



# Curriculum Information 2017-18

## SCIENCE

### 1. Key Stage 3

Science KS3 Topics				[Staff Contact: Ms Edmund]		
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Year 7</b>	<i>Cells Particles and states of matter</i>	<i>Energy and Sustainable living Reproduction</i>	<i>Chemical Reactions Electrical Circuits</i>	<i>Ecology Acids and alkalis</i>	<i>Forces and their effects Classification</i>	<i>Solar System Gravity and space Working Scientifically</i>
<b>Year 8</b>	<i>Diet and digestion Solutions</i>	<i>Heat transfers Periodic Table</i>	<i>Respiration Materials and recycling</i>	<i>Magnets Microbes and disease</i>	<i>Light Rocks and the Rock Cycle</i>	<i>Sound Ecological relationships</i>
<b>Year 9</b>	<i>Cells and Genetics Building Materials Reactions of Metals Using Energy</i>		<i>Plant Growth Pollution Pressure and Moments Forces and Speed</i>		<b><u>GCSE STUDIES</u></b> <b><i>Cell Biology, Atomic Structure, Particle Model, Bonding and structure/ Organisation</i></b>	

### SCIENCE Assessment in Key Stage 3:

In Science, you will receive detailed written feedback on the following pieces of work this year. There will be opportunities for you to respond to that feedback.

Term	Year 7	Year 8	Year 9
Autumn	Cells and Particles assessment. Review and feedback	Diet and digestion and solutions assessment. Review and feedback	Cells and genetics and energy assessment. Review and feedback
Spring	Energy, sustainable living and reproduction assessment. Review and feedback	Heat transfers, respiration and materials assessment. Review and feedback.	End of KS3 exam. All Yr9 topic assessment.
Summer	End of Year Exams: 15-29.06.18	End of Year Exams: 15-29.06.18	End of Year Exams: 11-22.06.18



# Curriculum Information 2017-18

Keywords and Subject Specific Vocabulary												Science
	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2	
<b>Year 7</b>	Nucleus Cell membrane Cell wall Cytoplasm Mitochondria Ribosomes Vacuole Chloroplast Specialised cell Organs Enzyme	Particle theory Solid Liquid Gas Pressure Bonds Diffusion Kinetic energy Evaporation Condensation	Fossil fuel Electricity Renewable Biomass Geothermal Hydroelectric Wave power Solar Nuclear Joule Carbon neutral	Fertilisation Nucleus Chromosomes Gametes Zygote Uterus Embryo Fallopian tube Fertility IVF Menstruation Placenta	Reversible Irreversible Reactant Product Combustion Activation energy Carbon dioxide Oxygen Hydrogen Oxide	Voltage Potential difference Current Parallel circuit Series circuit Filament Resistance Ohm's Law Fuse Atoms Electron	Environment Habitat Community Population Quadrat Belt transect Random sampling Biotic Abiotic Predator Prey	Hazard Concentration Sulfuric acid Nitric acid Hydrochloric acid Neutralisation pH Antacid Ion Hydrogen ion Hydroxide ion	Contact forces Non-contact forces Weight Mass Newton Density Balanced Unbalanced Stationary	Variation Correlation Continuous variation Discontinuous variation Distribution Linnaeus Kingdom Vertebrates Invertebrates Arthropods	Planet Dwarf planet Asteroid Comet Star Moon Satellite Lunar Orbit Ellipse Constellation Galaxy	Gravity Mass Weight Field strength Universe Kilograms Newtons Force Light
<b>Year 8</b>	Balanced diet Malnutrition Obesity Body Mass Index Joule and kilojoule Chemical energy Diabetes Enzymes Respiration Bile Stomach acid	Soluble Insoluble Solvent Solute Saturated Salts Hard water Soft water Chromatography Water vapour Condensation Distillation Desalination	Particle Infrared radiation Emit Medium Conductor Insulator Conduction Convection Radiation Absorbed Reflected	Atom Element Compound Group Period Atomic number Atomic mass Chemical formula Word equation	Aerobic Anaerobic Glucose Lactic acid Mitochondria Oxygen debt Excreted Ventilation Alveoli Heart Arteries Veins Capillaries	Minerals Ore Igneous Metamorphic Sedimentary Weathering Erosion	Electromagnet Bar magnet Permanent magnet North pole South pole Repel Attract Magnetism Compass Magnetic field	Pathogen Microorganism Bacteria Virus Yeast Infectious cell White blood cell Antibody Antitoxin Vaccine Immunity Antibiotic resistance	Shadow Absorbed Reflection Transparent Translucent Opaque Ray diagram Incident ray Refraction Diffraction Spectrum Prism Wavelength	Theory Creationism Catastrophism Uniformitarianism Plate tectonic Mantle Wegener Convection current Earthquake Volcano Continental drift	Pitch Volume Amplitude Wavelength Frequency Hertz Vibrate Sound wave Oscilloscope Vacuum Eardrum Cochlea Impulse Echo	Adapt Habitat Acid rain Global warming Producer Consumer Herbivore Omnivore Carnivore Consumer Biomass Predator Prey
<b>Year 9</b>	Chromosome Genes Allele Nucleus DNA Variation Inherited Environmental variation Punnett square Dominant Recessive	Metal Alloy Non-metal Word equation Symbol equation Neutralisation Unreactive Reactive Reactivity series Displacement	Efficiency Useful energy Wasted energy Power station Nuclear power station Power Watts Power rating Pay-back	Chloroplast Chlorophyll Carbon dioxide Glucose Limiting factor Respiration Xylem Phloem Palisade mesophyll cell Spongy mesophyll cell Stomata Guard cell Diffusion Root hair cell	Distance-time graph Air resistance Friction Accelerate Decelerate Stationary Resultant force Mass Aerodynamic	Mass Weight Gravity Force Natural satellite Artificial satellite Elliptical Orbit Space probe Telescope						



# Curriculum Information 2017-18

How to support your son at home			Science
What sorts of independent work/homework will he get?	How much help should you give him?	What are the top three tips for supporting independent learning?	Useful resources and links
<p><i>The homeworks are mostly designed to develop the key maths, literacy and investigation skills which are now vital for science, as well as broadening the student's scientific understanding and knowledge.</i></p> <p><i>The new GCSE's place a great deal of emphasis both on using mathematical skills in science and on extended writing so these are a key focus in all work in science.</i></p>	<p><i>Science homework is designed to reinforce and test the students understanding and knowledge of what they have learned in class. Therefore it is useful if you can talk to them about the issues covered, particularly if they are controversial, but the work needs to be their own</i></p>	<ol style="list-style-type: none"> <li>1. Access the online textbooks from home to go over areas where there is confusion or you need extra help <a href="http://connect/sitepages/remotapps.aspx">http://connect/sitepages/remotapps.aspx</a></li> <li>2. Use the Y7-9 Hand-in page through FHS Connect for information and advice about the work in lessons and support for homework</li> <li>3. Use the recommended websites to stretch yourself and supplement what you have learned in class</li> </ol>	<p><i>There are many useful websites for science, here are a few of the ones we recommend</i></p> <p><a href="http://www.samlearning.co.uk">www.samlearning.co.uk</a>  <a href="http://www.bbc.co.uk/bitesize/ks3/science">www.bbc.co.uk/bitesize/ks3/science</a>  <a href="http://www.docbrown.info/ks3/science/">www.docbrown.info/ks3/science/</a>  <a href="http://www.scibermonkey.org">www.scibermonkey.org</a>  <a href="http://www.planet-science.com">www.planet-science.com</a> (link is external)  <a href="http://www.solarsystem.org.uk">www.solarsystem.org.uk</a> (link is external)  <a href="http://www.sciencebob.com">www.sciencebob.com</a> (link is external)</p> <p><i>You can also purchase excellent Year 7-9 science revision guides and workbooks from CGP books at the following website</i></p> <p><a href="http://www.cgpbooks.co.uk">www.cgpbooks.co.uk</a></p>

## 2. Key Stage 4

Triple Science Topics					Staff contact: Ms Edmund	
	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6
<b>Year 10</b>	Particle model of matter Atomic structure Cell biology	Energy / Electricity Bonding/Quantitative chemistry Organisation	Electricity Chemical changes Infection and response	Atomic structure Energy changes Bioenergetics	Forces Rates of chemical change Homeostasis	Forces Organic chemistry Catch up and revision
<b>Year 11</b>	Forces Organic chemistry / Chemical analysis Homeostasis	Magnetism and electromagnetism Chemistry of the atmosphere Inheritance, variation and evolution	Space Using resources Ecology	Catch up and revision	Revision	Revision



# Curriculum Information 2017-18

## TRIPLE SCIENCE Assessment:

Term	Year 10	Year 11
Autumn	P1 paper – topics 1-2 B1 paper – topics 1-2 C1 paper – topics 1-3	Pre-public exams: 04-15.12.17
Spring	Physics assessment Biology assessment Chemistry assessment	Pre-public exams: 19-29.03.18
Summer	Pre-public exams: 09-20.07.18	<b>Public Exam dates: 15.05.18 – 15.06.18</b>

Combined Science Topics						Staff contact: Ms Edmund
	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6
<b>Year 10</b>	Cell biology Organisation Particle model of matter	Infection and response Energy	Bioenergetics Electricity	Atomic structure (chem) Bonding Atomic structure (phys)	Quantitative chemistry Chemical changes Energy changes	Catch up and revision
<b>Year 11</b>	Homeostasis Forces	Inheritance, variation and evolution Waves	Ecology Magnetism and electromagnetism Rates Organic chemistry	Chemical analysis Chemistry of the atmosphere Using resources	Catch up and revision	Catch up and revision



# Curriculum Information 2017-18

## COMBINED SCIENCE Assessment

Term	Year 10	Year 11
Autumn	B1 paper – topics 1-3 P1 paper – topics 1-3	Pre-public exams: 04-15.12.17
Spring	Physics assessment Biology assessment	Pre-public exams: 19-29.03.18
Summer	Pre-public exams: 09-20.07.18 (B1, C1 and P1)	Public Exam dates: 15.05.18 – 17.06.18

## KS4 How to support your son at home Science

What sorts of independent work / homework will he get?	How you can help	Useful resources and links
<p><i>The homework given at KS4 is designed to test your son's subject knowledge and review the content they have covered in class. The students are expected to demonstrate good application of subject knowledge and identify areas to improve. They will be given the opportunity to purchase revision guides they can use at home to help them deepen their understanding of the topics. Exam practice questions will be a regular feature and there will be a lot of emphasis on self-evaluation. Students will be encouraged to review their work and make improvements. Each student will be issued with a personal learning checklist for each subject area which they can use to revise from.</i></p>	<p><i>We aim to promote independent study so that students are better prepared for the next stage of their education. The students find they can study at their own pace if they use a revision guide at home. This will help them to summarise their in-class learning and provides them with questions and tasks to do as well. Recommended revision and practice books are available via ParentPay. There are foundation and higher versions of these books. Some students find watching short video clips on youtube very helpful.</i></p>	<p>Exam board course link:  <a href="http://www.aqa.org.uk">www.aqa.org.uk</a>            Recommended revision guide:  <a href="https://collins.co.uk/product/9780008160869/Collins+GCSE+9-1+Revision+-+AQA+GCSE+Combined+Science+Trilogy+Higher+All-in-One+Revision+and+Practice">https://collins.co.uk/product/9780008160869/Collins+GCSE+9-1+Revision+-+AQA+GCSE+Combined+Science+Trilogy+Higher+All-in-One+Revision+and+Practice</a> (Higher tier)  <a href="https://collins.co.uk/product/9780008160852/Collins+GCSE+9-1+Revision+-+AQA+GCSE+Combined+Science+Trilogy+Foundation+All-in-One+Revision+and+Practice">https://collins.co.uk/product/9780008160852/Collins+GCSE+9-1+Revision+-+AQA+GCSE+Combined+Science+Trilogy+Foundation+All-in-One+Revision+and+Practice</a> (Foundation tier)</p> <p>Useful websites:  <a href="https://www.my-gcse-science.com">https://www.my-gcse-science.com</a>  <a href="http://www.freesciencelessons.co.uk">www.freesciencelessons.co.uk</a>  <a href="https://www.khanacademy.org/">https://www.khanacademy.org/</a>  <a href="http://www.bbc.co.uk/education/subjects/zrkw2hv">http://www.bbc.co.uk/education/subjects/zrkw2hv</a></p>



# Curriculum Information 2017-18

## 3. Assessment Criteria (KS3 and 4)

STEPS to success criteria				Science
Strand	Description	A student on Step 1 can	A student on Step 5 can	A student on Step 9 can
Biology	Topics include cells, animal adaptations, digestion, respiration and genetics	Relate Biological ideas to everyday examples, such as stating that cells are the fundamental unit "building block" of organisms	Apply knowledge to new situations and explain them, such as explaining the functions of the main parts of cell	Evaluate and synthesize new information, such as evaluating the features and functions of specialised cells.
Chemistry	Topics include acids and alkalis, chemical reactions, compounds and elements and rates of reaction.	Relate Chemistry ideas to everyday examples, such as identifying when a reaction has taken place.	Apply knowledge to new situations and explain them such as explaining chemical reactions in word and chemical equations.	Evaluate and synthesize new information, such as balancing chemical questions and using them to evaluate the reaction.
Physics	Topics include forces, speed and motion, light, sound and energy.	Relate Physics ideas to everyday examples, such as naming some common components of electrical circuits	Apply knowledge to new situations and explain them such as calculating resistance, when given potential difference and current	Evaluate and synthesize new information, such as evaluating and explaining the need to use different cables for different appliances.
Working Scientifically	Being able to carry out practical investigations to make predictions, collect data and display it appropriately and make conclusions and evaluations.	State that scientific methods and theories develop to take into account new evidence and ideas	Evaluate risks and hazards to plan a safe scientific investigation	Explain the importance of accuracy, precision, repeatability, reproducibility and objectivity