



## CHS Curriculum Intent

**SUCCESSFUL:** Learners who gain deep and powerful knowledge in preparation for life; combining academic rigour, curiosity and creative flair.

**CREATIVE:** Learners who are imaginative, optimistic and inventive; finding their voice to become effective communicators prepared for lifelong adaptability

**HAPPY:** Learners who are confident, resilient, well-rounded citizens; they understand the world's communities and are ready to discover their place in it.

## CHS Curriculum Area Framework for Learning – Year 11

<b>SUBJECT</b>	Science
<b>INTENT</b>	Students will learn the foundations of chemistry, biology and physics during KS3 and build upon them during KS4, with the intention of raising interest and engagement in the natural world and developing their curiosity.

<b>Year Group</b>	11 JOS					
<b>Rationale/ Narrative</b>	In their final year of study, Year 11 students will develop a deep understanding of scientific ideas making explicit links between topics studied. They will develop independence and gain confidence in working and thinking scientifically. This includes reading scientific content from a range of sources, writing up practical investigations as well as working safely to collect data. Throughout this year, students will be exposed and introduced to the expectations of further study of science so that they can make informed decisions linked to career choices for the future					
	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
<b>KNOWLEDGE</b>	Chemistry 5.7 Organic chemistry	Chemistry 5.10 Using resources	Physics 6.6 Waves 6.6.1.1 Transverse and longitudinal waves	Students will complete focused revision on a class-by class basis.	Students will complete focused revision on a class-by class basis.	



# CHORLTON HIGH SCHOOL: CURRICULUM

	<p>5.7.1.1 Crude oil, hydrocarbons and alkanes 5.7.1.2 Fractional distillation and petrochemicals 5.7.1.3 Properties of hydrocarbons 5.7.1.4 Cracking and alkenes</p> <p><b>8462 Chemistry 4.7 Organic chemistry</b> 4.7.2 Reactions of alkenes and alcohols 4.7.3 Synthetic and naturally occurring polymers</p> <p><b>Chemistry 5.8 Chemical analysis</b> 5.8.1.1 Pure substances 5.8.1.2 Formulations 5.8.1.3 Chromatography <b>Required practical activity 12: Chromatography.</b> 5.8.2.1 Test for hydrogen 5.8.2.2 Test for oxygen 5.8.2.3 Test for carbon dioxide 5.8.2.4 Test for chlorine</p> <p><b>8462 Chemistry 4.8 Chemical analysis</b> 4.8.3 Identification of ions by chemical and spectroscopic means</p> <p><b>Chemistry 5.9 Chemistry of the atmosphere</b></p>	<p>5.10.1.1 Using the Earth's resources and sustainable development 5.10.1.2 Potable water <b>Required practical activity 13: water samples and analysis</b> 5.10.1.3 Waste water treatment 5.10.1.4 Alternative methods of extracting metals (HT only) 5.10.2.1 Life cycle assessment 5.10.2.2 Ways of reducing the use of resources</p> <p><b>8462 Chemistry 4.10 Using resources</b> 4.10.3 Using materials 4.10.4 The Haber process and the use of NPK fertilisers</p> <p><b>Biology 4.6 Inheritance, variation and evolution</b> 4.6.1.1 Sexual and asexual reproduction 4.6.1.2 Meiosis 4.6.1.3 DNA and the genome 4.6.1.4 Genetic inheritance 4.6.1.5 Inherited disorders 4.6.1.6 Sex determination 4.6.2.1 Variation 4.6.2.2 Evolution 4.6.2.3 Selective breeding 4.6.2.4 Genetic engineering 4.6.3.1 Evidence for evolution</p>	<p>6.6.1.2 Properties of waves <b>Required practical activity 20: (observations of waves)</b> 6.6.2.1 Types of electromagnetic waves 6.6.2.2 Properties of electromagnetic waves 1 <b>Required practical activity 21 (absorption and emission of IR)</b> 6.6.2.3 Properties of electromagnetic waves 2 6.6.2.4 Uses and applications of electromagnetic waves</p> <p><b>8463 Physics 4.6 Waves</b> 4.6.1.3 Reflection of waves 4.6.1.4 Sound waves 4.6.1.5 Waves for detection and exploration 4.6.2.5 Lenses 4.6.2.6 Visible light 4.6.3 Black body radiation</p> <p><b>Physics 6.7 Magnetism and electromagnetism</b> 6.7.1.1 Poles of a magnet 6.7.1.2 Magnetic fields 6.7.2.1 Electromagnetism 6.7.2.2 Fleming's left-hand rule (HT only) 6.7.2.3 Electric motors (HT only)</p>	<p>This will involve:</p> <ul style="list-style-type: none"> <li>- Revisiting content from biology, chemistry and physics units</li> <li>- Reflecting on college entry exams using personal learning checklists</li> <li>- Regular completion of past papers either individually, in pairs or through teacher modelling</li> <li>- Revision skills and exam technique will be explicitly taught</li> </ul>	<p>This will involve:</p> <ul style="list-style-type: none"> <li>- Revisiting content from biology, chemistry and physics units</li> <li>- Reflecting on college entry exams using personal learning checklists</li> <li>- Regular completion of past papers either individually, in pairs or through teacher modelling</li> <li>- Revision skills and exam technique will be explicitly taught</li> </ul>	
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# CHORLTON HIGH SCHOOL: CURRICULUM

	<p>5.9.1.1 The proportions of different gases in the atmosphere            5.9.1.2 The Earth's early atmosphere            5.9.1.3 How oxygen increased            5.9.1.4 How carbon dioxide decreased            5.9.2.1 Greenhouse gases            5.9.2.2 Human activities which contribute to an increase in greenhouse gases in the atmosphere            5.9.2.3 Global climate change            5.9.2.4 The carbon footprint and its reduction            5.9.3.1 Atmospheric pollutants from fuels            5.9.3.2 Properties and effects of atmospheric pollutants</p>	<p>4.6.3.2 Fossils            4.6.3.3 Extinction            4.6.3.4 Resistant bacteria            4.6.4 Classification of living organisms</p> <p><b>8461 Biology 4.6 Inheritance, variation and evolution</b>            4.6.1.3 Advantages and disadvantages of sexual and asexual reproduction            4.6.1.5 DNA structure            4.6.2.5 Cloning            4.6.3.1 Theory of evolution            4.6.3.2 Speciation            4.6.3.3 The understanding of genetics</p>	<p><b>8463 Physics 4.7 Magnetism and electromagnetism</b>            4.7.2.4 Loudspeakers            Induced potential, transformers and the National Grid</p> <p><b>8463 Physics 4.8 Space physics</b>            4.8.1 Solar system; stability of orbital motions; satellites            4.8.2 Red-shift</p>			
<p><b>SKILLS</b></p>	<p><b>5.7 Organic Chemistry</b>            Students will study the formation and extraction of crude oil, will plot boiling points of alkanes against number of carbons. Make predictions of the boiling points of other alkanes, make models of alkane molecules using molecular modelling kits.</p> <p>Investigate the properties of different hydrocarbons in terms of boiling point,</p>	<p><b>Chemistry 5.10 Using resources</b></p> <p>Students will complete</p> <ul style="list-style-type: none"> <li>RP 13 – water samples and analysis</li> </ul> <p>LCAs should be done as a comparison of the impact on the environment of the stages in the life of a product</p>	<p><b>Physics 6.7 Magnetism and electromagnetism</b></p> <p>Application of the equation:  <math>\text{Force} = \text{magnetic flux density} \times \text{current} \times \text{length}</math></p> <p>Describe how to plot the magnetic field pattern of a magnet using a compass</p> <p>Draw the magnetic field pattern of a bar magnet showing how strength and</p>	<p>Alongside revision of key content, the following scientific skills will be consolidated:</p> <ul style="list-style-type: none"> <li>- Use of scientific models</li> <li>- Evaluation of ethical, environmental, economic and social issues linked to scientific developments</li> <li>- Plan and devise scientific experiments to test hypotheses</li> </ul>	<p>Alongside revision of key content, the following scientific skills will be consolidated:</p> <ul style="list-style-type: none"> <li>- Use of scientific models</li> <li>- Evaluation of ethical, environmental, economic and social issues linked to scientific developments</li> <li>- Plan and devise scientific experiments to test hypotheses</li> </ul>	



# CHORLTON HIGH SCHOOL: CURRICULUM

	<p>viscosity and flammability with increasing molecular size.</p> <p>Identify the products of combustion of alkanes.</p> <p>Demo or practical: crack paraffin over porous clay pot.</p> <p>Use bromine water to identify alkenes.</p> <p>Test for unsaturation in other compounds.</p> <p>Research uses of common alkenes.</p> <p><b>5.8 Chemical analysis</b> Research the melting and boiling points of common pure substances and compounds. Suggest reasons for differences in data available on the internet.</p> <p><b>RP 12:</b> Investigate how paper chromatography can be used to separate and tell the difference between coloured substances. Calculate R<sub>f</sub> value using: Distance moved by substance/ distance moved by solvent</p>	<p>Research how metal is recycled and alternatives for use of scrap metals ie in obtaining iron in a blast furnace.</p> <p>Recognise and use expressions in decimal form.</p> <p>Use ratios, fractions and percentages.</p> <p>Make estimates of the results of simple calculations.</p> <p>Use an appropriate number of significant figures.</p> <p>Translate information between graphical and numeric form.</p> <p><b>Biology 4.6 Inheritance, variation and evolution</b></p> <p>Model behaviour of chromosomes</p> <p>Use probability, proportion and ratios in relation to inheritance</p> <p>Use of punnet squares</p>	<p>direction change from one point to another</p> <p>Explain how the behaviour of a magnetic compass is related to evidence that the core of the Earth must be magnetic</p> <p>Describe how the magnetic effect of a current can be demonstrated</p> <p>Draw the magnetic field pattern for a straight wire carrying a current and for a solenoid (showing the direction of the field)</p> <p>Explain how a solenoid arrangement can increase the magnetic effect of the current.</p>	<ul style="list-style-type: none"> <li>- Make and record observations and measurements</li> <li>- Present data using appropriate methods</li> <li>- Carry out statistical analysis</li> <li>- Use scientific terminology, vocabulary and definitions</li> <li>- Use standard SI units</li> <li>- Interconvert units</li> <li>- Use an appropriate number of significant figures</li> </ul>	<ul style="list-style-type: none"> <li>- Make and record observations and measurements</li> <li>- Present data using appropriate methods</li> <li>- Carry out statistical analysis</li> <li>- Use scientific terminology, vocabulary and definitions</li> <li>- Use standard SI units</li> <li>- Interconvert units</li> <li>- Use an appropriate number of significant figures</li> </ul>	
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	<p>Standard gas tests H<sub>2</sub>, O<sub>2</sub>, Cl<sub>2</sub>, CO<sub>2</sub></p> <p><b>Chemistry 5.9 Chemistry of the atmosphere</b></p> <p>Use the internet to obtain data for concentrations of greenhouse gases. Evaluate the reliability of the data available on the internet.</p> <p>Research the process of peer review in reporting results/data</p>	<p>Extract and interpret information from charts, graphs and tables.</p> <p>Interpret evolutionary trees.</p> <p><b>Physics 6.6 Waves</b></p> <p>Recall and application of the equation:</p> <p>Wave speed= frequency x wavelength</p> <p>Use of Period = 1/ frequency</p> <p>Be able to consider and apply examples of each part of the EMS and consider the positive and negatives pf each application.</p>				
<b>ASSESSMENTS</b>	<p>Students will be assessed on: <b>(3 will be selected per term plus Progress test)</b></p> <p>Write up of cracking</p> <p>Aspects of a full practical write up related to</p> <ul style="list-style-type: none"> <li>RP 12 chromatography</li> </ul> <p>End of topic test</p>	<p>Students will be assessed on: <b>(3 will be selected per term plus Progress test)</b></p> <p>Write up of cracking</p> <p>Aspects of a full practical write up related to</p> <ul style="list-style-type: none"> <li>RP 13 – water samples and analysis</li> </ul> <p>Aspects of a full practical write up related to</p> <ul style="list-style-type: none"> <li>RP 20 – waves</li> </ul>	<p>Pre Public Examination 1</p> <p>Pre Public Examination 2</p> <p>Pre Public Examination 3</p>	<p>Continual exam and exam question practice tailored to the needs of the classes being taught.</p>		



# CHORLTON HIGH SCHOOL: CURRICULUM

		<ul style="list-style-type: none"> <li>RP 21 – IR absorption and emission</li> </ul> <p>End of topic test</p> <p>College Entry Examination 1</p> <p>College Entry Examination 2</p> <p>College Entry Examination 3</p>				
<b>Year Group</b>	<b>11 SDO</b>					
<b>Rationale/ Narrative</b>	<p>In their final year of study, Year 11 students will develop a deep understanding of scientific ideas making explicit links between topics studied. They will develop independence and gain confidence in working and thinking scientifically. This includes reading scientific content from a range of sources, writing up practical investigations as well as working safely to collect data. Throughout this year, students will be exposed and introduced to the expectations of further study of science so that they can make informed decisions linked to career choices for the future</p>					
	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
<b>KNOWLEDGE</b>	<p><b>8464 Physics 6.5 Forces</b></p> <p>6.5.1.1 Scalar and vector quantities</p> <p>6.5.1.2 Contact and non-contact forces</p> <p>6.5.1.3 Gravity</p> <p>6.5.1.4 Resultant forces</p> <p>6.5.2 Work done and energy transfer</p> <p>6.5.3 Forces and elasticity</p> <p><b>Required practical activity 18: force and extension of a spring</b></p> <p>6.5.4.1.1 Distance and displacement</p> <p>6.5.4.1.2 Speed</p>	<p><b>8464 Biology 4.5 Homeostasis and response</b></p> <p>4.5.1 Homeostasis</p> <p>4.5.2 The human nervous system</p> <p><b>Required practical activity 6 reaction time</b></p> <p>4.5.3.1 Human endocrine system</p> <p>4.5.3.2 Control of blood glucose concentration</p> <p>4.5.3.3 Hormones in human reproduction</p> <p>4.5.3.4 Contraception</p>	<p><b>Physics 6.7 Magnetism and electromagnetism</b></p> <p>6.7.1.1 Poles of a magnet</p> <p>6.7.1.2 Magnetic fields</p> <p>6.7.2.1 Electromagnetism</p> <p>6.7.2.2 Fleming's left-hand rule (HT only)</p> <p>6.7.2.3 Electric motors (HT only)</p> <p><b>8463 Physics 4.7 Magnetism and electromagnetism</b></p> <p>4.7.2.4 Loudspeakers</p> <p>Induced potential, transformers and the National Grid</p>	<p>Students will complete focused revision on a class-by class basis.</p> <p>This will involve:</p> <ul style="list-style-type: none"> <li>- Revisiting content from biology, chemistry and physics units</li> <li>- Reflecting on college entry exams using personal learning checklists</li> <li>- Regular completion of past papers either individually, in pairs or through teacher modelling</li> </ul>	<p>Students will complete focused revision on a class-by class basis.</p> <p>This will involve:</p> <ul style="list-style-type: none"> <li>- Revisiting content from biology, chemistry and physics units</li> <li>- Reflecting on college entry exams using personal learning checklists</li> <li>- Regular completion of past papers either individually, in pairs or through teacher modelling</li> </ul>	



# CHORLTON HIGH SCHOOL: CURRICULUM

	<p>6.5.4.1.3 Velocity 6.5.4.1.4 The distance–time relationship 6.5.4.1.5 Acceleration 6.5.4.2.1 Newton's First Law 6.5.4.2.2 Newton's Second Law <b>Required practical activity 19: force and acceleration</b> 6.5.4.2.3 Newton's Third Law 6.5.4.3.1 Stopping distance 6.5.4.3.2 Reaction time 6.5.4.3.3 Factors affecting braking distance 1 6.5.4.3.4 Factors affecting braking distance 2 6.5.5.1 Momentum is a property of moving objects <b>(HT only)</b> 6.5.5.2 Conservation of momentum <b>(HT only)</b></p> <p><b>8463 Physics 4.5 Forces</b> 4.5.4 <i>Moments, levers and gears</i> 4.5.5 <i>Pressure and pressure differences in fluids</i></p>	<p>4.5.3.5 The use of hormones to treat infertility <b>(HT only)</b> 4.5.3.6 Feedback systems <b>(HT only)</b></p> <p><b>8461 Biology 4.5 Homeostasis and response</b> 4.5.2.2 <i>The brain</i> 4.5.2.3 <i>The eye</i> 4.5.2.4 <i>Control of body temperature</i> 4.5.3.3 <i>Maintaining water and nitrogen balance in the body</i> 4.5.4 <i>Plant hormones</i></p> <p><b>Biology 4.6 Inheritance, variation and evolution</b> 4.6.1.1 Sexual and asexual reproduction 4.6.1.2 Meiosis 4.6.1.3 DNA and the genome 4.6.1.4 Genetic inheritance 4.6.1.5 Inherited disorders 4.6.1.6 Sex determination 4.6.2.1 Variation 4.6.2.2 Evolution 4.6.2.3 Selective breeding 4.6.2.4 Genetic engineering 4.6.3.1 Evidence for evolution 4.6.3.2 Fossils 4.6.3.3 Extinction 4.6.3.4 Resistant bacteria</p>	<p><b>Physics 6.6 Waves</b> 6.6.1.1 Transverse and longitudinal waves 6.6.1.2 Properties of waves <b>Required practical activity 20: (observations of waves)</b> 6.6.2.1 Types of electromagnetic waves 6.6.2.2 Properties of electromagnetic waves 1 <b>Required practical activity 21 (absorption and emission of IR)</b> 6.6.2.3 Properties of electromagnetic waves 2 6.6.2.4 Uses and applications of electromagnetic waves</p> <p><b>8463 Physics 4.6 Waves</b> 4.6.1.3 <i>Reflection of waves</i> 4.6.1.4 <i>Sound waves</i> 4.6.1.5 <i>Waves for detection and exploration</i> 4.6.2.5 <i>Lenses</i> 4.6.2.6 <i>Visible light</i> 4.6.3 <i>Black body radiation</i></p> <p><b>8463 Physics 4.8 Space physics</b> 4.8.1 Solar system; stability of orbital motions; satellites 4.8.2 Red-shift</p>	<p>- Revision skills and exam technique will be explicitly taught</p>	<p>- Revision skills and exam technique will be explicitly taught</p>	
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# CHORLTON HIGH SCHOOL: CURRICULUM

		<p>4.6.4 Classification of living organisms</p> <p><b>8461 Biology 4.6 Inheritance, variation and evolution</b></p> <p>4.6.1.3 Advantages and disadvantages of sexual and asexual reproduction</p> <p>4.6.1.5 DNA structure</p> <p>4.6.2.5 Cloning</p> <p>4.6.3.1 Theory of evolution</p> <p>4.6.3.2 Speciation</p> <p>4.6.3.3 The understanding of genetics</p>				
<b>SKILLS</b>	<p><b>6.5 Forces</b></p> <p>Modelling. Comprehension exercises. Practical completion. Calculations. Using equations. Graph drawing Rearranging equations Using formulae</p> <p>Recall and apply.</p> <p>Weight = m g Work done = F s F = k e <math>E_e = (\frac{1}{2}) k e^2</math> s = v t a = <math>\Delta v/t</math> <math>v^2 - u^2 = 2 a s</math></p>	<p><b>4.5 Homeostasis and response</b></p> <p>Evaluate information around the relationship between obesity and diabetes, and make recommendations taking into account social and ethical issues.</p> <p>Interpret and explain simple diagrams of negative feedback control.</p> <p>Show why issues around contraception cannot be answered by science alone.</p>	<p><b>Physics 6.7 Magnetism and electromagnetism</b></p> <p>Application of the equation: Force = magnetic flux density × current × length</p> <p>Describe how to plot the magnetic field pattern of a magnet using a compass</p> <p>Draw the magnetic field pattern of a bar magnet showing how strength and direction change from one point to another</p> <p>Explain how the behaviour of a magnetic compass is</p>	<p>Alongside revision of key content, the following scientific skills will be consolidated:</p> <ul style="list-style-type: none"> <li>- Use of scientific models</li> <li>- Evaluation of ethical, environmental, economic and social issues linked to scientific developments</li> <li>- Plan and devise scientific experiments to test hypotheses</li> <li>- Make and record observations and measurements</li> <li>- Present data using appropriate methods</li> </ul>	<p>Alongside revision of key content, the following scientific skills will be consolidated:</p> <ul style="list-style-type: none"> <li>- Use of scientific models</li> <li>- Evaluation of ethical, environmental, economic and social issues linked to scientific developments</li> <li>- Plan and devise scientific experiments to test hypotheses</li> <li>- Make and record observations and measurements</li> <li>- Present data using appropriate methods</li> </ul>	+





# CHORLTON HIGH SCHOOL: CURRICULUM

	<p><math>F = m a</math> <math>p = m v</math></p> <p>Students will complete</p> <ul style="list-style-type: none"> <li>• RP 6 reaction time</li> <li>• RP 7 sampling</li> <li>• RP 18 force and extension</li> <li>• RP 19 force and acceleration</li> </ul> <p>including associated write up / analysis and processing of results.</p>	<p>Model behaviour of chromosomes</p> <p>Use probability, proportion and ratios in relation to inheritance.</p> <p>Interpret information about genetic engineering techniques and to make informed judgements about issues concerning cloning and genetic engineering, including GM crops.</p> <p><b>Biology 4.6 Inheritance, variation and evolution</b></p> <p>Model behaviour of chromosomes</p> <p>Use probability, proportion and ratios in relation to inheritance</p> <p>Use of punnet squares</p> <p>Extract and interpret information from charts, graphs and tables.</p> <p>Interpret evolutionary trees.</p>	<p>related to evidence that the core of the Earth must be magnetic</p> <p>Describe how the magnetic effect of a current can be demonstrated</p> <p>Draw the magnetic field pattern for a straight wire carrying a current and for a solenoid (showing the direction of the field)</p> <p>Explain how a solenoid arrangement can increase the magnetic effect of the current.</p> <p><b>Physics 6.6 Waves</b></p> <p>Recall and application of the equation:</p> <p>Wave speed= frequency x wavelength</p> <p>Use of Period = 1/ frequency</p> <p>Be able to consider and apply examples of each part of the EMS and consider the positive and negatives pf each application.</p>	<p>- Carry out statistical analysis</p> <p>- Use scientific terminology, vocabulary and definitions</p> <p>- Use standard SI units</p> <p>- Interconvert units</p> <p>- Use an appropriate number of significant figures</p>	<p>- Carry out statistical analysis</p> <p>- Use scientific terminology, vocabulary and definitions</p> <p>- Use standard SI units</p> <p>- Interconvert units</p> <p>- Use an appropriate number of significant figures</p>	
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# CHORLTON HIGH SCHOOL: CURRICULUM

<p><b>ASSESSMENTS</b></p>	<p>Students will be assessed on: <b>(3 will be selected per term plus Progress test)</b></p> <p>Aspects of a full practical write up related to</p> <ul style="list-style-type: none"> <li>RP 18 force and extension</li> <li>RP 19 force and acceleration</li> </ul> <p>End of topic tests</p>	<p>Aspects of a full practical write up related to</p> <ul style="list-style-type: none"> <li>RP 6 reaction time</li> </ul> <p>Aspects of a full practical write up related to</p> <ul style="list-style-type: none"> <li>RP 20 – waves</li> <li>RP 21 – IR absorption and emission</li> </ul> <p>End of topic test</p> <p>College Entry Examination 1</p> <p>College Entry Examination 2</p> <p>College Entry Examination 3</p>	<p>Pre Public Examination 1</p> <p>Pre Public Examination 2</p> <p>Pre Public Examination 3</p>	<p>Continual exam and exam question practice tailored to the needs of the classes being taught.</p>		
<p><b>HOME LEARNING</b></p>		<p>TEAMs quizzes / homework's relevant to the topic being taught.</p> <p>Specification questions related to topic being studied for EOT / PT preparation.</p> <p>Use of TEAMs and materials developed for</p>	<p>TEAMs quizzes / homework's relevant to the topic being taught.</p> <p>Specification questions related to topic being studied for EOT / PT preparation.</p> <p>Use of TEAMs and materials developed for</p>	<p>Revision and past papers for terminal examinations in the following qualifications-</p> <ul style="list-style-type: none"> <li>8461 Biology</li> <li>8462 Chemistry</li> <li>8463 Physics</li> <li>8464 Trilogy</li> </ul> <p>Use of TEAMs and materials developed for</p>	<p>Revision and past papers for terminal examinations in the following qualifications-</p> <ul style="list-style-type: none"> <li>8461 Biology</li> <li>8462 Chemistry</li> <li>8463 Physics</li> <li>8464 Trilogy</li> </ul> <p>Use of TEAMs and materials developed for</p>	



# CHORLTON HIGH SCHOOL: CURRICULUM

		sharepoint to supplement learning and revision	sharepoint to supplement learning and revision	sharepoint to supplement learning and revision	sharepoint to supplement learning and revision	
<b>READING, WRITING, TALK</b>	<p><b>Talk</b></p> <p>Students will discuss the laws relating to out speed limits and the potential for massively increased danger with a small increase in velocity of a vehicle, leading to debate around the 20 mph limit around schools</p>	<p><b>4.5 Homeostasis and response</b></p> <p><b>Reading:</b></p> <p>Students will read material from a range of medical and scientific sources to identify factors affecting health.</p> <p><b>Biology 4.6 Inheritance, variation and evolution</b></p> <p>Use the theory of evolution by natural selection in an explanation.</p> <p>Explain the benefits and risks of selective breeding given appropriate information and consider related ethical issues.</p> <p><b>Physics 6.6 Waves</b></p> <p>Aspects of a full practical write up related to</p> <ul style="list-style-type: none"> <li>• RP 20 – waves</li> <li>• RP 21 – IR absorption and emission</li> </ul>	<p><b>Physics 6.7 Magnetism and electromagnetism</b></p> <p>Explain how the behaviour of a magnetic compass is related to evidence that the core of the Earth must be magnetic.</p> <p>Explain how a solenoid arrangement can increase the magnetic effect of the current</p> <p>Explain how the force on a conductor in a magnetic field causes the rotation of the coil in an electric motor</p>			



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<b>TIER 3 VOCAB</b>	<b>6.5 Forces</b> Velocity Acceleration Vector Scalar Displacement Resolving	<b>4.5 Homeostasis and response</b> Regulation Homeostasis Optimal Stimulus Receptor Effector Response Reflex Neurone Endocrine Glands Diabetes Menstrual Plasmid Diabetes  <b>Biology 4.6 Inheritance, variation and evolution</b> Inheritance Evolution Asexual Gametes Chromosome Mitosis Genome Gamete Chromosome Gene Allele Dominant Recessive Homozygous Heterozygous Genotype	<b>Physics 6.6 Waves</b>  Longitudinal Transverse Compression Rarefaction Frequency Velocity Wavelength Time period Frequency Refraction Reflection Absorption Oscillation			



# CHORLTON HIGH SCHOOL: CURRICULUM

		<p>Phenotype</p> <p><b>Physics 6.6 Waves</b></p> <p>Frequency Wavelength Infra-red Ultraviolet Gamma Spectrum Electromagnetic</p>				
<p><b>SMSC, BRITISH VALUES</b></p>	<p>To consider road safety and the actions of lawmakers and communities towards speeding and poor vehicle maintenance.</p>	<p><b>Moral and Social:</b></p> <p>Appreciate that embryo screening and gene therapy may alleviate suffering but consider the ethical issues which arise</p> <p>Students will also consider the cost to the NHS of obesity and type 2 diabetes.</p> <p>Students will consider the impact of applications of EM waves e.g. UV light used in tanning beds, gamma used in radiotherapy and x-rays used in bone imaging</p>	<p><b>Moral and social</b></p> <p>Consider the effects of Ultraviolet waves which can cause skin to age prematurely and increase the risk of skin cancer. X-rays and gamma rays are ionising radiation that can cause the mutation of genes and cancer</p>			