

MATH HIGHER TOPICS

There is no right or wrong way to do your revision - we all process information differently whether it be through images and drawings, listening to podcasts or writing the information down. Therefore, it is important to create your own revision materials containing all the right facts, quotes, keywords, dates and annotated diagrams. These revision materials can take different formats such as flashcards, mind-maps, mnemonics, timelines and revision clocks and should be completed for topics you have studied in Year 9 and 10.

	Topic	Mymaths Lesson Numbers	Mathswatch Clip Number	Completed
1	Place Value and Rounding	1001, 1005, 1013, 1072	1, 2, 3, 31, 32, 90, 91, 92,	
	Adding and Subtracting whole numbers, decimals and negative numbers	1007, 1068	68, 75, 19, 20, 21, 22, 23, 27, 30	
	Multiplying and dividing whole numbers, decimals and negative numbers	1011, 1068, 1916, 1917	17, 18, 66, 67, 77	
2	Simplifying expressions	1178, 1179, 1186	7, 33, 34, 35, 36,	
	Indices	1033, 1045, 1064, 1301	29, 82, 131, 154	
	Expanding and Factorising 1	1155, 1247	93, 94, 95, 134, 157	
	Algebraic Fractions	1149, 1151, 1164	210	
3	Angles and Lines and Bearings	1082, 1086, 1109	9, 10, 12, 13, 45, 46, 124	
	Triangles and Quadrilaterals	1080, 1102, 1130, 1141	120, 121, 122,	
	Congruence and Similarity	1119, 1148	144, 166, 200	
	Polygon Angles	1100, 1320	123	
4	Representing Data; Two way Tables, Pie Charts and Bar Charts	1205, 1206, 1207,	6, 15, 16, 61, 64, 128	
	Averages and Spread 1	1192, 1202, 1254	62, 63, 130	
	Frequency Diagrams, grouped data and histograms	1196, 1197	65, 205	
5	Fractions and Percentages	1030, 1031, 1046	70, 71, 73, 74, 76	
	Calculating with Fractions	1017, 1040, 1047, 1074	24, 25, 26, 72	
	Fractions, Decimals and Percentages	1015, 1016, 1063, 1066	84, 85, 88, 89, 177, 189	
6	Rearranging and Using Formulae	1170, 1171, 1186	100, 101, 136, 137, 190	
	Functions and Mapping	1159	214, 215	
	Equivalence in Algebra, Expanding and simplifying and double brackets	1150, 1247	93, 94, 95, 134, 157, 158	
	Expanding and Factorising 2	1150, 1151, 1156, 1157	93, 94, 95, 134, 157, 135	
7	Measuring Lengths and Angles, Scale drawings, Metric and Imperial Units	1086, 1103, 1117	4, 5, 112, 142	
	Perimeter and Area of 2D Shapes	1108, 1128, 1129	52, 53, 54, 55	
	Reflection, Rotation, Enlargement and Translations	1099, 1113, 1115, 1127	11, 48, 49, 50, 148	
	Combining all 4	1125	181, 182	
8	Experimental Probability	1211, 1264	14, 125,	
	Theoretical Probability	1211, 1263, 1264	57, 58, 59, 69	
	Mutually exclusive events	1262, 1263	60	
9	Estimation and Approximation	1005, 1043, 1057		
	Calculator Methods	1043, 1932, 1933	77	
	Measures and Accuracy	1006, 1067, 1121, 1246	155, 132, 142	
10	Solving Linear Equations	1182, 1319, 1928, 1929	135	
	Quadratic Equations	1160, 1169, 1181, 1185	191, 192, 209,	
	Simultaneous Equations	1174, 1177, 1236, 1319	1401, 162, 211	
	Iteration	1057	179, 180, 155	
	Inequalities and regions	1161, 1162, 1163, 1189	138, 139, 198, 212	
11	Circle Circumference and Area	1083, 1088	116, 117, 118,	
	Circle Arc Lengths and Area of Sectors	1118	149, 167	
	Circle Theorems	1087, 1142, 1321	183, 184	
	Constructions and Loci	1089, 1090, 1147	47, 145, 146, 147, 165,	
12	Proportion	1015, 1037	42, 41	
	Ratio and Scales	1036, 1038, 1039, 1103	38, 39, 106, 107	
	Percentage Change	1060, 1073, 1237, 1934	40, 86, 87,	
	Percentage Increase/Decrease and reverse percentages	1060, 1073, 1237, 1934	108, 109, 110, 111, 164	
13	Factors and Multiples, HCF and LCM	1032, 1034, 1044	28, 78, 79, 80,	
	Powers and Roots	1033, 1053, 1924	81	
	Surds	1064, 1065, 1924	207	
14	Straight Line graphs and Equations of straight lines	1153, 1311, 1314, 1396	8, 96, 97, 113, 133, 159, 208	
	Linear and quadratic functions and graphs	1180, 1312	160, 161,	
	Properties of quadratic functions, turning points and roots	1169, 1180, 1185	98, 99	
	Kinematic Graphs- Distance time graphs and velocity time graphs	1322, 1323	143, 216	
15	3d shapes, nets and properties	1078, 1098, 1106	43, 44, 51	
	Volume of prisms	1137, 1138, 1139, 1246	115, 119, 169, 170, 171, 172	
	Volume and Surface Area	1107, 1122, 1136	114	
16	Estimation of the mean and averages	1201, 1202, 1254, 1255	130	
	Box plots and cumulative frequency graphs	1194, 1195, 1333	186, 187	
	Scatter diagrams and correlation	1213, 1250	129	
	Time Series	1198	153	
17	Calculating with roots and indices	1033, 1045, 1301, 1924	154, 188	
	Exact Calculations with pie, surds and fractions	1065, 1074	132, 206	
	Standard Form	1049, 1050, 1051	83	
18	Cubic and Reciprocal functions	1071, 1172	161,	
	Exponential and trigonometric functions	1070, 1126, 1188	194, 195, 196	
	Real Life Graphs	1184, 1322	143, 216	
	Gradients and areas under graphs	1128, 1312		
	Equation of a circle	1152	197	
19	Pythagoras Theorem	1064, 1112	150	
	Trigonometry	1131, 1133	168, 173	
	Advanced Trigonometry	1095, 1120	201, 202, 203	
	Pythagoras' Theorem and Trig 3D problems	1095, 1112, 1120	217, 218	
	Vectors	1134, 1135	174, 219	
20	Set Theory	1262, 1921, 1922	126, 127, 185	
	Possibility Spaces	1199, 1263		
	Tree Diagrams	1208, 1334, 1935	151, 175	
	Conditional Probability	1263, 1334	204	
21	Linear Sequences	1165, 1173	37, 102, 103, 104	
	Quadratic Sequences	1166	163, 213, 214,	
	Special Sequences	1054, 1165, 1166, 1920	141, 104	
22	Compound Units	1121, 1246	142	
	Converting between units	1061, 1329	105	
	Direct and Inverse Proportion	1036, 1048, 1059	199	
	Rates of Change	1312		
	Growth and Decay	1070, 1238	164	
	Mathematical Reasoning		156	
	Algebraic Proof		193	

MATH FOUNDATION TOPICS

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2	Simplifying expressions	1158, 1186, 1187, 1178, 1179	7, 33, 34, 35, 36,	
	Indices	1033, 1045, 1064, 1301	29, 82, 131, 154	
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3	Angles and Lines and Bearings	1082, 1086, 1109	9, 10, 12, 13, 45, 46, 124	
	Triangles and Quadrilaterals	1080, 1102, 1130, 1141	120, 121, 122,	
	Congruence and Similarity	1119, 1148	144, 166, 200	
	Polygon Angles	1100, 1320	123	
4	Organising and Representing Data; Two way Tables, Pie Charts and Bar Charts	1193, 1214, 1205, 1206, 1207,	6, 15, 16, 61, 64, 128	
	Averages and Spread 1	1192, 1202, 1254	62, 63, 130	
5	Fractions and Percentages	1016, 1019, 1042, 1075, 1030, 1031, 1070,	70, 71, 73, 74, 76	
	Calculating with Fractions	1017, 1018, 1030, 1031, 1040, 1047, 1070,	24, 25, 26, 72	
	Fractions, Decimals and Percentages	1015, 1016, 1029, 1074,	84, 85, 88, 89, 177, 189	
6	Substituting in to formulae	1158, 1167, 1186, 1187	95	
	Using standard formulae	1159, 1171	137	
	Equations, identities and functions	1155, 1247	93, 94, 95, 134, 157, 135	
	Expanding and factorising 2	1150, 1151, 1157	93, 94, 134,	
7	Measuring Lengths and Angles	1086, 1103, 1117, 1146	46, 4, 112	
	Perimeter and Area of 2D Shapes	1108, 1128, 1129	52, 53, 54, 55	
	Reflection, Rotation, Enlargement and Translations	1099, 1113, 1115, 1127	11, 48, 49, 50, 148	
	Combining all 4	1125	181, 182	
8	Experimental Probability	1209, 1210, 1211, 1264	14, 125,	
	Expected outcomes and theoretical probability	1211, 1264, 1210	57, 58, 59, 69	
	Mutually exclusive events	1262, 1263	60	
9	Estimation and Approximation	1002, 1004, 1005, 1043,	31, 32, 90,	
	Calculator Methods	1043, 1932, 1933	77	
	Measures and Accuracy	1006, 1067, 1121, 1246	155, 132, 142	
10	Solving Linear Equations	1154, 1395, 1925	135	
	Solving Linear Equations 2	1182, 1928	100,	
	Quadratic Equations	1169, 1181	157, 158	
	Simultaneous Equations	1175, 1176, 1319	140, 168	
	Inequalities	1161, 1162, 1930	138, 139, 198,	
11	Circle Circumference and Area	1083, 1088	116, 117, 118,	
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	Prime factor decomposition	1032, 1044	78,	
	Powers and Roots	1053, 1924	81, 28, 29	
14	Straight Line graphs and Equations of straight lines	1093, 1394, 1395, 1396, 1153, 1312, 1396,	96, 97, 133,	
	Distance time graphs	1322, 1323	143	
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	Averages and Spread 2	1201, 1202	62, 130	
	Scatter diagrams and correlation	1213, 1250	129	
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18	Properties of quadratic functions	1168, 1169	98	
	Sketching functions	1071, 1172, 1180, 1316	99	
	Real Life Graphs	1184, 1322	143, 216	
19	Pythagoras Theorem	1053, 1112	150	
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	Special Sequences	1053, 1054, 1165, 1920	141, 104	
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	Growth and Decay	1070, 1238	164	
	Mathematical Reasoning		156	
	Algebraic Proof		193	

SCIENCE - BIOLOGY TOPICS

You will have studied most of these topic area's in science since we started the new GCSE in the March of your Year 9.

There are three progression questions per sub topic area, your chosen revision method (either the flash cards, the mind map or the revision clocks) must answer them to ensure you have a comprehensive revision aid for science so far.

Topic reference	Lesson title	Key Progression questions	Completed
CB1a	Microscopes	What determines how good a microscope is at showing small details? What has the development of the microscope allowed us to do? What units are used for very small sizes?	
CB1b	Plant and animal cells	How are animal cells different to plant cells? What do the sub-cellular structures in eukaryotic cells do? How can we estimate the sizes of cells and their parts?	
CB1c	Specialised cells	How are some specialised cells adapted to their functions? What is the function of a gamete? What is the function of cilia?	
CB1d	Inside bacteria	What are the functions of the sub-cellular structures in bacteria? What are the differences between prokaryotic and eukaryotic cells? How do we change numbers to and from standard form?	
CB1e	Enzymes and nutrition	What are enzymes made out of? What do enzymes do? Why are enzyme important for life?	
CB1f	Enzyme action	What is the function of the active site of an enzyme? Why do enzymes only work on specific substrates? How are enzymes denatured?	
CB1g	Enzyme activity	How is enzyme activity affected by temperature, pH and substrate concentration? How do you calculate the rate of enzyme activity? Why is enzyme activity affected by temperature, pH and substrate concentration?	
CB1h	Transporting substances	What is the difference between diffusion and osmosis? How do cells move substances against a concentration gradient? How do you calculate a percentage change in mass?	
CB2a	Mitosis	Why is mitosis important? What happens in the different stages in mitosis? How do cancer tumours occur?	
CB2b	Growth in animals	Which processes in animals result in growth and development? How are percentile charts used to monitor growth in children? Why is cell differentiation important in animals?	
CB2c	Growth in plants	How do plants grow? How are some specialised plant cells adapted to their function? Why is cell differentiation important in plants?	
CB2d	Stem cells	Where are stem cell found? What is the function of stem cells? What are the advantages and risks of using stem cells in medicine?	
CB2e	The nervous system	What is the nervous system? How does the nervous system allow the body to respond to stimuli? How is a sensory neurone adapted to its function?	
CB2f	Neurotransmission speeds	How is a motor neurone adapted to its function? How do neurotransmitters allow a connection between neurones? How does the structure of a reflex arc allow faster reactions to stimuli?	
CB3a	Meiosis	What happens in meiosis? Why is meiosis necessary for sexual reproduction? What is the role of the genome in the manufacture of proteins?	
CB3bi	DNA	What are DNA bases? What is the structure of DNA? How are DNA strands held together?	
CB3c	Alleles	What is the difference between a gene and an allele? Why will a recessive allele not affect the phenotype of an organism that is heterozygous for that gene? Why are genetic diagrams useful?	
CB3d	Inheritance	How is the sex of offspring determined in humans? How do we use genetic diagrams, punnett squares and family pedigrees to show inheritance? How are the probable outcomes of offspring phenotypes calculated, using information about alleles?	
CB3e	Gene mutation	Why is it difficult to identify how most inherited characteristics are controlled? What is a mutation? How can mutations cause variation?	
CB3f	Variation	How is genetic variation caused? How can the environment affect characteristics? What are the discontinuous and continuous variation?	
C4Ba	Evidence for human evolution	What is evolution? How do fossils provide evidence for human evolution? How do stone tools provide evidence for human evolution?	
CB4b	Darwin's theory	What is natural selection? How does natural selection lead to evolution? How is Darwin's theory supported by evidence?	
CB4c	Classification	How are organisms classified as five kingdoms? How has genetic analysis changed our understanding of evolution? How are organisms classified as three domains?	
CB4d	Breeds and varieties	What are the ways in which we create new breeds and varieties? How is selective breeding carried out? Why do we genetically engineer organisms?	
CB4e	Genes in agriculture and medicine	What are the benefits and risks of selective breeding? What are the benefits and risks of genetic engineering? How is genetic engineering carried out?	
CB5a	Health and disease	What is health? How do communicable and non-communicable diseases differ? Why can having one disease increase the risk of getting another disease?	
CB5b	Non-Communicable diseases	What do non-communicable diseases have in common? How can diet affect malnutrition? Why does alcohol cause problems for people and for society?	
CB5c	Cardiovascular disease	What is cardiovascular disease? What affect do smoking and obesity have on the risk of developing cardiovascular disease? Why are there a range of treatments for cardiovascular disease?	
CB5d	Pathogens	Which groups of organisms include pathogens? Which pathogens cause some common infections? What are the symptoms of some common infections?	
CB5e	Spreading pathogens	How can pathogens spread? What is a vector of disease? How can the spread of pathogens be reduced or prevented?	
CB5f	Physical and chemical barriers	How do physical barriers of the body protect against infection? How do chemical barriers of the body protect against infection? How can the spread of sexually transmitted infections be reduced or prevented?	
CB5g	The immune system	What is the function of the immune system? What are the stages of response by the immune system to infection? How does immunisation protect the body from disease?	
CB5h	Antibiotics	What are antibiotics? Why are antibiotics useful? How are new medicines developed?	
CB6a	Photosynthesis	What happens during photosynthesis? Why is photosynthesis so important for almost all life on Earth? How is a leaf adapted for photosynthesis?	
CB6b	Factors that affect photosynthesis	What are the limiting factors of photosynthesis? How do the limiting factors change the rate of photosynthesis? How is the rate of photosynthesis related to light intensity?	
CB6c	Absorbing water and mineral ions	How are diffusion and osmosis different? How do plant roots use diffusion, osmosis and active transport? How are root hair cells adapted to their functions?	
CB6d	Transpiration and translocation	How do different factors affect the rate of transpiration? How is sucrose translocated around a plant? How are xylem and phloem adapted to their functions?	

SCIENCE - CHEMISTRY TOPICS

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Topic Reference	Lesson title	Key Progression questions	Completed
CC1a	States of matter	What are particles like in substances in the solid, liquid and gas states? What changes happen to particles during the different changes of state? How do you decide what state a substance will be in at a given temperature?	
CC2a	Mixtures	What is the difference between a pure substance and a mixture? What happens to its particles when a solid melts? How do melting points allow you to spot the differences between pure substances and mixtures?	
CC2b	Filtration and crystallisation	How can filtration be used to separate mixtures? How can crystallisation be used to separate mixtures? What are the hazards and risks when separating mixtures by filtration and crystallisation?	
CC2c	Paper chromatography	How can chromatography be used to separate mixtures? What are the differences between mixtures and pure substances on a chromatogram? How do you calculate an R _f value?	
CC2d	Distillation	What is distillation? How do simple distillation and fractional distillation differ? How would you reduce risks when carrying out a distillation experiment?	
CC2e	Drinking water	How would you choose which method to use to separate a mixture? How is drinking water produced? Why must water used in chemical analysis be pure?	
CC3a	Structure of an atom	How has the model of the atom changed over the last 200 years? How do the parts of atoms compare with each other? Why do atoms have no overall charge?	
CC3b	Atomic number and mass number	Why is most of the mass of an atom found in its nucleus? What does the atomic number tell you about an element? How can you calculate the numbers of protons, neutrons and electrons in atoms?	
CC3c	Isotopes	How can you describe and identify isotopes of elements? Why are the relative atomic masses for some elements not whole numbers? How do you calculate the relative atomic mass of an element?	
CC4a	Elements and the periodic table	What are the symbols of some common elements? How did Mendeleev arrange elements into a periodic table? How did Mendeleev use his table to predict the properties of undiscovered elements?	
CC4b	Atomic number and the periodic table	Why was Mendeleev right to alter the order of some elements in his table? What is an element's atomic number? How are the elements arranged in the modern periodic table?	
CC4c	Electronic configurations and the periodic table	What information does an electronic configuration give? How do you work out and show the electronic configuration of an element? How is the electronic configuration of an element related to its position in the periodic table?	
CC5a	Ionic bonds	How are ions formed? How can the numbers of subatomic particles in an ion be calculated? What is an ionic bond?	
CC5b	Ionic lattices	What is an ionic lattice? What do the endings -ide and -ate tell you about a substance? How do you work out the formulae of ionic compounds?	
CC5c	Properties of ionic compounds	What particles and forces are present in ionic compounds? Why do ionic compounds have high melting points and boiling points? Why do ionic compounds conduct electricity when they are liquids or dissolved in water but not when they are solids?	
CC6a	Covalent bonds	What are the names of some covalent molecules? How are covalent bonds formed? How can dots and cross diagrams be used to explain the formation of covalent molecules?	
CC7a	Molecular compounds	Why do simple molecular compounds have low boiling and melting points? Why are simple molecular compounds poor electrical conductors? What is a polymer?	
CC7b	Allotropes of carbon	How are simple molecular structures different from giant covalent structures? What are the differences in structure between the different allotropes of carbon? How do we explain the properties and uses of graphite, diamond and fullerenes?	
CC7c	properties of metals	What are the typical physical properties of metals and non-metals? How are the particles arranged in metals? How can we explain the properties of a metal in terms of its bonding and structure?	
CC7d	Bonding models	What different types of structure and bonding models are used to describe substances? How do these models help explain the properties of substances? What are the limitations of the models that we use to show structure and bonding?	
CC8a	Acids, alkalis and indicators	Why are hazard symbols useful? What are the effects of acids and alkalis on some common indicators? What does the pH tell us about the ions in a solution?	
CC8b	Looking at acids	What is the difference between dilute and concentrated solutions? How do changes in the concentration of hydrogen ions affect the pH of a solution? What is the difference between strong and weak acids?	
CC8c	Bases and salts	Why are metal oxides bases? What happens during neutralisation? How can soluble salt be prepared from an acid and an insoluble base?	
CC8d	Alkalis and balancing equations	What are alkalis? What happens when alkalis react with acids? How do we balance chemical equations?	
CC8e	alkalis and neutralisation	What happens to the ions from acids and alkalis during neutralisation? What is titration? How do we make a soluble salt using titration?	
CC8f	Reactions of acids with metals and carbonates	What happens when an acid reacts with a metal? What happens when an acid reacts with a metal carbonate? What are the tests for hydrogen and carbon dioxide?	
CC8g	Solubility	What are the rules for solubility of common substances in water? How do you prepare a sample of a pure, dry insoluble salt? How do you predict whether a precipitate will be formed in a reaction?	
CC9a	Masses and empirical formulae	How do you calculate the relative formula mass of a compound? What is the difference between an empirical formula and a molecular formula? How do you determine the empirical formula of a compound?	
CC9b	Conservation of mass	How do you calculate the concentration of a solution? How does the law of conservation of mass explain why magnesium increases in mass when it is burned? How do you calculate the masses of reactants and products in a reaction?	
CC9c	Moles	How do you calculate the number of moles and number of particles of a substance? What controls the mass of product formed in a reaction? How do you work out a balanced equation from the masses of reactants and/or products?	
CC10a	Electrolysis	What is an electrolyte? What happens to the ions during electrolysis? How do you explain and represent the reactions taking place at the electrodes in electrolysis?	
CC10b	Products from electrolysis	How do you predict the products formed in the electrolysis of molten zinc chloride? How do you explain the products formed in the electrolysis of sodium chloride solution? How is copper purified using electrolysis?	
CC11a	Reactivity	What are the similarities and differences in the way different metals react with water, acids and salt solutions? What happens to metal atoms when they react with water and acids? How do you explain displacement reactions as redox reactions?	
CC11b	Ores	Which metals are found un-combined in the Earth's crust? How is the method of extraction of a metal related to its position in the reactivity series? How are biological methods used to extract some metals?	
CC11c	Oxidation and reduction	How do you explain oxidation and reduction in terms of oxygen? What types of reaction happen to ores when metals are extracted? How is the position of a metal in the reactivity series related to its resistance of corrosion?	
CC11d	Life cycle assessment and recycling	What are the advantages of recycling metal? When might recycling a material not be worthwhile? What are the factors to consider in a life cycle assessment of a product?	
CC12a	Dynamic equilibrium	What is meant by dynamic equilibrium? How is ammonia manufactured? How do changes in temperature, pressure and concentration affect the equilibrium position?	

SCIENCE - PHYSICS TOPICS

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CP1a	Vectors and scalars	What are vector and scalar quantities? What are some examples of scalar quantities and their corresponding vector quantities? What is the connection between the speed, velocity and acceleration of an object?	
CP1b	Distance/time graphs	How do you use the equation relating average speed, distance and time? In metres per second, what are the typical speeds that someone might move at during the course of a day? How do you represent journeys on a distance/time graph?	
CP1c	Acceleration	How do you calculate accelerations from a change in velocity and a time? How are acceleration, initial velocity, final velocity and distance related? What is the acceleration of free fall?	
CP1d	Velocity/time graphs	How do you compare accelerations on a velocity/time graph? How can you calculate acceleration from a velocity/time graph? How can you use a velocity/time graph to work out the total distance travelled?	
CP2a	Resultant forces	What is the difference between the speed of an object and its velocity? How do we represent all the forces acting on an object? How do we calculate resultant forces?	
CP2b	Newton's First Law	What happens to the motion of an object when the forces on it are balanced? What can happen to the motion of an object when there is a resultant force on it? What is centripetal force?	
CP2c	Mass and weight	What is the difference between mass and weight? What are the factors that determine the weight of an object? How do you calculate weight?	
CP2d	Newton's Second Law	What are the factors that affect the acceleration of an object? How do you calculate the different factors that affect acceleration? What is inertial mass and how is it defined?	
CP2e	Newton's Third Law	What does Newton's Third Law tell us? How does Newton's Third Law apply to stationary objects? How do objects affect each other when they collide?	
CP2f	Momentum	How is momentum calculated? How is momentum related to force and acceleration? What happens to momentum in collisions?	
CP2g	Stopping distances	How are human reaction times measured? What are typical human reaction times? What are the factors that affect the stopping distance of a vehicle?	
CP2h	Crash Hazards	What are the dangers caused by large decelerations? How can the hazards of large decelerations be reduced? How can you use momentum to calculate the forces involved in crashes?	
CP3a	Energy Stores and Transfers	How is energy transferred between different stores? How can we represent energy transfers in diagrams? What happens to the total amount of energy when energy is transferred?	
CP3b	Energy Efficiency	What does efficiency mean? How do we calculate the efficiency of an energy transfer? How can we reduce unwanted energy transfers in machines?	
CP3c	Keeping Warm	What does thermal conductivity mean? What affects the rate at which buildings cool? How can insulation reduce unwanted energy transfers?	
CP3d	Stored Energies	What factors affect the gravitational potential energy stored in an object? How do you calculate gravitational potential energy? How do you calculate the amount of kinetic energy stored in a moving object?	
CP3e	Non-Renewable Resources	What non-renewable energy resources can we use? How are the different non-renewable resources used? How is the use of non-renewable energy resources changing?	
CP3f	Renewable Resources	What renewable energy resources can we use? How are the different renewable resources used? How is the use of renewable energy resources changing?	
CP4a	Describing Waves	What do waves transfer? How can we describe waves? What is the difference between a longitudinal wave and a transverse wave?	
CP4b	Wave Speeds	How can we calculate the speed (or velocity) of a wave? How can we measure the speed of sound in air? How can we measure the speed of waves on water?	
CP4c	Refraction	What happens when waves refract? When does refraction occur? How does a change in the speed of a wave affect its direction?	
CP5a	Electromagnetic Waves	What are some examples of electromagnetic waves? What do all electromagnetic waves have in common? Which electromagnetic waves can our eyes detect?	
CP5b	The Electromagnetic spectrum	What are the main groupings of waves in the electromagnetic spectrum? What characteristics of electromagnetic waves are used to group them? What are some of the differences in the behaviour of wave in different parts of the electromagnetic spectrum?	
CP5c	Using the Long Wavelengths	What are some uses of radio waves, microwaves and infrared? How are radio waves produced and detected? How do different substances affect radio waves, microwaves and infrared?	
CP5d	Using the Short Wavelengths	What are some uses of ultraviolet waves? What are some uses of X-rays and gamma rays? How do different substances affect ultraviolet, X-rays and gamma rays?	
CP5e	EM Radiation Dangers	What are the dangers of electromagnetic radiation? How is the danger associated with an electromagnetic wave linked to its frequency? How is electromagnetic radiation linked to changes in atoms and their nuclei?	
CP6a	Atomic Models	What particles make up atoms? How big are atoms? How has our model of the atom changed over time?	
CP6b	Inside Atoms	What are the relative masses and charges of the particles that make up atoms? What are isotopes of an element? How can isotopes be represented using symbols?	
CP6c	Electrons and Orbits	How are electrons arranged in an atom? What happens to atoms when they absorb or emit electromagnetic radiation? How do atoms become ionised?	
CP6d	Background Radiation	What is meant by background radiation? What are the sources of background radiation? How is radioactivity detected and measured?	
CP6e	Types of Radiation	What are alpha particles, beta particles and gamma radiation? How do the different kinds of radiation compare in their ability to penetrate materials? How do the different kinds of radiation compare in their ability to ionise atoms?	
CP6f	Radioactive Decay	How does beta decay occur? How are atomic and mass numbers affected by different kinds of decay? How can radioactive decays be represented in nuclear equations?	
CP6g	Half-Life	How does the activity of a substance change over time? What does the half-life of a radioactive substance describe? How can the half-life be used to work out how much of a substance decays?	
CP6h	Dangers of radioactivity	What are the dangers of ionising radiation? What precautions should be taken to protect people using radiation? What is the difference between contamination and irradiation effects?	

Spanish Topics covered in

For past papers and lots of useful resources, follow this link to the Elthorne One Stop Revision Shop for Spanish:
<https://sites.google.com/eduapps.ehps.ealing.sch.uk/revisionshop/spanish>
 Updates coming soon.

	WATCH ALL THE PODS IN ESSENTIAL SPANISH GETTING READY FOR GCSE	WORKBOOK REVISION AND STUDY SKILLS (GENERIC)
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VIVA! AOA GCSE textbook Modules 1-4 have been covered
 Revise all topics covered in year 10

Module 1	Desconéctate!	Switch off!	THEME 2: Local, national, international and global areas of interest	R	A	G	Quizlet (F)	Quizlet (H)	GCSE Pod	Grammar/Translation
M1 PP	Discussing holidays and weather Revising transport	Revising the present and Preterite tenses					LINK	LINK	LINK	pp. 52-53
M1 U1	¿Qué haces en verano? Saying what you do in the summer	What do you do in the summer? Using the Present tense					see above	LINK	LINK	pp. 36-37; 38-39
M1 U2	¿Cómo prefieres pasar las vacaciones? Talking about holiday preferences	How do you prefer to spend your holiday? Using verbs of opinion to refer to different people					LINK	LINK		pp. 38-39; 40-41; 46-47
M1 U3	¿Destino Barcelona? Saying what you did on holiday	Destination: Barcelona! Using the Preterite tense					LINK	LINK	LINK	pp. 50-51
M1 U4	¿Cómo era? Describing where you stayed	What was it like? Using the Imperfect tense					LINK	LINK	LINK	pp. 18-19; 56-57
M1 U5	¿Quisiera reservar Booking accommodation and dealing with problems	I would like to book Using verbs with used					LINK	LINK	LINK	p. 26
M1 U6	Mis vacaciones desastrosas Giving an account of a holiday in the past	My disastrous holiday Using three tenses together					LINK	LINK		LINK
Revision M1										
VIVA AQA	F pp. 18-23, 172-173, 190	VIVA AQA	H pp. 20-23, 182-183, 200							
Target 5 Reading	pp. 2-9	Target 9 Reading	pp. 2-9							
Target 5 Writing	pp. 1-9	Target 9 Writing	pp. 1-8							
CLICK ON THIS LINK - LISTENING / READING / WRITING / SPEAKING (to be confirmed) EXAM SKILLS										

Module 2	Mi vida en el insti	My life at school	THEME 3: Current and future study and employment	R	A	G	Quizlet (F)	Quizlet (H)	GCSE Pod	Grammar/Translation
M2 PP1	Giving opinions about school subjects	Describing school facilities							LINK	pp. 46-47
M2 PP2	Describing school uniform and the school day	Using adjectives							LINK	
M2 U1	¿Qué tal los estudios? Talking about subjects and teachers	How are your studies? Using comparatives and superlatives							LINK	pp. 14-15; 16-17
M2 U2	¿Mi nuevo insti! Describing your school	My new school Using negatives							LINK	pp. 74-75
M2 U3	¿Está prohibido! Talking about school rules and problems	It is forbidden! Using phrases followed by the infinitive							LINK	p. 88
M2 U4	¿Destino Zaragoza? Talking about plans for a school exchange	Destination: Zaragoza! Using the near future tense							LINK	pp. 24-25; 60-61
M2 U5	Mis clubs y mis éxitos Talking about activities and achievements	My clubs and achievements Using object pronouns							LINK	pp. 32; 84-85
Revision M2										
VIVA AQA	F pp. 38-43, 174-175, 191	VIVA AQA	H pp. 42-47, 184-185, 201							
Target 5 Reading	pp. 10-17	Target 9 Reading	pp. 10-17							
Target 5 Writing	pp. 9-16	Target 9 Writing	pp. 9-16							
CLICK ON THIS LINK - LISTENING / READING / WRITING / SPEAKING (to be confirmed) EXAM SKILLS										

Module 3	Mi gente	My people	THEME 1: Identity and culture	R	A	G	Quizlet (F)	Quizlet (H)	GCSE Pod	Grammar/Translation
M3 PP1	Talking about socialising and family	Using verbs in the present tense							LINK	pp. 10-11; 40-41
M3 PP2	Describing people	Using adjectival agreement							LINK	pp. 8-9
M3 U1	Mis aplicaciones favoritas Talking about social networks	My favourite Apps Using para with infinitives							LINK	
M3 U2	¿Qué estás haciendo? Making arrangements	What are you doing? Using the Present Continuous tense							LINK	pp. 66-67
M3 U3	Leer es un placer Talking about reading preferences	Reading is a pleasure Using a range of connectives							LINK	pp. 22-23; 90-91
M3 U4	Retratos Describing people	Portraits Using ser and estar							LINK	pp. 42-43; 74-75
M3 U5	Relaciones Talking about friends and family	Relationships Using a range of relationship verbs							LINK	pp. 27; 44-45
Revision M3										
VIVA AQA	Viva F pp. 58-63, 176-177, 192	VIVA AQA	Viva H pp. 58-63, 186-187, 202							
Target 5 Reading	pp. 18-25	Target 9 Reading	pp. 18-25							
Target 5 Writing	pp. 17-24	Target 9 Writing	pp. 17-24							
CLICK ON THIS LINK - LISTENING / READING / WRITING / SPEAKING (to be confirmed) EXAM SKILLS										

Module 4	Intereses e influencias	Interests and influences	THEME 2: Local, national, international and global areas of interest	R	A	G	Quizlet (F)	Quizlet (H)	GCSE Pod	Grammar/Translation
M4 PP1	Talking about free time activities	Using stem-changing verbs					LINK	LINK	LINK	
M4 PP2	Talking about TV programmes and films	Using adjectives of nationality							LINK	pp. 6-7; 8-9
M4 U1	¿Qué sueles hacer? Talking about what you usually do	What do you normally/tend to do? Using soler + infinitive					LINK	LINK	LINK	pp. 48-49
M4 U2	¿Fanático del deporte! Talking about sports	A fan of sport! Using the Imperfect tense to say what you are					LINK	LINK	LINK	pp. 56-57
M4 U3	¿Temas del momento! Talking about what's trending	Current topics/trends! Using the Perfect tense					LINK	LINK	LINK	pp. 70-71
M4 U4	En directo Discussing different types of entertainment	Live (entertainment) Using algunos/ciertos/otros/muchos/demasiados/todos					LINK	LINK	LINK	p. 13
M4 U5	Modelos a seguir Talking about who inspires you	Rolemodels Using a range of past tenses					LINK	LINK		pp. 94-95
Revision M4										
VIVA AQA	F pp. 80-85, 178-179, 193	VIVA AQA	H pp. 86-91, 188-189, 203							
Target 5 Reading	pp. 26-33	Target 9 Reading	pp. 26-33							
Target 5 Writing	pp. 25-32	Target 9 Writing	pp. 25-32							
CLICK ON THIS LINK - LISTENING / READING / WRITING / SPEAKING (to be confirmed) EXAM SKILLS										

Revision Strategies
 Links to the Google docs are available through the School website - students must use their school g-mail accounts to access them

For past papers and lots of useful resources, follow this link to the Elthorne One Stop Revision Shop for Spanish:
<https://sites.google.com/eduapps.ehps.ealing.sch.uk/revisionshop/spanish>
 Updates coming soon.

Use vocab lists on Quizlet - go back through those in the Class Quizlet Group
 You can also find a Quizlet for a particular section of the book above by doing a 'Search' in Quizlet for Viva AQA and the title of the module

Do Tasks on Active Learn linked to these modules, even when not set by the teacher

LISTENING AND READING PAST EXAM PAPERS CAN BE FOUND ON THIS LINK

https://docs.google.com/spreadsheets/d/1zLBX7wUxmSHRcbRkvPzLALoSfDkK_r_dQbTHsWO8e0/edit#gid=0

Make sure you include 'NOTICE' in any piece of Speaking and Writing
https://docs.google.com/document/d/1RXcChVehsERLu1F8d712B-eyphRCvuMeLutBDUR_64/edit

Use you Google docs bank of answers/paragraphs for speaking and writing practice

Spanish Topics to be covered in Year 11 and links to revision materials

Module 5	Ciudades	Cities/Towns	THEME 2: Local, national, international and global areas of interest	R	A	G	Quizlet (F)	Quizlet (H)	GCSE Pod	Grammar/Translation	Quizzes
M5 PP1	Talking about places in a town								LINK		
M5 PP2	Asking for and understanding directions	Shopping for souvenirs							LINK		
M5 U1	¿Cómo es tu zona? Describing the features of a region	What is your neighbourhood like? Using se puede and se pueden							LINK	pp. 24-25; 48-49	
M5 U2	¿Qué haremos mañana? Planning what to do?	What will we do tomorrow? Using the future tense								pp. 62-63	LINK
M5 U3	De compras Shopping for clothes and presents	Shopping Using demonstrative adjectives							LINK	pp. 12-13, 34	LINK
M5 U4	Los pros y los contras de la ciudad Talking about the problems in a town	Pros and cons of cities/towns Using the conditional							LINK	pp. 18-19; 64-65	LINK
M5 U5	¿Destino Arequipa! Describing a visit in the past	Destination Arequipa! Using different tenses together							LINK	pp. 62-63; 74-75; 86-87	
Revision M5											
VIVA AQA	pp. 34-41	VIVA AQA	pp. 34-41								
Target 5 Reading	pp. 33-40	Target 9 Reading	pp. 33-40								
Target 5 Writing		Target 9 Writing									

Module 6	De costumbre	Customs	THEME 1: Identity and culture	R	A	G	Quizlet (F)	Quizlet (H)	GCSE Pod	Grammar/Translation	Quizzes
M6 PP1	Describing mealtime						16-17		LINK		
M6 PP2	Talking about daily routine	Discussing diet-related problems							LINK	pp. 27, 44-45	
M6 U1	Talking about illnesses and injuries	Flavours of the world							LINK	p. 82	
M6 U2	¿Sabores del mundo? Talking about typical foods	Using the passive							LINK	pp. 83, 86-87	LINK
M6 U3	¿De fiesta! Comparing different festivals	Festivals Avoiding the passive							LINK	pp. 54-55	LINK
M6 U4	Un día especial Describing a special day	A special day Using reflexive verbs in the preterite							LINK	pp. 16-17	
M6 U5	¿A comer! Ordering in a restaurant	Eating out Using absolute superlatives							LINK	pp. 88	
M6 U6	El festival de música Talking about a music festival	The music festival Using Expressions followed by an infinitive							LINK		
Revision M6											
VIVA AQA	pp. 42-49	VIVA AQA	pp. 42-49								
Target 5 Reading	pp. 41-48	Target 9 Reading	pp. 41-48								
Target 5 Writing		Target 9 Writing									

Module 7	¿A currar!	Off to work!	THEME 3: Current and future study and employment	R	A	G	Quizlet (F)	Quizlet (H)	GCSE Pod	Grammar/Translation	Quizzes
M7 PP1	Talking about different jobs	Discussing job preferences							LINK	pp. 4-5	
M7 U1	¿Qué haces para ganar dinero? Talking about how you earn money	Using soler in the imperfect tense							LINK		
M7 U2	Mis prácticas laborales Talking about work experience	Work experience Using the preterite and the Imperfect together							LINK	pp. 58-59	LINK
M7 U3	¿Por qué aprender idiomas? Talking about the importance of learning languages	Why learn languages? Using the present and the present continuous							LINK	pp. 66-67	
M7 U4	Solicitando un trabajo Applying for a summer job	Applying for a job Using indirect object pronouns							LINK	p. 33	LINK
M7 U5	Un año sabático Discussing gap years	A sabbatical year revising the conditional							LINK	pp. 64-65; 80-81	LINK
M7 U6	El futuro Discussing plans for the future	The future Using the subjunctive with cuando							LINK	p. 76	LINK
Revision M7											
VIVA AQA	pp. 50-57	VIVA AQA	pp. 50-57								
Target 5 Reading	pp. 49-56	Target 9 Reading	pp. 49-56								
Target 5 Writing		Target 9 Writing									

Module 8	¡Hacia un mundo mejor	Towards a better world	THEME 2: Local, national, international and global areas of interest	R	A	G	Quizlet (F)	Quizlet (H)	GCSE Pod	Grammar/Translation	Quizzes
M8 PP1	Describing types of houses								LINK		
M8 PP2	Talking about the environment	Discussing diet-related problems							LINK	pp. 48-49; 64-65	
M8 U1	¿Piensa globalmente...! Considering global issues	Think globally! Using the present subjunctive							LINK	p. 77	LINK
M8 U2	¿Actúa localmente! Talking about local actions	Act locally Using the subjunctive in commands							LINK	pp. 78-79	
M8 U3	¡Vivir a tope! Discussing healthy lifestyles	Living the life! Understanding different tenses							LINK	pp. 96-97	
M8 U4	¿El deporte nos une! Talking about international sporting events	Sport units us! Using the pluperfect tense							LINK	pp. 72-73	
M8 U5	¡Apuntate! Talking about natural disasters	Sign up! Using the imperfect continuous							LINK	pp. 68-69	LINK
Revision M8											
VIVA AQA	pp. 58-65	VIVA AQA	pp. 58-65								
Target 5 Reading	pp. 57-64	Target 9 Reading	pp. 57-64								
Target 5 Writing		Target 9 Writing									

ALL	¡A repasar!	Revision!	THEME 2: Local, national, international and global areas of interest	R	A	G	Quizlet (F)	Quizlet (H)	GCSE Pod	Grammar/Translation
Module 1	¡A traducir! ¿Desconéctate!	Translation Switch off!	THEME 2: Local, national, international and global areas of interest							pp. 100-101; 112-113
Module 2	Mi vida en el insti	My life at school	THEME 3: Current and future study and employment							pp. 104 ex 1, 2; 116-117
Module 3	Mi gente	My people	THEME 1: Identity and culture							pp. 108-109; 120-121
Module 4	Intereses e influencias	Interests and influences	THEME 1: Identity and culture							p. 102 ex 1
Module 5	Ciudades	Cities/Towns</								

German - Topics covered in Year 10 and links to revision materials			
Stimmt AQA GCSE textbook Units 1-4 have been covered.			
You need to revise everything in your exercise book which we have done this year			
For past papers and lots of useful resources, follow this link to the Elthorne			
https://sites.google.com/eduapps.ephs.ealing.sch.uk/revisionshop/german			
The Chapters below are those which we have covered in Year 10.			

Kapitel 1 Auf in die Schule! Theme: Current and future study and employment			
Startpunkt 1 So ist das Schulleben! 6	Einheit 3 Ordnung muss sein! 14		
<ul style="list-style-type: none"> Talking about school subject and clothes Using verbs in the present tense 	<ul style="list-style-type: none"> Discussing school rules Using modal verbs: <i>müssen, können, dürfen</i> 		
Startpunkt 2 Es beginnt mit der Grundschule 8	Einheit 4 Wissenswertes: Das Schulsystem 16		
<ul style="list-style-type: none"> Talking about what's in your pencil case Using the past tense (imperfect and perfect) 	<ul style="list-style-type: none"> Learning about different types of German schools Understanding a literary text 		
Einheit 1 Mit Freude in die Schule? 10	Einheit 5 Wir fahren mit der Klasse weg! 18		
<ul style="list-style-type: none"> Talking about what you are and are not looking forward to at school this year Giving opinions with reasons, using <i>denn</i> and <i>weil</i> 	<ul style="list-style-type: none"> Talking about school exchanges and class trips Using the future tense 		
Einheit 2 Der Schultag 12	Lese- und Hörtest 20		
<ul style="list-style-type: none"> Describing a school day Asking and answering questions 	Mündlicher Test 22		
	Schreibtest 24		
	Wörter 26		

Kapitel 2 Zeit für Freizeit Theme: Identity and culture			
Startpunkt Verschiedene Freizeitaktivitäten 28	Einheit 4 Sport für alle 36		
<ul style="list-style-type: none"> Discussing leisure activities Using nouns and articles 	<ul style="list-style-type: none"> Discussing sport in Switzerland Using the conditional 		
Einheit 1 Wer liest heute noch Bücher? 30	Einheit 5 Wir feiern! 38		
<ul style="list-style-type: none"> Discussing reading habits Using some adverbs of frequency and place 	<ul style="list-style-type: none"> Learning about celebrations and festivals Using several tenses together 		
Einheit 2 Musik ist mein Leben 32	Lese- und Hörtest 40		
<ul style="list-style-type: none"> Discussing music Expressing preferences using <i>gern, lieber, am liebsten</i> 	Mündlicher Test 42		
Einheit 3 Film und Fernsehen 34	Schreibtest 44		
<ul style="list-style-type: none"> Discussing film and television Using plural nouns 	Wörter 46		

Kapitel 3 Menschliche Beziehungen Theme: Identity and culture			
Startpunkt Wir machen Fotos 48	Einheit 4 Mein Wochenende 56		
<ul style="list-style-type: none"> Describing photos Reviewing adjectives 	<ul style="list-style-type: none"> Discussing weekend activities Using the prepositions <i>in</i> and <i>an</i> 		
Einheit 1 Auf gute Freundschaft! 50	Einheit 5 Damals und heute 58		
<ul style="list-style-type: none"> Talking about what makes a good friend Using possessive adjectives 	<ul style="list-style-type: none"> Comparing your life as a child with your life now Using modal verbs in the imperfect tense 		
Einheit 2 Wir verstehen uns gut ... manchmal! 52	Lese- und Hörtest 60		
<ul style="list-style-type: none"> Describing relationships Using the dative with <i>mit</i> 	Mündlicher Test 62		
Einheit 3 Meine perfekte Hochzeit 54	Schreibtest 64		
<ul style="list-style-type: none"> Exploring different views on marriage Using separable verbs in the present and perfect tenses 	Wörter 66		

Kapitel 4: House and Home

Kapitel 4 Willkommen bei mir! Themes: Identity and culture; Local, national, international and global areas of interest			
Startpunkt 1 So ist es bei mir 68	Einheit 4 Zu Tisch! 78		
<ul style="list-style-type: none"> Describing your house and home Using irregular verbs in the present tense 	<ul style="list-style-type: none"> Discussing traditional German meals Giving opinions in the past tense 		
Startpunkt 2 Leckerbissen?! 70	Einheit 5 Lebst du gesund? 80		
<ul style="list-style-type: none"> Describing food and drink items Using separable verbs 	<ul style="list-style-type: none"> Explaining how you stay fit and healthy Using a range of pronouns 		
Einheit 1 Herzlich willkommen! 72	Einheit 6 Total vernetzt 82		
<ul style="list-style-type: none"> Meeting and greeting an exchange partner Applying the correct register: <i>du</i> or <i>Sie</i> 	<ul style="list-style-type: none"> Discussing how and when you use social media and technology Using <i>wenn</i> clauses 		
Einheit 2 Rund um mein Zuhause 74	Einheit 7 Technologiefeind oder -freund? 84		
<ul style="list-style-type: none"> Describing your home Prepositions with accusative and dative 	<ul style="list-style-type: none"> Discussing advantages and disadvantages of social media and technology Expressing complex opinions with <i>dass</i> 		
Einheit 3 Ein Tag in meinem Leben 76	Lese- und Hörtest 86		
<ul style="list-style-type: none"> Talking about what you do on a typical day Using reflexive and separable verbs 	Mündlicher Test 88		
	Schreibtest 90		
	Wörter 92		

Revision Strategies

Use vocab lists on Quizlet - go back through those in the Class Quizlet Group

You can also find a Quizlet for a particular section of the book above by doing a 'S

Do Tasks on Active Learn, even when not set by the teacher

[Go to the One Stop Revision Shop and try past papers: https://sites.google.com/eduapps.ephs.ealing.sch.uk/revisionshop/german](https://sites.google.com/eduapps.ephs.ealing.sch.uk/revisionshop/german)

You also should look at Grammar, use BBC Bitesize Grammar to revise tenses

Make sure you include 'NOTICE' in any piece of Speaking and Writing

Learn your answers to the Sample Speaking questions from your Google Doc for

GCSE PE TOPICS	
Component 1: Fitness and Body Systems	Completed
• Topic 1: Applied anatomy and physiology	
1.1 The structure and functions of the musculoskeletal system	
1.2 The structure and functions of the cardiorespiratory system	
1.3 Anaerobic and aerobic exercise	
1.4 The short- and long- term effects of exercise	
• Topic 2: Movement analysis	
2.1 Lever systems, examples of their use in activity and the mechanical advantage they provide in movement	
2.2 Planes and axes of movement	
• Topic 3: Physical training	
3.1 The relationship between health and fitness and the role that exercise plays in both	
3.2 The components of fitness, benefits for sport and how fitness is measured and improved	
3.3 The principles of training and their application to personal exercise/ training programmes	
3.4 The long-term effects of exercise	
3.5 How to optimise training and prevent injury	
3.6 Effective use of warm up and cool down	
• Topic 4: Use of data	
4.1 Use of data	
Component 2: Health and Performance	Completed
• Topic 1: Health, fitness and well-being	
1.1 Physical, emotional and social health, fitness and well-being	
1.2 The consequences of a sedentary lifestyle	
1.3 Energy use, diet, nutrition and hydration	
• Topic 2: Sport psychology	
2.1 Classification of skills (basic/ complex, open/closed)	
2.2 The use of goal setting and SMART targets to improve and/or optimise performance	
2.3 Guidance and feedback on performance	
2.4 Mental preparation for performance	
• Topic 3: Socio-cultural influences	
3.1 Engagement patterns of different social groups in physical activity and sport	
3.2 Commercialisation of physical activity and sport	
3.3 Ethical and socio-cultural issues in physical activity and sport	
• Topic 4: Use of data	
4.1 Use of data	

Prior Learning Checklist - Anatomy & Physiology

1.1 The structure and functions of the musculo-skeletal system
1.1.1 The functions of the skeleton applied to performance in physical activities and sports: protection of vital organs; muscle attachment; joints for movement; platelets; red and white blood cell production; storage of calcium and phosphorus
1.1.2 Classification of bones: long (leverage); short (weight bearing); flat (protection, broad surface for muscle attachment); irregular (protection and muscle attachment), applied to performance in physical activities and sports
1.1.3 Structure: cranium; clavicle; scapula; five regions of the vertebral column (cervical, thoracic, lumbar, sacrum, coccyx); ribs; sternum; humerus; radius; ulna; carpals; metacarpals; phalanges (in the hand); pelvis; femur; patella; tibia; fibula; tarsals; metatarsals; phalanges (in the foot); and their classification and use
1.1.4 Classification of joints: pivot (neck - atlas and axis); hinge (elbow, knee and ankle); ball and socket (hip and shoulder); condyloid (wrist); and their impact on the range of possible movements
1.1.5 Movement possibilities at joints dependent on joint classification: flexion; extension; adduction; abduction; rotation; circumduction; plantar-flexion; dorsiflexion and examples of physical activity and sporting skills, and techniques that utilise these movements in different sporting contexts
1.1.6 The role of ligaments and tendons, and their relevance to participation in physical activity and sport
1.1.7 Classification and characteristics of muscle types: voluntary muscles of the skeletal system; involuntary muscles in blood vessels; cardiac muscle forming the heart; and their roles when participating in physical activity and sport
1.2 The structure and functions of the cardio-respiratory system
1.2.1 Functions of the cardiovascular system applied to performance in physical activities: transport of oxygen; carbon dioxide and nutrients; clotting of open wounds; regulation of body temperature
1.2.2 Structure of the cardiovascular system: atria; ventricles; septum; tricuspid; bicuspid and semi-lunar valves; aorta; vena cava; pulmonary artery; pulmonary vein; and their role in maintaining blood circulation during performance in physical activity and sport
1.2.3 Structure of arteries, capillaries and veins and how this relates to function and importance during physical activity and sport in terms of: blood pressure; oxygenated and deoxygenated blood; and changes due to physical exercise
1.2.4 The mechanisms required (vasoconstriction, vasodilation) and the need for redistribution of blood flow (vascular shunting) during physical activities compared to when resting
1.2.5 Function and importance of red and white blood cells, platelets and plasma for physical activity and sport
1.2.6 Composition of inhaled and exhaled air and the impact of physical activity and sport on this composition
1.2.7 Vital capacity and tidal volume, and change in tidal volume due to physical activity and sport, and the reasons that make the change in tidal volume necessary
1.2.8 Location of the main components of the respiratory system (lungs, bronchi, bronchioles, alveoli, diaphragm) and the role in movement of oxygen and carbon dioxide into and out of the body
1.3 Anaerobic and aerobic exercise
1.3.1 Energy: the use of glucose and oxygen to release energy aerobically with the production of carbon dioxide and water; the impact of insufficient oxygen on energy release; the by-product of anaerobic respiration (lactic acid)
1.3.2 Energy sources: fats as a fuel source for aerobic activity; carbohydrates as a fuel source for aerobic and anaerobic activity
1.4 The short- and longterm effects of exercise
1.4.1 Short-term effects of physical activity and sport on lactate accumulation, muscle fatigue, and the relevance of this to the player/performer
1.4.2 Short-term effects of physical activity and sport on heart rate, stroke volume and cardiac output, and the importance of this to the player/performer
1.4.3 Short-term effects of physical activity and sport on depth and rate of breathing, and the importance of this to the player/performer
1.4.4 How the respiratory and cardiovascular systems work together to allow participation in, and recovery from, physical activity and sport: oxygen intake into lungs; transfer to blood and transport to muscles; and removal of carbon dioxide
1.4.5 Long-term effects of exercise on the body systems
1.4.6 Interpretation of graphical representations of heart rate, stroke volume and cardiac output values at rest and during exercise
1.1.2 Classification of bones
Long (leverage); short (weight bearing), flat (protection, broad surface for muscle attachment), irregular (protection and muscle attachment), applied to performance in physical activities and sports
1.1.3 Structure of the skeletal system
Cranium, clavicle, scapula, five regions of the vertebral column (cervical, thoracic, lumbar, sacrum, coccyx), ribs, sternum, humerus, radius, ulna, carpals, metacarpals, phalanges (in the hand), pelvis, femur, patella, tibia, fibula, tarsals, metatarsals, phalanges (in the foot), and their classification and use applied to performance in physical activities and sports
1.1.4 Classification of joints
Pivot (neck - atlas and axis), hinge (elbow, knee and ankle), ball and socket (hip and shoulder), condyloid (wrist), and their impact on the range of possible movements
1.1.7 Classification and characteristics of muscle types
Voluntary muscles of the skeletal system, involuntary muscles in blood vessels, cardiac muscle forming the heart, and their roles when participating in physical activity and sport
1.1.10 Characteristics of fast and slow twitch muscle fibre types
Type I, type IIa and type IIx, and how this impacts on their use in physical activities
1.1.11 How the skeletal and muscular systems work together to allow participation in physical activity and sport
1.2.2 Structure of the cardiovascular system
Atria, ventricles, septum, tricuspid, bicuspid and semi-lunar valves, aorta, vena cava, pulmonary artery, pulmonary vein, and their role in maintaining blood circulation during performance in physical activity and sport
1.2.3 Structure of blood vessels and how this relates to function and importance during physical activity and sport
In terms of: arteries; capillaries and veins; blood pressure; oxygenated; deoxygenated blood and changes due to physical exercise
1.2.5 Function and importance of red and white blood cells, platelets and plasma for physical activity and sport
1.2.6 Composition of inhaled and exhaled air and the impact of physical activity and sport on this composition
This section requires learners to know the percentages of oxygen and carbon dioxide in inhaled and exhaled air and reasons for the changes in these percentages
1.2.8 Location of the main components of the respiratory system
The respiratory system (lungs, bronchi, bronchioles, alveoli, diaphragm) and the role in movement of oxygen and carbon dioxide into and out of the body
1.2.9 Structure of alveoli to enable gas exchange and the process of gas exchange to meet the demands of varying intensities of exercise (aerobic and anaerobic)
1.2.10 How the cardiovascular and respiratory systems work together to allow participation in physical activity and sport

Prior Learning Checklist - Movement Analysis

2.1 Lever systems, examples of their use in activity and the mechanical advantage they give in movement
2.1.1 First, second and third class levers and their use in physical activity and sport
2.1.2 Mechanical advantage and disadvantage (in relation to loads, efforts and range of movement) of the body's lever systems and the impact on sporting performance
2.2 Planes and axes of movement
2.2.1 Movement patterns using body planes and axes: sagittal, frontal and transverse plane; and frontal, sagittal, vertical axes, applied to physical activities and sporting actions
2.2.2 Movement in the sagittal plane about the frontal axis when performing front and back tucked or piked somersaults
2.2.3 Movement in the frontal plane about the sagittal axis when performing cartwheels
2.2.4 Movement in the transverse plane about the vertical axis when performing a full twist jump in trampolining

Prior Learning Checklist - Physical Training

3.1 The relationship between health and fitness and the role that exercise plays in both
3.1.1 Definitions of fitness, health, exercise and performance and the relationship between them
3.2 The components of fitness, benefits for sport and how fitness is measured and improved
3.2.1 Components of fitness and the relative importance of these components in physical activity and sport: cardiovascular fitness (aerobic endurance); strength; muscular endurance; flexibility; body composition; agility; balance; coordination; power; reaction time; and speed
3.2.2 Fitness tests: the value of fitness testing; the purpose of specific fitness tests; the test protocols; the selection of the appropriate fitness test for components of fitness and the rationale for selection
3.2.3 Collection and interpretation of data from fitness test results and analysis and evaluation of these against normative data tables
3.2.4 Fitness tests for specific components of fitness: cardiovascular fitness - Cooper 12 minute tests (run, swim), Harvard Step Test; strength - grip dynamometer; muscular endurance - one-minute sit-up, one-minute press-up; speed - 30 m sprint; power - vertical jump; flexibility - sit and reach
3.2.5 How fitness is improved
3.3 The principles of training and their application to personal exercise/training programmes
3.3.1 Planning training using the principles of training: individual needs; specificity; progressive overload; FITT (frequency, intensity, time, type); overtraining; reversibility; thresholds of training (aerobic target zone: 60-80% and anaerobic target zone: 80%-90%, calculated using the Karvonen formula)
3.3.2 Factors to consider when deciding the most appropriate training methods and training intensities for different physical activities and sports (fitness/sport requirements, facilities available, current level of fitness)
3.3.3 The use of different training methods for specific components of fitness, physical activity and sport: continuous; Fartlek; circuit; interval; plyometrics; weight/resistance. Fitness classes for specific components of fitness, physical activity and sport (body pump, aerobics, Pilates, yoga, spinning). The advantages and disadvantages of each
3.4 The long-term effects of exercise
3.4.1 Long-term effects of aerobic and anaerobic training and exercise and the benefits to the musculo-skeletal and cardiorespiratory systems and performance
3.4.2 Long-term training effects: able to train for longer and more intensely
3.4.3 Long-term training effects and benefits (for performance of the musculo-skeletal system): increased bone density; increased strength of ligaments and tendons; muscle hypertrophy; the importance of rest for adaptations to take place; and time to recover before the next training session
3.4.4 Long-term training effects and benefits (for performance of the cardio-respiratory system): decreased resting heart rate; faster recovery; increased resting stroke volume and maximum cardiac output; increased size/strength of heart; increased capillarisation; increase in number of red blood cells; drop in resting blood pressure
3.5 How to optimise training and prevent injury
3.5.2 Injury prevention through: correct application of the principles of training to avoid overuse injuries; correct application and adherence to the rules of an activity during play/participation; use of appropriate protective clothing and equipment; checking of equipment and facilities before use, all as applied to a range of activities
3.5.3 Injuries that can occur in physical activity and sport: concussion; fractures; dislocation; sprain; torn cartilage and soft tissue injury (strain, tennis elbow, golfers elbow, abrasions)
3.5.4 RICE (rest, ice, compression, elevation)
3.5.5 Performance-enhancing drugs (PEDs) and their positive and negative effects on sporting performance and performer lifestyle, including: anabolic steroids; beta blockers; diuretics; narcotic analgesics; peptide hormones (erythropoietin (EPO), growth hormones (GH)); stimulants; blood doping
3.6 Effective use of warm up and cool down
3.6.1 The purpose and importance of warm ups and cool downs to effective training sessions, and physical activity and sport
3.6.2 Phases of a warm up and their significance in preparation for physical activity and sport
3.6.3 Activities included in warm ups and cool downs

DT - TEXTILES SPECIALISM TOPICS					
Note: Red topics not covered yet.					
CORE PRINCIPLES AND SUSTAINABILITY		Completed			
What is market pull ? What is technology push ?					
Why/how does consumer choice influence the design of new products?					
What are the stages of product Life Cycle Assessment? Why is it done?					
What is meant by global production? How does globalisation affect culture and people? What are the advantages and disadvantages of globalisation?					
What is The Consumer Rights Act? What does it govern? How does the Act protect consumers?					
What are the moral and ethical factors related to manufacturing products? How do moral and ethical factors affect the sale and use of products?					
What are the advantages and disadvantages of using computer aided design (CAD). What are the advantages and disadvantages of the use of computer aided manufacture (CAM).					
How the following CAM equipment is used: -CNC embroidery -vinyl cutting -CNC routing -laser cutting -3D printing.					
List the SIX Rs Give examples of how they can be applied to product design and manufacture					
What is meant by the terms: -Fair-trade -carbon footprint					
How do the following types of renewable energy sources work? What are their advantages And disadvantages?					
-wind, -solar -geothermal -hydroelectric -wood/biomass -wave, -nuclear					
Issues surrounding the use of fossil fuels: coal, oil and gas. Renewable energy sources for products: wind-up and photovoltaic cells.					
How is energy generated and stored in a range of contexts: -motor vehicles (e.g. petrol/diesel, electricity) -household products (e.g. battery, solar, mains electricity).					
SMART AND MODERN MATERIALS AND TECHNICAL TEXTILES		Completed			
What is the definition of -smart materials -modern materials -biomimicry					
How do the following smart materials work? -Electroluminescent film or wire i.e. LCD. -Quantum Tunnelling Composite (QTC) - -Shape memory alloys -Polymorph -Photochromic pigments -Thermochromic pigments Give 2 uses of each of the above					
What is microencapsulation? Give examples of where this is used					
How are the following modern materials made? -Carbon fibre -Kevlar -GRP What are their properties? What are they used for?					
Examples of wearable electronics such as mobile phones or music player, GPS, tracking heart sensor.					
How are the following technical textiles made? What are their uses? What are their advantages? -Micro-fibres -Phase changing materials: -Sun protective clothing. -Nomex. -Geotextiles for landscaping. -Rhovyl					
PROGRAMMABLE COMPONENTS AND ELECTRONICS		Completed			
How should you draw: •circuit diagrams •block diagrams • flowcharts • What are the symbols used?					
The meaning of input; process; output. Examples of input in circuits e.g. sensor: light dependent resistor (LDR), thermistor; Processing by control devices in circuits: semi-conductor, IC, microprocessor or computer Output in circuits: e.g. buzzer, light emitting diode (LED). •The importance of feedback within the system. •The methods of providing feedback in different systems. Control systems in familiar products Control devices that include counting, switching and timing The difference between analogue and digital sensors What are Sub routines or macros in control systems. What are the advantages of using Programmable microcontrollers?					
MECHANICAL SYSTEMS		Completed			
What is the meaning of the following types pf motion •Linear •Oscillating •Reciprocating •Rotary					
How the following types of mechanism work: •Levers •Linkages •Cams •Gears •Belt drives •Rack and pinion					
Simple calculations involving mechanical systems: •Calculating rotational speed •Ratio of force used with levers •Gear ratios					
FERROUS AND NON FERROUS METALS		Completed			
What are the working properties of •ferrous metals, •nonferrous metals • alloys • What is the difference between the above categories of metal?					
Properties of metals: hardness, elasticity, conductivity, toughness, ductility, tensile strength and malleability finish and the finish is sometimes used to improve the aesthetic appeal. How are metals are sold? (what are the stock forms?)					
The properties and uses of: •cast iron • mild steel •medium carbon steel and high carbon steel.					
The properties and uses of •Aluminium •Copper • brass • bronze.					
Finishing techniques used on metals and why they are used					
POLYMERS AND TEXTILES		Completed			
How are polymers classified? What is the difference between: •Natural/biopolymers •Thermoforming •Thermosets • What are the properties of the above? What are the uses?					
What are the stock forms of Polymers? The meaning of the following properties of polymers: •Weight • hardness • elasticity • conductivity/insulation •Toughness • strength.					
The properties and uses of the following thermoplastics: •Polythene • polystyrene • polypropylene •PVC					
The properties and uses of the following thermosetting plastics: •UF (urea formaldehyde) • MF (melamine formaldehyde) • PR (polyester resin) •ER (epoxy resin).					
The properties and uses of the following Natural fibres • Animal polymers: wool/fleece - mohair, cashmere, angora, alpaca, camel •insect polymers: silk •Plant polymers: cotton, linen hemp, jute, rayon, viscose					
The properties and uses of the following manufactured polymers: • polyester • polypropylene • nylon • acrylic, •elastane, lycra •aramid fibres. • Microfibres - Tactel, Tencel (Lyocell).					
The properties of textiles fibres: strength, elasticity, absorbency, durability, insulation, flammability, water-repellence, anti-static and resistance to acid, bleach and sunlight. Why are natural and man made fibres sometimes blended together? Give some examples of this?					
WOOD AND TIMBER AND MANUFACTURED BOARDS		Completed			
What are the differences between hardwoods and softwoods? •Where do they come from? •Give some examples of each one •What are the uses of each kind? •Which ones are more sustainable and why?					
What is the meaning of the following stock forms? plank, board, strip, square, and dowel. Which surface finishes can be applied to natural timber? Why are surface finishes used?					
The advantages and disadvantages of using manufactured timbers and boards How are manufactured boards made? What are the advantages and disadvantages of the following manufactured timbers Plywood MDF (Medium Density Fibreboard) Chipboard Hardboard Why are manufactured boards veneered? How is this done?					
PAPER AND BOARDS, TIMBER AND MANUFACTURED TIMBER		Completed			
What are the standard sizes of paper? How is the weight of paper measured? How is the thickness of card measured?					
What are the properties and uses of the following: •Layout paper •Tracing paper •Copier paper •Cartridge paper					
What are the properties and uses of the following: •Card •Cardboard •Folding boxboard •Corrugated cardboard •Mounting board					
How recycled paper is made What are the advantages and disadvantages of recycled paper?					
The categorisation and properties of hardwoods and softwoods. Properties to be considered: strength, grain structure, surface finish and absorbency using finishes and these finishes are sometimes used to improve the aesthetic appeal. Natural timber is harvested from deciduous (hardwoods) and coniferous (softwood) trees. Natural timber is available in the following forms: plank, board, strip, square, and dowel. • Natural timber can be identified using a range of discriminators: weight, colour, grain, texture, durability and ease of working Natural timber is protected using different finishes and these finishes are sometimes used to improve aesthetic appeal, hardboard and veneered boards. Categorisation and properties of manufactured timbers. Manufactured timbers are made from natural timbers and made from particles/fibres or laminates Manufactured timbers are available in standard sizes and forms: plywood, MDF (Medium Density Fibreboard), chipboard Manufactured timbers can be protected					
SPECIALISM: WOOD AND TIMBER		Completed			
How are natural woods felled and harvested? How is wood seasoned before use? What is the difference between PAR and rough sawn timber? What are the following defects in natural wood? •Shrinkage • splits • shakes • knots •fungal attack. Why do they occur and how can they be prevented?					
The properties and uses of hardwoods: •Beech • oak, •mahogany, •balsa •jelutong.					
The properties and uses of softwoods: •scots pine •western red cedar • parana pine					
How do natural and manufactured timbers behave under stress? What is deforestation? How does it affect the environment? Definitions and examples of: •One off production •Batch production •Continuous production What are the advantages and disadvantages of each one? How can Jigs be used to control repeat activities. Explain how the following processes are carried out •veneering • laminating •steam bending.					
The uses of the following frame joints •mitre, • dowel, • mortise and tenon, • halving • bridle • The uses of the following box joints •Butt •Lap • housing •Dovetail • comb/finger					
Adhesives: PVA (wood to wood), contact adhesive and epoxy resin (wood to other materials). Types of knock down fittings (KDF) What are the advantages and disadvantages of using KDF?					
Maths Content Recognise and use measurements in decimal and standard form. How might this appear: measuring in mm and interpreting a technical drawing					
Use ratios, fractions and percentages. How might this appear: the functions of mechanical devices, to produce different sorts of movement, changing the magnitude and direction of forces for example: •Calculating rotational speed •Speed, distance, time equation •Levers and input/output arm length •Calculating gear ratios • Using percentages to calculate profit and loss or material wastage					
Calculate surface area and volume. How might this appear: working out surface areas to be painted or varnished or volumes of liquids needed to fill products					
Presentation of data, diagrams, bar charts and histograms. Plot, draw and interpret appropriate graphs. How might this appear: preparing a table or bar chart and writing about the results. Completing a graph, bar chart or table					
Calculate areas of triangles and rectangles, surface areas and volumes of cubes. How might this appear: Working out how much material is needed to make a product. Calculate area, radius, circumference and diameter of circles How might this appear: Working out how much material is needed to make a product. Interpreting working drawings and diagrams					

GCSE BUSINESS TOPICS				
	Completed			
3.1.1 The purpose and nature of businesses				
3.1.2 Business ownership				
3.1.3 Setting business aims and objectives				
3.1.4 Stakeholder				
3.1.5 Business location				
3.1.6 Business planning				
3.1.7 Expanding a business				
3.2 Influences on business				
3.2.1 Technology				
3.2.2 Ethical and environmental considerations				
3.2.3 The economic climate on businesses				
3.2.4 Globalisation				
3.2.5 Legislation				
3.2.6 Competitive environment				
3.4 Human resources				
3.4.1 Organisational structures				
3.4.2 Recruitment and selection of employees				
3.4.3 Motivating employees				
3.4.4 Training				

