

Edexcel GCSE Combined Science: Higher

Advance Information of Assessed Content 2022

Link to specification:

https://qualifications.pearson.com/content/dam/pdf/GCSE/Science/2016/Specification/GCSE_CombinedScience_Spec.pdf

Link to advance information document:

https://qualifications.pearson.com/content/dam/pdf/GCSE/Science/2016/teaching-and-learning-materials/W73065_GCSE_Combined_Science_1SC0_AN_Accessible_version.pdf

Link to revised Physics equation sheet:

https://qualifications.pearson.com/content/dam/pdf/GCSE/Science/2016/Specification/GCSE_CombinedScience_Spec.pdf

Biology Paper 1 - H

These specification points and core practical will be the **major focus** of this paper

Exam date: 17th May

Topic	Concepts	Edexcel Revision Guide	Bitesize	YouTube
1 - Key concepts in biology - ENZYMES	<i>Core Practical 1.6 Investigate biological specimens using microscopes, including magnification calculations and labelled scientific drawings from observations.</i>	5		
	1.7 Explain the mechanism of enzyme action including the active site and enzyme specificity	7-8	https://www.bbc.co.uk/bitesize/guides/zwxv6yc	https://www.youtube.com/watch?v=Rfvh4LIsEEM https://www.youtube.com/watch?v=VLK2wANjQm0&t=57s
	1.8 Explain how enzymes can be denatured due to changes in the shape of the active site			
	1.9 Explain the effects of temperature, substrate concentration and pH on enzyme activity			
	1.11 Demonstrate an understanding of rate calculations for enzyme activity			
	1.12 Explain the importance of enzymes as biological catalysts in the synthesis of carbohydrates, proteins and lipids and their breakdown into sugars, amino acids and fatty acids and glycerol	7-8		
	<i>Core Practical 1.10 Investigate the effect of pH on enzyme activity.</i>	8		
2 – Cells and control – Cell cycle	2.1 Describe mitosis as part of the cell cycle, including the stages interphase, prophase, metaphase, anaphase and telophase and Cytokinesis	13-14	https://www.bbc.co.uk/bitesize/guides/zpkx8mn	https://www.youtube.com/watch?v=IOVdEiPWkHs
	2.2 Describe the importance of mitosis in growth, repair and asexual reproduction			
	2.3 Describe the division of a cell by mitosis as the production of two daughter cells, each with identical sets of chromosomes in the nucleus to the parent cell, and that this results in the formation of two genetically identical diploid body cells			
	2.4 Describe cancer as the result of changes in cells that lead to uncontrolled cell division			
	2.5 Describe growth in organisms, including: a cell division and differentiation in animals b cell division, elongation and differentiation in plants			
	2.6 Explain the importance of cell differentiation in the development of specialised cells			
3 – Genetics – Reproduction and DNA	3.3 Explain the role of meiotic cell division, including the production of four daughter cells, each with half the number of chromosomes, and that this results in the formation of genetically different haploid gametes. The stages of meiosis are not required	20-22	https://www.bbc.co.uk/bitesize/guides/zghgpbk	https://www.youtube.com/watch?v=w5SRMZiYR4w https://www.youtube.com/watch?v=TQ_iCf8mzMA https://www.youtube.com/watch?v=o4LHU79fB3s
	3.4 Describe DNA as a polymer made up of: a two strands coiled to form a double helix b strands linked by a series of complementary base pairs joined together by weak hydrogen bonds c nucleotides that consist of a sugar and phosphate group with one of the four different bases attached to the sugar			
	3.5 Describe the genome as the entire DNA of an organism and a gene as a section of a DNA molecule that codes for a specific protein			
	3.6 Explain how DNA can be extracted from fruit			

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Topic	Concepts	Edexcel Revision Guide	Bitesize	YouTube
Topic 4 – Natural selection and genetic modification - Inheritance	4.2 Explain Darwin's theory of evolution by natural selection	29-30	Pages 1-5 ONLY https://www.bbc.co.uk/bitesize/guide/s/zyv83k7	https://www.youtube.com/watch?v=7RraYCKvTXc https://www.youtube.com/watch?v=P5a3dAUod38
	4.3 Explain how the emergence of resistant organisms supports Darwin's theory of evolution including antibiotic resistance in bacteria			
	4.4 Describe the evidence for human evolution, based on fossils, including: a Ardi from 4.4 million years ago b Lucy from 3.2 million years ago c Leakey's discovery of fossils from 1.6 million years ago			
	4.5 Describe the evidence for human evolution based on stone tools, including: a the development of stone tools over time b how these can be dated from their environment			
Topic 4 – Natural selection and genetic modification – genetic modification	4.8 Explain selective breeding and its impact on food plants and domesticated animals	32-34	Pages 2-4 ONLY https://www.bbc.co.uk/bitesize/guide/s/z9rqci6	https://www.youtube.com/watch?v=99nEQd2k6k4 https://www.youtube.com/watch?v=gu9T91GjXDo
	4.10 Describe genetic engineering as a process which involves modifying the genome of an organism to introduce desirable characteristics			
	4.11 Describe the main stages of genetic engineering including the use of: a restriction enzymes b ligase c sticky ends d vectors			
Topic 5 – Health, disease and the development of medicines - Diseases	5.2 Describe the difference between communicable and non-communicable diseases	36-41	https://www.bbc.co.uk/bitesize/guide/s/zts9y4j	https://www.youtube.com/watch?v=QYWNXp36O48&t=30s https://www.youtube.com/watch?v=wUm71FPuVCQ https://www.youtube.com/watch?v=K5zFxfbmC1M – just watch HIV bit not measles https://www.youtube.com/watch?v=5rsdXadNi-E
	5.3 Explain why the presence of one disease can lead to a higher susceptibility to other diseases			
	5.4 Describe a pathogen as a disease-causing organism, including viruses, bacteria, fungi and protists			
	5.5 Describe some common infections, including: a cholera (bacteria) causes diarrhoea b tuberculosis (bacteria) causes lung damage c Chalara ash dieback (fungi) causes leaf loss and bark lesions d malaria (protists) causes damage to blood and liver e HIV (virus) destroys white blood cells, leading to the onset of AIDS			
	5.6 Explain how pathogens are spread and how this spread can be reduced or prevented, including: a cholera (bacteria) – water b tuberculosis (bacteria) – airborne c Chalara ash dieback (fungi) – airborne d malaria (protists) – animal vectors			
	5.8 Explain how sexually transmitted infections (STIs) are spread and how this spread can be reduced or prevented, including: a <i>Chlamydia</i> (bacteria) b HIV (virus)			

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Spec point	Edexcel Revision Guide
Topic 1 Key concepts in Biology – transport into and out of cells (1.15–1.17)	
Topic 3 Genetics – variation (3.19–3.23)	
Topic 5 Health, disease, and the development of medicines – defence against disease (5.12–5.14)	

Chemistry Paper 1 - H

These specification points and core practical will be the **major focus** of this paper

Exam date: 27th May

Topic	Concepts	Edexcel Revision Guide	Bitesize	YouTube
Topic 1 Key concepts in chemistry – Types of substance	1.32 Explain why elements and compounds can be classified as: a ionic b simple molecular (covalent) c giant covalent d metallic and how the structure and bonding of these types of substances results in different physical properties, including relative melting point and boiling point, relative solubility in water and ability to conduct electricity (as solids and in solution)	96-103	Page 2 ONLY - https://www.bbc.co.uk/bitesize/guides/zcrvtv4	
	1.33 Explain the properties of ionic compounds limited to: a high melting points and boiling points, in terms of forces between ions b whether or not they conduct electricity as solids, when molten and in aqueous solution	98	Page 4 ONLY https://www.bbc.co.uk/bitesize/guides/z9fwrwx	https://www.youtube.com/watch?v=leVxy7cjZMU
	1.34 Explain the properties of typical covalent, simple molecular compounds limited to: a low melting points and boiling points, in terms of forces between molecules (intermolecular forces) b poor conduction of electricity	100	Page 4 only - https://www.bbc.co.uk/bitesize/guides/zqrxdxs	https://www.youtube.com/watch?v=DECGNyC-x_s
	1.35 Recall that graphite and diamond are different forms of carbon and that they are examples of giant covalent substances	102	Page 2 and 3 ONLY - https://www.bbc.co.uk/bitesize/guides/zspxdxs	https://www.youtube.com/watch?v=ge7PB9aP-Wc - ignore silicon dioxide bit
	1.36 Describe the structures of graphite and diamond			https://www.youtube.com/watch?v=dEZltwgZeFU
	1.37 Explain, in terms of structure and bonding, why graphite is used to make electrodes and as a lubricant, whereas diamond is used in cutting tools			
	1.38 Explain the properties of fullerenes including C60 and graphene in terms of their structures and bonding			https://www.youtube.com/watch?v=6jCJXhusl2M&t=23s
	1.39 Describe, using poly(ethene) as the example, that simple polymers consist of large molecules containing chains of carbon atoms	102		
	1.40 Explain the properties of metals, including malleability and the ability to conduct electricity	103	Page 1 only - https://www.bbc.co.uk/bitesize/guides/zcrvtv4	https://www.youtube.com/watch?v=-qlnXrhrhY
	1.41 Describe the limitations of particular representations and models to, include dot and cross, ball and stick models and two- and three-dimensional representations	104		https://www.youtube.com/watch?v=0khrZnI9CIQ
	1.42 Describe most metals as shiny solids which have high melting points, high density and are good conductors of electricity whereas most non-metals have low boiling points and are poor conductors of electricity	103		

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Exam date: 27th May

Topic 1 Key concepts in chemistry – Calculations involving masses

Topic	Concepts	Edexcel Revision Guide	Bitesize	YouTube
	1.43 Calculate: a relative formula mass given relative atomic masses a percentage by mass of an element in a compound given relative atomic masses	105	https://www.bbc.co.uk/bitesize/guides/ztdsmg	https://www.youtube.com/watch?v=q49NwlrjaFw https://www.youtube.com/watch?v=02lgP9u_bcE&t=3s
	1.44 Calculate the formulae of simple compounds from reacting masses or percentage composition and understand that these are empirical formulae	106		
	1.45 Deduce: a the empirical formula of a compound from the formula of its molecule b the molecular formula of a compound from its empirical formula and its relative molecular mass	106		https://www.youtube.com/watch?v=k_GTEtK01Wg https://www.youtube.com/watch?v=VgIotPASd9U
	1.46 Describe an experiment to determine the empirical formula of a simple compound such as magnesium oxide	106		
	1.47 Explain the law of conservation of mass applied to: a a closed system including a precipitation reaction in a closed flask b a non-enclosed system including a reaction in an open flask that takes in or gives out a gas	107		https://www.youtube.com/watch?v=K4pw_-U6Xpc
	1.48 Calculate masses of reactants and products from balanced equations, given the mass of one substance	107-108		https://www.youtube.com/watch?v=5zOpoeN0dV0&t=182s https://www.youtube.com/watch?v=5zOpoeN0dV0
	1.49 Calculate the concentration of solutions in g dm ⁻³	109		https://www.youtube.com/watch?v=3G3KQIyoZDI
	1.50 Recall that one mole of particles of a substance is defined as: a the Avogadro constant number of particles (6.02×10^{23} atoms, molecules, formulae or ions) of that substance b a mass of 'relative particle mass' g	110	https://www.bbc.co.uk/bitesize/guides/zymgng8	https://www.youtube.com/watch?v=-_fNVmDwJk https://www.youtube.com/watch?v=Md4BQL91U6w
	1.51 Calculate the number of: a moles of particles of a substance in a given mass of that substance and vice versa b particles of a substance in a given number of moles of that substance and vice versa c particles of a substance in a given mass of that substance and vice versa			https://www.youtube.com/watch?v=3y8YDIuNeuRk https://www.youtube.com/watch?v=l_1vf1z8_OM
	1.52 Explain why, in a reaction, the mass of product formed is controlled by the mass of the reactant which is not in Excess	108		https://www.youtube.com/watch?v=MuzOmFhiE8o
1.53 Deduce the stoichiometry of a reaction from the masses of the reactants and products	https://www.youtube.com/watch?v=4wTSLBBBBMo0			

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Topic	Concepts	Edexcel Revision Guide	Bitesize	YouTube
Topic 3 Chemical changes – Acids and bases	3.1 Recall that acids in solution are sources of hydrogen ions and alkalis in solution are sources of hydroxide ions	120-121	https://www.bbc.co.uk/bitesize/guides/zpqvtv4	https://www.youtube.com/watch?v=wmhOttrolrw
	3.2 Recall that a neutral solution has a pH of 7 and that acidic solutions have lower pH values and alkaline solutions higher pH Values			https://www.youtube.com/watch?v=ZWZTDiwOWil
	3.3 Recall the effect of acids and alkalis on indicators, including litmus, methyl orange and phenolphthalein			
	3.4 Recall that the higher the concentration of hydrogen ions in an acidic solution, the lower the pH; and the higher the concentration of hydroxide ions in an alkaline solution, the higher the pH	120-121		https://www.youtube.com/watch?v=4plHhXfGZIE
	3.5 Recall that as hydrogen ion concentration in a solution increases by a factor of 10, the pH of the solution decreases by 1			
	3.6 Core Practical: Investigate the change in pH on adding powdered calcium hydroxide or calcium oxide to a fixed volume of dilute hydrochloric acid			123
	3.7 Explain the terms dilute and concentrated, with respect to amount of substances in solution	121		
	3.8 Explain the terms weak and strong acids, with respect to the degree of dissociation into ions			https://www.youtube.com/watch?v=4plHhXfGZIE
	3.9 Recall that a base is any substance that reacts with an acid to form a salt and water only	122	Pages 1-3 ONLY - https://www.bbc.co.uk/bitesize/guides/z97gfcw	
	3.10 Recall that alkalis are soluble bases	122		
	3.11 Explain the general reactions of aqueous solutions of acids with: a metals b metal oxides c metal hydroxides d metal carbonates to produce salts	122		https://www.youtube.com/watch?v=ofw6oHSYGFI
	3.12 Describe the chemical test for: a hydrogen b carbon dioxide (using limewater)			https://www.youtube.com/watch?v=iA4mk3CTkml
	3.13 Describe a neutralisation reaction as a reaction between an acid and a base			https://www.youtube.com/watch?v=QISsle_jSQ8
	3.14 Explain an acid-alkali neutralisation as a reaction in which hydrogen ions (H ⁺) from the acid react with hydroxide ions (OH ⁻) from the alkali to form water	123		
	https://www.youtube.com/watch?v=saRBT5oZfh8			

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Exam date: 27th May

Topic	Concepts	Edexcel Revision Guide	Bitesize	YouTube
Topic 3 Chemical changes – Electrolytic processes	3.22 Recall that electrolytes are ionic compounds in the molten state or dissolved in water	128-129	https://www.bbc.co.uk/bitesize/guides/zgn8b82	https://www.youtube.com/watch?v=AhTRIL6xjBA
	3.23 Describe electrolysis as a process in which electrical energy, from a direct current supply, decomposes electrolytes			
	3.24 Explain the movement of ions during electrolysis, in which: a positively charged cations migrate to the negatively charged cathode b negatively charged anions migrate to the positively charged anode			
	3.25 Explain the formation of the products in the electrolysis, using inert electrodes, of some electrolytes, including: a copper chloride solution b sodium chloride solution c sodium sulfate solution d water acidified with sulfuric acid e molten lead bromide (demonstration)			https://www.youtube.com/watch?v=6WjC_Vi4roA https://www.youtube.com/watch?v=mL7mkqyLpSo
	3.26 Predict the products of electrolysis of other binary, ionic compounds in the molten state			
	3.27 Write half equations for reactions occurring at the anode and cathode in electrolysis			
	3.28 Explain oxidation and reduction in terms of loss or gain of Electrons			https://www.youtube.com/watch?v=gnbuTI2ariI
	3.29 Recall that reduction occurs at the cathode and that oxidation occurs at the anode in electrolysis reactions			
	3.30 Explain the formation of the products in the electrolysis of copper sulfate solution, using copper electrodes, and how this electrolysis can be used to purify copper			
	3.31 <i>Core Practical: Investigate the electrolysis of copper sulfate solution with inert electrodes and copper electrodes</i>	130		https://www.youtube.com/watch?v=ukbtTTG1Kew

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Exam date: 27th May

Topic	Concepts	Edexcel Revision Guide	Bitesize	YouTube
Topic 4 Extracting metals and equilibria – Obtaining and using metals	4.1 Deduce the relative reactivity of some metals, by their reactions with water, acids and salt solutions	132-137	https://www.bbc.co.uk/bitesize/guides/zx6797h	https://www.youtube.com/watch?v=MDQr5QFVGkk
	4.2 Explain displacement reactions as redox reactions, in terms of gain or loss of electrons			https://www.youtube.com/watch?v=gnbuTI2aril
	4.3 Explain the reactivity series of metals (potassium, sodium, calcium, magnesium, aluminium, (carbon), zinc, iron, (hydrogen), copper, silver, gold) in terms of the reactivity of the metals with water and dilute acids and that these reactions show the relative tendency of metal atoms to form cations			https://www.youtube.com/watch?v=MXTSels6e2Y
	4.4 Recall that: a most metals are extracted from ores found in the Earth’s crust b unreactive metals are found in the Earth’s crust as the uncombined elements			
	4.5 Explain oxidation as the gain of oxygen and reduction as the loss of oxygen			
	4.6 Recall that the extraction of metals involves reduction of ores			
	4.7 Explain why the method used to extract a metal from its ore is related to its position in the reactivity series and the cost of the extraction process, illustrated by; a heating with carbon (including iron); b electrolysis (including aluminium) (knowledge of the blast furnace is not required)			
	4.8 Evaluate alternative biological methods of metal extraction (bacterial and phytoextraction)			https://www.youtube.com/watch?v=b5RVPauf4oM
	4.9 Explain how a metal’s relative resistance to oxidation is related to its position in the reactivity series			
	4.10 Evaluate the advantages of recycling metals, including economic implications and how recycling can preserve both the environment and the supply of valuable raw materials	138-139		https://www.youtube.com/watch?v=tg8tntiqQYk
	4.11 Describe that a life-cycle assessment for a product involves consideration of the effect on the environment of obtaining the raw materials, manufacturing the product, using the product and disposing of the product when it is no longer useful			https://www.youtube.com/watch?v=Znnhe4BJH14
	4.12 Evaluate data from a life cycle assessment of a product			

Chemistry Paper 1 - H

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Spec point	Edexcel Revision Guide
Topic 1 Key concepts in chemistry – Atomic structure (1.1–1.12)	
Topic 1 Key concepts in chemistry – The periodic table (1.13–1.20)	
Topic 2 States of matter and mixtures – States of matter (2.1– 2.4)	
Topic 2 States of matter and mixtures – Methods of separating and purifying substances (2.5– 2.12)	
Topic 4 Extracting metals and equilibria – Reversible reactions and equilibria (4.13–4.17)	

Physics Paper 1 - H

These specification points and core practical will be the **major focus** of this paper

Exam date: 9th June

Topic	Concepts	Edexcel Revision Guide	Bitesize	YouTube
Topic 2 Motion and forces – Velocity and acceleration	2.1 Explain that a scalar quantity has magnitude (size) but no specific direction	P166-169	https://www.bbc.co.uk/bitesize/guide/s/zgcp7p3	https://www.youtube.com/watch?v=P1ISWWUkMdQ
	2.2 Explain that a vector quantity has both magnitude (size) and a specific direction			
	2.3 Explain the difference between vector and scalar quantities			
	2.4 Recall vector and scalar quantities, including: a displacement/distance; b velocity/speed; c acceleration; d force; e weight/mass; f momentum; g energy			
	2.5 Recall that velocity is speed in a stated direction			
	2.6 Recall and use the equations: a (average) speed (metre per second, m/s) = distance (metre, m) ÷ time (s) b distance travelled (metre, m) = average speed (metre per second, m/s) × time (s)		p170	https://www.bbc.co.uk/bitesize/guide/s/z2x9v9q
	2.7 Analyse distance/time graphs including determination of speed from the gradient	https://www.youtube.com/watch?v=DkCw2C-DkT0&t=74s		
	2.8 Recall and use the equation: acceleration (metre per second squared, m/s ²) = change in velocity (metre per second, m/s) ÷ time taken (second, s) a = (v-u) / t	p169	https://www.youtube.com/watch?v=r5iXzDCRMSE	
	2.9 Use the equation: (final velocity) ² ((metre/second) ² , (m/s) ²) – (initial velocity) ² ((metre/second) ² , (m/s) ²) = 2 × acceleration (metre per second squared, m/s ²) × distance (metre, m) v ² – u ² = 2 × a × X		https://www.youtube.com/watch?v=qpgWzTwnwUk	
	2.10 Analyse velocity/time graphs to: a compare acceleration from gradients qualitatively; b calculate the acceleration from the gradient (for uniform acceleration only); c determine the distance travelled using the area between the graph line and the time axis (for uniform acceleration only)	p170	https://www.youtube.com/watch?v=r5iXzDCRMSE	
	2.11 Describe a range of laboratory methods for determining the speeds of objects such as the use of light gates	P171/p175	https://www.youtube.com/watch?v=M_0FRIX8wIM	
	2.12 Recall some typical speeds encountered in everyday experience for wind and sound, and for walking, running, cycling and other transportation systems	P167-168		

Physics Paper 1 - H

These specification points and core practical will be the **major focus** of this paper

Exam date: 9th June

Topic	Concepts	Edexcel Revision Guide	Bitesize	YouTube
Topic 2 Motion and forces – Newton's 3rd law and momentum	2.20 Explain that an object moving in a circular orbit at constant speed has a changing velocity (qualitative only)	p176	https://www.bbc.co.uk/bitesize/guide/s/z2x9v9q	https://www.youtube.com/watch?v=okMA18ppu98
	2.21 Explain that for motion in a circle there must be a resultant force known as a centripetal force that acts towards the centre of the circle			
	2.22 Explain that inertial mass is a measure of how difficult it is to change the velocity of an object (including from rest) and know that it is defined as the ratio of force over acceleration	P177-p178	Inertial mas half way down page 2 – https://www.bbc.co.uk/bitesize/guide/s/z3rhqhv	https://www.youtube.com/watch?v=SqdCCxv9YzI
	2.23 Recall and apply Newton's third law both to equilibrium situations and to collision interactions and relate it to the conservation of momentum in collisions		Page 4 ONLY - https://www.bbc.co.uk/bitesize/guide/s/z3rhqhv	https://www.youtube.com/watch?v=wANmग्gaC9pY https://www.youtube.com/watch?v=YEHCQD6Hij8
	2.24 Define momentum, recall and use the equation: momentum (kilogram metre per second, kg m/s) = mass (kilogram, kg) × velocity (metre per second, m/s) $p = m \times v$	P177-178	https://www.bbc.co.uk/bitesize/guide/s/zg9smsg	https://www.youtube.com/watch?v=ZtQhlwPxE28 https://www.youtube.com/watch?v=6yx0fQrK3fA
	2.25 Describe examples of momentum in collisions			
	2.26 Use Newton's second law as: force (newton, N) = change in momentum (kilogram metre per second, kg m/s) ÷ time (second, s) $F = (mv - mu) / t$			

Physics Paper 1 - H

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Exam date: 9th June

Topic	Concepts	Edexcel Revision Guide	Bitesize	YouTube
Topic 3 Conservation of energy – energy transfers and efficiency	3.1 Recall and use the equation to calculate the change in gravitational PE when an object is raised above the ground: change in gravitational potential energy (joule, J) = mass (kilogram, kg) × gravitational field strength (newton per kilogram, N/kg) × change in vertical height (metre, m) $\Delta GPE = m \times g \times \Delta h$	p186	https://www.bbc.co.uk/bitesize/guides/zxpwrwx	https://www.youtube.com/watch?v=zy9eWzmGe4&list=PL9IouNCPbCxWNjJvmgwZ4vKy4VfcAhsCj
	3.2 Recall and use the equation to calculate the amounts of energy associated with a moving object: kinetic energy (joule, J) = $\frac{1}{2} \times \text{mass (kilogram, kg)} \times (\text{speed})^2$ ((metre/second) ² , (m/s) ²) $KE = \frac{1}{2} m v^2$			https://www.youtube.com/watch?v=zy9eWzmGe4
	3.3 Draw and interpret diagrams to represent energy transfers			https://www.youtube.com/watch?v=gj1tu8bTKjI
	3.4 Explain what is meant by conservation of energy			
	3.5 Analyse the changes involved in the way energy is stored when a system changes, including: a an object projected upwards or up a slope b a moving object hitting an obstacle c an object being accelerated by a constant force d a vehicle slowing down e bringing water to a boil in an electric kettle	P182-p183	https://www.bbc.co.uk/bitesize/guides/zsb6w6f	
	3.6 Explain that where there are energy transfers in a closed system there is no net change to the total energy in that system			
	3.7 Explain that mechanical processes become wasteful when they cause a rise in temperature so dissipating energy in heating the surroundings			
	3.8 Explain, using examples, how in all system changes energy is dissipated so that it is stored in less useful ways			
	3.9 Explain ways of reducing unwanted energy transfer including through lubrication, thermal insulation			
	3.10 Describe the effects of the thickness and thermal conductivity of the walls of a building on its rate of cooling qualitatively			
	3.11 Recall and use the equation: Efficiency = useful energy transferred / total energy supplied			https://www.youtube.com/watch?v=NI5jaeBrlgQ
	3.12 Explain how efficiency can be increased			

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Exam date: 9th June

Topic	Concepts	Edexcel Revision Guide	Bitesize	YouTube
Topic 6 Radioactivity – Emission of ionising radiations	6.10 Recall that alpha, β^- (beta minus), β^+ (positron), gamma rays and neutron radiation are emitted from unstable nuclei in a random process	p198	https://www.bbc.co.uk/bitesize/guides/z8x9v9q 6.17 - https://www.bbc.co.uk/bitesize/guides/zxf797h	https://www.youtube.com/watch?v=F_Y1-JieCrg
	6.11 Recall that alpha, β^- (beta minus), β^+ (positron) and gamma rays are ionising radiations			
	6.12 Explain what is meant by background radiation	p204		https://www.youtube.com/watch?v=Z7394DMkfQs
	6.13 Describe the origins of background radiation from Earth and Space			
	6.14 Describe methods for measuring and detecting radioactivity limited to photographic film and a Geiger–Müller tube	p205		
	6.15 Recall that an alpha particle is equivalent to a helium nucleus, a beta particle is an electron emitted from the nucleus and a gamma ray is electromagnetic radiation	p203		https://www.youtube.com/watch?v=nW0S1C6wVrg
	6.16 Compare alpha, beta and gamma radiations in terms of their abilities to penetrate and ionize			
	6.17 Describe how and why the atomic model has changed over time including reference to the plum pudding model and Rutherford alpha particle scattering leading to the Bohr model	p206		https://www.youtube.com/watch?v=0ASIdDQmIOQ&t=24s
	6.18 Describe the process of β^- decay (a neutron becomes a proton plus an electron)	p207		
	6.19 Describe the process of β^+ decay (a proton becomes a neutron plus a positron)			
	6.20 Explain the effects on the atomic (proton) number and mass (nucleon) number of radioactive decays (α , β , γ and neutron emission)			
	6.21 Recall that nuclei that have undergone radioactive decay often undergo nuclear rearrangement with a loss of energy as gamma Radiation			
	6.22 Use given data to balance nuclear equations in terms of mass and charge			https://www.youtube.com/watch?v=xpSBhUpBXic

Physics Paper 1 - H

Exam date: 9th June

These specification points will **not be assessed** on this paper.

Spec point	Edexcel Revision Guide
Topic 2 Motion and forces – Newton's 1st law and 2nd law (2.14–2.19)	
Topic 3 Conservation of energy – Energy sources and patterns in usage of energy (3.13–3.14)	
Topic 5 Light and the electromagnetic spectrum – Emission and absorption of thermal radiation (5.12–5.14)	