



## The Science Department

### Welcome

Science is a key subject for all students in today's increasingly technological world. It is an extremely engaging subject where theory and practical are used to help students understand the nature of the world around them, how the technology they rely on works and how they themselves survive in the world. St Joseph's School continues to act on the latest national government initiatives aimed at improving the teaching and learning of Science in schools, whilst at the same time making it an increasingly attractive option for students. We believe that all students should be given every opportunity to achieve the highest levels they can in this subject as they are highly likely to need these skills and knowledge even if they don't realise this now.

### Our aims are

- To provide appropriate and relevant learning in a safe practical environment.
- To help ALL students achieve their full potential and projected targets.
- To enable all students to learn Science skills, and theory, through teacher led activities, independent learning and practical based activities.
- To be as engaging and enthralling as the fascinating world of Science and encourage students to see the wonder of the Living, Chemical and Physical worlds around them.

Key Stage 3 Students have three to four lessons of Science per week. Students are taught range of topics from Biology Chemistry and Physics. These are covered in a variety of theory, and practical laboratory based, lessons, where many different learning styles are catered for and a wide variety of teaching techniques are used. All students learn about Biology, Chemistry and Physics as well as practical skills for planning and carrying out investigations.

| <b>Year 7</b>           | <b>Year 8</b>             |
|-------------------------|---------------------------|
| Introduction to Science | Health                    |
| Cells                   | Periodic Table            |
| Particles               | Separation techniques     |
| Space                   | Electricity and magnetism |
| Elements and atoms      | Evolution                 |
| Body systems            | Metals and acids          |
| Reactions               | Ecosystems                |
| Sound                   | The Earth and fossils     |
| Reproduction            | Light                     |
| Acids and alkalis       | Microbes and biodiversity |
| Forces and Speed        |                           |

## Key Stage 4

Following on from the foundations built at Key Stage 3, students have the option to study one of the following well respected qualifications:

**AQA GCSE Combined Science: Trilogy** – for examination in 2018 The pupils are taught all three disciplines of Science over 2 years on the topics listed below. There are 2 exam papers for each of 1 hour 15 minutes long

| <b>Biology</b>                       | <b>Chemistry</b>                                 | <b>Physics</b>                    |
|--------------------------------------|--------------------------------------------------|-----------------------------------|
| Cell biology                         | Atomic structure and the periodic table          | Energy                            |
| Organisation                         | Bonding, structure, and the properties of matter | Electricity                       |
| Infection and response               | Quantitative Chemistry                           | Particle Model of Matter          |
| Bioenergetics                        | Chemical Changes                                 | Atomic Structure                  |
| Homeostasis and response             | Energy Changes                                   | Forces                            |
| Inheritance, variation and evolution | The rate and extent of chemical change           | Waves                             |
| Ecology                              | Organic Chemistry                                | Magnetism and electromagnetism    |
|                                      | Chemical analysis                                | Space Physics (Physics GCSE only) |
|                                      | Chemistry of the atmosphere                      |                                   |
|                                      | Using resources                                  |                                   |

There is no coursework component and pupils carry out certain required practicals over the course. The Separate Science pupils do greater detail on the above topics and their exams are 1h 45 minutes long each.

Courses followed are :-

**AQA GCSE BIOLOGY 8461, AQA GCSE CHEMISTRY 8462 and AQA GCSE PHYSICS 8463**

## How can parents help and support their children to progress well in Science.

Support and encouragement with homework and revision for assessments will help students greatly. Also, students at Key Stage 4 doing their GCSE's, benefit greatly if they purchase revision guides and workbooks. (The Science Department buys these in bulk so that they are available at lower prices to students than if bought in book shops). Finally, students make much better progress if they are always fully equipped with pens, pencils and rulers etc., whilst a Scientific calculator is always a very useful addition to a student's equipment.

## Extra-curricular clubs

At Key stage three a Science Club is run once a week at lunchtime. At Key Stage 4 the Department try to direct students towards as many appropriate enrichment courses as possible, as well as running revision classes after school throughout the year on a Wednesday.