AQA GCSE Combined Science Trilogy: Higher

Link to specification:
https://filestore.aqa.org.uk/resources/science/specifications/AQA-8464-SP-2016.PDF

Biology Paper 1

Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
B1 – Cell structure and transport	- Eukaryotes and prokaryotes - Animal and plant cells - Cell specialisation - Cell differentiation - Microscopy - Diffusion - Osmosis	11-14 17-21	BBC bitesize - Cell structure BBC bitesize - Transport in cells	Cell type and structure Microscopy Diffusion Osmosis Active transport Exchange surfaces
Required practical - Using a microscope	- Explain how to use a microscope. - Explain how to create a sample side - Calculate using the magnification formula	13		Using a microscope required practical
Required practical - investigating osmosis in plant tissue	- - Explain how to conduct an investigation into osmosis on a sample of plant tissue. - Identify the isotonic point	18		Osmosis required practical
B2 – Cell division	- Cell division (mitosis) - Growth and differentiation - Stem cells - Stem cell dilemmas	15-16	BBC Bitesize - Cell division	Stem cells and differentiation Mitosis and the cell cycle

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B3 - Organisation and structure of the digestive system	- Tissues and organs - The human digestive system - The chemistry of food - Catalysts and enzymes - Factors which affect enzyme action - How the digestive system works - Making digestion efficient	24-29	BBC bitesize BBC Bitesize - Organisation and digestion	Cell organisation Enzymes Factors which affect enzymes The digestive system Digestive enzymes Food tests
Required practical - Food tests	- Explain the method for conducting food tests. - Know the positive and negative indications for each food test.	29	BBC bitesize - Food tests	Food tests required practical
Required Practical - investigate the effect of pH on the rate of reaction of amylase enzyme.	-action of enzymes -describe and explain the effect of extreme pH on rate of enzymes -testing for starch -identify independent, dependent, control variables -How to measure the dependent variable -method -analysing results	25-27	BBC Bitesize - Investigate the effect of pH on enzymes	GCSE Science Revision Biology "Required Practical 5: Effect of pH on Amylase" – YouTube Enzymes - GCSE Science Required Practical – YouTube

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B4 Part 1 – Organising animals	- The blood - Blood vessels - The heart - Helping the heart - Breathing and gas exchange	30-35	BBC Bitesize - Circulatory system and the heart BBC Bitesize - The lungs and gas exchange	The blood Blood vessels The heart Cardiovascular disease The lungs and gas exchange
B4 Part 2 – Organising plants	- Tissues and organs in plants - Transport systems in plants - Evaporation and transpiration - Factors which affect transpiration	39-41	BBC Bitesize - Plant organisation	Plant cell organisation and the leaf Transpiration and translocation

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B5 – Communicable diseases	- Health and disease - Pathogens and disease - Preventing infections - Viral diseases - Bacterial diseases - Diseases caused by Fungi and protists - Human defence responses	43-46	BBC Bitesize - Health and disease	Communicable disease Viral disease Bacterial disease Fungal and protist disease Human defence responses
B6 – Preventing and treating disease	- Vaccination - Antibiotics and painkillers - Discovering drugs - Developing drugs	47-49	BBC Bitesize - Treating and preventing disease	Vaccination Medication vs painkillers Drug development and testing
B7 – Non communicable disease	- Non communicable disease - Cancer - Smoking and the risk of disease - Alcohol and other carcinogens	37-38	BBC Bitesize - Non communicable diseases	Risk factors of disease Cancer

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B8 - Photosynthesis	- Photosynthesis - The rate of photosynthesis - How plants use glucose - Making the most of photosynthesis	50-53	BBC Bitesize - Photosynthesis	Photosynthesis The rate of photosynthesis
Required practical - Investigating photosynthesis	- Explain how to set up and carry out an investigation into photosynthesis. - Explain how light intensity impacts photosynthesis - Consider how other variables impact photosynthesis such as the colour of light.	52		Photosynthesis required practical
B9 - Respiration	- Aerobic respiration - The response to exercise - Anaerobic respiration - Metabolism and the liver	54-56	BBC Bitesize - Respiration	Respiration The response to exercise

Chemistry Paper 1

Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
C1 – Atomic structure	- Atoms - Chemical equations - Separating mixtures - Fractional distillation and chromatography - History of the atom - Structure of the atom - Ions, Atoms and Isotopes - Electronic structures	96-104	BBC Bitesize - Atoms, elements and compounds BBC Bitesize - Atomic structure BBC Bitesize - Separating mixtures	Atoms Elements Compounds and mixtures Chemical equations Chromatography Filtration, evaporation and crystallisation Distillation The history of the atom Electronic structure
C2 – The periodic table	- Development of the periodic table - Electronic structures of the periodic table - Group 1 – Alkali metals - Group 7 – Halogens - Explaining trends	105-110	BBC Bitesize - The periodic table BBC Bitesize - Groups in the periodic table	Development of the periodic table Metals and non-metals Alkali metals Halogens and noble gases

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Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
C3 – Structure and bonding	- States of matter - Ion formation - Ionic bonding - Giant ionic structures - Covalent bonding - Simple covalent molecules - Giant covalent structures - Fullerenes and graphene - Bonding in metals - Giant metallic structures	112-121	BBC Bitesize - Ionic compounds BBC Bitesize - States of matter BBC Bitesize - Simple molecules BBC Bitesize - Giant covalent molecules BBC Bitesize - Metals and metal alloys	Formation of ions Ionic bonding Giant ionic structures Covalent bonding Simple covalent compounds Giant covalent structures - Diamond/graphite Giant metallic bonding States of matter Changing state
C4 – Quantitative Chemistry	- Relative masses and moles - Equations and calculations - From masses to balanced equations - Expressing concentrations	123-127	BBC Bitesize - The Mole BBC Bitesize - Simple calculations	Relative formula mass Moles and calculations Conservation of mass Limiting reactants Concentration calculations

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Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
C5 – Chemical changes	- The reactivity series - Displacement reactions - Extracting metals - Salts from metals - Salts from insoluble bases - Making more salts - Neutralisation and the pH scale	129 - 134	BBC Bitesize - Reactions of metals BBC Bitesize - Acids, alkalis and salts	Acids and bases The reactivity series Neutralisation reactions Extraction and reduction of metals Redox reactions
Required practical - Making salts	- Describe and explain how to obtain a pure salt from an acid and a base - Give reasonable measurements and volumes required - Identify the correct names of salts produced.	131	BBC Bitesize - Making salts required practical	Making salts required practical

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Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
C6 - Electrolysis	- Introduction to electrolysis - Identifying products at each electrode - Extraction of aluminium - Electrolysis of solutions	135-136	BBC Bitesize - Electrolysis	Electrolysis Electrolysis and metals Electrolysis and solutions
Required practical – Electrolysis of solutions	- Describe and explain how to carry out electrolysis - Identify products formed at the anode - Identify products formed at the cathode	136	BBC Bitesize - Electrolysis required practical	Electrolysis required practical

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Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
C7 – Energy changes	- Exothermic and endothermic reactions - Using energy transfers from reactions - Reaction profiles - Bond energy calculations	138 - 140	BBC Bitesize - Exothermic and endothermic reactions	Exothermic and endothermic reactions Bond energies
Required practical – Temperature changes	- Describe and explain how to investigate exothermic /endothermic reactions to record temperature change - Consider factors which can impact accuracy (insulation)	139	BBC Bitesize - Temperature changes required practical	Temperature changes required practical

Physics Paper 1

Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
P1 – Conservation and dissipation of energy	- Changes in energy stores - Conservation of energy - Energy and work - Gravitational potential energy - Kinetic and elastic energy stores - Energy dissipation - Energy and efficiency - Electrical appliances - Energy and power	167-168 169 172	BBC Bitesize - Changes in energy stores BBC Bitesize - Work, power and efficiency	Energy stores and systems Kinetic energy Conservation of energy Reducing unwanted energy transfers Efficiency
P2 – Energy transfer by heating	- Energy transfer by conduction - Specific heat capacity - Heating and insulating buildings	169 171	BBC Bitesize - Energy and heating	Specific heat capacity Conduction and convection
Required practical – Specific heat capacity	- Describe and explain how to calculate SHC of a material experimentally. - Explain why the experimental value may not be accurate. - Identify SHC using the gradient of a graph from experimental data.	169	BBC Bitesize - Specific heat capacity required practical	Specific heat capacity required practical

Physics Paper 1

Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
P3 – Energy resources	- Energy demands - Energy from wind and water - Power from the sun and the earth - Energy and the environment - Big energy issues	173-177	BBC Bitesize - Energy demands	Energy resources and their uses Wind and solar Geothermal energy Hydroelectricity and tidal energy Bio-fuels and non-renewables
P4 – Electric charges	- Current and charge - Potential difference and resistance - Component characteristics - Series circuits - Parallel circuits	179-185	BBC Bitesize - Electrical circuits	Introduction to circuits Resistance - V=I R Resistance and I-V characteristics Components of a circuit Series circuits Parallel circuits
Required practical - Resistance	- Describe and explain how to measure resistance in a wire. - Use V= I R	180	BBC Bitesize - resistance required practical	Resistance of a wire required practical
Required practical – IV characteristics	- Describe and explain how to identify the relationship between I-V in different components	181	BBC Bitesize - I-V Characteristics required practical	I-V characteristics required practical