend student's understanding of the local geology are also many and range from the local limestone to the coal seams of the Forest of Dean. These links and use of the local community develop students' respect and understanding of the natural environment in which they live.

Inclusion/Equal Opportunities

The School aims to give every student the opportunity to experience success and achieve as high a standard as possible, regardless of gender, race, religion, disability or social background.

In order to do this, the School:

- teaches the knowledge, skills and understanding that suit students' abilities and needs in order to challenge them;
- is flexible in choosing lesson content from a suitable level and Key Stage;
- uses materials that are free from discrimination or stereotyping;
- sets high expectations and provides opportunities for all students to achieve, including boys; girls; students with SEN or disabilities; students from all social, cultural and linguistic backgrounds and more able students;
- uses a range of organisational approaches, such as grouping or individual 1 to 1 work to ensure learning needs are appropriately addressed;
- plans work that builds on previous learning interests and experiences of students.

Health and Safety and the teaching of Science

In teaching Science teachers follow the School's policies relating to Health and Safety and Risk assessments. Whilst teaching science in particular, teachers ensure that students do not have access to hazardous materials/chemicals during practical lessons.

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The role of the Science Coordinator ensures that:

- all teachers are equipped to teach Science either as a specialist subject or through other subjects of the National Curriculum;
- they provide advice and support to teachers;
- all teachers have similar expectations;
- they regularly updates the policy in light of any school, local or national changes;
- they monitor the progress students make over a period of time;
- practical activities take account of the School's Health and Safety policies.