Key Stage 4

Limehurst Academy

GCSE Science 2015 Onwards

Combined Science (Double Award)/Separate Sciences

Science is a compulsory core subject and therefore all pupils follow a course in this area at KS4.

This GCSE qualification in Science encourages students to be inspired, motivated and challenged by following a broad, coherent, practical, satisfying and worthwhile course of study. It provides insight into and experience of how science works, stimulating students’ curiosity and encouraging them to engage with science in their everyday lives and to make informed choices about further study and career choices.

Lessons

Combined Science will be delivered during 4 lessons during the week.

Separate Sciences will have a further 3 lessons (i.e. one option column) in addition to their 4 Combined Science lessons.

Assessment Model

All courses are now linear; so all exams will be sat at the end of Year 11.

Foundation (1-5) and Higher (4-9).

Split according to topics.

Combined Science

<table>
<thead>
<tr>
<th>Subject</th>
<th>Paper 1</th>
<th>Paper 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1</td>
<td>1hr 10</td>
<td>1hr 10</td>
</tr>
<tr>
<td>Chemistry 1</td>
<td>1hr 10</td>
<td>1hr 10</td>
</tr>
<tr>
<td>Physics 1</td>
<td>1hr 10</td>
<td>1hr 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject</th>
<th>Paper 1</th>
<th>Paper 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 2</td>
<td>1hr 10</td>
<td>1hr 10</td>
</tr>
<tr>
<td>Chemistry 2</td>
<td>60 marks</td>
<td>60 marks</td>
</tr>
<tr>
<td>Physics 2</td>
<td>1hr 10</td>
<td>1hr 10</td>
</tr>
</tbody>
</table>

Separate Sciences

<table>
<thead>
<tr>
<th>Subject</th>
<th>Paper 1</th>
<th>Paper 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1</td>
<td>1hr 45</td>
<td>1hr 45</td>
</tr>
<tr>
<td>Chemistry 1</td>
<td>100 marks</td>
<td>100 marks</td>
</tr>
<tr>
<td>Physics 1</td>
<td>1hr 45</td>
<td>1hr 45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject</th>
<th>Paper 1</th>
<th>Paper 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 2</td>
<td>1hr 45</td>
<td>1hr 45</td>
</tr>
<tr>
<td>Chemistry 2</td>
<td>60 marks</td>
<td>60 marks</td>
</tr>
<tr>
<td>Physics 2</td>
<td>1hr 45</td>
<td>1hr 45</td>
</tr>
</tbody>
</table>

Module content
Biology/Combined Science

**Paper 1**
- Overarching concepts in Biology
- Cells and control
- Genetics
- Natural selection and genetic modification
- Health, disease and development of medicines

**Paper 2**
- Overarching concepts in Biology
- Plant structures and their functions
- Animal coordination, control and homeostasis
- Exchange and transport in animals
- Ecosystems and material cycles

Chemistry/Combined Science

**Paper 1**
- Overarching concepts in Chemistry
- States of Matter
- Methods of separating and purifying substances
- Acids
- Obtaining and using metals
- Electrolytic processes
- Reversible reactions and equilibria
- Transition metals, alloys and corrosion*
- Quantitative analysis*
- Dynamic equilibria calculations involving volumes if gases*
- Chemical cells and fuel cells*

**Paper 2**
- Overarching concepts in Chemistry
- Group 1, 7 and 0
- Rates of Reaction
- Fuels
- Heat energy changes in chemical reactions
- Earth and atmospheric science
- Qualitative analysis: tests for ions*
- Hydrocarbons*
- Polymers*
- Alcohols and carboxylic acids*
- Bulk and surface properties of matter including nanoparticles

* Chemistry GCSE only

Physics/Combined Science

**Paper 1**
- Overarching concepts in Physics
- Waves
- Light and the electromagnetic spectrum
- Particle model - 1
- Radioactivity
- Astronomy*

**Paper 2**
- Overarching concepts in Physics
- Energy – forces doing work
- Forces and their effects
- Electricity and circuits
- Static Electricity*
- Magnetism and the motor effect
- Electromagnetic induction
- Particle model - 2
- Forces and matter

*Physics GCSE only

**Assessing practical skills**

There are 8 core practical’s in each of the separate science GCSEs. There are 17 in the Combined Science GCSEs. These are based on the apparatus and techniques list in the DfE criteria.

Knowledge and understanding of these core practical’s, as well as investigative skills will be tested in the exams (15% of marks).

**Assessing maths skills**

Set percentages of Maths within the paper, 20% over all 6 papers (10% from Biology, 20% from Chemistry and 30% from Physics).

Set list of 19 Physics equations to recall and apply in GCSE Physics (plus 9 just to apply).