Science Curriculum Intent for KS3/KS4

Vision Statement

Our science curriculum at KS3 and KS4 is designed to ignite a passion for discovery, cultivate critical thinking, and foster a deep understanding of the natural world. We aim to empower students with the knowledge and skills necessary to navigate and contribute to an increasingly complex and scientifically-driven society. By the end of KS4, students will not only have a robust foundation in scientific knowledge but also the skills and mindset to question, explore, and understand the world around them. Our curriculum aims to produce scientifically literate individuals who are prepared for the challenges and opportunities of the future.

Key Aims

Develop Knowledge and Understanding

- Provide a comprehensive foundation in the core scientific disciplines: Biology, Chemistry, and Physics.
- Ensure students grasp fundamental concepts and principles that underpin scientific thought and practice. In KS3 we focus on the big ideas and skills that equip students for success at KS4.
- Develop students' ability to apply scientific knowledge to real-world problems and contexts.

Cultivate Critical Thinking

- Encourage analytical thinking through the exploration of scientific evidence and the scientific method.
- Develop problem-solving skills by engaging students in practical experiments and investigations.
- Foster the ability to evaluate scientific information critically and make informed decisions.

Stimulate Curiosity

- Inspire a sense of wonder about the natural world through engaging and interactive learning experiences.
- Promote inquiry-based learning where students ask questions, conduct experiments, and explore scientific phenomena.
- Highlight the relevance of science in everyday life and its impact on the world around us.

Create Opportunities

- Provide equal access to high-quality science education for all students, regardless of background or ability.
- Offer diverse learning experiences, guest speakers, extracurricular activities, and school trips to broaden students' horizons.
- Support career awareness and pathways in science, technology, engineering, and mathematics (STEM) fields.

Increase Local and Global and Environmental Awareness

- Integrate topics on global challenges such as climate change, sustainability, and conservation into the curriculum.

- Encourage students to think about the ethical implications of scientific advancements and their responsibilities as global citizens.
- Promote understanding of how science and technology can be harnessed to address global issues and improve quality of life

Implementation Strategy

Curriculum Design

- Develop a sequenced and coherent curriculum that builds knowledge progressively from KS2, KS3 to KS4, ensuring a smooth transition and deeper understanding.
- Begin with macro concepts before moving on to micro understanding.

Teaching and Learning

- Following Roshenshine's Principles to develop secure knowledge and skills.
- Utilise diverse teaching methods, including hands-on experiments, collaborative work, and technology-enhanced learning.
- Adapt resources to meet the needs of students.

Assessment

- Implement formative and summative assessments to monitor student progress and provide feedback.
- Use assessment data to guide future learning.

Professional Development

- Ensure teachers have access to ongoing professional development to stay updated with the latest scientific knowledge and pedagogical strategies.

Student Support

- Support students in lessons through adaptive teaching, using supportive groupings, talk partners and checking for understanding.
- Providing strategic intervention programs, and resources for students who need extra help to achieve their full potential.