



Curriculum Map 2023 – 2024 – TRIPLE SCIENCE



Triple Science: Year 10

Term	Assessments	Topics	Skills	Personal Development
Autumn 1	Tests: One 45 mark test at the end of each topic listed below: B7 Non-Communicable Diseases: https://www.bbc.co.uk/bitesize/guides/z372ng8/revision/1 B5 Communicable Diseases: https://www.bbc.co.uk/bitesize/topics/z9236yc C5 Chemical Changes: https://www.bbc.co.uk/bitesize/topics/zcdj97h C6 Electrolysis: https://www.bbc.co.uk/bitesize/guides/zcsyw6f/revision/1 P5 Electricity in the home: https://www.bbc.co.uk/bitesize/guides/z3xv97h/revision/1	B7 Non-Communicable Diseases Non-Communicable Diseases, Cancer, Smoking and the Risk of Disease, Diet, Exercise and Disease, Alcohol and Other Carcinogens	Interpreting data	How to maintain healthy eating and the links between a poor diet and health risks, including cancer. The facts about the harms from smoking tobacco (particularly the risk to lung cancer), the benefits of quitting and how to access support to do so.
		B5 Communicable Diseases Health and Disease, Pathogens and Disease, Growing bacteria in the lab and how to prevent bacterial growth, Preventing Infections, Viral and Bacterial Diseases, Diseases caused by Fungi and Protists, Human Defence Responses, Plant diseases and plant defence responses	Interpreting data from tables and graphs	An understanding of how diseases are caused, spread and how to prevent them.
		C5 Chemical Changes The Reactivity Series, Displacement Reactions, Extracting Metals, Salts from metals and from Insoluble bases, Other ways Salt can be made, Neutralisation and the pH Scale, Strong and Weak Acids	Practical skills: e.g. making copper salt Collecting and interpreting data Ionic equations and half-equations	Appreciating where metals come from and how humans extract them for use.
		C6 Electrolysis Basic Electrolysis, Reactions at the Electrodes, Extraction of Aluminium, Electrolysis of Aqueous Solutions	Practical skills: e.g. electrolysis if a solution Half-equations	The uses and importance of aluminium to society.
		P5 Electricity in the Home Alternating Current, Cables and Plugs, Electrical Power and PD, Electrical Current and Energy Transfer, Appliances and Efficiency	Analysing data from oscilloscopes Practical skills: wiring plugs Maths skills: percentages	Electrical safety in the home.
Autumn 2	Tests: Three tests over the course of the term One 30 mark test at the end of each topic listed below: B6 Preventing and Treating Disease: https://www.bbc.co.uk/bitesize/topics/z9236yc	B6 Preventing and Treating Disease Vaccination, Antibiotics and Painkillers, Discovering Drugs, Developing Drugs, Making monoclonal antibodies and the uses of monoclonal antibodies	Interpreting data from tables and graphs. Practical skills.	Students to understand the implications of a double-blind trial where a sick person is not receiving potentially life-saving drugs despite being ill as scientists need to ascertain if any positive effect of the drug is down to the active ingredient or not. Students understand the implications of not being vaccinated to not just to themselves but to other members of the community they are in. Appreciate the ethical implications of medical research on animals and why this is both a good thing and a bad one.
		B8 Photosynthesis Photosynthesis, The rate of Photosynthesis, How Plants	Balancing equations	Students to examine the implications of farmers using carbon dioxide made in the burning of fossil fuels to increase

	<p>B8 https://www.bbc.co.uk/bitesize/guides/zg8nrwx/revision/1</p> <p>B9 Respiration: https://www.bbc.co.uk/bitesize/guides/zcyj97h/revision/1</p> <p>C7 Energy Changes: https://www.bbc.co.uk/bitesize/topics/z34kgdm</p>	<p>use Glucose, Making the Most of Photosynthesis</p>	<p>Practical skills: rate of photosynthesis</p>	<p>yields of crops and what effect this may have on the environment.</p>
		<p>C7 Energy Changes Endothermic and Exothermic Reactions, Using Energy Transfers from Reactions, Reaction Profiles, Bond Energy Calculations, Chemical Cells and Batteries, Fuel Cells.</p>	<p>Practical skills: e.g. investigating temperature changes Analysing reaction profiles Calculating bond energies</p>	<p>Why exothermic reactions are important to life.</p> <p>The uses of exothermic and endothermic reactions in devices.</p> <p>Evaluating the use of hydrogen fuel cells</p>
		<p>C8 Rates and Equilibrium Rate of Reaction, Collision Theory and Surface Area, The Effect of Temperature, The Effect of Concentration and Pressure, The Effect of Catalysts, Reversible Reactions, Energy and Reversible Reactions, Dynamic Equilibrium, Changing conditions and Reaction Rates</p>	<p>Calculating rates of reaction using tangents to a curve</p> <p>Practical skills</p>	
		<p>P8 Forces in Balance Vectors and Scalars, Forces Between Objects, Resultant Force and the Centre of Mass, Moments, Levers and Gears, Parallelogram of Forces, Resolution of Forces.</p>	<p>Drawing and analysing vector diagrams Using and rearranging formulae</p>	
Term	Assessments	Topics	Skills	Personal Development
Spring 1	<p>Tests:</p> <p>Four tests over the course of the term</p> <p>One 30 mark test at the end of each topic listed below:</p> <p>B17 Organising an Ecosystem: https://www.bbc.co.uk/bitesize/guides/z9nwtv4/revision/1</p> <p>https://www.bbc.co.uk/bitesize/guides/zy7gw6f/revision/1</p> <p>C8 Rates and Equilibrium: https://www.bbc.co.uk/bitesize/topics/zs3gfcw</p> <p>C9 Crude Oil and Fuels: https://www.bbc.co.uk/bitesize/guides/zshvw6f/revision/1</p> <p>P8 Forces in Balance: https://www.bbc.co.uk/bitesize/topics/z82j97h</p> <p>P9 Motion: https://www.bbc.co.uk/bitesize/topics/z82j97h</p>	<p>B9 Respiration Aerobic Respiration, The Response the Exercise, Anaerobic Exercise, Metabolism and the Liver</p>	<p>Balancing equations</p>	<p>The importance of respiration to life and how our bodies respond to exercise.</p>
		<p>B17 Organising an Ecosystem Feeding relationships, Materials Recycling, The Carbon Cycle, Rates of Decomposition</p>	<p>Analysing food chains and food webs Interpreting data from graphs</p>	<p>The importance of the water, carbon and decomposition cycles to life and food production.</p>
		<p>C9 Crude Oil and Fuels Hydrocarbons, Fractional Distillation of Oil, Burning Hydrocarbon Fuels, Cracking Hydrocarbons</p>	<p>Practical skills</p> <p>Using comparative language</p>	<p>How the cost of good is affected by oil prices.</p> <p>An appreciation of how everyday fuels are produced.</p>
		<p>P9 Motion Speed and Distance Time Graphs, Velocity and Acceleration, Velocity Time Graphs, Analysing Motion Graphs</p>	<p>Interpreting data from graphs, including calculating area and gradient</p> <p>Practical skills</p>	

Spring 2	Tests: Three tests over the course of the term One 30 mark test at the end of each topic listed below: B18 Biodiversity and Ecosystems: https://www.bbc.co.uk/bitesize/topics/zx fd3k7 P10 Forces and Motion: https://www.bbc.co.uk/bitesize/topics/z82j97h	B18 Biodiversity and Ecosystems The Human Population Explosion, Land and Water Pollution, Air Pollution, Deforestation and Peat Destruction, Global Warming, The Impacts of Change, Maintaining Biodiversity, Trophic Levels and Biomass, Biomass Transfers, Factors Affecting Food Security, Making Food Production Efficient, Sustainable Food Production	Analysing and Evaluating data	Students to explain how waste, deforestation and global warming have an impact on biodiversity. Students to explain and evaluate the conflicting societal pressures on maintaining biodiversity Students to understand the conflict between the need for cheap available compost to increase food production and the need to conserve peat bogs and peatlands as habitats for biodiversity and to reduce carbon dioxide emissions.
		C10 Organic Reactions Reactions of the Alkenes, Structures of Alcohols, Carboxylic Acids and Esters, Reactions and Uses of Alcohols, Carboxylic Acids and Esters	Drawing displayed formulae Practical skills	
		P10 Forces and Motion Forces and Acceleration, Weight and Terminal Velocity, Forces and Braking, Momentum, Conservation of Momentum, Impact Forces and Safety	Evaluating and drawing force diagrams Using and rearranging formulae Practical skills	Using physics to evaluate car safety features and why it is important to, e.g. wear a seatbelt and not use a mobile phone whilst driving
Term	Assessments	Topics	Skills	Personal Development
Summer 1	Tests: Three tests over the course of the term One 30 mark test at the end of each topic listed below: B16 Adaptations, Interdependence and Competition: https://www.bbc.co.uk/bitesize/guides/z9pd6yc/revision/1 C11 Polymers: https://www.bbc.co.uk/bitesize/guides/z3v4xfr/revision/6 P11 Force and Pressure: https://www.bbc.co.uk/bitesize/guides/z93dxfr/revision/1	B16 Adaptations, Interdependence and Competition The importance of Communities, Organisms in their Environment, Distribution and Abundance, Competition in Animals, Competition in Plants, Adaptations and Survival, Adaptations in Animals and Plants	Practical skills: Field work Calculating mean, median and mode, estimating population size	The factors which affect biological communities and how humans contribute to this.
		C11 Polymers Addition Polymerisation, Condensation Polymerisation, Natural Polymers, DNA		
		P11 Force and Pressure Pressure and Surfaces, Pressure in a Liquid at Rest, Atmospheric Pressure, Upthrust and Floatation	Using and rearranging formulae Analysing and drawing force diagrams	Appreciating why mountain climbers must take oxygen when at high altitudes due to the low air pressure and why it is important for scuba divers to ascend slowly.

<p>Summer 2</p>	<p>Biology Paper I Mock Exam – 100 marks</p> <p>Past papers: https://www.aqa.org.uk/subjects/science/gcse/biology-8461/assessment-resources?f.Component%7C7=Paper+I</p> <p>Chemistry Paper I Mock Exam – 100 marks</p> <p>Past papers: https://www.aqa.org.uk/subjects/science/gcse/chemistry-8462/assessment-resources?f.Component%7C7=Paper+I</p> <p>Physics Paper I Mock Exam – 100 marks</p> <p>Past papers: https://www.aqa.org.uk/subjects/science/gcse/physics-8463/assessment-resources?f.Component%7C7=Paper+I</p>	<p>Biology Paper I Revision</p> <p>Chemistry Paper I Revision</p> <p>Physics Paper I Revision</p>		
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Triple Science: Year 11

Term	Assessments	Topics	Skills	Personal Development
Autumn 1	Tests: One 30 mark test at the end of each topic listed below: B10 The Human Nervous System: https://www.bbc.co.uk/bitesize/guides/zprxy4j/revision/1 B11 Hormonal Coordination: https://www.bbc.co.uk/bitesize/topics/zy468mn C11 Polymers: https://www.bbc.co.uk/bitesize/guides/z3v4xfr/revision/6 C12 Chemical Analysis: https://www.bbc.co.uk/bitesize/topics/z2tpmsg P12 Wave Properties: https://www.bbc.co.uk/bitesize/topics/zcwkgdm	B10 The Human Nervous System Principals of Homeostasis, The Structure and Function of the Nervous System, Reflex Actions	Practical skills: Measuring reaction times	Ideas around eyesight and the structure of the eye.
		B11 Hormonal Coordination Principals of Hormonal Control, The Control of Blood Glucose Levels and Treating Diabetes, The role of Negative Feedback, Human Reproduction, Hormones and the Menstrual Cycle, The Artificial Control of Fertility and Infertility Treatments	Analysing data	Students to evaluate information around the relationship between obesity and diabetes, and make recommendations taking into account social and ethical issues.
		C11 Polymers Addition Polymerisation, Condensation Polymerisation, Natural Polymers, DNA		
		C12 Chemical Analysis Pure Substances and Mixtures, Analysing Chromatograms, Testing for Gases, Tests for Positive and Negative Ions, Instrumental Analysis	Practical skills: e.g. finding R_f values Calculations	Effects of compound combinations in e.g. drugs.
		P12 Wave Properties The Nature and Properties of Waves, Reflection, Refraction, Waves in Context, Sound Waves, Uses of Ultrasound, Seismic Waves	Analysing oscilloscope diagrams	How ultrasound can be used to check the progress of a growing foetus using a pre-natal scan and the importance of waves in detecting earthquakes early to allow communities to be evacuated,
Autumn 2	Tests: One 30 mark test at the end of each topic listed below: B12 Homeostasis in Action: https://www.bbc.co.uk/bitesize/guides/zxgmfcw/revision/1 C13 The Earth's Atmosphere: https://www.bbc.co.uk/bitesize/topics/zw2xjty C14 The Earth's Resources:	B12 Reproduction Types of Reproduction, Cell Division in Sexual Reproduction, DNA and the Genome, Inheritance in Action, More about Genetics, Inherited Disorders and Screening for Genetic Disorders	Using punnett squares for genetic crosses Calculating ratios and proportionality	Screening for inherited disorders The facts about reproductive health, including fertility and the potential impact of lifestyle on fertility for men and women. That they have a choice to delay sex or to enjoy intimacy without sex as a method of not becoming pregnant. The facts about the full range of contraceptive choices, efficacy and options available The benefits of regular self-examination and screening Key facts about puberty, the changing adolescent body and menstrual wellbeing The main changes which take place in males and females, and the implications for emotional and physical health

	https://www.bbc.co.uk/bitesize/topics/z9wqk2p	C13 The Earth's Atmosphere The History of our Atmosphere, Our Evolving Atmosphere, Greenhouse Gases, Global Climate Change, Atmospheric Pollutants,	Chemical equations	Greenhouse gases and climate change. What is causing these changes and discussions of how this can be combatted.
	PI3 Electromagnetic Waves: https://www.bbc.co.uk/bitesize/guides/z9bw6yc/revision/3	C14 The Earth's Resources Finite and Infinite Resources, Water that is Safe to Drink, Treating Waste Water, Extracting Metals from Ores, Life Cycle Assessments, Reduce - Reuse - Recycle	Analysing trends in data	The Earth has limited resources and we are responsible for using these wisely, 'reduce, reuse, recycle', how waste water is treated etc.
	PI4 Light: https://www.bbc.co.uk/bitesize/guides/zw42ng8/revision/1	P13 Electromagnetic Waves The EM Spectrum, Radio waves to Light Waves, Communications using Waves, UV to Gamma Rays	Practical skills	The hazards and uses of electromagnetic waves, including their use in medicine and the risks and benefits of using e.g. X-rays or gamma rays in radiotherapy.
	https://www.bbc.co.uk/bitesize/guides/zt7srwx/revision/1	P14 Light Reflection, Refraction, Light and Colour, Lenses	Orders of magnitude and prefixes	
			Practical and maths skills including the use of protractors to analyse and draw ray diagrams	

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Spring 1	Tests: One 30 mark test at the end of each topic listed below: B13 Reproduction: https://www.bbc.co.uk/bitesize/topics/zp b7cj6 C14 The Earth's Resources: https://www.bbc.co.uk/bitesize/topics/z9wqk2p C15 Using Our Resources: https://www.bbc.co.uk/bitesize/topics/z9wqk2p PI5 Electromagnetism : https://www.bbc.co.uk/bitesize/topics/z39ry4j PI6 Space: https://www.bbc.co.uk/bitesize/topics/zsbyh39	B13 Reproduction Types of Reproduction, Cell Division in Sexual Reproduction, The Best of Both Worlds, DNA and the Genome, DNA Structure and Protein Synthesis, Gene Expression and Mutation, Inheritance in Action, More about Genetics, Inherited Disorders and Screening for Genetic Disorders	Using punnett squares for genetic crosses Calculating ratios and proportionality	Screening for inherited disorders The facts about reproductive health, including fertility and the potential impact of lifestyle on fertility for men and women. That they have a choice to delay sex or to enjoy intimacy without sex as a method of not becoming pregnant. The facts about the full range of contraceptive choices, efficacy and options available The benefits of regular self-examination and screening Key facts about puberty, the changing adolescent body and menstrual wellbeing The main changes which take place in males and females, and the implications for emotional and physical health
		C15 Using Our Resources Rusting, Useful Alloys, The Properties of Polymers, Glass, Ceramics and Composites, Making Ammonia – The Haber Process, The Economics of The Haber Process, Making Fertilisers in the Lab, Making Fertilisers in Industry	Practical skills	The Earth has limited resources and we are responsible for using these wisely, 'reduce, reuse, recycle', how waste water is treated etc.
		P15 Electromagnetism Magnetic Fields, Magnetic Fields of Electric Currents, Electromagnets in Devices, The Motor Effect, The Generator Effect, The AC Generator, Transformers	Using and rearranging formulae Interpreting diagrams using physical laws	The importance of electromagnetic devices in our daily lives, e.g. the generation of electricity
		P16 Space Formation of the Solar System, The Life History of a Star, Planets, Satellites and Orbits, The Expanding Universe, The Beginning and Future of the Universe	Orders of magnitude, units and prefixes	Looking at how exoplanets are discovered and the implications for us. Commonality between all life on Earth – we are all made from stardust! (the elements produced when a star dies). Opportunities for discussion of responsible space travel, including the

				environmental and economic consequences of launching.
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Term	Assessments	Topics	Skills	Personal Development
Spring 2	Tests: Three tests over the course of the term One 30 mark test at the end of each topic listed below:	B14 Variation and Evolution Variation, Evolution by Natural Selection, Selective Breeding, Genetic Engineering, Ethics of Genetic Technologies, Cloning, Adult Cell Cloning	Evaluating data in tables and graphs	Exploring differences between individuals, variation and evolution Genetic Engineering and selective breeding. Ethical debates on screening for inherited disorders, terminations, selective breeding, cloning and genetic engineering.
	B14 Variation and Evolution: https://www.bbc.co.uk/bitesize/topics/zpb7cj6 B15 Genetics and Evolution: https://www.bbc.co.uk/bitesize/topics/zpb7cj6	B15 Genetics and Evolution History of Genetics, Theories of Evolution and Accepting Darwin's Ideas, Evolution and Speciation, Evidence for Evolution, Fossils and Extinction – Including Why Extinction can Occur, Antibiotic Resistant Bacteria, Classification, New Systems of Classification	Using punnet squares and analysing genetic crosses Using timescales	The theory of evolution and how scientific ideas are developed over time due to evidence. Why objections may be raised by other scientists or e.g. by religious groups with an already held belief.

Term	Assessments	Topics	Skills	Personal Development
Summer	Tests: Summer Examinations: • Biology Paper 1 – 100 marks • Chemistry Paper 1 – 100 marks • Physics Paper 1 – 100 marks • Biology Paper 2 – 100 marks • Chemistry Paper 2 – 100 marks • Physics Paper 2 – 100 marks	Biology Paper 1 and Paper 2 Revision Chemistry Paper 1 and Paper 2 Revision Physics Paper 1 and Paper 2 Revision Revision materials: Biology: https://www.aqa.org.uk/subjects/science/gcse/biology8461/assessment-resources Chemistry: https://www.aqa.org.uk/subjects/science/gcse/chemistry8462/assessment-resources Physics: https://www.aqa.org.uk/subjects/science/gcse/physics8463	Revision skills	