

Lesson	Specification learning outcomes	Edexcel 360 Science Specification match	Edexcel 360 Science GCSE Science Students' Book page reference	Additional information [new content]
Lesson C1.1 The early atmosphere	1.1, 1.2, 1.3, 1.4	C1b 7.4	C1b.7.4 The Earth's changing climate	The new specification also requires - that the condensation of water vapour formed oceans
Lesson C1.2 A changing atmosphere	1.5, 1.6	C1b 7.4	C1b.7.4 The Earth's changing climate	The new specification also requires - the dissolution of carbon dioxide into the oceans - the later incorporation of this dissolved carbon dioxide into marine organisms which eventually formed carbonate rocks
Lesson C1.3 Oxygen in the atmosphere practical	1.7			
Lesson C1.4 The atmosphere today	1.8, 1.9, 0.1	C1b 7.3	C1b.7.3 Global warming and fossil fuels	The new specification also requires - the effects of volcanic activity, farming and deforestation
Lesson C1.5 Rocks and their formation	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7			
Lesson C1.6 Limestone and its uses	2.8, 2.9, 2.10	C1a 6.12	C1a.6.7 Breaking down in the heat [reaction of calcium carbonate mentioned but equation not given]	The new specification also requires - limestone quarrying and its uses
Lesson C1.7 Thermal decomposition of carbonates practical	2.11		C1a.6.7 Breaking down in the heat	

Lesson C1.8 Chemical reactions	2.12, 2.13, 2.16, 0.2, 0.3, 0.4	C1a 6.11	C1a.6.7 Breaking down in the heat C1a.5.1 A map of the elements [introduces the idea of elements and chemical reactions]	The periodic table is covered in Additional Science. The new specifications also requires - an understanding that the total mass before and after a reaction in a sealed container is unchanged, as shown practically by a precipitation reaction
Lesson C1.9 Reactions of calcium compounds	2.14, 2.15, 2.17, 2.18, 0.4			
Lesson C1.10 Indigestion	3.1, 3.2, 0.1, 0.2, 0.3			
Lesson C1.11 Indigestion remedies practical	3.3			
Lesson C1.12 Neutralisation	3.4, 3.5	C1a 6.2	C1a.6.4 Neutralisation C1a.6.6 Baking with bubbles	
Lesson C1.13 Electrolysis practical	3.6, 3.7, 3.8, 3.9	C1a 6.16	C1b.7.10: What can we get from sea water? C3.3.4 Detecting acids [test for hydrogen] C3.4.11: Caustic soda an important alkali [test for chlorine]	The new specification also requires - the electrolysis of dilute hydrochloric acid

Lesson C1.14 The importance of chlorine	3.10, 3.11, 3.12, 0.5	C1b 7.23	C1b.7.10 What can we get from sea water?	
Lesson C1.15 Electrolysis of water	3.13, 3.14	C2 6.12 C1a 6.16	C2.6.6 Electrolysis of salts and solutions C1a.6.1 Oxygen and oxidation [test for oxygen]	
Lesson C1.16 Ores	4.1, 4.2, 4.3	C1a 6.4 C1a 6.5 C1a 6.8 C1a 6.9	C1a.6.3 Ores	
Lesson C1.17 Metal extraction practical	4.4			
Lesson C1.18 Oxidation and reduction	4.5, 4.6, 4.7, 4.8	C1a 6.6 C1a 6.7	C3.4.8 Electrolysis, ions and oxidation C1a.6.1 Oxygen and oxidation C1a.6.3 Ores	
Lesson C1.19 Recycling metals	4.9	C1b 7.7	C1b.7.7 Waste not, want not	
Lesson C1.20 Properties of metals	4.10	C1a 5.4	C1a.5.2 Conducting heat [covers copper, gold and steel]	The new specification also requires - aluminium

Lesson C1.21 Alloys	4.11, 4.12, 4.13, 4.14	C2 6.2	C1a.5.2 Conducting heat C2.6.1 Explaining the properties of metals C1b.8.1 Getting the right materials [shape memory alloys]	The new specification also requires - nitinol, an alloy of nickel and titanium - gold alloys with higher strength, including fineness (parts per thousand) and carats to indicate the proportion of pure gold
Lesson C1.22 Crude oil	5.1, 5.2	C1b 7.15	C1b.7.8 What do we get from crude oil?	
Lesson C1.23 Crude oil fractions	5.3, 5.4, 5.5	C1b 7.16 C1b 7.17	C1b.7.8 What do we get from crude oil?	
Lesson C1.24 Combustion	5.6, 5.7	C1b 7.2 C1a 6.16	C1b.7.1 Getting energy from fuels C1a.6.6 Baking with bubbles [test for carbon dioxide]	
Lesson C1.25 Incomplete combustion	5.8, 5.9, 5.10	C1b 7.18 C1b 7.19 C1b 7.20	C1b.7.2 The dangers of incomplete combustion	
Lesson C1.26 Acid rain	5.11, 5.12			
Lesson C1.27 Climate change	5.13, 5.14, 5.15, 5.16	C1b 7.2 C1b 7.3 C1b 7.4 C1b 7.5 C1b 7.6	C1b.7.3 Global warming and fossil fuels B2.3.9 Environmental changes	The new specification also requires - that chemists are investigating methods to control the amount of carbon dioxide in the atmosphere by: a iron seeding of oceans b converting carbon dioxide into hydrocarbons

Lesson C1.28 Biofuels	5.17, 5.18, 5.19	C1b 7.12 C1b 7.14	C1b.7.6 Is there an alternative to oil? [part]	
Lesson C1.29 Choosing fuels	5.20, 5.21, 5.22, 5.23	C1b 7.11	C1b.7.1 Getting energy from fuels C1b.7.6 Is there an alternative to oil?	The new specification also requires - simple fuel cells
Lesson C1.30 Investigating fuels practical	5.24		C1b.7.1 Getting energy from fuels [part]	
Lesson C1.31 Alkanes and alkenes	5.25, 5.26, 5.27, 5.28, 5.29	C2 5.4 C2 5.5 C2 5.6 C2 5.8	C2.5.1 The basics of organic chemistry	
Lesson C1.32 Cracking	5.30, 5.31, 5.32	C2 5.1 C2 5.2	C2.5.2 A cracking lesson	
Lesson C1.33 Polymerisation	5.33, 5.34, 5.35	C2 5.14 C2 5.15 C2 5.16	C2.5.3 Introduction to polymers [part]	The new specification also requires - PTFE as an example
Lesson C1.34 Problems with polymers	5.36, 5.37	C2 5.20	C2.5.4 Formation and uses of polymers	

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Lesson C2.1 Mendeleev	1.1, 1.2	C1a 5.5 C1 a5.6 C1a 5.7 C1a 5.8 C1a 5.9 C1a 5.11 C1a 5.12	C1a.5.9 Using the periodic table	
Lesson C2.2 Structure of the atom	1.3, 1.4, 1.5, 1.6, 1.7	C1a 5.10 C1a 5.13 C2 6.3	C1a.5.4 Atomic structure	
Lesson C2.3 The modern periodic table	1.2, 1.8, 1.9, 1.10, 1.11	C1a 5.9 C2 6.4 C2 6.13 C2 6.14	C1a.5.1 A map of the elements C2.5.8 Chemical calculations C2.6.7 Isotopes	
Lesson C2.4 Electron shells	1.12, 1.13	C2 6.5	C2.6.3 Elements in the periodic table	
Lesson C2.5 Ionic bonds	2.1, 2.2, 2.3, 2.4	C2 6.6 C2 6.7 C2 6.8	C2.6.4 Ions and ionic bonding	The new specification also requires - the terms cations and anions

Lesson C2.6 Ionic compounds	2.5, 2.6, 2.7	C2 6.9 C2 6.10	C2.6.5 Ions and giant structures	
Lesson C2.7 Properties of ionic compounds	2.8	C2 6.9	C2.6.5 Ions and giant structures	The new specification also requires - the properties of ionic substances including sodium chloride and magnesium oxide, limited to: a melting points and boiling points b whether they conduct electricity as solids, when molten and in aqueous solution
Lesson C2.8 Solubility	2.9, 2.10	C1a 6.1 C1a 6.2 C1a 6.3	C1a.6.5 Making useful salts	
Lesson C2.9 Precipitation practical	2.11, 2.12, 0.2, 0.3, 0.4	C1a 6.3	C1a.6.5 Making useful salts	
Lesson C2.10 Precipitates	2.13, 2.14, 0.2, 0.3			
Lesson C2.11 Ion tests	2.15, 2.16	C1a 5.1 C1a 5.4 C3 3.6	C1a.5.10 Forensic science [part] C3.3.5 Looking for anions [part]	The new specification also requires - use spectroscopy (a type of flame test) to detect the presence of very small amounts of elements and that this led to the discovery of new elements, including rubidium and caesium
Lesson C2.12 Covalent bonds	3.1, 3.2, 3.3	C2 7.9 C2 7.10	C2.7.1 Covalent bonding	The specification also requires - dot and cross diagram for methane
Lesson C2.13 Comparing substances practical	3.4, 0.5			

Lesson C2.14 Properties of covalent substances	3.5, 3.6, 3.7	C2 7.4 C2 7.11	C2.7.4 Simple covalent structures C2.7.2 Giant covalent structures	
Lesson C2.15 Miscible or immiscible?	3.8, 3.9	C1b 7.22	C1b.7.9 What can we get from air? [part]	The new specification also requires - pupils to describe the separation of two immiscible liquids using a separating funnel
Lesson C2.16 Chromatography	3.10, 3.11			
Lesson C2.17 Chemical classification	4.5	C2 6.9 C2 7.4 C2 7.7 C2 7.9	C2.6.4 Ions and ionic bonding C2.6.4 Ions and ionic bonding C2.7.4 Simple covalent structures C2.7.2 Giant covalent structures C2.7.6 Giant metallic structures	
Lesson C2.18 Metallic bonding and Transition metals	4.1, 4.2, 4.3, 4.4	C1a 5.7 C1a 5.8 C2 7.7 C1a 5.3 C1a 5.4 C1a 5.8 C1a 5.17 C1a 5.18 C1a 5.19 C1a 5.20 C1a 5.21	C1a.5.2 Conducting heat C2.6.1 Explaining the properties of metals C1a.5.3 Colourful chemistry C2.7.6 Giant metallic structures	

Lesson C2.19 Alkali metals	4.1, 4.6, 4.7, 4.8	C2 6.19	C1a.5.5 Group 1 – the alkali metals C2.6.8 Reactions of alkali metals	
Lesson C2.20 Halogens	4.1, 4.9, 4.10, 4.11	C1a 5.18 C1a 5.19 C2 6.19	C1a.5.7 Group 7 – the halogens C2.6.9 Reactivity of the halogens	
Lesson C2.21 Displacement reactions practical	4.12			
Lesson C2.22 More halogen reactions	4.11, 4.13	C1a 5.19	C2.6.9 Reactivity of the halogens	
Lesson C2.23 Noble gases	4.1, 4.14, 4.15, 4.16, 4.17	C1a 5.7 C2 6.17	C1a.5.6 Group 0 – the noble gases C2.6.10 The noble gases	The new specification also requires - an understanding that the discovery of the noble gases was due to chemists: a noticing that the density of nitrogen made in a reaction differed from that of nitrogen obtained from air b developing a hypothesis about the composition of the air c performing experiments to test this hypothesis and show the presence of the noble gases
Lesson C2.24 Temperature changes practical	5.1			
Lesson C2.25 Temperature changes	5.2, 5.3, 5.4, 5.5, 5.6	C2 8.1 C2 8.2 C2 8.3	C2.8.2 Energy in reactions	The new specification also requires - pupils to draw and interpret simple graphical representations of energy changes occurring in chemical reactions (no knowledge of activation energy is required)

Lesson C2.26 Rates of reaction practical	5.7			
Lesson C2.27 Rates of reactions	5.8, 5.9	C2 8.4 C2.8.5	C2.8.3 Collision theory and reaction rates C2.8.4 What affects reaction rates?	
Lesson C2.28 Collision theory	5.10, 5.11	C2 8.7	C2.8.3 Collision theory and reaction rates	
Lesson C2.29 Catalysts	5.12, 5.13	C2 8.6	C2.8.5 Catalysts and reaction rates	
Lesson C2.30 Relative masses	6.1, 6.2,	C2 2.5 C2 2.6	C2.5.8 Chemical calculations C2.5.10 Formulae and percentage yields [part]	
Lesson C2.31 Empirical formula practical	6.3		C2.5.10 Formulae and percentage yields	
Lesson C2.32 Percentage composition	6.4, 6.5	C2 5.27		
Lesson C2.33 Yields	6.6, 6.7, 6.8, 6.9	C2 5.28	C2.5.10 Formulae and percentage yields	
Lesson C2.34 Waste and profit	6.10, 6.11			

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Lesson C3.1 Water testing	1.1, 1.2, 1.3, 0.4	C3 3.1 C3 3.2 C3 3.3 C3 3.4 C3 3.5 C3 3.6	C3.3.1 Water, water everywhere C3.3.2 Testing for ions C3.3.3 Looking for cations C3.3.5 Looking for anions C3.3.7 Explaining ion tests with equations	
Lesson C3.2 Safe water	1.3	C3 3.1 C3 3.2 C3 3.3 C3 3.4 C3 3.5 C3 3.6	C3.3.1 Water, water everywhere C3.3.2 Testing for ions C3.3.3 Looking for cations C3.3.5 Looking for anions C3.3.7 Explaining ion tests with equations	
Lesson C3.3 Ion identification practical	1.4			
Lesson C3.4 Safe limits	1.5		C3.3.1 Water, water everywhere	The new specification also requires - that these tests form the basis for testing by chemists for the presence of substances in the blood
Lesson C3.5 Water solutes	2.1, 2.2, 2.3	C3 3.7 C3 3.8 C3 4.18	C3.3.8 How much is dissolved?	

Lesson C3.6 Hard and soft water	2.4, 2.5	C3 4.18	C3.4.16 Hard and soft water	The new specification also requires - that hard water may be temporary or permanent; and - that boiling removes temporary hardness but not permanent hardness - that hard water can be softened if the dissolved calcium and/or magnesium ions are removed and that this can be done by - boiling (for temporary hard water only) - using an ion exchange resin
Lesson C3.7 Determining dry masses practical	2.6		C3.3.8 How much is dissolved?	
Lesson C3.8 Particles and moles	2.7, 2.8, 2.9	C3.3.7 C3.3.8 C3 3.16	C3.3.10 Measuring in moles C3.3.14 Looking at solutions	
Lesson C3.9 Preparing soluble salts 1	2.10	C1a 6.1 C1a 6.2	C1a.6.4 Neutralisation	
Lesson C3.10 Preparing soluble salts 2	2.11, 2.12	C3 3.17	C3.3.15 Titration and standard solutions [part] C3.3.11 How much reacts? [part]	The new specification also requires - that an acid-base titration is a neutralisation reaction where hydrogen ions (H ⁺) from the acid react with hydroxide ions (OH ⁻) from the base
Lesson C3.11 Titration practical	2.13, 2.14	C3 3.18	C3.3.16 Volumetric analysis	
Lesson C3.12 Titrations and calculations	2.15	C3 3.19	C3.3.16 Volumetric analysis	

Lesson C3.13 Electrolysis	3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7	C3 4.5 C3 4.6	C3.4.6 Electrolysis C3.4.8 Electrolysis, ions and oxidation [part]	The new specification also requires - the terms anion and cation - that sodium can be used in street lamps and as a coolant in some nuclear reactors
Lesson C3.14 Electrolysis of brine practical	3.8		C3.4.6 Electrolysis [part]	
Lesson C3.15 Electrolysis of salts	3.5, 3.9, 3.10, 3.11	C3 4.5 C3 4.6	C2.6.6. Electrolysis of salts and solutions [part]	The new specification also requires - the formation of the products in the electrolysis, using inert electrodes, of some electrolytes, including: a copper chloride solution b copper sulfate solution c sodium sulfate solution d molten lead bromide
Lesson C3.16 Mass changes in electrolysis practical	3.12		C3.4.7.Purifying and plating metals C3.4.8 Electrolysis, ions and oxidation	
Lesson C3.17 Uses of electrolysis	3.13, 3.14	C3 4.7	C3.4.7.Purifying and plating metals C3.4.8 Electrolysis, ions and oxidation [part]	
Lesson C3.18 Molar volume of gas	4.1, 4.2, 4.3	C3 3.11 C3 3.12 C3 3.15	C3.3.13 Working with gases	

Lesson C3.19 Fertilisers	4.4, 4.5, 4.6	B2 3.11 C2 8.9 C2 8.13 C2 8.14	B2.3.7 Natural recycling – nitrogen [part] C2.8.10 Fertilisers – artificial or organic? [part] C2.8.9 Ammonia production [part]	
Lesson C3.20 The Haber process	4.7, 4.8, 4.9, 4.10	C2 8.10 C2 8.11 C2 8.12	C2.8.9 Ammonia production [part] C3.4.1 Bells, pipes and wires [briefly mentions the use of iron as a catalyst in the Haber process]	
Lesson C3.21 Fermentation	5.1, 5.2	C1b 8.8	C1b.8.5 Making beer and wine	
Lesson C3.22 Alcoholic drinks	5.3, 5.4, 5.5	C1b 8.9	C1b.8.6 How alcohol affects the human body C1b.8.7 What alcohol does to society	The new specification also requires - how to obtain a concentrated solution of ethanol by fractional distillation of the fermentation mixture

Lesson C3.23 Ethanol production	5.6, 5.7, 5.8	C2 5.13		
Lesson C3.24 Homologous series	5.9, 5.10	C3 4.3	C3.4.3 Cosmetics and alcohols	The new specification also requires - defines homologous series in the context of alcohols
Lesson C3.25 Ethanoic acid	5.10, 5.11, 5.12, 5.13	C3 4.3 C3 4.4	C3.4.4 Sweet and sour chemicals	
Lesson C3.26 Esters	5.14, 5.15, 5.16	C3 4.3 C3 4.4	C3.4.4 Sweet and sour chemicals	The new specification also requires - polyesters as fibres to make fabric and as plastics for making bottles (no consideration of the formation of polyester is required) - an understanding that polyesters can be recycled to form fleece that is used to make clothing
Lesson C3.27 Fats, oils and soap	5.17, 5.18, 5.19, 5.20	C3 4.15 C3 4.16 C3 4.17 C3 4.18 C2 5.10 C2 5.11 C2 5.12	C3.4.15 Soap [part] C2.5.5 It's all fat, but does it make you fat? [part]	