

Angle Facts - Video 35, 30, 34, 39
Types of Angle - Video 38
Angles in Parallel Lines - Video 25
Angles in a Triangle - Video 37
Angles in a Quadrilateral - Video 33
Angles in Polygons - Video 32
Bearings - Videos 26, 27
Scales & Maps - Video 283
Perimeter - Video 241
Area of Rectangles/Triangles - Videos 45, 49
Area of a Trapezium - Video 48
Units - Videos 347, 349
Sensible Estimates - Video 285
Line Symmetry - Video 316
Rotational Symmetry - Video 317
Constructions - Videos 72, 78, 83
Loci - Videos 75, 76, 77
Faces, Edges, Vertices - Videos 5, 3
Nets - Video 4
Views and Elevations - Video 354
Time Calculations - Video 322
Timetables - Video 320
Distance Charts - Video 318
Speed, Distance, Time - Video 299
Travel Graphs - Video 171
Density - Video 384
Pressure - Video 385
Translations - Video 325, 326
Reflections - Videos 272, 273
Rotations - Video 275
Enlargements - Videos 104, 105, 107
Parts of the Circle - Video 61
Circumference - Video 60 , 243
Area of a Circle - Video 59 , 47
Arc Length - Video 58
Area of a Sector - Video 46
Volume of a Cylinder - Video 357
Pythagoras - Video 257
Trigonometry - Videos 329, 330, 331
Exact Trig Values - Video 341
Similar Shapes (sides) - Video 292
Congruent Triangles - Video 67
Volume of a Cuboid/Prism - Video 355, 356
Volume of a Sphere/Cone - Videos 359, 361
Surface Area - Video 310
Surface area of Sphere/Cone - Videos 313, 314
Vectors - Video 353a, 353

www.corbettmaths.com/contents

GCSE Foundation Tier Checklist

Multiplication - Video 199, 200
Division - Video 98
Addition - Video 6
Subtraction - Video 304
Rounding - Video 276, 277a, 277b, 278, 280
Estimation - Video 215
Order of Operations - Video 211
Ordering Decimals - Video 95
Arithmetic with Decimals - Videos 90, 91, 92, 93, 94
Multiples and Factors - Videos 220, 216
Prime Numbers - Video 225
Square Numbers and Square Roots - Videos 226, 228
Cube Numbers and Cube Roots - Videos 212, 214
Product of Primes - Video 223
LCM/HCF - Videos 218, 219, 224
Indices - Videos 172, 174
Negative Indices - Video 175
Standard Form - Video 300, 302, 303
Fractions of Amounts - Video 137
Adding Fractions - Video 133
Multiplying Fractions - Video 142
Dividing Fractions - Video 134
Reciprocals - Video 145
Fractions, Decimals, Percentages - Videos 121 to 129
Expressing as Fraction or % - Videos 136, 237
Percentages of Amounts - Videos 234, 235, 238
Percentage Change - Video 233
Simple Interest - Video 236a
Compound Interest - Video 236
Reverse Percentages - Video 240
Ratio - Videos 269, 270, 271
Currency - Video 214a
Recipes - Video 256
Negative Numbers - Videos 205-209
Place Value - Video 222 , 222a
Error Intervals - Video 377
Money - Video 400
Best Buys - Video 210
Proportion - Videos 255a, 254
Use of a Calculator - Video 352

Tally Charts - Video 321
Frequency Trees - Video 376
Two-way Tables - Video 319
Pictograms - Videos 161, 162
Bar Charts - Videos 147, 148
Frequency Polygons - Videos 155, 156
Line Graphs - Video 160
Pie Charts - Video 163, 164
Probability - Videos 245, 246, 248
Relative Frequency - Video 248
Listing Outcomes - Video 253
Scatter Graphs - Videos 165 to 168
Stem and Leaf - Videos 169, 170
Averages & Range - Videos 56, 50, 53, 57
Mode: Frequency Table - Video 56a
Median: Frequency Table - Video 51
Combined Mean - Video 53a
Estimated Mean - Video 55
Venn Diagrams - Video 380
Tree Diagrams - Video 252
Reading Tables - Video 387
Samples - Video 281a
Coordinates - Video 84
Function Machine - Video 386
Writing Expressions - Video 16
Collecting Like Terms - Video 9
Multiplying & Dividing Terms - Videos 18, 11
Laws of Indices - Video 174
Sequences - Videos 286, 287, 290, 287a
The nth Term - Video 288
Expanding Brackets - Videos 13, 14
Factorising - Video 117
Factorising Quadratics - Videos 118, 120
Solving Equations - Video 110, 113, 266
Forming Equations - Videos 114, 115
Inequalities - Videos 177, 178, 179
Conversion Graphs - Video 151
Drawing Linear Graphs - Video 186
 $y = mx + c$ - Video 191
Gradient - Video 189
Real Life Graphs - Video 171a
Parallel graphs - Video 196
Substitution - Video 20
Changing the Subject - Video 7
Simultaneous Equations - Videos 295, 297
Quadratic Graphs - Video 264
Cubic Graphs - Video 344
Reciprocal Graphs - Video 346



Corbett
maths

Adding Fractions - Video 133
Multiplying Fractions - Video 142
Dividing Fractions - Video 134
Reciprocal - Video 145
Decimals - Video 90, 91, 92, 93, 94
Use of a Calculator - Video 352
Estimation - Video 215
Best Buys - Video 210
Currency - Video 214a
Conversion Graphs - Video 151, 152
LCM/HCF - Videos 218, 219
Product of Primes - Videos 223, 224
Indices - Videos 172, 174
Indices (fractional/negative) - Videos 173, 175
Standard Form - Videos 300, 301, 302, 303
Percentages of Amounts - Videos 234, 235, 238
Percentage change - Video 233
Simple Interest - Video 236a
Compound Interest - Video 236
Reverse Percentages - Video 240
Recurring Decimals to Fractions - Video 96
Ratio - Videos 270, 271, 271a, 271b, 271c
Direct Proportion - Video 254
Inverse Proportion - Video 255
Proportional Graphs - Video 255b
Proportion (application) - Video 255c
Limits of Accuracy - Videos 183, 184
Surds - Videos 305, 306, 307, 308
Product Rule for Counting - Video 383
Error Intervals - Video 377, 280
Collecting Like Terms - Video 9
Expanding Brackets - Videos 13, 14, 15
Factorising - Video 117
Factorising Quadratics - Videos 118, 119, 120, 119a
Algebraic Fractions - Videos 21, 22, 23, 24
Sequences (nth term) - Videos 288, 289
nth term (quadratics) - Video 388
Substitution - Video 20
Equations - Videos 110, 113, 114, 115
Changing the Subject - Videos 7, 8
Inequalities - Videos 177, 178, 179
Inequalities (Regions) - Video 182
Quadratic Inequalities - Video 378
Linear Graphs - Videos 191, 186, 189, 194
Midpoint of a Line - Video 198
Distance between 2 points - Video 185
Real-life Linear Graphs - Video 171a
Parallel or Perpendicular Lines - Videos 196, 197
Simultaneous Equations - Video 295
Non-linear Simultaneous Equations - Video 298
Graphical Simultaneous Equations - Video 297

www.corbettmaths.com/contents

GCSE Higher Tier Checklist

Edexcel



Angles in Parallel Lines - Video 25, 39
Bearings - Video 26, 27
Angles in Polygons - Video 32
Constructions - Video 78, 72, 79, 80, 70
Loci - Videos 75, 76, 77
Views - Video 354
Area of a Trapezium - Video 48
Circumference - Video 60
Area of a Circle - Video 40
Arc Length - Video 58
Area of a Sector - Video 48
Volume of a Cylinder - Video 357
Pythagoras - Video 257, 259
Trigonometry - Videos 329, 330, 331
3D Trig and Pythagoras - Videos 259, 332
Exact Trig Values - Video 341
Volume of a Prism - Video 356
Volume of Cone/Pyramid/Sphere - Videos 359-361
Volume of a Frustum - Video 360a
Surface Area of a Prism - Video 311
Surface Area of Cone/Sphere - Videos 314, 313
Metric Units (area/volume) - Videos 350, 351
Translations - Video 325
Reflections - Video 272
Rotations - Video 275
Enlargements - Videos 104, 106, 107, 108
Similar Shapes - Videos 292, 293a, 293b
Circle Theorems - Videos 64, 65
Sine Rule - Video 333
Cosine Rule - Videos 335, 336
1/2abSinC - Video 337
Vectors - Video 353
Column Vectors - Video 353a
Travel Graphs - Video 171
Speed, Distance, Time - Video 299
Density - Video 384
Pressure - Video 385
Geometric Proof - Video 366
Congruent Triangles - Video 67
Invariant Points - Video 392
Frequency Trees - Video 376
Two-way Tables - Video 319
Pie Charts - Videos 163, 164
Scatter Graphs - Videos 165, 166
Histograms - Video 157, 158, 159
Frequency Polygons - Videos 155, 156
Stem-and-leaf - Videos 169, 170
Cumulative Frequency - Videos 153, 154
Box Plots - Video 149
Quartiles - Video 57a
Estimated Mean - Video 55
Combined Mean - Video 53a
Median (frequency table) - Videos 51, 52
Modal class (frequency table) - Video 56a
Probability - Video 250
Relative frequency - Video 248
Samples - Video 281a
Tree Diagrams - Video 252
Conditional Probability - Video 247
Capture Recapture - Video 391
Venn Diagrams - Video 380
Equation of a Circle - Video 12
Equation of a tangent - Video 372
Instantaneous rates of change - Video 390a
Average rates of change - Video 390b
Area under a curve - Video 389
Composite Functions - Video 370
Inverse Functions - Video 369
Quadratic Graphs - Video 264
Solving Quadratics Graphically - Videos 267c, 267d
Sketching Quadratics - Video 265
Trigonometric Graphs - Videos 338, 339
Cubic Graphs - Video 344
Reciprocal Graphs - Video 346
Exponential Graphs - Video 345
Geometric Sequences - Video 375
Algebraic Proof - Video 365
Quadratic Formula - Video 267
Completing the Square - Video 10, 371
Transformations of Graphs - Video 323, 324
Iteration - Video 373, 373a, 373b

Component	Content	How it is assessed	Questions
GCSE Spanish Paper 3: Reading and understanding in Spanish	<p>This paper draws on vocabulary and structures across all the themes and topics:</p> <p>Theme: Identity and culture</p> <ul style="list-style-type: none"> • Who am I?: relationships; when I was younger; what my friends and family are like; what makes a good friend; interests; socialising with friends and family; role models • Daily life: customs and everyday life; food and drink; shopping; social media and technology (use of, advantages and disadvantages) • Cultural life: celebrations and festivals; reading; music; sport; film and television <p>Theme: Local area, holiday and travel</p> <ul style="list-style-type: none"> • Holidays: preferences; experiences; and destinations • Travel and tourist transactions: travel and accommodation; asking for help and dealing with problems; directions; eating out; shopping • Town, region and country: weather; places to see; things to do <p>Theme: School</p> <ul style="list-style-type: none"> • What school is like: school types; school day; subjects; rules and pressures; celebrating success • School activities: school trips; events; exchanges <p>Theme: Future aspirations, study and work</p> <ul style="list-style-type: none"> • Using languages beyond the classroom: forming relationships; travel; employment • Ambitions: further study; volunteering; training • Work: jobs; careers; professions <p>Theme: International and global dimension</p> <ul style="list-style-type: none"> • Bringing the world together: sports events; music events; campaigns and good causes • Environmental issues: being 'green'; access to natural resource 	<p>Written examination</p> <p>Foundation tier: 45 minutes; 50 marks</p> <p>Higher tier: 1 hour; 50 marks 25% of the total qualification</p>	<p>Students are assessed on their understanding of written Spanish across a range of different types of texts, including advertisements, emails, letters, articles and literary texts.</p> <p>Students are required to respond to multiple-response and short-answer questions based on these texts.</p> <p>Students must answer all questions in each of the three sections:</p> <p>Section A is set in English. The instructions to students in English.</p> <p>Section B is set in Spanish. The instructions to students in Spanish.</p> <p>Section C includes a translation passage from Spanish into English with instructions in English</p>

<p>Paper 4: Writing in Spanish</p>	<p>This paper draws on vocabulary and structures across all the themes and topics Students will only be assessed on content covered in Year 10 and 11 Modules 1-5</p>	<p>Written examination</p> <p>Foundation tier: 1 hour 10 minutes; 60 marks</p> <p>Higher tier: 1 hour 20 minutes; 60 marks 25% of the total qualification</p>	<p>Assessment overview: Students are assessed on their ability to communicate effectively through writing in Spanish for different purposes and audiences. Students are required to produce extended responses of varying lengths and types to express ideas and opinions in Spanish. The instructions to students are in Spanish. Word counts are specified for each question. Students must answer all questions.</p> <p>Foundation tier – three open response questions and one translation into Spanish.</p> <p>Higher tier – two open response questions and one translation into Spanish.</p>
-----------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Support links:

[Sample assessment materials Spanish GCSE \(pearson.com\)](#)

[GCSE Spanish - Edexcel - BBC Bitesize](#)

[SENECA](#)

GCSE Spanish Listening and Speaking Mock Exams 2023

Component	Content	How it is assessed	Questions
GCSE Spanish Paper 1 Listening and understanding in Spanish	<p>This paper draws on vocabulary and structures across all the themes and topics</p> <p>Theme: Identity and culture</p> <ul style="list-style-type: none"> ● Who am I?: relationships; when I was younger; what my friends and family are like; what makes a good friend; interests; socialising with friends and family; role models ● Daily life: customs and everyday life; food and drink; shopping; social media and technology (use of, advantages and disadvantages) ● Cultural life: celebrations and festivals; reading; music; sport; film and television <p>Theme: Local area, holiday and travel</p> <ul style="list-style-type: none"> ● Holidays: preferences; experiences; and destinations ● Travel and tourist transactions: travel and accommodation; asking for help and dealing with problems; directions; eating out; shopping ● Town, region and country: weather; places to see; things to do <p>Theme: School</p> <ul style="list-style-type: none"> ● What school is like: school types; school day; subjects; rules and pressures; celebrating success ● School activities: school trips; events; exchanges <p>Theme: Future aspirations, study and work</p> <ul style="list-style-type: none"> ● Using languages beyond the classroom: forming relationships; travel; employment ● Ambitions: further study; volunteering; training ● Work: jobs; careers; professions <p>Theme: International and global dimension</p> <ul style="list-style-type: none"> ● Bringing the world together: sports events; music events; campaigns and good causes ● Environmental issues: being 'green'; access to natural resource 	<p>Written examination</p> <p>Foundation tier: 35 minutes including 5 minutes reading time; 50 marks</p> <p>Higher tier: 45 minutes including 5 minutes reading time; 50 marks 25% of the total qualification</p>	<p>Assessment overview: Students are assessed on their understanding of standard spoken Spanish by one or more speakers in a range of public and social settings.</p> <p>Students will respond to multiple-response and short-answer open response questions based on a recording featuring male and female Spanish speakers.</p> <p>Students must answer all questions in both sections. There is no requirement for students to produce written responses in Spanish.</p> <p>Foundation tier</p> <ul style="list-style-type: none"> ● Section A is set in English. The instructions to students are in English. ● Section B is set in Spanish. The instructions to students are in Spanish. <p>Higher tier</p> <ul style="list-style-type: none"> ● Section A is set in Spanish. The instructions to students are in Spanish ● Section B is set in English. The instructions to students are in English.

Paper 2: Speaking in Spanish	<p>There are three tasks which must be conducted in the following order:</p> <p>Task 1 – a role play based on one topic that is allocated by Pearson.</p> <p>Task 2 – questions based on a picture stimulus based on one topic that is allocated by Pearson.</p> <p>Task 3 – conversation based on two themes. The first theme is based on the topic chosen by the student in advance of the assessment. The second theme is allocated by Pearson.</p> <p>The assessments are conducted by teachers in one session within a prescribed assessment window and the recordings then submitted to Pearson for external marking.</p>	Internally conducted and externally assessed Foundation tier: 7–9 minutes plus 12 minutes preparation time; 70 marks Higher tier: 10–12 minutes plus 12 minutes preparation time; 70 marks 25% of the total qualification	<p>Assessment overview</p> <p>Students are assessed on their ability to communicate and interact effectively through speaking in Spanish for different purposes and in different settings.</p>
----------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Support links:

GENERAL REVISION

[Sample assessment materials Spanish GCSE \(pearson.com\)](#)

[GCSE Spanish - Edexcel - BBC Bitesize](#)

[SENECA](#)

SPEAKING PRACTICE

<https://www.bbc.co.uk/bitesize/guides/zd8wscw/revision/7>

<https://youtu.be/d2-sKXLM148> PHOTO CARD PRACTICE

<https://youtu.be/jrCLizj2iCs> GENERAL CONVERSATION

GCSE Combined and Separate Science PPEs November 2022

Component	Content	How it is assessed	Content
GCSE Combined Science Physics AQA 8464	Energy Electricity Particles Radioactivity	Written exam: 1 hour 15 minutes Calculator needed	<p>P1 Conservation and Dissipation of Energy</p> <p>Can describe all the changes involved in the way energy is stored when a system changes, for common situations.</p> <p>Can calculate the amount of energy associated with a moving object, a stretched spring and an object raised above ground level.</p> <p>Can give examples that illustrate the definition of power e.g. comparing two electric motors that both lift the same weight through the same height but one does it faster than the other.</p> <p>Can describe with examples where there are energy transfers in a closed system, that there is no net change to the total energy.</p> <p>Can describe, with examples, how in all system changes energy is dissipated, so that it is stored in less useful ways. This energy is often described as being ‘wasted’.</p> <p>Can explain ways of reducing unwanted energy transfers, for example through lubrication and the use of thermal insulation.</p> <p><i>RP14: Can give details of how to determine the specific heat capacity of a material.</i></p> <p>P2 Energy Transfer by Heating</p> <p>Can describe how the rate of cooling of a building is affected by the thickness and thermal conductivity of its walls.</p> <p>P3 Energy Resources</p> <p>Can describe the main energy sources available.</p> <p>Can distinguish between energy resources that are renewable and energy resources that are non-renewable.</p> <p>Can compare ways that different energy resources are used, the uses to include transport, electricity generation and heating.</p> <p>Can explain why some energy resources are more reliable than others.</p> <p>Can describe the environmental impact arising from the use of different energy resources.</p> <p>Can explain patterns and trends in the use of energy resources.</p> <p>Can consider the environmental issues that may arise from the use of different energy resources.</p> <p>Can show that science has the ability to identify environmental issues arising from the use of energy resources but not always the power to deal with the issues because of political, social, ethical or economic considerations.</p> <p>P4 Electric Circuits</p> <p>Can draw and interpret circuit diagrams.</p> <p>Can explain that, for some resistors, the value of R remains constant but that in others it can change as the current changes.</p> <p>Can explain the design and use of a circuit to measure the resistance of a component by measuring the current through, and potential difference across, the component.</p> <p>Can draw an appropriate circuit diagram using correct circuit symbols.</p> <p>Can use graphs to explore whether circuit elements are linear or non-linear and relate the curves produced to their function and properties.</p> <p>Can use circuit diagrams to construct and check series and parallel circuits that include a variety of common circuit components.</p> <p>Can describe the difference between series and parallel circuits.</p> <p>Can explain qualitatively why adding resistors in series increases the total resistance whilst adding resistors in parallel decreases the total resistance.</p> <p>Can explain the design and use of dc series circuits for measurement and testing purposes.</p> <p>Can calculate the currents, potential differences and resistances in dc series circuits.</p> <p>Can solve problems for circuits which include resistors in series using the concept of equivalent resistance.</p> <p><i>RP15: Can give details of how to investigate factors that affect electrical resistance.</i></p> <p><i>RP16: Can give details of how to investigate I-V characteristics of a filament lamp, diode and resistor.</i></p> <p>P5 Electricity in the home</p> <p>Can explain the difference between direct and alternating potential difference.</p> <p>Can explain that a live wire may be dangerous even when a switch in the mains circuit is open.</p> <p>Can recognise the dangers of providing any connection between the live wire and earth.</p> <p>Can explain how the power transfer in any circuit device is related to the potential difference across it and the current through it, and to the energy changes over time.</p> <p>Can describe how different domestic appliances transfer energy from batteries or ac mains to the kinetic energy of electric motors or the energy of heating devices.</p> <p>Can explain how the power of a circuit device is related to the potential difference across it and the current through it.</p> <p>Can explain how the power of a circuit device is related to the energy transferred over a given time.</p> <p>Can describe, with examples, the relationship between the power ratings for domestic electrical appliances and the changes in stored energy when they are in use.</p> <p>Can explain why the National Grid system is an efficient way to transfer energy.</p> <p>P6 Molecules and Matter</p> <p>Can recognise/draw simple diagrams to model the difference between solids, liquids and gases.</p> <p>Can explain the differences in density between the different states of matter in terms of the arrangement of atoms or molecules.</p> <p>Can describe how, when substances change state (melt, freeze, boil, evaporate, condense or sublimate), mass is conserved.</p> <p>Can interpret heating and cooling graphs that include changes of state.</p> <p>Can distinguish between specific heat capacity and specific latent heat.</p> <p>Can explain how the motion of the molecules in a gas is related to both its temperature and its pressure.</p> <p>Can explain qualitatively the relation between the temperature of a gas and its pressure at constant volume.</p> <p><i>RP17: Can give details on how to determine the density of regularly and irregularly shaped objects.</i></p> <p>P7 Radioactivity</p> <p>Can recognise expressions given in standard form.</p> <p>Can relate differences between isotopes to differences in conventional representations of their identities, charges and masses.</p> <p>Can describe why the new evidence from the scattering experiment led to a change in the atomic model.</p>

			<p>Can describe the difference between the plum pudding model of the atom and the nuclear model of the atom.</p> <p>Can apply their knowledge to the uses of radiation and evaluate the best sources of radiation to use in a given situation.</p> <p>Can use the names and symbols of common nuclei and particles to write balanced equations that show single alpha (α) and beta (β) decay.</p> <p>Can explain the concept of half-life and how it is related to the random nature of radioactive decay.</p> <p>Can determine the half-life of a radioactive isotope from given information.</p> <p>Can calculate the net decline, expressed as a ratio, in a radioactive emission after a given number of half-lives.</p> <p>Can compare the hazards associated with contamination and irradiation.</p> <p>Can explain why it is important for the findings of studies into the effects of radiation on humans to be published and shared with other scientists so that the findings can be checked by peer review.</p>	
GCSE Combined Science Chemistry AQA 8464	Atomic Structure Periodic table Bonding Quantitative Chemistry Chemical Changes Electrolysis Energy Transfer	Written exam: 1 hour 15 minutes Calculator needed	<p>C1 Atomic Structure</p> <p>Can identify elements using the symbol on the periodic table, e.g., O represents an oxygen atom.</p> <p>Can state how compounds are formed and how chemical reactions are identified.</p> <p>Can identify compounds and elements from chemical formula.</p> <p>Can use the periodic table to use the names and symbols of the first 20 elements in the periodic table, particularly groups 1 and 7.</p> <p>Can name compounds when given word or symbol equations.</p> <p>Can write word equations.</p> <p>Can write formulae and balanced symbol equations.</p> <p>Can write balanced half equations.</p> <p>Can state what a mixture is.</p> <p>Describe, explain and give examples of the processes of separation of filtration, crystallisation, simple distillation, fractional distillation and chromatography.</p> <p>Can suggest appropriate separation techniques when given information, e.g., how would you separate rock salt.</p> <p>Can state what Niels Bohr and James Chadwick discovered.</p> <p>Can describe the plum pudding model.</p> <p>The alpha particle scattering experiment changed the model of the atom to say the nucleus was a dense charged centre. Later work put the electrons orbiting the nucleus.</p> <p>Can say why the alpha particle scattering led to a change in the atomic model.</p> <p>Can compare the difference between the plum pudding model of the atom and the nuclear model.</p> <p>Can give the charges of protons, neutrons and electrons.</p> <p>Can state why atoms have no overall electrical charge.</p> <p>Can state what the atomic number relates to.</p> <p>Can use the nuclear model of protons, neutrons and electrons to describe atoms.</p> <p>Can state that atoms are very small and have a radius of about 0.1nm or 1×10^{-10} m.</p> <p>Can give the relative masses of the sub-atomic particles.</p> <p>Can state what the mass number is.</p> <p>Can state what isotopes are.</p> <p>Can calculate the number of protons, neutrons and electrons in an atom or ion when given its atomic number and mass number.</p> <p>Can use relative abundance of isotopes to explain why Chlorine has a mass of 35.5.</p> <p>Can calculate the relative atomic mass of an element from the percentage abundance of its isotopes.</p> <p>Can describe how electrons are arranged in shells.</p> <p>Can represent the electronic structure of an atom by number or a diagram, e.g., for sodium:  or 2, 8, 1</p>	Ana
			<p>C2 The Periodic Table</p> <p>Can state how elements in the periodic table are arranged.</p> <p>Can explain why elements are put in groups.</p> <p>Can link group number to the number of electrons in the outer shell.</p> <p>Can predict possible reactivity of elements from their position in the periodic table, e.g., all group 1 metals will be reactive in a similar way.</p> <p>Can describe how elements were ordered in early versions of the periodic table.</p> <p>Can explain why Mendeleev left gaps and changed the order of some atomic weights.</p> <p>Can describe the development of the periodic table including Newlands and Mendeleev.</p> <p>Can recall that metals form positive ions. Hydrogen also forms a positive ion.</p> <p>Can recall that non-metals form negative ions.</p> <p>Can explain the difference between metals and non-metals on their physical and chemical properties.</p> <p>Can explain how reactions of elements are linked to the outer shell electrons which is shown by the atomic number.</p> <p>Can recall the name of group 0.</p> <p>Can explain they are unreactive and do not easily form molecules because their outer shells are full.</p> <p>Can explain how the boiling point of the noble gases increases as you move down the group (get bigger).</p> <p>Can recall the name of group 1.</p> <p>Can explain how the reactivity of the metals increases down the group.</p> <p>Can describe the reactions of Li, Na, K with oxygen, chlorine and water.</p> <p>Can recall the name of group 7.</p> <p>Can describe the compounds formed when Cl_2, Br_2 and I_2 react with metals and non-metals.</p> <p>Can explain how the melting and boiling point increase down the group because the molecules are bigger.</p> <p>Can explain why the reactivity decreases going down the group because of the distance between the outer electrons and the nucleus.</p> <p>Can write equations to show how a more reactive halogen displaces a less reactive halogen from its salt solution.</p> <p>The transition elements are metals with similar properties but different to the properties of group 1 metals.</p> <p>Can compare the difference between the transition and group 1 metals in melting points, densities, strengths, hardness and reactivity with oxygen, water and halogens using Cr, Mn, Fe, Co, Ni and Cu.</p> <p>C3 Bonding, Structure and the Properties of Matter</p> <p>Can identify states of matter from diagrams.</p> <p>Can predict the states of substances at different temperatures when given data.</p> <p>Can explain the limitations of particles theory where particles are represented by spheres with no forces shown.</p>	Ana

		<p>Can explain why substances change state linking to energy and the breaking of intermolecular forces.</p> <p>Can use the state symbols of (s), (l), (g) and (aq).</p> <p>Recognise the three types of strong chemical bond: ionic, covalent and metallic.</p> <p>In ionic bonding the particles are oppositely charged ions.</p> <p>In covalent bonding the particles are atoms that share electrons.</p> <p>In metallic bonding the particles are positively charged ions held together by delocalised electrons.</p> <p>Can identify the types of atoms that would form ionic bonds.</p> <p>Can identify the types of atoms that would form covalent bonds.</p> <p>Can describe metallic bonding in words and using a diagram.</p> <p>Can describe bonding using the terms electrostatic forces, transfer or sharing of electrons.</p> <p>Can draw dot and cross diagrams of ionic bonds between elements in group 1 and 7 and 2 and 6. Try Na and Cl, Mg and O, Ca and Cl and Na and O.</p> <p>Can draw these remembering: full outer shell, Square brackets and charge.</p> <p>Give the charge on ions using the group number above the column on the periodic table for group 1 and 2 and 6 and 7.</p> <p>Describe how ionic compounds are held together.</p> <p>Can recognise diagrams of ionic bonds.</p> <p>Can describe limitations of dot and cross diagrams, ball and stick diagrams and 2 and 3D diagrams of giant ionic structures, particularly NaCl</p> <p>Can describe and explain the properties of ionic compounds in terms of high melting point and whether they conduct electricity.</p> <p>Give the empirical (simplest whole number) formula of an ionic compound from the diagram, particularly NaCl.</p> <p>Can recognise simple covalent molecules from diagrams or formulas (hint – only a few atoms, e.g., CO₂, H₂O, C₂H₄)</p> <p>Can describe the properties of simple covalent molecules in terms of low melting and boiling point and not conducting electricity.</p> <p>Can give the difference between covalent bonds and intermolecular forces and link them to melting and boiling point.</p> <p>Can recognise polymers as large covalent molecules from diagrams.</p> <p>Can use intermolecular forces to explain why polymers are usually solids at room temperature.</p> <p>Can recognise giant covalent structures of diamond, graphite, silicon dioxide and fullerenes from diagrams of their bonding and structure.</p> <p>Can explain why giant covalent structures are solid at room temperature and have high melting points.</p> <p>Can describe and explain in detail the properties of graphite in terms of being slippery and conducting electricity linking to bonding between carbon atoms and delocalised electrons.</p> <p>Can compare graphite to metals.</p> <p>Can describe and explain in detail the properties of diamond in terms of being hard, having a high melting point and not conducting electricity.</p> <p>Can describe and explain the structure and properties of graphene.</p> <p>Can recognise fullerenes from diagrams and descriptions of their structure and bonding.</p> <p>Can give examples of the uses of fullerenes including carbon nanotubes.</p> <p>Can describe the structure of metallic bonding and use this to explain the properties.</p> <p>Give a definition of an alloy.</p> <p>Can describe how alloys are harder than pure metals.</p>	
		C4 Quantitative Chemistry	Ana
		<p>Can give the law of conservation of mass.</p> <p>Can explain why equations must be balanced.</p> <p>Understand what the big number before a formula mean and what the subscript numbers mean.</p> <p>Can explain why some reactions appear to have a change in mass by using state symbols to identify a gas.</p> <p>Can calculate uncertainty.</p> <p>Can recall and define the Avogadro constant.</p> <p>Can use M_r of a substance to calculate the number of moles and vice versa.</p> <p>Can state what one mole of a substance means relating to atoms, molecules and ions.</p> <p>Can identify the number of moles of each substance in a balanced equation.</p> <p>Can use M_r moles to calculate the masses of reactants and products from balanced symbol equations.</p> <p>Can use M_r moles to balance equations by changing the subject of an equation.</p> <p>Can explain why, in reactions, an excess of one of the reactants is used.</p> <p>Can identify the limiting reactant from information given.</p> <p>Can explain the effect of a limiting quantity of a reactant on the amount of product it is possible to obtain.</p> <p>Can give the units for concentration.</p> <p>Can calculate the mass of solute in a volume of solution when you know the concentration.</p> <p>Can explain how the mass of a solute and volume of a solution is related to the concentration.</p> <p>Can use M_r moles to calculate the theoretical mass of a product from the balanced symbol equation.</p> <p>Can give the units for concentration of a solution.</p>	
		C5 Chemical Changes	Ana
		<p>Can state what is produced when metals react with Oxygen.</p> <p>Can explain reduction and oxidation in terms of Oxygen.</p> <p>Can link reactivity of metals to number of outer shell electrons and how easily they form ions.</p> <p>Can describe the reactions of metals (K, Na, Li, Ca, Mg, Zn, Fe, Cu) with water and dilute acids and put the metals in order of reactivity.</p> <p>Can describe what a displacement reaction is and write equations.</p> <p>Can explain why metals less reactive than carbon can be extracted using reduction.</p> <p>Can identify where oxidation and reduction has occurred in terms of Oxygen.</p> <p>Use OILRIG to explain oxidation and reduction in terms of electrons.</p> <p>Can write ionic equations for displacement reactions.</p> <p>Can identify which species have been oxidised and reduced in half equations.</p> <p>Can state what is produced when acids react with metals that are reactive enough.</p> <p>Can explain why acid and metal reactions are redox reactions.</p> <p>Can identify which species have been oxidised and reduced in equation.</p> <p>Can recall what alkalis and bases are.</p> <p>Can give the products when acids are neutralised by alkalis.</p> <p>Can give the products when acids are neutralised by metal oxides.</p> <p>Can give the products when acids are neutralised by metal carbonates.</p> <p>Can name salts made from hydrochloric acid (HCl), nitric acid (HNO₃) and sulfuric acid (H₂SO₄) and the metal in the base, alkali or carbonate.</p> <p>Can use the formulae of common ions to give the formula of salts.</p> <p>Can describe a method to produce a soluble salt from insoluble metals, metal oxides, metal hydroxides and carbonates including the specific marking points of:</p> <ul style="list-style-type: none"> • Add base in excess. • Filter excess. • Crystallisation 	

			Giving reasons for these. <i>Can give details of RP8 preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate.</i> Can state what ion makes an aqueous solution acidic. Can state what ion makes an aqueous solution alkaline. Can use the pH scale of universal indicator to identify solutions which are acidic, alkali and neutral. Can use an equation to show how hydrogen ions and hydroxide ions form water to show how neutralisation happens. Can give examples of strong and weak acids. Can explain what a weak acid is using degree of ionisation of hydrogen ions. Can explain what a strong acid is using degree of ionisation of hydrogen ions. Can use the terms dilute and concentration and weak and strong in relation to acids. Can link hydrogen ion concentration to pH.
			C6 Electrolysis Can explain why solid ionic compounds cannot conduct electricity but molten or dissolved (aq) can. Can describe the process and aim of electrolysis. Can explain the terms cathode, anode and electrolyte. Can explain why graphite electrodes are used. Can predict the products of electrolysis of molten compounds such as lead bromide and other simple compounds. Can explain why electrolysis is used to extract some metals from their molten compounds. Can explain the problems with using electrolysis to extract metals. Can explain how aluminium is extracted from aluminium oxide including why the electrolyte is a mixture and why the anode needs constantly replacing. Can state how the products of electrolysis are different from aqueous solutions (aq). Can predict the products of the electrolysis of aqueous solutions such as NaCl and CuSO ₄ <i>Can give details of RP9: Investigate what happens when aqueous solutions are electrolysed using inert electrodes.</i> Can write half equations for what happens at the electrodes.
			C7 Energy Changes Can explain what an endothermic reaction is in terms of energy. Can explain what an exothermic reaction is in terms of energy. Can identify exothermic and endothermic reactions from energy changes. Can state examples of both exothermic and endothermic reactions. Can give and evaluate everyday applications of exothermic and endothermic reactions. Can plan how to investigate energy changes remembering the specific marking points of: <ul style="list-style-type: none">• Using an insulated beaker or polystyrene cup to prevent energy loss.• Using a thermometer with a high resolution to monitor temperature changes. <i>Can give details of RP10: Investigate the variables that affect temperature changes in reacting solutions such as acid + metal, Acid + carbonate, neutralisation and displacement.</i> Can draw simple reaction profiles (energy level diagrams) for exothermic and endothermic reactions. Can identify activation energy on these diagrams. Can use a reaction profile to identify if the reaction is exothermic or endothermic. Describe energy in a reaction relating to energy to break bonds and energy released when making bonds. Can calculate the energy transferred in reactions using bond energies supplied.

GCSE Combined Science Biology AQA 8464	Cells Organisation Disease Bioenergetics	Written exam: 1 hour 15 minutes Calculator needed	
			B1 Cell Structure and Transport Can describe the difference between eukaryotic and prokaryotic cells. Can identify the scale and size of cells including the use of orders of magnitude. Can recognise, draw and label plant and animal cells. Can describe the functions of organelles in plant and animal cells. Can judge the relative size of organelles in images from a scale. <i>Can use a light microscope to observe, draw and label cells (RP1).</i> Can give examples of specialised plant and animal cells. Can explain how the structure of specialised plant and animal cells relates to their function. Can explain the importance of cell differentiation. Can explain the differences between cell differentiation in plants and animals. Can describe how microscopy techniques have development over time. Can explain the advantages of an electron microscope over a light microscope. Can explain how electron microscopy has improved our understanding of cells. Can calculate the magnification, real size and image size using a formula. Can describe the process of diffusion. Can identify substances which move by the process of diffusion, and state where they move about in the human body. Can explain the different factors which affect the rate of diffusion. Can calculate and compare surface area to volume ratios in different organisms. Can explain why single celled organisms do not require specialist exchange surfaces whilst multi cellular organisms do. Can describe how the small intestine and lungs in mammals, gills in fish, and roots in leaves in plants are adapted for exchanging materials. Can explain how different adaptations increase the effectiveness of the exchange of materials. Can describe the process of osmosis. Can recognise, draw and interpret diagrams which show the process of osmosis taking place. Can calculate percentage gain and loss of mass of plant tissues during osmosis. Can plot and interpret graphs showing osmosis taking place. <i>Can investigate the effect of changing solute concentrations on the mass of plant tissue (RP2).</i> Can describe the process of active transport. Can give examples of substances which move by active transport in plants and animals. Can compare and contrast the process of diffusion, osmosis and active transport.
			B2 Cell Division Can identify the location of chromosomes and genes. Can describe the three main stages of the cell cycle.

		<p>Can describe what happens during mitosis.</p> <p>Can explain the importance of mitosis and give examples of when it might occur.</p> <p>Can describe what a stem cell is.</p> <p>Can describe the different functions of stem cells in embryos, adult animals and plants.</p> <p>Can explain the differences between the action of stem cells in embryos, adult animals and plants.</p> <p>Can name some conditions which could potentially be treated by stem cells.</p> <p>Can describe the use of stem cells in therapeutic cloning.</p> <p>Can describe the benefits of producing clones of plants using stem cells from plant meristems.</p> <p>Can evaluate the benefits, risks social issues and ethical issues of the use of stem cells in medicine.</p>	
		B3 Organisation and the Digestive System	Anal
		<p>Can state the different levels of organisation.</p> <p>Can arrange the different levels of organisation into order.</p> <p>Can label a diagram of the digestive system.</p> <p>Can describe the role of different organs in the digestive system.</p> <p>Can state where the enzymes carbohydrase, protease and lipase are produced and describe what they do.</p> <p>Can describe what the products of digestion are used for in the body.</p> <p>Can explain the lock and key theory of enzyme action.</p> <p>Can describe and explain the effects of changing temperature and pH on enzyme action.</p> <p>Can describe the role of bile and explain how it speeds up digestion of lipids.</p>	
		<i>Can state the reagents used in food tests for starch, glucose, protein and fat and recall what a positive result looks like (RP3).</i>	
		<i>Can use a continuous sampling technique to investigate the effects of pH on enzyme action (RP4).</i>	
		B4 Organising Animals and Plants	Anal
		<p>Can describe the role of the heart.</p> <p>Can label a diagram of the circulatory system.</p> <p>Can describe the structure of the heart including the major blood vessels going in and out of it.</p> <p>Can describe the role of the pacemaker.</p> <p>Can describe and explain the differences between arteries, veins and capillaries.</p> <p>Can carry out calculations of blood flow from rate and volume.</p> <p>Can recognise, and recall the names of, the different components of blood.</p> <p>Can describe the roles of the different components of blood and explain how they are adapted for their function.</p> <p>Can describe the causes and effects of coronary heart disease (CHD).</p> <p>Can describe and evaluate the different treatments for coronary heart disease (CHD).</p> <p>Can describe and evaluate the different treatments for a faulty heart valve.</p> <p>Can describe and evaluate the use of artificial hearts and transplant hearts.</p> <p>Can label a diagram of the respiratory system.</p> <p>Can describe the structure of the lungs.</p> <p>Can recall and describe the function of different tissues found in a plant.</p> <p>Can label a diagram of a leaf.</p> <p>Can describe the roles of the different parts of a leaf.</p> <p>Can describe how root hair cells, xylem and phloem cells are adapted to their functions.</p> <p>Can describe and explain how factors such as temperature, light intensity, humidity and air movement affect the rate of transpiration.</p> <p>Can describe how the rate of transpiration can be measured.</p> <p>Can carry out calculations of transpiration from rate and volume.</p> <p>Can explain the distribution of stomata on different sides of the leaf.</p> <p>Can explain how stomata and guard cells control transpiration and gas exchange.</p> <p>Can compare and contrast transpiration and translocation.</p>	
		B5 Communicable Diseases	Anal
		<p>Can describe the difference between communicable and non-communicable diseases.</p> <p>Can give examples of types of pathogen which cause disease.</p> <p>Can describe some of the ways that pathogens can spread.</p> <p>Can explain how bacteria and viruses can make us feel ill.</p> <p>Can describe the effects of the viral diseases measles, HIV and tobacco mosaic virus (TMV) and explain how they are spread and treated.</p> <p>Can describe the effects of the bacterial diseases salmonella and gonorrhoea and explain how they are spread and treated.</p> <p>Can describe the effects of the fungal disease rose black spot and explain how it is spread and treated.</p> <p>Can describe the effects of the protest disease malaria and explain how it is spread and treated.</p> <p>Can describe the non-specific defence mechanisms of the human body found on/in the skin, nose, trachea, bronchi and stomach.</p> <p>Can explain the role of the immune system in the defence against disease.</p> <p>Can describe the role of white blood cells in the immune system.</p>	
		B6 Preventing and Treating Disease	Anal
		<p>Can describe the role of vaccinations.</p> <p>Can describe and explain how vaccinations work.</p> <p>Can describe the action and limitations of antibiotics.</p> <p>Can explain why the emergence of antibiotic resistant strains of bacteria is a concern.</p> <p>Can describe the role of painkillers.</p> <p>Can recall that many traditional drugs were obtained from plants and microbes but modern drugs may be synthesised.</p> <p>Can explain why new drugs are tested.</p> <p>Can describe the stages in the development of a new drug including the stages of preclinical and clinical testing.</p>	
		B7 Non-Communicable Diseases	Anal
		<p>Can describe the relationship between disease and health.</p> <p>Can recall some of the causes of ill health, including diet, stress and life situations.</p> <p>Can describe how health can be both physical and mental.</p> <p>Can explain how different causes of ill health can interact, such as poor physical health leading to poor mental health.</p> <p>Can interpret diagrams and graphs show incidences of disease, including identifying correlations.</p> <p>Can explain the impact that ill health has on an individual, community and global scale.</p> <p>Can describe the effects of smoking on health, including the health of unborn babies.</p> <p>Can describe the effects of poor diet and lack of exercise on health.</p> <p>Can describe the effects of excessive alcohol on health, including the health of unborn babies.</p> <p>Can describe the effect of other carcinogens such as ionising radiation on health.</p> <p>Can explain what cancer is and identify risk factors which increase the risk of developing it.</p> <p>Can describe the difference between benign and malignant tumours.</p>	
		B8 Photosynthesis	Anal
		<p>Can recall the word and symbol equations for photosynthesis.</p> <p>Can describe what the process of photosynthesis is and what it is needed for.</p> <p>Can explain the effects of changing light intensity, temperature, carbon dioxide concentration and amount of chlorophyll present on the rate of photosynthesis.</p> <p>Can draw and interpret graphs which demonstrate the effects of different factors on the rate of photosynthesis.</p> <p>Can explain what a limiting factor is.</p> <p>Can identify a limiting factor from a series of graphs.</p> <p>Can explain and use the inverse square law when discussing the effects of light intensity on the rate of photosynthesis.</p> <p>Can explain how limiting factors are considered when enhancing conditions inside a greenhouse to obtain maximum rate of photosynthesis and greatest profit.</p>	
		<i>Can investigate the effects of changing light intensity on the rate of photosynthesis (RP5).</i>	

			<p>Can describe how the glucose produced in photosynthesis is put to use in the plant.</p> <p>Can recall that in order to produce proteins nitrate ions absorbed from the soil are needed as well as glucose.</p> <p>B9 Respiration</p> <p>Can recall the word and symbol equations for aerobic respiration.</p> <p>Can describe what the process of aerobic respiration is and what it is needed for.</p> <p>Can recall the word equation for anaerobic respiration happening in muscles.</p> <p>Can recall the word equation for anaerobic respiration happening in plants and yeast cells and explain the importance of the process of fermentation.</p> <p>Can compare and contrast aerobic respiration with anaerobic respiration happening in muscles, and in plants and yeast cells.</p> <p>Can describe the changes that happen to heart rate, breathing rate and breathing volume when you exercise.</p> <p>Can describe what happens in muscles when they receive insufficient oxygen during exercise.</p> <p>Can explain what happens to the oxygen debt following exercise.</p> <p>Can describe what metabolism is.</p> <p>Can describe the chemical reactions which form the process of metabolism.</p>
Separate Science GCSE Chemistry AQA 8462	All of the combined chemistry units as well as the items in this section	Written exam: 1 hour 45 minutes Calculator needed 100 marks 50% of GCSE	<p>Periodic table</p> <p>4.1.3 Properties of transition metals (chemistry only)</p> <p>4.1.3.1 Comparison with Group 1 elements Content Key opportunities for skills development The transition elements are metals with similar properties which are different from those of the elements in Group 1. Students should be able to describe the difference compared with Group 1 in melting points, densities, strength, hardness and reactivity with oxygen, water and halogens.</p> <p>Quantitative Chemistry</p> <p>4.3.3 Yield and atom economy of chemical reactions (chemistry only) 4.3.3.1 Percentage yield Content Key opportunities for skills development Even though no atoms are gained or lost in a chemical reaction, it is not always possible to obtain the calculated amount of a product because:</p> <ul style="list-style-type: none"> • the reaction may not go to completion because it is reversible • some of the product may be lost when it is separated from the reaction mixture • some of the reactants may react in ways different to the expected reaction. The amount of a product obtained is known as the yield. When compared with the maximum theoretical amount as a percentage, it is called the percentage yield. % Yield = Mass of product actually made / maximum theoretical mass of product × 100 <p>4.3.3.2 Atom economy Content Key opportunities for skills development The atom economy (atom utilisation) is a measure of the amount of starting materials that end up as useful products. It is important for sustainable development and for economic reasons to use reactions with high atom economy. The percentage atom economy of a reaction is calculated using the balanced equation for the reaction as follows: Relative formula mass of desired product / Sum of relative formula masses of all reactants from equation × 100</p> <p>4.3.4 Using concentrations of solutions in mol/dm³ (chemistry only) (HT only) Content Key opportunities for skills development The concentration of a solution can be measured in mol/dm³. The amount in moles of solute or the mass in grams of solute in a given volume of solution can be calculated from its concentration in mol/dm³. If the volumes of two solutions that react completely are known and the concentration of one solution is known, the concentration of the other solution can be calculated.</p> <p>4.3.5 Use of amount of substance in relation to volumes of gases (chemistry only) (HT only) Content Key opportunities for skills development Equal amounts in moles of gases occupy the same volume under the same conditions of temperature and pressure. The volume of one mole of any gas at room temperature and pressure (20°C and 1 atmosphere pressure) is 24 dm³.</p> <p>Chemical changes</p> <p>4.4.2.5 Titrations (chemistry only) Content Key opportunities for skills development The volumes of acid and alkali solutions that react with each other can be measured by titration using a suitable indicator. Students should be able to:</p> <ul style="list-style-type: none"> • describe how to carry out titrations using strong acids and strong alkalis only (sulfuric, hydrochloric and nitric acids only) to find the reacting volumes accurately • (HT Only) calculate the chemical quantities in titrations involving concentrations in mol/dm³ and in g/dm³. Required practical 2: (chemistry only) determination of the reacting volumes of solutions of a strong acid and a strong alkali by titration <p>4.5.2 Chemical cells and fuel cells (chemistry only) 4.5.2.1 Cells and batteries Content Key opportunities for skills development Cells contain chemicals which react to produce electricity. The voltage produced by a cell is dependent upon a number of factors including the type of electrode and electrolyte.</p>
Separate Science GCSE Biology AQA 8461	All of the combined biology units as well as the items in this section	Written exam: 1 hour 45 minutes Calculator needed 100 marks 50% of GCSE	<p>Cells</p> <p>4.1.1.6 Culturing microorganisms (biology only) Content Key opportunities for skills development Bacteria multiply by simple cell division (binary fission) as often as once every 20 minutes if they have enough nutrients and a suitable temperature.</p> <p>Required practical activity 2: investigate the effect of antiseptics or antibiotics on bacterial growth using agar plates and measuring zones of inhibition</p> <p>4.3.2 Monoclonal antibodies (biology only) (HT only) 4.3.2.1 Producing monoclonal antibodies Content Key opportunities for skills development Students should be able to describe how monoclonal antibodies are produced.</p> <p>4.3.3 Plant disease (biology only) 4.3.3.1 Detection and identification of plant diseases Content Key opportunities for skills development (HT only) Plant diseases can be detected by:</p> <ul style="list-style-type: none"> • stunted growth • spots on leaves • areas of decay (rot) <p>Homeostasis</p> <p>4.5.2.2 The brain (biology only) Content Key opportunities for skills development The brain controls complex behaviour. It is made of billions of interconnected neurones and has different regions that carry out different functions.</p> <p>4.5.2.3 The eye (biology only) Content Key opportunities for skills development Students should be able to relate the structures of the eye to their functions</p> <p>4.5.2.4 Control of body temperature (biology only) Content Key opportunities for skills development Body temperature is monitored and controlled by the thermoregulatory centre in the brain</p> <p>4.5.3.3 Maintaining water and nitrogen balance in the body (biology only) Content Key opportunities for skills development Students should be able to explain the effect on cells of osmotic changes in body fluids</p> <p>Bioenergetics</p> <p>4.5.4 Plant hormones (biology only) 4.5.4.1 Control and coordination Content Key opportunities for skills development Plants produce hormones to coordinate and control growth and responses to light (phototropism) and gravity (gravitropism or geotropism). Unequal distributions of auxin cause unequal growth rates in plant roots and shoots</p> <p>Required practical activity 8: investigate the effect of light or gravity on the growth of newly germinated seedlings.</p>
Separate Science GCSE Physics AQA 8463	All of the combined physics units as well as the items in this section	Written exam: 1 hour 45 minutes	<p>Electricity</p> <p>4.2.5 Static electricity (physics only) 4.2.5.1 Static charge Content Key opportunities for skills development When certain insulating materials are rubbed against each other they become electrically charged.</p> <p>Particle model of matter</p>

	Calculator needed 100 marks 50% of GCSE	<p>4.3.3.2 Pressure in gases (physics only) Content Key opportunities for skills development A gas can be compressed or expanded by pressure changes. The pressure produces a net force at right angles to the wall of the gas container (or any surface).</p> <p>Atomic structure 4.4.3 Hazards and uses of radioactive emissions and of background radiation (physics only) 41 4.4.3.1 Background radiation Content Key opportunities for skills development Background radiation is around us all of the time. It comes from: • natural sources such as rocks and cosmic rays from space • man-made sources such as the fallout from nuclear weapons testing and nuclear accidents.</p> <p>4.4.4 Nuclear fission and fusion (physics only) 4.4.4.1 Nuclear fission Content Key opportunities for skills development Nuclear fission is the splitting of a large and unstable nucleus (eg uranium or plutonium).</p>
--	---------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Required practicals summary

Microscopy	Spec ref.	Skills
Use a light microscope to observe, draw and label a selection of plant and animal cells. A magnification scale must be included.	Biology 4.1.1.5 Trilogy 4.1.1.5 Synergy 4.1.3.2	AT 1 – use appropriate apparatus to record length and area. AT 7 – use a microscope to make observations of biological specimens and produce labelled scientific drawings. MS 1d, 3a
Osmosis	Spec ref.	Skills
Investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue.	Biology 4.1.3.2 Trilogy 4.1.3.2	AT 1 - use appropriate apparatus to record mass and time. AT 3 - use appropriate apparatus and techniques to observe and measure the process of osmosis. AT 5 - measure the rate of osmosis by water uptake.
Enzymes	Spec ref.	Skills
Investigate the effect of pH on the rate of reaction of amylase enzyme. Students should use a continuous sampling technique to determine the time taken to completely digest a starch solution at a range of pH values. Iodine reagent is to be used to test for starch every 30 seconds. Temperature must be controlled by use of a water bath or electric heater.	Biology 4.2.2.1 Trilogy 4.2.2.1 Synergy 4.2.1.5	AT 1 – use appropriate apparatus to record the volumes of liquids, time and pH. AT 2 – safe use of a water bath or electric heater. AT 5 – measure the rate of reaction by the colour change of iodine indicator. AT 8 – use of qualitative iodine reagent to identify starch by continuous sampling. (Biology only) WS 3.1, WS 3.2
Food Tests	Spec ref.	Skills
Use qualitative reagents to test for a range of carbohydrates, lipids and proteins. To include: Benedict's test for sugars;	Biology 4.2.2.1 Trilogy 4.2.2.1	AT 2 – safe use of a Bunsen burner and a boiling water bath. AT 8 – use of qualitative reagents to identify biological molecules. (Biology only) WS 2.4

iodine test for starch; and Biuret reagent for protein.		
Photosynthesis	Spec ref.	Skills
Investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed.	Biology 4.4.1.2 Trilogy 4.4.1.2	<p>AT 1 - use appropriate apparatus to record the rate of production of oxygen gas produced; and to measure and control the temperature of the water in the 'heat shield' beaker.</p> <p>AT 2 – safe use of a thermometer to measure and control temperature of water bath.</p> <p>AT 3 - use appropriate apparatus and techniques to observe and measure the process of oxygen gas production</p> <p>AT 4 – safe and ethical use and disposal of living pondweed to measure physiological functions and responses to light.</p> <p>AT5 – measuring rate of reaction by oxygen gas production.</p>
Making salts	Spec ref.	Skills
Preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate, using a Bunsen burner to heat dilute acid and a water bath or electric heater to evaporate the solution.	Chemistry 4.4.2.3 Trilogy 5.4.2.3	<p>AT 2– Safe use of appropriate heating devices and techniques including use of a Bunsen burner and a water bath or electric heater.</p> <p>AT 3 – Use of appropriate apparatus and techniques for conducting chemical reactions, including appropriate reagents.</p> <p>AT 4 – Safe use of a range of equipment to purify and/or separate chemical mixtures including evaporation, filtration, crystallisation.</p> <p>AT 6 – Safe use and careful handling of liquids and solids, including careful mixing of reagents under controlled conditions.</p>
Electrolysis	Spec ref.	Skills
Investigate what happens when aqueous solutions are electrolysed using inert electrodes. This should be an investigation involving developing a hypothesis.	Chemistry 4.4.3.4 Trilogy 5.4.3.4	<p>AT 3 - Use of appropriate apparatus and techniques for conducting and monitoring chemical reactions.</p> <p>AT 7 – Use of appropriate apparatus and techniques to draw, set up and use electrochemical cells for separation and production of elements and compounds.</p> <p>AT 8 - Use of appropriate qualitative reagents and techniques to analyse and identify unknown samples or products including gas tests for hydrogen, oxygen and chlorine (Chemistry only).</p> <p>WS 2.1, WS 2.2, WS 2.3, WS 2.4, WS 2.6</p>
Temperature changes	Spec ref.	Skills
Investigate the variables that affect temperature changes in reacting solutions, eg acid plus metals, acid plus carbonates, neutralisations, displacement of metals.	Chemistry 4.5.1.1 Trilogy 5.5.1.1	<p>AT 1 – Use of appropriate apparatus to make and record a range of measurements accurately, including mass, temperature, and volume of liquids.</p> <p>AT 3 - Use of appropriate apparatus and techniques for conducting and monitoring chemical reactions.</p> <p>AT 5 - Making and recording of appropriate observations during chemical reactions including changes in temperature.</p>

		AT 6 - Safe use and careful handling of gases, liquids and solids, including careful mixing of reagents under controlled conditions, using appropriate apparatus to explore chemical changes.
Resistance	Spec ref.	Skills
Use circuit diagrams to set up and check appropriate circuits to investigate the factors affecting the resistance of an electrical circuit. This should include: the length of a wire (at constant temperature); combinations of resistors in series and parallel.	Physics 4.2.1.3 Trilogy 6.2.1.3	AT 1 - use appropriate apparatus to measure and record length accurately. AT 6 - use appropriate apparatus to measure current, potential difference and resistance AT 7 - use circuit diagrams to construct and check series and parallel circuits
I-V characteristics	Spec ref.	Skills
Use circuit diagrams to construct appropriate circuits to investigate the I-V characteristics of a variety of circuit elements including a filament lamp, a diode and a resistor at constant temperature.	Physics 4.2.1.4 Trilogy 6.2.1.4	AT 6 - use appropriate apparatus to measure current and potential difference and to explore the characteristics of a variety of circuit elements AT 7 - use circuit diagrams to construct and check series and parallel circuits including a variety of common circuit elements
Density	Spec ref.	Skills
Use appropriate apparatus to make and record the measurements needed to determine the densities of regular and irregular solid objects and liquids. Volume should be determined from the dimensions of regularly shaped objects and by a displacement technique for irregularly shaped objects. Dimensions to be measured using appropriate apparatus such as a ruler, micrometre or Vernier callipers.	Physics 4.3.1.1 Trilogy 6.3.1.1	AT 1 - use appropriate apparatus to make and record measurements of length, area, mass and volume accurately. Use such measurements to determine the density of solid objects and liquids.
Specific heat capacity.	Spec ref	Skills

Skills Investigation to determine the specific heat capacity of one or more materials. The investigation will involve linking the decrease of one energy store (or work done) to the increase in temperature and subsequent increase in thermal energy stored. 1 - use appropriate apparatus to make and record measurements of mass, time and temperature accurately.	Physics 4.1.1.3 Trilogy 6.1.1.3	AT 5 – use, in a safe manner, appropriate apparatus to measure energy changes/transfers and associated values such as work done.
Decay (Biology only)	Spec ref	Skills
Investigate the effect of temperature on the rate of decay of fresh milk by measuring pH change.	Biology 4.7.2.3	AT 1 – use appropriate apparatus to record temperature and pH. AT 3 – the use of appropriate apparatus to measure anaerobic decay. AT 4 – safe use of microorganisms. AT 5 – measurement of rate of decay by pH change.
Microbiology (Biology only)	Spec ref.	Skills
Skills Investigate the effect of antiseptics or antibiotics on bacterial growth using agar plates and measuring zones of inhibition.	Biology 4.1.1.6	AT 1 – use appropriate apparatus to record length and area. AT 3 – use appropriate apparatus and techniques to observe and measure the process of bacterial growth. AT 4 – safe and ethical use of bacteria to measure physiological function and response to antibiotics and antiseptics in the environment. AT 8 – the use of appropriate techniques and qualitative reagents in problem-solving contexts to find the best antibiotic to use or the best concentration of antiseptic to use. MS 5c WS 2.1, WS 2.2, WS 2.4
Neutralisation (Chemistry only)	Spec ref	Skills
Determination of the reacting volumes of solutions of a strong acid and a strong alkali by titration. (HT only) Determination of the concentration of one of the solutions in mol/dm ³ and g/dm ³ from the reacting volumes and the known concentration of the other solution.	Chemistry 4.4.2.4	AT 1- Use of appropriate apparatus to make and record a range of measurements accurately, including volume of liquids. AT 8 - The determination of concentrations of strong acids and strong alkalis.

Identifying ions (Chemistry Triple only)	Spec ref.	Skills
Skills Use of chemical tests to identify the ions in unknown single ionic compounds covering the ions from sections 4.8.3.1 to 4.8.3.5	Chemistry 4.8.3.7	AT 1 - Safe use of a Bunsen burner AT 8 - Use of appropriate qualitative reagents and techniques to analyse and identify unknown samples or products including gas tests, flame tests, precipitation reactions. WS 2.4, WS 2.6
Thermal Insulation (Physics Triple only)	Spec ref.	Skills
Skills Investigate the effectiveness of different materials as thermal insulators and the factors that may affect the thermal insulation properties of a material. Physics	4.1.2.1	AT 1 - use appropriate apparatus to make and record a range of measurements accurately, including length, area, mass, time, volume and temperature. AT 5 – use, in a safe manner, appropriate apparatus to measure energy changes/transfers.

Some useful resources:

Science past paper resources

<https://www.aqa.org.uk/subjects/science/gcse/combined-science-trilogy-8464/assessment-resources>

BBC bitesize resources

<https://www.bbc.co.uk/bitesize/topics/zptnng8>

Videos and past papers

<https://www.revisely.co.uk/gcse/science/aqa>

GCSE English Language and Literature PPEs February 2023

Component	Content	How it is assessed	Questions
GCSE Literature Paper 2 <i>Modern text (An inspector Calls)</i> And <i>Anthology Poetry (Power and Conflict)</i> And <i>Unseen Poetry</i>	Two Sections: Section A – <i>An Inspector Calls</i> (30 marks - 50 minutes) Section B – Anthology Poetry (30 marks – 45 minutes) Section C - Unseen Poetry (24 marks +4 for SPaG 8 marks for comparison – 45 minutes)	Written exam: 2 hour 15 minutes • 60% of GCSE	Section A: Students are given a statement from the play's wider themes and they need to explore their opinion on it, using the text to justify their ideas. Section B: Students are given a poem from the named collection and they must compare it to another poem of their choice from the collection. Section C: Students must analyse an unseen poem. They are then given a second unseen poem and must compare the two.

Support links:

Students should reread 'An Inspector Calls' and also the Conflict poems studied.

Literature: [GCSE English Literature - AQA - BBC Bitesize](#)

This is a link to BBC Bitesize, where there are many videos, summaries and quizzes for 'An Inspector Calls' and Poetry.

['Ozymandias' in 6.5 Minutes: Quick Revision - YouTube](#)

This is a link to some of the Poetry Collection videos, there are many there and cover the whole collection, as well as some unseen responses.

Year 10 Geography: March 2023 PPE

Paper 1: Living with the Physical Environment	Content	Information you need to know
<ul style="list-style-type: none"> The challenge of Natural Hazards 	<ul style="list-style-type: none"> Tectonic hazards Weather hazards Climate Change 	<p>What are the distribution and processes of plate tectonic? Effects and responses to earthquakes. Living with and reducing risk of hazards (PPPM)</p> <p>Global atmospheric circulation, formation of tropical storms. Typhoon Haiyan. Extreme weather UK.</p> <p>Evidence for climate change. Natural and human causes of climate change, managing impacts of climate change</p>
<ul style="list-style-type: none"> The Living World – Tropical Rainforests and Cold Environments (not Hot Deserts) 	<ul style="list-style-type: none"> Ecosystems Tropical rainforests Cold Climates 	<p>What are small scale and global ecosystems? (biomes)</p> <p>Characteristics of rainforests. Causes and impacts of deforestation in Malaysia. Managing rainforests</p> <p>Characteristics of cold environments, opportunities and challenges in cold environments. Managing cold environments.</p>
<ul style="list-style-type: none"> Physical Landscapes – Coasts 	<ul style="list-style-type: none"> Coastal landscapes 	<p>Erosion processes and landforms</p> <p>Transportation process and landforms</p> <p>Depositional landforms. Types of waves. Weathering and mass movement</p> <p>Management of coasts – hard and soft engineering. Case study of Swanage.</p>

PPE Exam Information

- Paper 1 (Physical) 1 hour 15 minutes

How to revise:

- Go over the work in your books thoroughly and make sure you understand the key concepts.
- Make sure you are revising the specifics – i.e. key words and case studies.
- Look at your knowledge organisers and the exam specifications provided. Download from teams or see Mr Smith for copies
- Practice exam questions**, particularly 6 and 9 mark questions. Use your revision guides.
- Good websites to support revision:
 - <http://www.coolgeography.co.uk/GCSE/AQA%20GCSE.htm>
 - <https://timeforgeography.co.uk/>
 - Very good sections for coastal topic
 - <https://www.youtube.com/watch?v=GZVMUOqzP5o>
 - Planet Lacey – some great virtual lessons on global air circulation and weather hazards videos
 - Go through YouTube to assist with revision for other areas you need help on.
- Remember you will be answering specific questions which don't necessarily ask you to write down everything you know – rather you will be asked to explain so **remember to answer the specific question**, using the detail you know to support your answers.

Year 10 GCSE Hospitality and Catering; April PPE

Exam Date	Paper	Content	Topics you need to revise	Chapter in revision guide
January 2021	1	<ul style="list-style-type: none"> Describe structure of H&C Analyse job requirements Describe working conditions Explain factors affects success of H&C providers 	LO1 – Understand the environment in which H&C providers operate	1.1 Hospitality and Catering Provision p2 - 40
		<ul style="list-style-type: none"> Describe operation of kitchen and front of house Explain how H&C provision meet customer requirements 	LO2 – Know how H&C provisions operate	1.2 How Hospitality and Catering Providers Operate p41- 65
		<ul style="list-style-type: none"> Describe personal safety Identify risks Recommend personal safety control measures 	LO3 – Know how H&C meets health and safety requirements	1.3 Health & Safety in Hospitality & Catering p66 - 82
		<ul style="list-style-type: none"> Describe food-related causes of ill health Describe role of EHO Describe food safety legislation Describe common types of food poisoning Describe symptoms of food induced ill health 	LO4 – Know how food can cause ill health	1.4 Food Safety in Hospitality and Catering p83 - 116
		<ul style="list-style-type: none"> Review options for H&C provision Recommend options for Hospitality provision 	LO5 – Be able to propose a H&C provision to meet specific requirements	

How to revise:

Review areas within Unit 1 that need further study.

Log on to GCSEPod to watch videos and complete the interactive questions for specific topics that you are struggling with:

- Quality of HACCP
- Storage of Food Products
- Food Poisoning
- Hygiene and Safety

Use your GCSE Hospitality and Catering revision guide and complete any activities in the book.

Use handouts given in lessons to revise these areas.

Health and Social Care Revision

The exam paper will cover content on unit 1 and unit 2 work. As such this will include:

Types of referrals
Types of provision (sectors)
Transitions throughout the lifestages
Life stages and development (including needs)
Personal and Professional Attributes required of professionals
Person Centred care – Health and Social Care Values
Care planning cycle
Care Quality Commission (CQC)
Professional development
6 C's
Working in partnership
The Equality Act 2010 – Protected Characteristics
GDPR – its use within a care home
The Care Act 2014

Structure of the paper:

You will complete a past paper. The structure of the paper will be scenario based and there will be a range of short mark answers and long mark answers expected of you. The paper will be 1 hour 30 minutes in length.

Revision:

Use the textbook, revision cards, your exercise books and the materials from class to support you. Mrs Elliott is also available for support sessions that can be provided at lunchtimes and some afternoons after the school day. If you are unable to make these sessions, please organise a different time to gain support.

Year 10 GCSE History; MARCH Medicine PPE

Paper 1: Historic Environment and Thematic Depth Study Medicine through time, c1250-present	Content	Information you need to know
Medicine in medieval England, c1250-c1500	<ul style="list-style-type: none"> • Ideas about the cause of disease and illness • Approaches to prevention and treatment • Case study (Black Death) 	<p>Supernatural and religious explanations of the cause of disease. Rational explanations: the Theory of the Four Humours and the miasma theory; the continuing influence in England of Hippocrates and Galen.</p> <p>Approaches to prevention and treatment and their connection with ideas about disease and illness.</p> <p>New and traditional approaches to hospital care in the thirteenth century.</p> <p>The role of the physician, apothecary and barber surgeon in treatment and care provided within the community and in hospitals, c1250–1500.</p> <p>Dealing with the Black Death, 1348–49; approaches to treatment and attempts to prevent its spread.</p>
The Medical Renaissance in England, c1500-c1700	<ul style="list-style-type: none"> • Ideas about the cause of disease and illness • Approaches to prevention and treatment • Impact of William Harvey • Case Study (The Great Plague in London) 	<p>Continuity and change in explanations of the cause of disease and illness through the Renaissance. A scientific approach, including the work of Thomas Sydenham in improving diagnosis. The influence of the printing press and the work of the Royal Society on the transmission of ideas.</p> <p>Continuity in approaches to prevention, treatment and care in the community and in hospitals.</p> <p>Change in care and treatment: improvements in medical training and the influence in England of the work of Vesalius.</p> <p>Key individual: William Harvey and the discovery of the circulation of the blood, impact on medicine.</p> <p>Dealing with the Great Plague in London, 1665: approaches to treatment and attempts to prevent its spread.</p>
18th and 19th Century Medicine, c1700-c1900	<ul style="list-style-type: none"> • Ideas about the cause of disease and illness 	<p>Changing attitudes in the 18th century (the Enlightenment)</p> <p>Louis Pasteur and the development of Germ Theory, challenging spontaneous generation. The work of Robert Koch and the impact of Germ Theory.</p>

	<ul style="list-style-type: none"> • Approaches to prevention and treatment • Case Study (fighting cholera in London) 	<p>Florence Nightingale and improvements to hospitals and treatment.</p> <p>Improvements in surgical treatment, development of anaesthetics, antiseptic and aseptic surgery. Impact and opposition to these developments.</p> <p>Edward Jenner and the development of the smallpox vaccine. Reactions, impact and importance of government intervention.</p> <p>Prevention of disease – Public Health Act 1875 and role of the government. Changing attitude of government (laissez-faire to being proactive).</p> <p>Cholera – 1854 epidemic in Soho, research of John Snow. The role of individuals and the government in the prevention of cholera.</p>
Medicine in Modern Britain, c1900 - present	<ul style="list-style-type: none"> • Ideas about the causes of disease and illness • Approaches to prevention and treatment • Discovery and development of penicillin • Case study (treatment and prevention of lung cancer) 	<p>The science of genetics/DNA, impact of technology on diagnosis and lifestyle factors.</p> <p>Magic Bullets and the impact of science and technology on treatment/prevention. Founding and importance of the NHS. Government intervention in the prevention of disease.</p> <p>Alexander Fleming and the discovery of penicillin. The role of Florey and Chain in the mass production of penicillin. The long term significance of penicillin.</p> <p>Ways to diagnose and treat lung cancer. The role of the government in the prevention of lung cancer.</p>
Depth study British sector of the Western Front, 1914-1918	<ul style="list-style-type: none"> • Historical context of medicine and the Western Front • Conditions requiring medical treatment • RAMC/FANY • Experiments in surgery and medicine 	<p>X-rays, blood transfusions, Thomas splint The trench system and key battles Problems with transportation Types of wounds/main medical problems Work of the RAMC and FANY – system of transport and problems Treating wounds/infections, plastic surgery</p>

PPE Exam Information

- 1 hour 15 minutes
- 52 marks total
- Paper 1 is 30% of your total History GCSE

How to revise:

- Go over the work in your books thoroughly and make sure you understand the key concepts.
- Make sure you are revising the specifics – i.e. dates and names.
- Look at your knowledge organisers and the exam specifications provided.
- **Practice exam questions**, particularly 12 and 16 mark questions.
- Look at GCSE Pod or the BBC Teach Medicine videos through YouTube to assist with revision.
- Remember you will be answering specific questions which don't necessarily ask you to write down everything you know – rather you will be asked to explain so **remember to answer the specific question**, using the detail you know to support your answers.