

# Combined Science Long Term Programme of Study Year 11

## Temperance Term

W/C	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	HALF TERM
Area of Study	<b>B6 Inheritance, Variation and Evolution, P6 Waves</b>							
Core Learning	<p><b>B6 Compare asexual and sexual reproduction, with relation to number of chromosomes and explain how favoured characteristics can be selectively bred.</b></p> <ul style="list-style-type: none"> <li>-Understand the differences between mitosis and meiosis.</li> <li>-WS 1.2 Model behaviour of chromosomes during meiosis.</li> <li>-Describe the structure of DNA</li> <li>-Describe the importance of the human genome</li> <li>-Draw genetic diagrams to show the possible genotype and phenotype of offspring</li> <li>-MS 1c, 3a use direct proportion and simple ratios to express outcomes of genetic crosses.</li> </ul> <p><b>C9-Describe and explain the factors which can affect the chemistry of the Earth's atmosphere</b></p> <ul style="list-style-type: none"> <li>-Describe the Earth's early atmosphere</li> <li>-Describe the main changes in the atmosphere over time and the likely cause of these changes</li> <li>-Describe the greenhouse effect</li> </ul> <p><b>P6 Show how changes in velocity, frequency and wavelength, in transmission of sound waves from one medium to another, are inter-related</b></p> <ul style="list-style-type: none"> <li>-Provide examples of transfers of energy by electromagnetic waves</li> <li>- Explain the uses and dangers of electromagnetic waves.</li> </ul>							
Opportunities for Challenge	<p><b>Consider and debate the ethical considerations of cloning</b></p> <p><b>Evaluate the quality of evidence in a report about global climate change</b></p> <p><b>Explain that a perfect black body is an object that absorbs all of the radiation that hits it. No radiation is reflected or transmitted.</b></p>							
Assessment	End of Topic Tests							

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W/C	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	CHRISTMAS
Area of Study	<b>B6 Inheritance, Variation and Evolution and C9 Chemistry of the Atmosphere</b>		<b>Revision of Paper 1 Topics</b>		<b>Mocks (Paper 1)</b>		
Core Learning	<p><b>C10-Explain ways to use the Earth's natural resources to manufacture useful products</b></p> <ul style="list-style-type: none"> <li>-Distinguish between finite and renewable resources.</li> <li>-Describe the difference in the treatment of ground water and salty water</li> <li>-Carry out a life cycle assessment</li> </ul> <p><b>P7-Explain how electromagnetic effects are used in a variety of devices</b></p> <ul style="list-style-type: none"> <li>-Describe the differences between permanent and induced magnetism</li> <li>Draw the magnetic field pattern of a bar magnet</li> <li>-Describe how the magnetic effect of a current can be demonstrated</li> </ul>						
Opportunities for Challenge	<p>Evaluate alternative methods of metal extraction</p> <p>Show that Fleming's left-hand rule represents the relative orientation of the force, the current in the conductor and the magnetic field</p>						
Assessment	End of Topic Tests						

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## Justice Term

W/C	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	HALF TERM
Area of Study	<b>P7- Magnetism and Electromagnetism and C10 Using Resources</b>			<b>Revision of Paper 2 Topics</b> B5- Homeostasis and Response, B7- Ecology, C6- The Rate and Extent of Chemical, C7- Organic Chemistry, C8 – Chemical Analysis, P5- Forces			
Core Learning	<b>C10-Explain ways to use the Earth's natural resources to manufacture useful products</b> -Distinguish between finite and renewable resources. -Describe the difference in the treatment of ground water and salty water -Carry out a life cycle assessment  <b>P7-Explain how electromagnetic effects are used in a variety of devices</b> -Describe the differences between permanent and induced magnetism Draw the magnetic field pattern of a bar magnet -Describe how the magnetic effect of a current can be demonstrated			B5-Describe the structure and function of the nervous system and the hormonal system. B7 Describe how humans can affect biodiversity and consider the actions that improve sustainability. C6-Understand energy changes that accompany chemical reactions. C7-Explain the importance of carbon compounds as organic compounds, in terms of structure and properties. C8-Explain a variety of instrumental methods can be used to analyse substances P5 Identify and measure forces acting on objects			
Opportunities for Challenge	Evaluate alternative methods of metal extraction Show that Fleming's left-hand rule represents the relative orientation of the force, the current in the conductor and the magnetic field			Grade 7, 8, 9 challenge questions			
Assessment	End of Topic Tests			Self assessment and in-class tests			

W/C	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	EASTER
Area of Study	<b>Mocks (Paper 2)</b>	<b>B1- Cell Biology and C1- Atomic Structure and the Periodic Table</b>	<b>P1- Energy and C2- Bonding, Structure and the Properties of Matter</b>	<b>B2- Organisation and P2- Electricity</b>	<b>B3 – Infection and Response and C3- Quantitative Chemistry</b>	<b>P3- Particle Model of Matter and C4- Chemical Changes</b>	

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Core Learning		<p>B1- Students should be able to, explain how the structure of different types of cell relate to their function in a tissue, an organ or organ system, or the whole organism.</p> <p>C1 – Describe the development and structure of the atom and periodic table.</p> <p>Revision</p>	<p>P1 - There are changes in the way energy is stored when a system changes. Students should be able to describe all the changes involved in the way energy is stored when a system changes.</p> <p>C2 – Explain how atoms are held together in structures and describe their properties.</p> <p>Revision</p>	<p>B2 - Students should know the structure and functioning of the human digestive system and the respiratory system. Students should be able to describe the relationship between health and disease and the interactions between different types of disease.</p> <p>P2-Describe how to calculate resistance and the factors which can alter it. Describe how electricity is delivered to our homes and businesses.</p> <p>Revision</p>	<p>B3 -Students should be able to explain how diseases caused by viruses, bacteria, protists and fungi are spread in animals and plants.</p> <p>C3 – Use chemical equations as a way to communicate chemical ideas.</p> <p>Revision</p>	<p>P3 – Use the particle model to predict the behaviour in solids, liquids and gases.</p> <p>C4 – Investigate and predict chemical changes in substances</p> <p>Revision</p>	
Opportunities for Challenge		Grade 7, 8, 9 challenge questions	Grade 7, 8, 9 challenge questions	Grade 7, 8, 9 challenge questions	Grade 7, 8, 9 challenge questions	Grade 7, 8, 9 challenge questions	
Assessment	End of Topic Tests and Justice Term Assessment	Self assessment and in-class tests	Self assessment and in-class tests	Self assessment and in-class tests	Self assessment and in-class tests	Self assessment and in-class tests	

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## Courage Term

W/C	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	HALF TERM
Area of Study	<b>B4- Bioenergetics and P4- Atomic Structure</b>	<b>C5- Energy Changes and B6- Inheritance, variation and evolution</b>	<b>C9 – Chemistry of the Atmosphere and P6- Waves</b>	<b>C10 - Using Resources and P7- Magnetism and Electromagnetism</b>	<b>Y11 on bespoke revision timetable</b>		
Core Learning	<p><b>B4 - Describe and explain the processes of respiration and photosynthesis</b></p> <p><b>P4 – Describe the structure of the atom, the nuclear forces and atom stability.</b></p> <p>Revision</p>	<p><b>C5 - Explain how the interaction of particles often involves transfers of energy.</b></p> <p><b>B6-Compare asexual and sexual reproduction, with relation to number of chromosomes and explain how favoured characteristics can be selectively bred.</b></p> <p>Revision</p>	<p><b>C9-Describe and explain the factors which can affect the chemistry of the Earth’s atmosphere</b></p> <p><b>P6 Show how changes in velocity, frequency and wavelength, in transmission of sound waves from one medium to another, are inter-related</b></p> <p>Revision</p>	<p><b>C10-Explain ways to use the Earth's natural resources to manufacture useful products</b></p> <p><b>P7-Explain how electromagnetic effects are used in a variety of devices</b></p> <p>Revision</p>			
Opportunities for Challenge	Grade 7, 8, 9 challenge questions	Grade 7, 8, 9 challenge questions	Grade 7, 8, 9 challenge questions	Grade 7, 8, 9 challenge questions			
Assessment	Self assessment and in-class tests	Self assessment and in-class tests	Self assessment and in-class tests	Self assessment and in-class tests	GCSE Exams		

W/C	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	SUMMER
Area of Study							

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<b>Core Learning</b>	Study Leave	
<b>Opportunities for Challenge</b>		
<b>Assessment</b>	GCSE Exams	