



King's Leadership Academy Bolton

Science Curriculum Rationale

'What we're looking for, is how everything works!' – Richard Feynman

Overview

Often, you will hear pupils ask, 'when am I ever going to need science?'. At Kings we are teaching a general science qualification, not just one for those who wish to pursue scientific careers. Science is not a subject taught solely for a utilitarian end; it fundamentally shifts your perception of the world. Science makes you wiser and grants you greater agency.

Academic skills/Independent Learners

Wisdom gives way to wonder. A pupil who grasps the intricacy of the universe will always have something to think about. Learning does not kill the ability or desire to think creatively; it beckons an individual towards deeper curiosity.

Learning science allows you to engage with a novel section of the great conversation. Pupils will learn more scientific knowledge in months than was acquired across thousands of years of human civilisation. When we teach, we are not just passing a torch, we are helping the flame to burn brighter. The legacy of what we teach lasts, leaving pupils with the ability to talk to their family and friends about the 'why of the world' for the rest of their lives.

Intellectual Habits

Scientific qualifications are desirable to many employers. The applications of science are enormously beneficial in improving our quality of living, sustainability, and health; therefore, careers in all these areas are widely available. Further to this, science mandates learning content, which challenges our intuitions. The ability to grasp the abstract and manipulate data is highly valued across several sectors. Science qualifications can, therefore, change pupils' stars.

Where pupils' lives interact with scientific issues, in politics (such as climate change), health (when their doctor prescribes them a medicine they don't understand), or socially, pupils need to feel they can contribute, challenge, and enquire.

Diverse

Science tells stories, not just of scientific discovery, but of the existential passion with which those who have come before us had for finding out how the world works. From the conviction of Galileo to the earnest and unsung efforts of women like Rosalind Franklin, science inspires through role models.

Inclusive

To learn science makes the world more inclusive to your existence. No pupil should feel a museum, scientific discovery, or talk is not for them.



Pedagogy

To reap the benefits above, the science department at Kings:

- Rejects the orthodoxy that pupils should learn like expert scientists. Pupils are novices, not experts and need to be taught through high quality, interactive, teacher-led instruction.
- Tackles the forgetting curve head on, by utilising spaced practice to ensure pupils build a strong basis of core knowledge; this applies both inside and outside of the classroom.
- Aims to have no wasted years – a key stage three curriculum which rejects 'teaching to the exam' but embraces the need for a curriculum that is both horizontal (making sense within a year) and vertical (adding complexity across years). This objective involves heavily specified 'core knowledge' for all units, written and sequenced as the basis for our resources.
- Produces and uses high-quality, centralised resources, to ensure every pupil gets access to the same curriculum. These resources incorporate large volumes of practice.
- Uses demonstrations, stories, analogies, models, and practical work where appropriate to help pupils develop a greater understanding of how science works and connect concrete phenomena with abstract models.
- Views the teaching of science specific numeracy and literacy as integrate to preparing our pupils for academic success.