Chemistry Combined Science Paper 1, Higher

Chemistry Unit 1 – Atomic Structure and the Periodic Table

No Main Focus Content in this Unit

Chemistry Unit 2 – Bonding, Structure and the Properties of Matter

Major focus topic area	BBC Bitesize Websites	Video links	Higher Revision Guide Pages	Knowledge Organiser (F) pages
How bonding and structure are related to the properties of substances **(Spec reference 5.2.2)** • Three States of Matter (Solid, Liquid Gas) – Draw particle diagrams, explain how changes of states depend on forces between particles • State symbols – (s), (l), (g), (aq) • Properties of substances – Ionic, Small covalent molecules, Large covalent molecules, Metals • Polymers and Alloys	**Three States of Matter** https://www.bbc.co.uk/bitesize/guides/zwsdgdm/revision/1 **Ionic Compounds (Slides 1,3,4)** https://www.bbc.co.uk/bitesize/guides/ztc6w6f/revision/3 **Small Covalent Molecules (Slides 1,5)** https://www.bbc.co.uk/bitesize/guides/z373h39/revision/5 **Giant Covalent Molecules (Slide 1, 4)** https://www.bbc.co.uk/bitesize/guides/zgq8b82/revision/1 **Metallic Bonding** https://www.bbc.co.uk/bitesize/guides/ztgy6yc/revision/2	**Cognito** https://www.youtube.com/watch?v=hkBrw2fG75U&feature=emb_logo https://www.youtube.com/watch?v=kShlfIsvWbQ&t=7s https://www.youtube.com/watch?v=d2ogZgGmMDY&t=2s https://www.youtube.com/watch?v=b1y2Q6YX1bQ&t=1s **Free Science** https://www.youtube.com/watch?v=Ku0oTu8ZWqk&feature=emb_logo https://www.youtube.com/watch?v=leVxy7cjZMU&t=1s	112, 114, top 115, bottom 116, top 117,119-121	51-55

		https://www.youtube.com/watch?v=DECGNyC-x_s&t=1s https://www.youtube.com/watch?v=QWoxwCJZ8j0 https://www.youtube.com/watch?v=A-wTpLPICd0&t=3s		

Chemistry Unit 3 – Quantitative Chemistry

Major focus topic area	BBC Bitesize Websites	Video links	Higher Revision Guide Pages	Knowledge Organiser (F) pages
Use of amount of substance in relation to masses of pure substances **(Spec reference 5.3.2)** • Moles – What they are, Avogadros' number • Calculating moles when given a mass of an element or compound	**Calculations in Chemistry** https://www.bbc.co.uk/bitesize/guides/z2bfxfr/revision/1 **Calculations in Chemistry (Higher) (Slides 1-4 only)** https://www.bbc.co.uk/bitesize/guides/zyjk3k7/revision/	**Cognito** https://www.youtube.com/watch?v=wPGVQu3UXpw&t=1s https://www.youtube.com/watch?v=TKDOyR7WKQQ **Free Science** https://www.youtube.com/watch?v=-_-fNVmDwJk https://www.youtube.com/watch?v=Md4BQL91U6w&t=1s	124, 126-128	-

• Calculating masses of product in a balanced equation when given reactant • Limiting reactants • Concentration of solutions in g/dm^3 – Work out mass of solute dissolved to from different concentrations		https://www.youtube.com/watch?v=kMak1TQ3YgU https://www.youtube.com/watch?v=4wTSLBBBMo0&t=18s https://www.youtube.com/watch?time_continue=1&v=3y8YDlNeuRk&feature=emb_logo https://www.youtube.com/watch?v=l_1vf1z8_OM&t=1s https://www.youtube.com/watch?v=TV6n5MFH6IU&t=1s https://www.youtube.com/watch?v=5zOpoeN0dV0 https://www.youtube.com/watch?v=MuzOmFhiE8o&t=1s https://www.youtube.com/watch?v=3G3KQIyoZDI&t=12s		

Chemistry Unit 4 – Chemical Changes

Major focus topic area	BBC Bitesize Websites	Video links	Higher Revision Guide Pages	Knowledge Organiser (F) pages
Reactivity of Metals **(Spec reference 5.4.1)** • Metals + oxygen – Oxidation and Reduction • Reactivity Series, Ordering of metals based on experimental results, displacement reactions • Extraction of metals form their oxides – heating with carbon • Oxidation and reduction – gaining or losing electrons	**Reactions of Metals** https://www.bbc.co.uk/bitesize/guides/zy7dgdm/revision/1	**Cognito** https://www.youtube.com/watch?v=2i5Lm7BMtpo&t=1s https://www.youtube.com/watch?v=gvNuMpxqG7Q&t=1s https://www.youtube.com/watch?v=jyvcVjrZnJA&t=1s **Free Science** https://www.youtube.com/watch?v=Lk1V0buHEFs&t=1s https://www.youtube.com/watch?v=MDQr5QFVGkk https://www.youtube.com/watch?v=MXTSels6e2Y&t=1s https://www.youtube.com/watch?v=gnbuTl2ariI&t=2s	132-134	58
Reactions of Acids **(Spec reference 5.4.2)** • Reactions with metals	**Acids, Alkalis and Salts** https://www.bbc.co.uk/bitesize/guides/ztv2dxs/revision/1	**Cognito** https://www.youtube.com/watch?v=vt8fB3MFzLk&t=1s https://www.youtube.com/watch?v=lBjwMcHUyBY&t=2s	129-131	57

• Reactions of acids with alkalis or bases in neutralisation reactions – soluble making salts • pH Scale • Neutralising using titration • Strong and Weak Acids *Required Practical 8 – Preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate*		https://www.youtube.com/watch?v=_gYBbzkqrmE&t=1s **Free Science** https://www.youtube.com/watch?v=ZWZTDiwOWiI&t=1s https://www.youtube.com/watch?v=ofw6oHSYGFI&t=1s https://www.youtube.com/watch?v=iA4mk3CTkmI&t=1s https://www.youtube.com/watch?v=QlSsle_jSQ8&t=1s https://www.youtube.com/watch?v=4pIHhXfGZlE&t=1s *Required Practical 8 – Making Soluble Salts* https://www.youtube.com/watch?v=9GH95172Js8		
Electrolysis **(Spec reference 5.4.3)** • The process of electrolysis – key terminology	**Electrolysis** https://www.bbc.co.uk/bitesize/guides/z9h9v9q/revision/1	**Cognito** https://www.youtube.com/watch?v=ilNOpROacf0&t=1s https://www.youtube.com/watch?v=hOrGNtlN3sg&t=1s	135-136	59

• Electrolysis of molten ionic compounds • Extracting metals using electrolysis – Aluminium • Electrolysis of aqueous ionic compounds • Representing reactions at electrodes as half equations *Required Practical 9 – Investigate what happens when aqueous solutions are electrolysed using inert electrodes*		https://www.youtube.com/watch?v=GrgYXk_NCec&t=1s **Free Science** https://www.youtube.com/watch?v=AhTRiL6xjBA&t=1s https://www.youtube.com/watch?v=YcyMElBEzAY&t=2s https://www.youtube.com/watch?v=6WjC_Vi4roA&t=1s https://www.youtube.com/watch?v=mL7mkqyLpSo&t=3s *Required Practical 9 – Electrolysis of a Solution* https://www.youtube.com/watch?v=ukbtTTG1Kew		

Chemistry Unit 5 – Energy Changes

Major focus topic area	BBC Bitesize Websites	Video links	Higher Revision Guide Pages	Knowledge Organiser (F) pages
Exothermic and Endothermic reactions **(Spec reference 5.5.1)**	**Exothermic and Endothermic reactions**	**Cognito** https://www.youtube.com/watch?v=dstRL5xB0Sk&t=4s	139-140	61

• Endothermic and Exothermic reactions • Reactions profiles • Bond energies – Calculating energy changes in reactions using energy to break and make bonds *Required Practical 10 – Investigate the variables that affect temperature changes in reacting solutions*	https://www.bbc.co.uk/bitesize/guides/z2b2k2p/revision/1	https://www.youtube.com/watch?v=it0HGXhxD-s **Free Science** https://www.youtube.com/watch?v=4HS6D0hTzdg https://www.youtube.com/watch?v=eExCBkp4jB4&t=1s https://www.youtube.com/watch?v=PdValXAVUOc&t=1s *Required Practical 10 – Measuring energy changes* https://www.youtube.com/watch?v=rdI7xEq4Ew8&t=2s		