



Guthlaxton College Sixth Form Courses



Subject: SCIENCE (1 year course)
Levels available: GCSE

Exam Board: OCR
Specification: J630

Subject Leader: Mr A Stell

Course Information:

*What do I need to know or be able to do before choosing this subject?

The GCSE Science course that Guthlaxton students followed in Year 11 is no longer available for Year 12 students. This means that there will NOT be a re-take course for students to raise their grade from DD to CC as has been the case in previous years.

To replace the 'old' course is a new SINGLE SCIENCE course called 21st Century Science.

This course is designed as the primary Science qualification for GCSE. It aims to enhance candidates' 'scientific literacy', leading to better engagement with science. The Course is designed to enable candidates to:

- recognise the impact of Science and technology on everyday life;
- make informed personal decisions about issues and questions that involve science;
- understand and reflect on the information included in (or omitted from) media reports and other sources of information

To achieve this, candidates must have a broad understanding of the main scientific concepts that provide a framework for making sense of the world. These are referred to as 'Science Explanations'. But, candidates also need to be able to reflect on scientific knowledge itself, the practices that have produced it; the kinds of reasoning that are used in developing a scientific argument, and the issues that arise when scientific knowledge is put to practical use. These are referred to as 'Ideas about Science'. The specification content is based upon these two essential elements.

| Unit | Unit Code | Title | Duration | Weighting | Total Mark |
|------|-----------|-------------------------------------|------------|-----------|------------|
| 1 | A211 | Science A Unit 1 – modules B1 C1 P1 | 40 mins | 16.7% | 42 |
| 2 | A212 | Science A Unit 2 – modules B2 C2 P2 | 40 mins | 16.7% | 42 |
| 3 | A213 | Science A Unit 3 – modules B3 C3 P3 | 40 mins | 16.7% | 42 |
| 4 | A214 | Science A Unit 4 – Ideas in Context | 45 mins | 16.7% | 40 |
| 5 | A219 | Science A Unit 5 – Practical Data | | | |
| | | Analysis and | Coursework | 13.3% | 16 |
| | | Case Study | Coursework | 20% | 24 |

Candidates take all five units.

The content of each module is outlined below:

Year 12 Science

| BIOLOGY | CHEMISTRY | PHYSICS |
|---|--|--|
| <p>B1. You and your genes</p> <ul style="list-style-type: none"> • What are genes? • Why are families alike but not identical? • Using genetic information. • What is cloning? | <p>C1. Air quality</p> <ul style="list-style-type: none"> • Making sense of pollution data • Where do pollutants come from? • Is air pollution harmful to me? • How can we improve air quality? | <p>P1. The Earth and the universe</p> <ul style="list-style-type: none"> • What do we know about the Earth and Space. • Can we predict earthquakes? • Could we be destroyed by an asteroid? • What do we know about the Universe? |
| <p>B2. Keeping healthy</p> <ul style="list-style-type: none"> • How do we resist infection? • What are vaccines; how do they work? • Why do antibiotics become less effective? | <p>C2. Material choices</p> <ul style="list-style-type: none"> • What are the properties of materials? • Why is crude oil important as a source of plastics and fibres? • Why do we want to know the molecular structure of materials? • What is life cycle assessment? | <p>P2. Radiation and life</p> <ul style="list-style-type: none"> • What is radiation? • Is it safe to sunbathe or use mobile phones? • Which radiations cause harm to living tissues and why? • How does radiation make life on Earth possible? |
| <p>B3. Life on Earth</p> <p>How did life on earth begin? How have explanations of evolution been developed? How is the nervous system organised? Why do some species become extinct and does it matter?</p> | <p>C3. Food Matters</p> <p>What is the difference between intensive and organic farming? Why are chemicals added to food? How do we make sure that chemicals in food are not harmful to health? Why does what we eat affect our health?</p> | <p>P3. Radioactive materials</p> <p>What does radioactive mean? How can radioactive materials be used safely? How should electricity be generated? What should we do with nuclear waste?</p> |