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BRADFORD GIRLS' GRAMMAR SCHOOL

Co-educational up to 11, Girls only 11-16

Curriculum Intent

Science at BGGS is more than just a core subject. Our through-school department has planned a broad and balanced curriculum that is designed to engage students with the real-life applications of the subjects. Here at BGGS we want students to have an appreciation and curiosity for the subject and be excited to study the subject at a greater depth.

Science helps students understand a lot about the world in which we live. In an ever-changing world, in which STEM subjects are at the forefront of advancements for the future, we want to best prepare our students for this by not only looking at the knowledge of the subject, but also the methods, processes skills and applications associated with it. Having a knowledge-engaged curriculum helps us to do this.

Making Science relatable by developing students' concept of the world in which we live is vital to ensuring that students receive a valuable, enriched experience.

Curriculum Implementation

Our Science curriculum at BGGS has been designed to ensure that both skills and knowledge are of equal importance. The through-school knowledge aspect of the curriculum is designed around 10 key concepts (which can be seen in the curriculum map). This allows students in KS1-KS3 to be introduced to a breadth of core principles and develop an understanding of the foundation knowledge of the subject.

The through-school skills aspect of the curriculum is designed to allow students to be introduced to the 12 key skills and enquiry processes associated with becoming a 'good scientist' (these can be seen on the curriculum map). These skills are introduced in KS1-KS3 and used throughout the entire KS4 curriculum as part of the departments' delivery of 'in-depth' Science.

During our delivery of our knowledge-engaged curriculum, teachers at BGGS will regularly link knowledge and skills to current world events, to important scientific breakthroughs and to future plans in order to not only make Science more relatable for students, but to enrich them with cultural capital.

Literacy is another important aspect of the Science curriculum, as we attempt to nurture the next generation of scientists. Subject-specific vocabulary is essential and expected to be used in both oral and written work, along with other key literacy skills that need to become a normal part of ALL student work. The introduction of the extended writing questions in the new GCSE for Science made it much easier for students to understand the importance of transferable literacy skills.

Students have access to high-quality resources during their time at BGGS. For example:

- All KS1/2 students have access, both at school and remotely, to the Education City suite of online resources, an extensive range of learn screens, topic tools and activities which support all aspects of the primary science curriculum to enrich and support their Science learning.
- At KS2, the curriculum is supported by purpose-built resources which link current scientific news articles directly to primary skills and knowledge.
- At KS3 each student is given their own textbook to use both during lessons and to support their learning outside of the classroom.
- At KS4 each student has access to course-specific textbooks both in school and via online access to a digital book(s) at home.

- All KS3/4 students have personal access to the Kerboodle suite of online resources to further enrich and support their learning. By having 24/7 access to science resources, which are engaging, interactive, supportive and challenging, it helps to further embed our aim of having students' see Science as a way of life, and not just a subject to learn. They also have access to www.doddlelearn.co.uk to allow both staff and students to regularly engage with low-stakes testing.

Students are also encouraged to 'read around' the subject by being signposted to relevant news pages, scientific journals and webpages. This increases both engagement in the subject and provides opportunity to develop their reading skills.

Assessment at BGGS is key to ensuring that ALL students receive the necessary support in order to reach their full potential. Be it additional support to understand the basics of the curriculum or to stretch and challenge our most able students for whom Science comes naturally to. A combination of summative and formative assessment, low-scale testing and opportunities to demonstrate and practice skills allows us to best meet the needs of our learners. All assessments at KS4 have been made synoptic in order to allow students more opportunities to retrieve previously taught concepts, which better prepares them for their summer examinations. Our curriculum design also allows for this by revisiting the 10 key concepts regularly through KS1-4, adding depth along the way.

In order to ensure that all learners can access the subject, we offer a variety of course options at KS4; entry level science, Combined Science and separate sciences.

All students have full access to our Y9 foundation year which allows us the opportunity to see which students need additional support, which need additional challenge whilst maintaining high expectations and aspirations for all.

One of the most important features of the Science curriculum at BGGS is that it is fluid in nature. The curriculum is regularly adapted and updated to make sure that it ALWAYS meets the needs of the learners at the time. This combined with high quality teaching and learning experiences help us to implement our vision of a successful knowledge-engaged curriculum.

We aim to foster a culture in which students are encouraged to objectively question the content, their understanding and the purpose of what is being delivered. This is a vital skill in developing as a 'scientist', but also as an active member of a community.

Curriculum Impact

Successful delivery of the curriculum intent will be seen in numerous ways:

Teaching/lesson delivery:

- A balance of knowledge and skills will be embedded into lesson delivery to allow students to consistently engage with both aspects of our curriculum.
- Contextualised approaches will be adopted where possible, as part of the department vision to engage students with Science in the 'real world'.
- Cross-curricular links will be evident during quality assurance procedures.
- Differentiation will be standard practice so ALL learners can be seen to be engaged and participating in all aspects of a lesson.
- ICT will be used when appropriate allowing further skills practice and to demonstrate how science is always advancing.

Pupil work:

- Work will be completed to the highest standard possible for each individual pupil.
- Pupil work will show evidence of their progress with both developing a secure knowledge of both the content and skills associated with the subject, Inc. literacy skills.
- Pupil work will show a high level of participation and engagement in each lesson, with self-assessment opportunities becoming part of everyday 'best practice' for both students and staff.
- Pupil work will show evidence of being open-minded, perseverance and accountability.
- Evidence of pupils being able to make links between topics and scientific disciplines means that the correct level of depth is being implemented across the curriculum.

Pupil Voice:

When asked about Science at BGGS, students should be able to articulate the importance of both knowledge and skills in relation to demonstrating progress. Students should be able to, at any point in their studies, be able to explain the 'big picture' in terms of their current learning opportunities.

Students would find Science interesting, engaging and understand the importance of the subject. Most importantly, they should portray a curiosity for the subject brought about by outstanding curriculum design, implementation and consistently high expectations for all.