

Science

Subject intent

Secondary's aim for science is to follow the national curriculum guide as the focus. This will coincide with the school values and ethos "leading the way to a brighter future". The curriculum is tailored closely alongside these aims and encompasses all aspects of science: biology, chemistry, and physics to give students in-depth awareness and understanding. The curriculum has been thoughtfully planned to ensure students develop knowledge and understanding that is built to ensure that complex concepts are accessible and developed at a steady pace. Scientific enquiry is embedded throughout all three sciences, and students complete a wide variety of investigations throughout the Key Stages, this allows students to fully immerse themselves in their learning journey. Students have many opportunities to develop and discover their; confidence, curiosity, social, and cultural understanding and discuss their personal interpretations and ideas. At the beacon centre, our curriculum delivers a framework for becoming scientifically literate members of society who in turn can comprehend nature and a forever developing world.

Implementation

Key Stage 3

This syllabus will provide an alternative approach to KS3 content. Content is under 10 big idea headings: Forces, Electromagnetism, Energy, Waves, Matter, Reactions, Earth, Organisms, Ecosystems and Genes. Each idea contains four smaller topics: the building blocks for the big ideas. By following the framework within this syllabus, we will be able to understand what our students need to know by the end of KS3. Using a logical order of objectives, this syllabus uses big ideas and mastery goals to equip students for success at GCSE. It also provides a method to follow student progress as their understanding develops.

Key Stage 4 (GCSE SYNERGY)

With AQA Synergy, students of all abilities and all aspirations can realise their potential. With the content being divided into **two main** sections, containing connections between areas of biology, chemistry, and physics that sit together as part of good science.

1. Life and environmental sciences

Building blocks: from atoms to cells, behaviour, and transport on the small scale. Transport over larger distances: systems in animals and plants and how these systems interact.

Interactions with the environment: the effects of factors in the environment on organisms, how our choices affect our health. Explaining change: how organisms, species, living, and non-living systems change over time.

2. Physical sciences

Building blocks for understanding: organising, patterns, properties, and analysis. Interactions over small and large distances: strong and weak forces between atoms, molecules, and larger structures and how they interact. Movement and interactions: rates of change of motion and direction of large and small objects, and chemical changes. Guiding Spaceship Earth towards a sustainable future: resources of materials and energy.

Both sections include topics that draw together and apply key concepts. Examples in Life and environmental sciences include radiation and risk and the Earth's atmosphere. In these topics, earlier work on atomic structure, waves and electromagnetic radiation is used to explain the effects of different types of radiation on human tissues and on the climate. An example in physical sciences is resources of materials and energy, which introduces life cycle assessment as a way of evaluating the impacts of using materials and energy to manufacture useful products.

Impact

At the Beacon Centre (secondary), we aim to support our pedagogy by: using recall strategies, to revisit and reflect on content to increase their knowledge; execute teaching with the use of clearly outlined scientific concepts complimented with rich subject knowledge from teaching practitioners; adhering to the feedback policy which includes live marking to enrich student acknowledgment in their work, and clarifies understanding of misconceptions; identifying student errors and using this as a learning opportunity to build resilience and eradicate the fear of failure. Individual units are assessed to allow teachers to make effective and personalised amendments, and interventions where necessary, this is done using end of unit assessments, peer assessments, and low stakes quizzes.

we will incorporate dedicated time for learning outside of school, as part of a cross curricular and experiential learning, in attempt to enrich student learning. This will be done through

research projects, science clubs, visits to local and national sites of scientific interest for example, the life centre, the local coastline, the glass centre, museums, farms, rock pools, and other nature reserves.

The curriculum will enable students to learn at a progressive rate, allowing them to revisit any areas and reflect on their progress to ensure a significant learning gap has been bridged. They will present the opportunity to develop a wide range of practical skills, thus deepening skills of enquiry. Finally, improve their social and moral understanding of the world and be able to make their own opinions on scientific occurrences.