

# Syllabus match

## Chemistry Unit 2

App Unit	AQA Additional Science A 4408	OCR 21 <sup>st</sup> Century Additional Science J242	Edexcel Additional Science 2SA01
<b>1 Atomic structure and bonding</b> c2 1.1 Basics of atomic structure 1.2 Ionic bonding; alkali metals 1.3 Halogens; ionic formulae 1.4 The Periodic Table; noble gases 1.5 Covalent bonding	C2.3.1 Atomic structure  C2.1 Structure and bonding	C4.1.1–4.1.33 What are the patterns in the properties of the elements?  C4.2.10–4.2.14 How do chemists explain the patterns in the properties of elements?  C4.3.2, 4.3.3–4.3.6 How do chemists explain the properties of compounds of Group 1 and Group 7 elements?  C5.1.9–5.1.10 What types of chemicals make up the atmosphere?	1.1–1.2, 1.9, 1.12–1.13 Atomic structure and the periodic table  2.1–2.6 Ionic compounds and analysis  3.1–3.5 Covalent compounds and separation techniques  4.1, 4.6–4.17 Groups in the periodic table
<b>2 How structure affects the properties of a substance</b> c2 2.1 Structure and properties of ionic compounds 2.2 Structure and properties of metals 2.3 Structure and properties of covalent substances 2.4 Polymers 2.5 Nanotechnologies	C2.2 How structure influences the properties and uses of substances	C4.3.7 How do chemists explain the properties of compounds of Group 1 and Group 7 elements?  C5.1.4–5.1.8, 5.1.11 What types of chemicals make up the atmosphere?  C5.2.2–5.2.4 What reactions happen in the hydrosphere?  C5.3.2–5.3.4, 5.3.7–5.3.8 What types of chemicals make up the Earth's lithosphere?  C5.4.23–5.4.26 How can we extract useful metals from minerals?	1.3–1.8, 1.10–1.11 Atomic structure and the periodic table  2.7–2.8 Ionic compounds and analysis  3.6–3.9 Covalent compounds and separation techniques  4.2–4.5 Groups in the periodic table
<b>3 Chemical calculations and instrumental analysis</b> c2 3.1 Mass at the atomic scale 3.2 Chemical calculations using masses and formulae 3.3 Yield and waste in reactions; flame tests for ions 3.4 Analysing substances experimentally and instrumentally	C2.3.2 Analysing substances  C2.3.3 Quantitative chemistry	C4.2.1–4.2.9 How do chemists explain the patterns in the properties of the elements?  C5.4.6–5.4.14 How can we extract useful metals from minerals?  C6.2.4–6.2.10 Planning carrying out and controlling a chemical synthesis	2.15–2.16 Ionic compounds and analysis  6.1–6.11 Quantitative chemistry  3.10–3.11 Covalent compounds and separation techniques
<b>4 Energy and rates of chemical reactions</b> c2 4.1 Reaction rates and collision theory 4.2 Effect of different conditions on reaction rates 4.3 Exothermic and endothermic reactions; reversible reactions 4.4 Controlling reactions and steps in chemical synthesis	C2.4 Rates of reaction  C2.5 Exothermic and endothermic reactions	C6.1.23–6.1.25 Chemicals and why we need them  C6.2.1–6.2.3, 6.2.11–6.2.21 Planning carrying out and controlling a chemical synthesis	5.1–5.13 Chemical reactions

<p><b>5 Acids, alkalis and salts</b> c2</p> <p>5.1 Reacting acids and bases to make salts</p> <p>5.2 Characteristics of salts</p> <p>5.3 Essentials of electrolysis</p> <p>5.4 Practical uses of electrolysis</p>	<p>C2.6 Acids, bases and salts</p> <p>C2.7 Electrolysis</p>	<p>C4.3.1, 4.3.8–4.3.9 How do chemists explain the properties of compounds of Group 1 and Group 7 elements?</p> <p>C5.2.5–5.2.6, 5.2.8–5.2.15 What reactions happen in the hydrosphere?</p> <p>C5.4.15–5.4.22 How can we extract useful metals from minerals?</p> <p>C6.1.8–6.1.11, 6.1.17–6.1.22 Chemicals and why we need them</p>	<p>2.9–2.14 Ionic compounds and analysis</p>
<p><b>6 Chemicals from the Earth</b> c2</p> <p>6.1 The Earth's spheres</p> <p>6.2 Metals from the lithosphere</p> <p>6.3 The chemical industry</p>	<p><i>Match to AQA syllabus is only general</i></p>	<p>C5.1.1–5.1.3 What types of chemicals make up the atmosphere?</p> <p>C5.2.1 What reactions happen in the hydrosphere?</p> <p>C5.3.1, 5.3.5–5.3.6 What types of chemicals make up the Earth's lithosphere?</p> <p>C5.4.1–5.4.5 How can we extract useful metals from minerals?</p> <p>C6.1.1–6.1.3, 6.1.7 Chemicals and why we need them</p>	<p><i>Match to Edexcel syllabus is only general</i></p>

## Physics Unit 2

App Unit	AQA Additional Science A 4408	OCR 21 <sup>st</sup> Century Additional Science J242	Edexcel Additional Science 2SA01
<b>7 Forces and motion</b> <span style="float: right;">P2</span> 7.1 Equal and opposite forces; resultant force 7.2 Speed and velocity 7.3 Forces and acceleration 7.4 Forces, moving objects and braking 7.5 Gravity and weight; terminal velocity 7.6 Elasticity and Hooke's law	2.1.1 Resultant force 2.1.2 Forces and motion 2.1.3 Forces and braking 2.1.4 Forces and terminal velocity 2.1.5 Forces and elasticity	P4.1.1–4.1.13 How can we describe motion?  P4.2.1–4.2.9 What are forces?	3.1–3.17 Motion and forces
<b>8 Forces, energy and momentum</b> <span style="float: right;">P2</span> 8.1 Forces, energy, work and power 8.2 Gravitational potential energy and kinetic energy 8.3 Momentum 8.4 Momentum and vehicle safety; changes in momentum	2.2.1 Forces and energy 2.2.2 Momentum	P4.3.1–4.3.11 What is the connection between forces and motion?  P4.4.1–4.4.14 How can we describe motion in terms of energy changes?	4.1–4.18 Momentum, energy, work and power
<b>9 Electricity</b> <span style="float: right;">P2</span> 9.1 Static electricity 9.2 Electric circuits: current, charge, potential difference 9.3 Resistance in circuits 9.4 Series and parallel circuits 9.5 Common components and their uses	2.3.1 Static electricity 2.3.2 Electrical circuits  2.4.2 Current, charge and power	P5.1.1–5.1.10 Electric current: a flow of what?  P5.2.1–5.2.16 What determines the size of the current in an electric circuit and the energy it transfers?  P5.3.1–5.3.7 How do parallel and series circuits work?	1.2–1.11 Static and current electricity  2.1–2.16 Controlling and using electric current
<b>10 Mains electricity</b> <span style="float: right;">P2</span> 10.1 Electricity in the home 10.2 Fuses, circuit breakers, earthing 10.3 Using electromagnetic induction 10.4 Transformers	2.4.1 Household electricity	P5.4.1–5.4.17 How is mains electricity produced? How are voltages and currents induced?  P5.5.1–5.5.6 How do electric motors work?	1.12–1.13 Static and current electricity
<b>11 Radioactivity</b> <span style="float: right;">P2</span> 11.1 Investigating atomic structure 11.2 Basics of radioactivity 11.3 Radioactive behaviour 11.4 Practical uses of radioactivity 11.6 Dangers of radioactivity	2.5.1 Atomic structure 2.5.2 Atoms and radiation	P6.1.1–6. Why are some materials radioactive?  P6.2.1–6.2.8 How can radioactive materials be used and handled safely, including wastes?	5.1–5.5 Nuclear fission and nuclear fusion  6.1–6.10 Advantages and disadvantages of using radioactive materials
<b>12 Nuclear fission and fusion</b> <span style="float: right;">P2</span> 12.1 Nuclear fission and nuclear power 12.2 Nuclear fusion and its potential use 12.3 Nuclear fusion and the life of stars	2.6.1 Nuclear fission 2.6.2 Nuclear fusion	P6.1.1–6.1.5, 6.1.8–6.1.17 Why are some materials radioactive?  P6.2.9–6.2.15 How can radioactive materials be used and handled safely, including wastes?	5.6–5.16 Nuclear fission and nuclear fusion  6.11–6.12 Advantages and disadvantages of using radioactive materials

## Biology Unit 2

App Unit	AQA Additional Science A 4408	OCR 21 <sup>st</sup> Century Additional Science J242	Edexcel Additional Science 2SA01
<b>13 Cells, tissues and organs</b> B2 13.1 Animal and plant cells 13.2 Bacteria, yeast and other specialised cells 13.3 Diffusion, osmosis and active transport 13.4 Tissues and organs 13.5 Organs and organ systems	B2.1 Cells and simple cell transport  B2.2 Tissues, organs and organ systems	B4.2.5–4.2.13 How do plants make food?  B4.3.10–4.3.11 How do living organisms obtain energy?	1.1–1.5 The building blocks of cells  2.3, 2.17–2.20 Organisms and energy  3.8–3.13 Common systems
<b>14 Organisms and their environment</b> B2 14.1 Photosynthesis 14.2 Factors affecting photosynthesis 14.3 Distribution of organisms 14.4 Measuring distribution	B2.3 Photosynthesis  B2.4 Organisms and their environment	B4.1.1–4.1.4 How do chemical reactions take place in living things?  B4.2.1–4.2.4, 4.2.14–4.2.17 How do plants make food?  B5.1.12–5.1.14 How do organisms develop?	2.13–2.16 Organisms and energy
<b>15 Proteins and enzymes</b> B2 15.1 Proteins, enzymes, factors affecting their action 15.2 Enzymes in digestion 15.3 Villi; probiotics and prebiotics; plant stanol esters 15.4 Enzymes in the home and in industry	B2.5 Proteins – Their functions and uses	B4.1.5–4.1.11 How do chemical reactions take place in living things?	1.22–1.24, 1.26–1.32 The building blocks of cells  3.14–3.18 Common systems
<b>16 Aerobic and anaerobic respiration</b> B2 16.1 Aerobic respiration 16.2 Aerobic respiration in exercise 16.3 Anaerobic respiration	B2.6 Aerobic and anaerobic respiration	B4.3.1–4.3.9 How do living organisms obtain energy?  B4.3.12 How do living organisms obtain energy?	2.1–2.2, 2.4–2.12 Organisms and energy
<b>17 Cells, genetics, and the evolution of life</b> B2 17.1 Cell division and growth 17.2 Stem cells 17.3 Genes and inheritance 17.4 Genetic disorders; discovery of DNA; Human Genome Project (AQA, Edexcel) 17.5 DNA and its functions 17.6 Origins of life: the fossil record; extinction; evolution of new species	B2.7 Cell division and inheritance  B2.8 Speciation	B5.1.1–5.1.11 How do organisms develop?  B5.2.1–5.2.5 How does an organism produce new cells?  B5.3.1–5.3.11 How do genes control growth and development within the cell?	1.6–1.21, 1.25 The building blocks of cells  3.1–3.7 Common systems
<b>18 The brain and behaviour</b> B2 18.1 Stimuli, response and reflexes 18.2 Role and structure of neurons and synapses; reflex arcs 18.3 Learned behaviour; effect of drugs; mapping the brain 18.4 Mammalian brain evolution; neuron pathways; memory	<i>Not applicable to AQA Unit 2</i>	B6.1.1–6.1.10 How do animals respond to changes in their environment?  B6.2.1–6.2.18 How is information passed through the nervous system?  B6.3.1–6.3.5 How can reflex responses be learned?  B6.4.1–6.4.12 How do humans develop more complex behaviour?	<i>Not applicable to Edexcel Unit 2</i>