Nottingham Girls' Academy

REVISION TOPIC GUIDE 2022-2023

Introduction

- **This has been designed to help you organise what you need to revise/work on/recap**

- **All your subjects are in one place to help you keep everything together.**

- **Use your subject hints/topic list everything you need to know for the subject you are revising for.**

Tick it off/highlight when you are confident you have improved! This will improve your confidence

- **Use the pages of the subject your revising for to think about HOW you are going to revise/learn (eg practise paper, times questions, Kahoot, flashcards etc)**

- **Stick any PLCs your teachers give you to the back of the relevant page**

- **Look at mock feedback progress sheet or talk you teachers about what you need to do to improve.**

- **We are all here to help!!!**

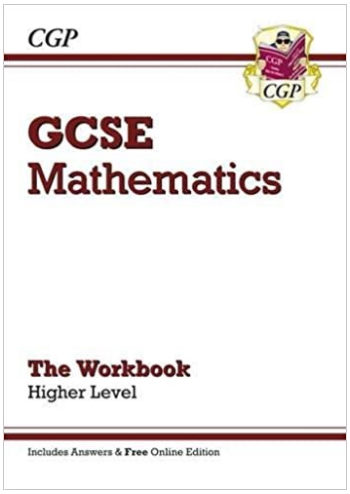
- **This is to help <u>you</u> organise <u>yourself</u> for <u>your</u> GCSE**

Maths

MATHS REVISION TIPS

Getting good at mathematics is like getting good at any sport or artistic endeavour. You need to practise over and over again for skills to become embedded and reach a level of competency – just like shooting in netball, playing a guitar riff, drawing a lifelike animal or finding missing angles in circles.

The traditional pre-exam period of revision is not a sufficiently long stretch of time for most students to reach the required fluency, especially when you add in the pressures of multiple subjects. Combining this with what we understand from cognitive science and Ebbinghaus' forgetting curve – which reminds us that we need to revisit what we learn periodically in order to remember it long-term – and we can see that maths revision needs to start sooner if it is to be truly effective.



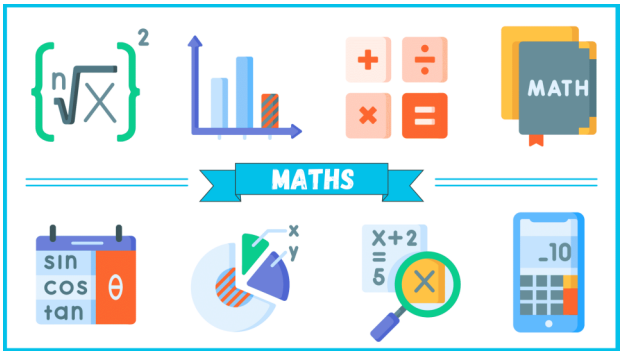
Here are a few simple things you can do:

Little and often is the way forward. Fifteen minutes on one topic three or four times a week is not remotely onerous and is hugely beneficial. Why not try using a website like Corbett Maths that feature comprehensive revision lists and questions to work through. Perhaps try his 5-a-day worksheets?

Practise questions, don't just read notes or watch videos. You only get good at maths by doing maths. Hegarty Maths provides videos to help revise, but apply this learning by completing the tasks too!

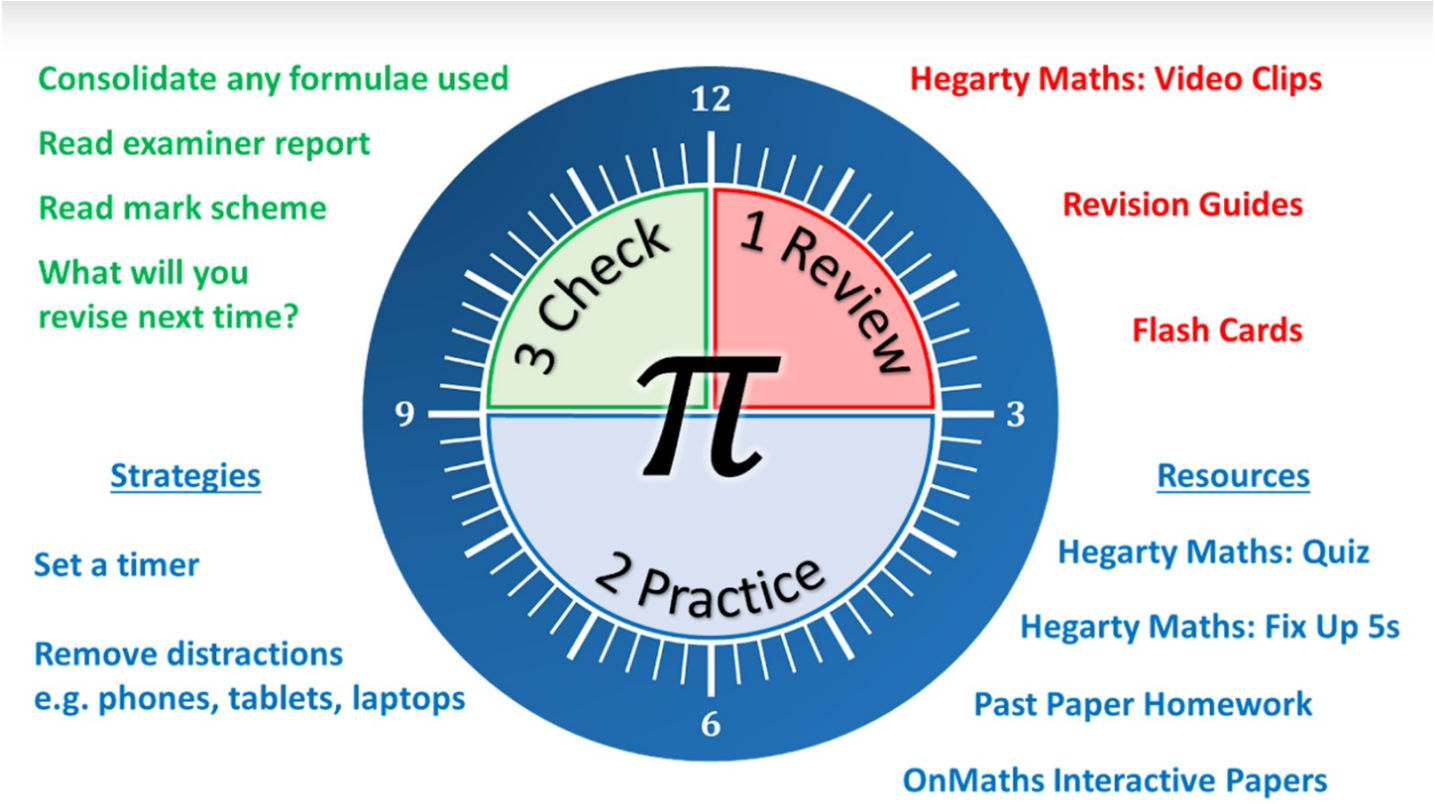
Make a list of the topics you've revised. Tick them off if you can do them without a problem. Make a note to return to them if you aren't secure yet. Every now and then, return to your secure topics to make sure you haven't forgotten them.

As the exams get closer, gradually increase your revision time. By the time you are in full revision mode, you should be doing at least four hours of maths a week (including your weekends), and the more the better.



Corbett maths

Maths



hegartymaths

This amazing online resource combines almost 1,000 step-by-step explanatory videos with quizzes.

See your teacher for log-in details or a password reset.

Top Tip 1: If you are struggling with one of the quizzes, make sure you watch the video in full or try out the building blocks recommended underneath.

Top Tip 2: If you are not sure what to revise, try the Fix Up 5 to improve an area you've struggled on previously.

English

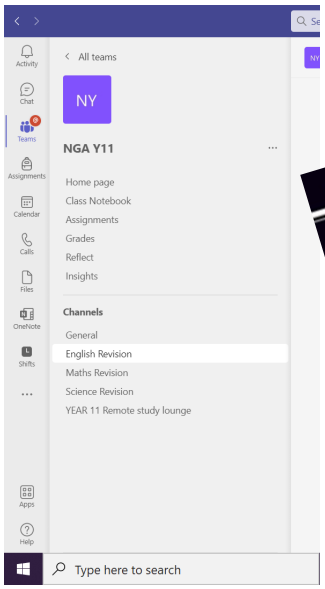
1. Reading modern fiction (novel and short stories).

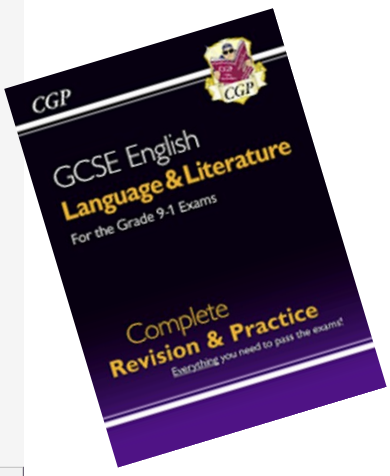
2.Reading newspaper articles.

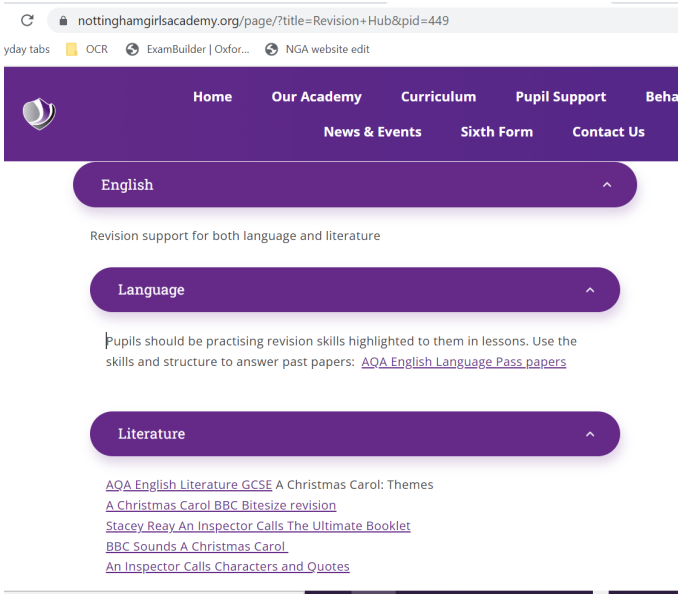
3. Practice past papers – on Teams

4. Using CGP English Language Work Book,(see Ms Simpson) to practise skills for English Language.

5. Do the activities posted on the English Teams Channel.







Combined Science
Biology

AQA Biology (8461) from 2016 Topic B4.1 Cell biology				
Topic	**Student Checklist**	**R**	**A**	**G**
4.1.1 Cell structure	Use the terms 'eukaryotic' and 'prokaryotic' to describe types of cells			
	Describe the features of bacterial (prokaryotic) cells			
	Demonstrate an understanding of the scale and size of cells and be able to make order of magnitude			
	Recall the structures found in animal and plant (eukaryotic) cells inc algal cells			
	Use estimations and explain when they should be used to judge the relative size or area of sub-cellular			
	Required practical 1: use a light microscope to observe, draw and label a selection of plant and animal			
	Describe the functions of the structures in animal and plant (eukaryotic) cells			
	Describe what a specialised cell is, including examples for plants and animals			
	Describe what differentiation is, including differences between animals and plants			
	Define the terms magnification and resolution			
	Compare electron and light microscopes in terms of their magnification and resolution			
	Carry out calculations involving magnification using the formula: magnification = size of image/			
	Bio ONLY: Describe how bacteria reproduce and the conditions required			
	Bio ONLY: Describe how to prepare an uncontaminated culture			
	Bio ONLY: Calculate cross-sectional areas of colonies or clear areas around colonies using πr^2			
	Bio ONLY: Calculate the number of bacteria in a population after a certain time if given the mean divi-			
	Bio & HT ONLY: Express answers for last two points in standard form			
	Required practical 2: investigate the effect of antiseptics or antibiotics on bacterial growth using agar			
4.1.2 Cell division	Describe how genetic information is stored in the nucleus of a cell (inc genes & chromosomes)			
	Describe the processes that happen during the cell cycle, including mitosis (inc recognise and describe			
	Describe stem cells, including sources of stem cells in plants and animals and their roles			
	Describe the use of stem cells in the production of plant clones and therapeutic cloning			
	Discuss the potential risks, benefits and issues with using stem cells in medical research/treatments (inc			
4.1.3 Transport in cells	Describe the process of diffusion, including examples			
	Explain how diffusion is affected by different factors			
	Define and explain "surface area to volume ratio", and how this relates to single-celled and multicellular			
	Explain how the effectiveness of an exchange surface can be increased, inc examples of adaptations for			
	Describe the process of osmosis (inc calculation of water uptake & percentage gain and loss of mass of			
	Required practical 3: investigate the effect of a range of concentrations of salt or sugar solutions on the			
	Describe the process of active transport, including examples - gut and roots			
	Explain the differences between diffusion, osmosis and active transport			

Combined Science
Biology

AQA Biology (8461) from 2016 Topic B4.2 Organisation				
Topic	**Student Checklist**	**R**	**A**	**G**
4.2.1 Principles of organisation & 4.2.2 Animal tissues, organs and organ systems	Describe the levels of organisation within living organisms			
	Describe the digestive system and how it works as an organ system (from KS3)			
	Describe basic features of enzymes (inc rate calculations for chemical reactions)			
	Describe the lock and key theory as a model of enzyme action and explain how the shape a of the			
	Explain the effect of temperature and pH on enzymes			
	Describe the digestive enzymes, including their names, sites of production and actions			
	Describe how the products of digestion are used			
	Describe the features and functions of bile and state where it is produced and released from			
	Required practical 4: use qualitative reagents to test for a range of carbohydrates, lipids and pro-			
	Required practical 5: investigate the effect of pH on the rate of reaction of amylase enzyme			
	Describe the structure of the human heart and lungs (inc how lungs are adapted for gaseous ex-			
	Explain how the heart moves blood around the body (inc role and position of the aorta, vena cava,			
	Explain how the natural resting heart rate is controlled and how irregularities can be corrected			
	Describe the structure and function of arteries, veins and capillaries			
	Use simple compound measures such as rate and carry out rate calculations for blood flow			
	Describe blood and identify its different components, inc identifying blood cells from photographs/			
	Describe the functions of blood components, including adaptations to function			
	Describe what happens in coronary heart disease and what statins are used for			
	Describe and evaluate treatments for coronary heart disease and heart failure (inc drugs, mechani-			
	Recall that heart valves can become faulty and describe the consequences of this			
	Describe how patients can be treated in the case of heart failure			
	Describe health and the explain causes of ill-health and the relationship between health and dis-			
	Describe how different types of diseases may interact and translate disease incidence information			
	Describe what risk factors are and give examples discussing human and financial costs of non-			
	Describe what cancer is and explain the difference between benign and malignant tumours			
	Describe the known risk factors for cancer, including genetic and lifestyle risk factors			
4.2.3 Plant tissues, organs and sys-	Describe plant tissues (epidermal, palisade mesophyll, spongy mesophyll, xylem, phloem and meri- stem) and describe their functions			
	Explain how the structure of plant tissues are related to their function within the leaf (plant organ) inc stomata and guard cells			
	Recall the plant parts that form a plant organ system that transports substances around the plant			
	Explain how root hair cells, xylem and phloem are adapted to their functions			
	Describe the process of transpiration and translocation including the role of the different plant tissues			
	Explain how the rate of transpiration can be affected by different factors (inc naming the factors)			
	Describe the role of stomata and guard cells in the control of gas exchange and water loss			

Combined Science
Biology

AQA Biology (8461) from 2016 Topic B4.3 Infection and response				
Topic	**Student Checklist**	**R**	**A**	**G**
4.3.1 Communicable diseases	Explain what a pathogen is and how pathogens are spread (inc how viruses, bacteria, protists and fungi are spread in animals and plants)			
	Explain how pathogenic bacteria and viruses cause damage in the body			
	Explain how the spread of diseases can be reduced or prevented			
	Describe measles, HIV and tobacco mosaic virus as examples of viral pathogens			
	Describe salmonella food poisoning and gonorrhoea as examples of bacterial pathogens			
	Describe the signs, transmission and treatment of rose black spot infection in plants as an example of fungal pathogens			
	Describe the symptoms, transmission and control of malaria, including knowledge of the mosquito vector as an example of a protists pathogen			
	Describe defences that stop pathogens entering the human body (inc skin, nose, trachea & windpipe, stomach)			
	Recall the role of the immune system			
	Describe how white blood cells destroy pathogens			
	Describe how vaccination works, including at the population level			
	Explain how antibiotics and painkillers are used to treat diseases, including their limitations			
	Describe how sources for drugs have changed over time and give some examples			
	Describe how new drugs are tested, including pre-clinical testing and clinical trials (inc double blind trials and placebos)			
4.3.2 Monoclonal antibodies	***Bio & HT ONLY: Describe what monoclonal antibodies are and why they are useful***			
	Bio & HT ONLY: Describe how monoclonal antibodies are produced			
	Bio & HT ONLY: Explain how monoclonal antibodies are used for diagnosis, research, chemical testing and disease treatments			
	Bio & HT ONLY: Evaluate the advantages and disadvantages of monoclonal antibodies (inc side effects)			
	Bio & HT ONLY: Describe some observable signs of plant disease, and how plant diseases can be identified			
4.3.3 Plant dis-	*Bio ONLY: Give examples of plant pathogens*			
	Bio ONLY: Give examples of plant ion deficiencies and their effects			
	Bio ONLY: Describe physical, chemical and mechanical defence responses of plants			

Combined Science
Biology

AQA Biology (8461) from 2016 Topic B4.4 Bioenergetics				
Topic	**Student Checklist**	**R**	**A**	**G**
4.4.1 Photosynthesis	Describe what happens in photosynthesis, including using a word equation and recognise the chemical formulas for carbon dioxide, water, oxygen & glucose			
	Explain why photosynthesis is an endothermic reaction			
	Recall the limiting factors of photosynthesis			
	Explain how limiting factors affect the rate of photosynthesis, including graphical interpretation (limited to one factor)			
	HT ONLY: Explain how the limiting factors of photosynthesis interact, inc graphical interpretation (two/three factors)			
	HT ONLY: Explain how limiting factors are important to the economics of greenhouses, including data interpretation			
	HT ONLY: Explain and use inverse proportion in the context of photosynthesis			
	Required practical 6: investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed			
	Describe how the glucose produced in photosynthesis is used by plants			
4.4.2 Respiration	Describe what happens in respiration including using a word equation and recognise the chemical formulas for carbon dioxide, water, oxygen & glucose			
	Describe aerobic and anaerobic respiration with regard to the need for oxygen, the differing products and the relative amounts of energy transferred			
	Recognise the equations for aerobic respiration, anaerobic respiration in muscles and anaerobic respiration in plants and yeast cells.			
	Recall what type of respiration fermentation is and its economic importance.			
	Describe what happens to heart rate, breathing rate and breath volume during exercise and why these changes occur			
	Explain what happens when muscles do not have enough oxygen and define the term oxygen debt			
	HT ONLY: Explain what happens to accumulated lactic acid in the body			
	Explain the importance of sugars, amino acids, fatty acids and glycerol in the synthesis and breakdown of carbohydrates, proteins and lipids			
	Explain what metabolism is, including examples			

Combined Science
Biology

AQA Biology (8461) from 2016 Topic B4.5 Homeostasis and response				
Top-	**Student Checklist**	**R**	**A**	**G**
4.5.1 Ho-meo stasi s	Describe what homeostasis is and why it is important stating specific examples from the human body			
	Describe the common features of all control systems			
4.5.2 The hu-man nerv ous sys-tem	State the function of the nervous system and name its important components			
	Describe how information passes through the nervous system			
	Describe what happens in a reflex action and why reflex actions are important			
	Explain how features of the nervous system are adapted to their function, including a reflex arc (inc all			
	Required practical 7: plan and carry out an investigation into the effect of a factor on human reaction			
	Bio ONLY: State the function of the brain and how it is structured, including identifying he cerebral cortex,			
	Bio ONLY: Describe the functions of different regions of the brain			
	Bio & HT ONLY: Explain how neuroscientists have been able to map regions of the brain to particular			
	Bio ONLY: State the function of the eye and how it is structured, including names of specific parts			
	Bio ONLY: Describe the functions of different parts of the eye, including relating structure to function			
	Bio ONLY: Describe what accommodation is, and how it is carried out			
	Bio ONLY: Explain what myopia and hyperopia are and how they are treated, including interpreting ray			
	Bio ONLY: Describe how body temperature is monitored and controlled			
	Bio & HT ONLY: Explain how the body's responses act to raise or lower temperature in a given context			
4.5.3 Hor-mon al co-ordi nati on in hu-man s	Describe the endocrine system, including the location of the pituitary, pancreas, thyroid, adrenal gland,			
	State that blood glucose concentration is monitored and controlled by the pancreas			
	Describe the body's response when blood glucose concentration is too high			
	Explain what type 1 and type 2 diabetes are and how they are treated			
	HT ONLY: Describe the body's response when blood glucose concentration is too low			
	HT ONLY: Explain how glucagon interacts with insulin to control blood glucose levels in the body			
	Describe how water, ions and urea are lost from the body			
	Describe the consequences of losing or gaining too much water for body cells			
	HT ONLY: Recall that protein digestion leads to excess amino acids inside the body and describe what			
	Describe how the kidneys produce urine			
	HT ONLY: Describe the effect of ADH on the permeability of the kidney tubules and explain how the			
	Describe how kidney failure can be treated by organ transplant or dialysis and recall the basic principles			
	Describe what happens at puberty in males and females, inc knowledge of reproductive hormones			
	Describe the roles of the hormones involved in the menstrual cycle (FSH, LH and oestrogen)			
	HT ONLY: Explain how the different hormones interact to control the menstrual cycle and ovulation			
	Describe how fertility can be controlled by hormonal and non-hormonal methods of contraception			
	HT ONLY: Explain how hormones are used to treat infertility, inc the steps in IVF			
	HT ONLY: Evaluate the risks and benefits of fertility treatments			
	HT ONLY: Describe the functions of adrenaline and thyroxine in the body, and recall where they are			
	HT ONLY: Explain the roles of thyroxine and adrenaline in the body as negative feedback systems			

Combined Science
Biology

4.5.4 Plant hormones	*Bio ONLY: Describe hormone-linked plant responses, to include phototropism and gravitropism and the*			
	Bio & HT ONLY: Describe the functions of gibberellins and ethene in plants			
	Required practical 8: investigate the effect of light or gravity on the growth of newly germinated seedling			
	HT ONLY: Explain the use of plant growth hormones are used in agriculture and horticulture (auxins,			

AQA Biology (8461) from 2016 Topic B4.7 Ecology				
Topic	**Student Checklist**	**R**	**A**	**G**
4.7.1 Adaptations, interdependence and compe-	Recall what an ecosystem is			
	Describe which resources animals and plants compete for, and why they do this			
	Explain the terms 'interdependence' and 'stable community'			
	Name some abiotic and biotic factors that affect communities			
	Explain how a change in an abiotic or biotic factor might affect a community			
	Describe structural, behavioural and functional adaptations of organisms			
	Describe what an extremophile is			
4.7.2 Organisation of an ecosystem	Represent the feeding relationships within a community using a food chain and describe these rela-			
	Explain how and why ecologists use quadrats and transects			
	Describe and interpret predator-prey cycles			
	Required practical 9: measure the population size of a common species in a habitat. Use sampling to			
	Describe the processes involved in the carbon cycle			
	Describe the processes involved in the water cycle			
	Bio ONLY: Explain how temperature, water and availability of oxygen affect the rate of decay of bio-			
	Bio ONLY: Explain how the conditions for decay are optimised by farmers and gardeners, and the reasons for this			
	Bio ONLY: Describe how methane gas can be produced from decaying materials for use as a fuel			
	Bio ONLY: Required practical 10: investigate the effect of temperature on the rate of decay of fresh			
	Bio ONLY: Explain how environmental changes can affect the distribution of species in an ecosystem			
4.7.3 Biodiversity and the effect of human interaction on ecosystems	Describe what biodiversity is, why it is important, and how human activities affect it			
	Describe the impact of human population growth and increased living standards on resource use and			
	Explain how pollution can occur, and the impacts of pollution			
	Describe how humans reduce the amount of land available for other animals and plants			
	Explain the consequences of peat bog destruction			
	Describe what deforestation is and why it has occurred in tropical areas			
	Explain the consequences of deforestation			
	Describe how the composition of the atmosphere is changing, and the impact of this on global warm-			
	Describe some biological consequences of global warming			
	Describe both positive and negative human interactions in an ecosystem and explain their impact on			
	Describe programmes that aim to reduce the negative effects of humans on ecosystems and biodiversity			

Combined Science
Biology

AQA Biology (8461) from 2016 Topic B4.6 Inheritance, variation and evolution				
Topic	**Student Checklist**	**R**	**A**	**G**
4.6.1 Reproduction	Describe features of sexual and asexual reproduction			
	Describe what happens during meiosis and compare to mitosis			
	Describe what happens at fertilisation			
	Bio ONLY: Explain advantages of sexual and asexual reproduction			
	Bio ONLY: Describe examples of organisms that reproduce both sexually and asexually (malarial parasites, fungi, strawberry plants and daffodils)			
	Describe the structure of DNA and its role in storing genetic information inside the cell			
	Explain the term 'genome' and the importance of the human genome (specific examples from spec only)			
	Bio ONLY: Describe the structure of DNA, including knowledge of nucleotide units			
	Bio & HT ONLY: Explain complementary base pairing in DNA			
	Bio & HT ONLY: Explain the relationship between DNA bases (ATCG), amino acids and proteins			
	Bio & HT ONLY: Describe how proteins are synthesised on ribosomes, including protein folding and its importance for protein function			
	Bio & HT ONLY: Explain what mutations are, and the possible effects of mutations			
	Bio & HT ONLY: Explain what non-coding parts of DNA are, and why they are important			
	Describe how characteristics are controlled by one or more genes, including examples			
	Explain important genetic terms: gamete, chromosome, gene, allele, genotype, phenotype, dominant, recessive, homozygous and heterozygous			
	Explain and use Punnet square diagrams, genetic crosses and family trees			
	HT ONLY: Construct Punnet square diagrams to predict the outcomes of a monohybrid cross			
	Describe cystic fibrosis and polydactyly as examples of inherited disorders			
	Evaluate social, economic and ethical issues concerning embryo screening when given appropriate information			
	Describe how the chromosomes are arranged in human body cells, including the function of the sex chromosomes			
	Explain how sex is determined and carry out a genetic cross to show sex inheritance			
4.6.2 Variation and evolution	Describe what variation is and how it can be caused within a population			
	Describe mutations and explain their influence on phenotype and changes in a species			
	Explain the theory of evolution by natural selection			
	Describe how new species can be formed			
	Describe what selective breeding is			
	Explain the process of selective breeding, including examples of desired characteristics and risks associated with selective breeding			
	Describe what genetic engineering is, including examples, and how it is carried out			
	Explain some benefits, risks and concerns related to genetic engineering			
	HT ONLY: Explain the process of genetic engineering, to include knowledge of enzymes and vectors			
	Bio ONLY: Describe different cloning techniques, to include: tissue culture, cuttings, embryo transplants and adult cell cloning			
4.6.3 The de-	*Bio ONLY: Describe the ideas proposed by Darwin in his theory of natural selection and explain why this theory was only gradually accepted*			
	Bio ONLY: Describe other inheritance-based theories that existed (apart from the theory of natural selec-			

Combined Science
Biology

4.7.4 Trophic levels in an ecosys-tem	*Bio ONLY: Describe the different trophic levels and use numbers and names to represent them*			
	Bio ONLY: Describe what decomposers are and what they do			
	Bio ONLY: Construct pyramids of biomass accurately from data and explain what they represent			
	Bio ONLY: State how much energy producers absorb from the Sun and how much biomass is trans-			
	Bio ONLY: Explain how biomass is lost between trophic levels, including the consequences of this and			
4.7.5 Food pro-duction	*Bio ONLY: Explain the term 'food security' and describe biological factors that threaten it*			
	Bio ONLY: Explain how the efficiency of food production can be improved			
	Bio ONLY: Explain the term 'factory farming', including examples, and ethical objections			
	Bio ONLY: Explain the importance of maintaining fish stocks at a level where breeding continues			
	Bio ONLY: Explain some methods that can help to conserve fish stocks			
	Bio ONLY: Describe how modern biotechnology is used in food production, including the fungus Fusari-			
	Bio ONLY: Describe the uses of genetically modified organisms in insulin and food production			

Science Check list

Recap lessons on Teams

make formula recap flash cards

Use pass paper questions on above topics then R A G colour your confidence on the topic.

Use all online plateforms to help such as Pixl, Cognito and GCSEPod

Combined Science
Chemistry

AQA Chemistry (8462) from 2016 Topics C4.1 Atomic structure and the periodic table				
Topic	**Student Checklist**	**R**	**A**	**G**
4.1.1 A simple model of the atom, symbols, relative atomic mass, electronic charge and isotopes	State that everything is made of atoms and recall what they are			
	Describe what elements and compounds are			
	State that elements and compounds are represented by symbols; and use chemical symbols and formulae to represent elements and compounds			
	Write word equations and balanced symbol equations for chemical reactions, including using appropriate state symbols			
	HT ONLY: Write balanced half equations and ionic equations			
	Describe what a mixture is			
	Name and describe the physical processes used to separate mixtures and suggest suitable separation techniques			
	Describe how the atomic model has changed over time due to new experimental evidence, inc discovery of the atom and scattering experiments (inc the work of James Chadwick)			
	Describe the difference between the plum pudding model of the atom and the nuclear model of the atom			
	State the relative charge of protons, neutrons and electrons and describe the overall charge of an atom			
	State the relative masses of protons, neutrons and electrons and describe the distribution of mass in an atom			
	Calculate the number of protons, neutrons and electrons in an atom when given its atomic number and mass number			
	Describe isotopes as atoms of the same element with different numbers of neutrons			
	Define the term relative atomic mass and why it takes into account the abundance of isotopes of the element			
	Calculate the relative atomic mass of an element given the percentage abundance of its isotopes			
	Describe how electrons fill energy levels in atoms, and represent the electron structure of elements using diagrams and numbers			
4.1.2 The periodic table	Recall how the elements in the periodic table are arranged			
	Describe how elements with similar properties are placed in the periodic table			
	Explain why elements in the same group have similar properties and how to use the periodic table to predict the reactivity of elements			
	Describe the early attempts to classify elements			
	Explain the creation and attributes of Mendeleev's periodic table			
	Identify metals and non-metals on the periodic table, compare and contrast their properties			
	Explain how the atomic structure of metals and non-metals relates to their position in the periodic table			
	Describe nobel gases (group 0) and explain their lack of reactivity			
	Describe the properties of noble gases, including boiling points, predict trends down the group and describe how their properties depend on the outer shell of electrons			
	Describe the reactivity and properties of group 1 alkali metals with reference to their electron arrangement and predict their reactions			
	Describe the properties of group 7 halogens and how their properties relate to their electron arrangement, including trends in molecular mass, melting and boiling points and reactivity			
	Describe the reactions of group 7 halogens with metals and non-metals			
	Chem ONLY: Describe the properties of transition metals and compare them with group 1 elements, including melting points and densities, strength and hardness, and reactivity (for CR, Mn Fe, Co, Ni & Cu)			

Combined Science
Chemistry

AQA Chemistry (8462) from 2016 Topics C4.2 Bonding, structure, and the properties of matter				
Topic	**Student Checklist**	**R**	**A**	**G**
4.2.1 Chemical bonds, ionic, covalent and metallic	Describe the three main types of bonds: ionic bonds, covalent bonds and metallic bonds in terms of elec-			
	Describe how the ions produced by elements in some groups have the electronic structure of a noble			
	Describe the structure of ionic compounds, including the electrostatic forces of attraction, and represent			
	Describe the limitations of using dot and cross, ball and stick, two and three-dimensional diagrams to			
	Work out the empirical formula of an ionic compound from a given model or diagram that shows the			
	Describe covalent bonds and identify different types of covalently bonded substances, such as small			
	Represent covalent bonds between small molecules, repeating units of polymers and parts of giant cova-			
	Draw dot and cross diagrams for the molecules of hydrogen, chlorine, oxygen, nitrogen, hydrogen chlo-			
	Deduce the molecular formula of a substance from a given model or diagram in these forms showing the			
	Describe the arrangement of atoms and electrons in metallic bonds and draw diagrams the bonding in			
4.2.2 How bonding and structure are related to the properties of substances	Name the three States of matter, identify them from a simple model and state which changes of state			
	Explain changes of state using particle theory and describe factors that affect the melting and boiling			
	HT ONLY: Discuss the limitations of particle theory			
	Recall what (s), (l), (g) and (aq) mean when used in chemical equations and be able to use them appropriately			
	Explain how the structure of ionic compounds affects their properties, including melting and boiling			
	Explain how the structure of small molecules affects their properties			
	Explain how the structure of polymers affects their properties			
	Explain how the structure of giant covalent structures affects their properties			
	Explain how the structure of metals and alloys affects their properties, including explaining why they are			
	Explain why alloys are harder than pure metals in terms of the layers of atoms			
	Explain the properties of graphite, diamond and graphene in terms of their structure and bonding			
	Describe the structure of fullerenes, and their uses, including Buckminsterfullerene and carbon nano-			
	Chem ONLY: Compare the dimensions of nanoparticles to other particles and explain the effect of their			
	Chem ONLY: Discuss the applications of nanoparticles and their advantages and disadvantages, including			

Combined Science
Chemistry

AQA Chemistry (8462) from 2016 Topics C4.3 Quantitative chemistry				
Topic	**Student Checklist**	**R**	**A**	**G**
4.3.1 Chemical measurements, conservation of mass and the quantitative interpretatio	State that mass is conserved and explain why, including describing balanced equations in terms of conservation of mass			
	Explain the use of the multipliers in equations in normal script before a formula and in subscript within a formula			
	Describe what the relative formula mass (Mr) of a compound is and calculate the relative formula mass of a compound, given its formula			
	Calculate the relative formula masses of reactants and products to prove that mass is conserved in a balanced chemical equation			
	Explain observed changes of mass during chemical reactions in non-enclosed systems using the particle model when given the balanced symbol equation			
	Explain why whenever a measurement is made there is always some uncertainty about the result obtained			
4.3.2 Use of amount of substance in relation to masses of pure substances	**HT ONLY: State that chemical amounts are measured in moles (mol) and explain what a mol is**			
	HT ONLY: Use the relative formula mass of a substance to calculate the number of moles in a given			
	HT ONLY: Calculate the masses of reactants and products when given a balanced symbol equation			
	HT ONLY: Use moles to write a balanced equation when given the masses of reactants and products (inc changing the subject of the equation)			
	HT ONLY: Explain the effect of limiting the quantity of a reactant on the amount of products in			
	Calculate the mass of solute in a given volume of solution of known concentration in terms of mass			
	HT ONLY: Explain how the mass of a solute and the volume of a solution is related to the concen-			
4.3.3 Yield and atom economy of chemical reactions	*Chem ONLY: Explain why it is not always possible to obtain the calculated or expected amount of a*			
	Chem ONLY: Calculate the theoretical amount of a product and percentage yield of a product using			
	Chem & HT ONLY: Calculate the theoretical mass of a product from a given mass of reactant and			
	Chem ONLY: Describe atom economy as a measure of the amount of reactants that end up as useful			
	Chem ONLY: Calculate the percentage atom economy of a reaction to form a desired product using			
	Chem & HT ONLY: Explain why a particular reaction pathway is chosen to produce a specified			
4.3.4 Using concentrations of solutions in mol/ dm^3	***Chem & HT ONLY: Calculate the amount of solute (in moles or grams) in a solution from its concen-***			
	Chem & HT ONLY: Calculate the concentration of a solution when it reacts completely with anoth-			
	Chem & HT ONLY: Describe how to carry out titrations of strong acids and strong alkalis and calcu-			
	Chem & HT ONLY: Explain how the concentration of a solution in mol/dm3 is related to the mass of			
	Chem & HT ONLY: Explain what the volume of one mole of any gas at room temperature is			
	Chem & HT ONLY: Calculate the volume of a gas at room temperature and pressure from its mass			

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AQA Chemistry (8462) from 2016 Topics C4.4 Chemical changes				
Top-	**Student Checklist**	**R**	**A**	**G**
4.4.1 Reactivity of metals	Describe how metals react with oxygen and state the compound they form, define oxidation and reduc-			
	Describe the arrangement of metals in the reactivity series, including carbon and hydrogen, and use the			
	Recall and describe the reactions, if any, of potassium, sodium, lithium, calcium, magnesium, zinc, iron			
	Relate the reactivity of metals to its tendency to form positive ions and be able to deduce an order of			
	Recall what native metals are and explain how metals can be extracted from the compounds in which			
	Evaluate specific metal extraction processes when given appropriate information and identify which			
4.4.2 Reactions of acids	**HT ONLY: Describe oxidation and reduction in terms of loss and gain of electrons**			
	HT ONLY: Write ionic equations for displacement reactions, and identify which species are oxidised			
	HT ONLY: Explain in terms of gain or loss of electrons that the reactions between acids and some metals are redox reactions, and identify which species are oxidised and which are reduced (Mg, Zn, Fe +			
	Explain that acids can be neutralised by alkalis, bases and metal carbonates and list the products of each			
	Predict the salt produced in a neutralisation reaction based on the acid used and the positive ions in the base, alkali or carbonate and use the formulae of common ions to deduce the formulae of the salt			
	Describe how soluble salts can be made from acids and how pure, dry samples of salts can be obtained			
	Required practical 1: *preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate using a Bunsen burner to heat dilute acid and a water bath or electric heater to evaporate the*			
	Recall what the pH scale measures and describe the scale used to identify acidic, neutral or alkaline solu-			
	Define the terms acid and alkali in terms of production of hydrogen ions or hydroxide ions (in solution),			
	Describe the use of universal indicator to measure the approximate pH of a solution and use the pH			
	Chem ONLY: Describe how to carry out titrations using strong acids and strong alkalis only (sulfuric, hy-			
	Chem & HT ONLY: Calculate the chemical quantities in titrations involving concentrations in mol/dm^3			
	Chem ONLY: ***Required practical 2:*** *determination of the reacting volumes of solutions of a strong acid*			
	HT ONLY: Use and explain the terms dilute and concentrated (in terms of amount of substance) and			
	HT ONLY: Explain how the concentration of an aqueous solution and the strength of an acid affects			
4.4.3 Electrolysis	Describe how ionic compounds can conduct electricity when dissolved in water and describe these solu-			
	Describe the process of electrolysis			
	Describe the electrolysis of molten ionic compounds and predict the products at each electrode of the			
	Explain how metals are extracted from molten compounds using electrolysis and use the reactivity se-			
	Describe the electrolysis of aqueous solutions and predict the products of the electrolysis of aqueous			
	Required practical 3: *investigate what happens when aqueous solutions are electrolysed using inert elec-*			

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AQA Chemistry (8462) from 2016 Topics C4.5 Energy changes				
Topic	**Student Checklist**	**R**	**A**	**G**
4.5.1 Exothermic and endothermic reactions	Describe how energy is transferred to or from the surroundings during a chemical reaction			
	Explain exothermic and endothermic reactions on the basis of the temperature change of the sur-			
	***Required practical 4**: investigate the variables that affect temperature changes in reacting solutions*			
	Describe what the collision theory is and define the term activation energy			
	Interpret and draw reaction profiles of exothermic and endothermic reactions, inc identifying the relative energies of reactants and products, activation energy and overall energy change			
	HT ONLY: Explain the energy changes in breaking and making bonds and calculate the overall energy			
4.5.2 Chemical cells and fuel cells	*Chem ONLY: Describe what a simple cell and a battery is and how they produce electricity*			
	Chem ONLY: Describe why alkaline batteries are non-rechargeable, state why some cells are rechargeable and evaluate the use of cells			
	Chem ONLY: Describe fuel cells and compare fuel cells to rechargeable cells and batteries			
	Chem ONLY: Describe the overall reaction in a hydrogen fuel cell			
	Chem & HT ONLY: Write half equations for the electrode reactions in a hydrogen fuel cell			

AQA Chemistry (8462) from 2016 Topics C4.5 Energy changes				
Topic	**Student Checklist**	**R**	**A**	**G**
4.5.1 Exothermic and endothermic reactions	Describe how energy is transferred to or from the surroundings during a chemical reaction			
	Explain exothermic and endothermic reactions on the basis of the temperature change of the sur-			
	***Required practical 4**: investigate the variables that affect temperature changes in reacting solutions*			
	Describe what the collision theory is and define the term activation energy			
	Interpret and draw reaction profiles of exothermic and endothermic reactions, inc identifying the relative energies of reactants and products, activation energy and overall energy change			
	HT ONLY: Explain the energy changes in breaking and making bonds and calculate the overall energy			
4.5.2 Chemical cells and fuel cells	*Chem ONLY: Describe what a simple cell and a battery is and how they produce electricity*			
	Chem ONLY: Describe why alkaline batteries are non-rechargeable, state why some cells are rechargeable and evaluate the use of cells			
	Chem ONLY: Describe fuel cells and compare fuel cells to rechargeable cells and batteries			
	Chem ONLY: Describe the overall reaction in a hydrogen fuel cell			
	Chem & HT ONLY: Write half equations for the electrode reactions in a hydrogen fuel cell			

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AQA Chemistry (8462) from 2016 Topics C4.6 The rate and extent of chemical change				
Top-	**Student Checklist**	**R**	**A**	**G**
4.6.1 Rate of reaction	Calculate the rate of a chemical reaction over time, using either the quantity of reactant used or the quan-			
	Draw and interpret graphs showing the quantity of product formed or reactant used up against time and			
	HT ONLY: Calculate the gradient of a tangent to the curve on the graph of the quantity of product			
	Describe how different factors affect the rate of a chemical reaction, including the concentration, pres-			
	Required practical 5: *investigate how changes in concentration affect the rates of reactions by a method*			
	Use collision theory to explain changes in the rate of reaction, including discussing activation energy			
	Describe the role of a catalyst in a chemical reaction and state that enzymes are catalysts in biological sys-			
	Draw and interpret reaction profiles for catalysed reactions			
4.6.2 Reversible reactions and dynamic equilibriu	Explain what a reversible reaction is, including how the direction can be changed and represent it using symbols: A + B ⇌ C + D			
	Explain that, for reversible reactions, if a reaction is endothermic in one direction, it is exothermic in the other direction			
	Describe the State of dynamic equilibrium of a reaction as the point when the forward and reverse reactions occur at exactly the same rate			
	HT ONLY: Explain that the position of equilibrium depends on the conditions of the reaction and the equilibrium will change to counteract any changes to conditions			
	HT ONLY: Explain and predict the effect of a change in concentration of reactants or products, temperature, or pressure of gases on the equilibrium position of a reaction			

AQA Chemistry (8462) from 2016 Topics C4.7 Organic chemistry				
Topic	**Student Checklist**	**R**	**A**	**G**
4.7.1 Carbon compounds as fuels and feedstock	Describe what crude oil is and where it comes from, including the basic composition of crude oil and the general chemical formula for the alkanes			
	State the names of the first four members of the alkanes and recognise substances as alkanes from their formulae			
	Describe the process of fractional distillation, state the names and uses of fuels that are produced from crude oil by fractional distillation			
	Describe trends in the properties of hydrocarbons, including boiling point, viscosity and flammability and explain how their properties influence how they are used as fuels			
	Describe and write balanced chemical equations for the complete combustion of hydrocarbon fuels			
	Describe the process of cracking and state that the products of cracking include alkanes and alkenes and describe the test for alkenes			
	Balance chemical equations as examples of cracking when given the formulae of the reactants and products			
	Explain why cracking is useful and why modern life depends on the uses of hydrocarbons			

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4.7.2 Reactions of alkenes and alcohols	*Chem ONLY: State the names and draw structural formulae of the first four members of the alkenes*			
	Chem ONLY: Describe the basic composition of alkenes, including the C=C functional group, the general			
	Chem ONLY: Describe the combustion reactions of alkenes and the reactions of alkenes with hydrogen,			
	Chem ONLY: Draw fully displayed structural formulae of the first four members of the alkenes and the			
	Chem ONLY: State the functional group of alcohols and the first four members of the homologous se-			
	Chem ONLY: Describe some properties and reactions of the first four members of alcohols, including			
	Chem ONLY: State the functional group of carboxylic acids and the first four members of the homolo-			
	Chem ONLY: Describe some properties and reactions of carboxylic acids, including dissolving in water,			
4.7.3 Synthetic and naturally occurring polymers	*Chem ONLY: Describe how alkenes can be used to make polymers by addition polymerisation*			
	Chem ONLY: Identify addition polymers and monomers from diagrams and from the presence of the			
	Chem & HT ONLY: Describe the process of condensation polymerisation and explain the basic princi-			
	Chem & HT ONLY: State that amino acids have two different functional groups in a molecule and			
	Chem & HT ONLY: Explain that different amino acids can be combined in a chain to produce proteins			
	Chem ONLY: Describe DNA as a large molecule of two polymer chains made from four different mono-			
	Chem ONLY: State and describe some other naturally occurring polymers such as proteins, starch and			

AQA Chemistry (8462) from 2016 Topics C4.8 Chemical analysis				
Topic	**Student Checklist**	**R**	**A**	**G**
4.8.1 Purity, formulations and chromatography & 4.8.2 ID of	Define a pure substance and identify pure substances and mixtures from data about melting and boiling points			
	Describe a formulation and identify formulations given appropriate information			
	Describe chromatography, including the terms stationary phase and mobile phase and identify pure substances using paper chromatography			
	Explain what the Rf value of a compound represents, how the Rf value differs in different solvents and interpret and determine Rf values from chromatograms			
	Required practical 6: *investigate how paper chromatography can be used to separate and tell the difference between coloured substances (inc calculation of Rf values)*			
	Explain how to test for the presence of hydrogen, oxygen, carbon dioxide and chlorine			
4.8.3 Identification of ions by chemical and spectroscopic means	*Chem ONLY: Identify some metal ions from the results of flame tests and describe how to conduct a flame test*			
	Chem ONLY: Describe how sodium hydroxide solution can be used to identify some metal ions and identify metal ions from the results of their reactions with sodium hydroxide solution			
	Chem ONLY: Write balanced equations for the reactions between sodium hydroxide solution and some metal ions to produce insoluble hydroxides			
	Chem ONLY: Describe how to identify carbonates using limewater			
	Chem ONLY: Describe how to identify negative ions, including halide ions using silver nitrate and sulfate ions using barium chloride			
	Required practical 7: *use of chemical tests to identify the ions in unknown single ionic compounds*			
	Chem ONLY: State the advantages of using instrumental methods to identify elements and compounds compared to chemical tests			
	Chem ONLY: Describe the process of and how to use flame emission spectroscopy to identify metal ions; interpret the results of a flame emission spectroscopy tests			

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AQA Chemistry (8462) from 2016 Topics C4.9 Chemistry of the atmosphere				
Topic	**Student Checklist**	**R**	**A**	**G**
4.9.1 The composition and evolution of the Earth's atmosphere	Describe the composition of gases in the Earth's atmosphere using percentages, fractions or ratios			
	Describe how early intense volcanic activity may have helped form the early atmosphere and how the oceans formed			
	Explain why the levels of carbon dioxide in the atmosphere changes as the oceans were formed			
	State the approximate time in Earth's history when algae started producing oxygen and describe the effects of a gradually increasing oxygen level			
	Explain the ways that atmospheric carbon dioxide levels decreased			
4.9.2 Carbon dioxide and methane as greenhouse gases	Name some greenhouse gases and describe how they cause an increase in Earth's temperature			
	List some human activities that produce greenhouse gases			
	Evaluate arguments for and against the idea that human activities cause a rise in temperature that results in global climate change			
	State some potential side effects of global climate change, including discussing scale, risk and envi-			
	Define the term carbon footprint and list some actions that could reduce the carbon footprint			
4.9.3 Common atmospheric pollutants and their	Describe the combustion of fuels as a major source of atmospheric pollutants and name the different gases that are released when a fuel is burned			
	Predict the products of combustion of a fuel given appropriate information about the composition of the fuel and the conditions in which it is used			
	Describe the properties and effects of carbon monoxide, sulfur dioxide and particulates in the atmosphere			
	Describe and explain the problems caused by increased amounts of these pollutants in the air			

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AQA Chemistry (8462) from 2016 Topics C4.10 Using resources				
Topic	**Student Checklist**	**R**	**A**	**G**
4.10.1 Using the Earth's resources and obtaining potable water	State what humans use Earth's resources for, give some examples of natural resources that they use			
	Define the term finite and distinguish between finite and renewable resources			
	Explain what sustainable development is and discuss the role chemistry plays in sustainable develop-			
	State examples of natural products that are supplemented or replaced by agricultural and synthetic			
	Discuss the importance of water quality for human life, including defining potable water			
	Describe methods to produce potable water, including desalination of salty water or sea water and the			
	Required practical 8: *analysis and purification of water samples from different sources, including pH,*			
	Describe waste water as a product of urban lifestyles and industrial processes that includes organic			
	Describe the process of sewage treatment and compare the ease of obtaining potable water from			
	HT ONLY: Name and describe alternative biological methods for extracting metals, including phytomining and bioleaching			
	HT ONLY: Evaluate alternative methods for extracting metals			
4.10.2 Life cycle assessment and recy-	Describe, carry out and interpret a simple comparative life cycle assessment (LCA) of materials or products			
	Discuss the advantages and disadvantages of LCAs			
	Carry out simple comparative LCAs for shopping bags made from plastic and paper			
	Discuss how to reduce the consumption of raw resources and explain how reusing and recycling reduces energy use (inc environmental impacts)			
4.10.3 Using materials	*Chem ONLY: Define corrosion and describe rusting as an example of corrosion*			
	Chem ONLY: Describe ways to prevent corrosion, including providing coatings, sacrificial protection and			
	Chem ONLY: Describe the following alloys bronze, gold, steels and aluminium, their uses and describe			
	Chem ONLY: Compare the properties of materials, including glass and clay ceramics, polymers and com-			
	Chem ONLY: Discuss the different types of polymers and how their composition affects their properties, including thermosoftening and thermosetting polymers			
	Chem ONLY: Explain what composites are and provide examples of composites and their benefits over			
4.10.4 The Haber process and the use of NPK fertilisers	*Chem ONLY: Describe the Haber process, including the reactants and products, recycling of remaining*			
	Chem & HT ONLY: For the Haber process interpret graphs of reaction conditions versus rate			
	Chem ONLY: Apply the principles of dynamic equilibrium to the Haber process and discuss the trade-off			
	Chem ONLY: Explain how the commercially used conditions for the Haber process are related to the			
	Chem ONL: Recall the names of the salts produced when phosphate rock is treated with nitric acid, sul-			
	Chem ONLY: Describe NPK fertilisers and the compounds they are composed of and compare the indus-			

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Physics

AQA Physics (8463) from 2016 Topics P4.1. Energy				
Topic	**Student Checklist**	**R**	**A**	**G**
4.1.1 Energy changes in a system, and the ways energy is stored before and after such changes	Define a system as an object or group of objects and state examples of changes in the			
	Describe how all the energy changes involved in an energy transfer and calculate relative changes in energy when the heat, work done or flow of charge in a system			
	Use calculations to show on a common scale how energy in a system is redistributed			
	Calculate the kinetic energy of an object by recalling and applying the equation: ***[E_k =***			
	Calculate the amount of elastic potential energy stored in a stretched spring by applying, but not recalling, the equation: ***[$E_e = ½ke^2$]***			
	Calculate the amount of gravitational potential energy gained by an object raised			
	Calculate the amount of energy stored in or released from a system as its tempera-			
	Define the term 'specific heat capacity'			
	Required practical 1: *investigation to determine the specific heat capacity of one or*			
	Define power as the rate at which energy is transferred or the rate at which work is			
	Calculate power by recalling and applying the ***equations: [P = E/t & P = W/t]***			
	Explain, using examples, how two systems transferring the same amount of energy			
4.1.2 Conservation and dissipation of energy	State that energy can be transferred usefully, stored or dissipated, but cannot be			
	Explain that only some of the energy in a system is usefully transferred, with the rest			
	Explain ways of reducing unwanted energy transfers and the relationship between			
	Describe how the rate of cooling of a building is affected by the thickness and ther-			
	Required practical 2: *investigate the effectiveness of different materials as thermal insulators and the factors that may affect the thermal insulation properties of a mate-*			
	Calculate efficiency by recalling and applying the equation: ***[efficiency = useful power***			
	HT ONLY: Suggest and explain ways to increase the efficiency of an intended energy			
4.1.3 National and global energy resources	List the main renewable and non-renewable energy resources and define what a			
	Compare ways that different energy resources are used, including uses in transport,			
	Explain why some energy resources are more reliable than others, explaining			
	Evaluate the use of different energy resources, taking into account any ethical and			
	Justify the use of energy resources, with reference to both environmental issues and			

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Physics

AQA Physics (8463) from 2016 Topics P4.1. Energy				
Topic	**Student Checklist**	**R**	**A**	**G**
4.1.1 Energy changes in a system, and the ways energy is stored before and after such changes	Define a system as an object or group of objects and state examples of changes in the			
	Describe how all the energy changes involved in an energy transfer and calculate relative changes in energy when the heat, work done or flow of charge in a system			
	Use calculations to show on a common scale how energy in a system is redistributed			
	Calculate the kinetic energy of an object by recalling and applying the equation: ***[E_k =***			
	Calculate the amount of elastic potential energy stored in a stretched spring by applying, but not recalling, the equation: ***[$E_e = ½ke^2$]***			
	Calculate the amount of gravitational potential energy gained by an object raised			
	Calculate the amount of energy stored in or released from a system as its tempera-			
	Define the term 'specific heat capacity'			
	Required practical 1: *investigation to determine the specific heat capacity of one or*			
	Define power as the rate at which energy is transferred or the rate at which work is			
	Calculate power by recalling and applying the ***equations: [P = E/t & P = W/t]***			
	Explain, using examples, how two systems transferring the same amount of energy			
4.1.2 Conservation and dissipation of energy	State that energy can be transferred usefully, stored or dissipated, but cannot be			
	Explain that only some of the energy in a system is usefully transferred, with the rest			
	Explain ways of reducing unwanted energy transfers and the relationship between			
	Describe how the rate of cooling of a building is affected by the thickness and ther-			
	Required practical 2: *investigate the effectiveness of different materials as thermal insulators and the factors that may affect the thermal insulation properties of a mate-*			
	Calculate efficiency by recalling and applying the equation: ***[efficiency = useful power***			
	HT ONLY: Suggest and explain ways to increase the efficiency of an intended energy			
4.1.3 National and global energy resources	List the main renewable and non-renewable energy resources and define what a			
	Compare ways that different energy resources are used, including uses in transport,			
	Explain why some energy resources are more reliable than others, explaining			
	Evaluate the use of different energy resources, taking into account any ethical and			
	Justify the use of energy resources, with reference to both environmental issues and			

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Physics

AQA Physics (8463) from 2016 Topics P4.1. Energy				
Topic	**Student Checklist**	**R**	**A**	**G**
4.1.1 Energy changes in a system, and the ways energy is stored before and after such changes	Define a system as an object or group of objects and state examples of changes in the			
	Describe how all the energy changes involved in an energy transfer and calculate relative changes in energy when the heat, work done or flow of charge in a system			
	Use calculations to show on a common scale how energy in a system is redistributed			
	Calculate the kinetic energy of an object by recalling and applying the equation: ***[E_k =***			
	Calculate the amount of elastic potential energy stored in a stretched spring by applying, but not recalling, the equation: ***[$E_e = ½ke^2$]***			
	Calculate the amount of gravitational potential energy gained by an object raised			
	Calculate the amount of energy stored in or released from a system as its tempera-			
	Define the term 'specific heat capacity'			
	Required practical 1: *investigation to determine the specific heat capacity of one or*			
	Define power as the rate at which energy is transferred or the rate at which work is			
	Calculate power by recalling and applying the ***equations: [P = E/t & P = W/t]***			
	Explain, using examples, how two systems transferring the same amount of energy			
4.1.2 Conservation and dissipation of energy	State that energy can be transferred usefully, stored or dissipated, but cannot be			
	Explain that only some of the energy in a system is usefully transferred, with the rest			
	Explain ways of reducing unwanted energy transfers and the relationship between			
	Describe how the rate of cooling of a building is affected by the thickness and ther-			
	Required practical 2: *investigate the effectiveness of different materials as thermal insulators and the factors that may affect the thermal insulation properties of a mate-*			
	Calculate efficiency by recalling and applying the equation: ***[efficiency = useful power***			
	HT ONLY: Suggest and explain ways to increase the efficiency of an intended energy			
4.1.3 National and global energy resources	List the main renewable and non-renewable energy resources and define what a			
	Compare ways that different energy resources are used, including uses in transport,			
	Explain why some energy resources are more reliable than others, explaining			
	Evaluate the use of different energy resources, taking into account any ethical and			
	Justify the use of energy resources, with reference to both environmental issues and			

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AQA Physics (8463) from 2016 Topics P4.1. Energy				
Topic	**Student Checklist**	**R**	**A**	**G**
4.1.1 Energy changes in a system, and the ways energy is stored before and after such changes	Define a system as an object or group of objects and state examples of changes in the			
	Describe how all the energy changes involved in an energy transfer and calculate relative changes in energy when the heat, work done or flow of charge in a system			
	Use calculations to show on a common scale how energy in a system is redistributed			
	Calculate the kinetic energy of an object by recalling and applying the equation: ***[E_k =***			
	Calculate the amount of elastic potential energy stored in a stretched spring by applying, but not recalling, the equation: ***[$E_e = ½ke^2$]***			
	Calculate the amount of gravitational potential energy gained by an object raised			
	Calculate the amount of energy stored in or released from a system as its tempera-			
	Define the term 'specific heat capacity'			
	Required practical 1: *investigation to determine the specific heat capacity of one or*			
	Define power as the rate at which energy is transferred or the rate at which work is			
	Calculate power by recalling and applying the ***equations: [P = E/t & P = W/t]***			
	Explain, using examples, how two systems transferring the same amount of energy			
4.1.2 Conservation and dissipation of energy	State that energy can be transferred usefully, stored or dissipated, but cannot be			
	Explain that only some of the energy in a system is usefully transferred, with the rest			
	Explain ways of reducing unwanted energy transfers and the relationship between			
	Describe how the rate of cooling of a building is affected by the thickness and ther-			
	Required practical 2: *investigate the effectiveness of different materials as thermal insulators and the factors that may affect the thermal insulation properties of a mate-*			
	Calculate efficiency by recalling and applying the equation: ***[efficiency = useful power***			
	HT ONLY: Suggest and explain ways to increase the efficiency of an intended energy			
4.1.3 National and global energy resources	List the main renewable and non-renewable energy resources and define what a			
	Compare ways that different energy resources are used, including uses in transport,			
	Explain why some energy resources are more reliable than others, explaining			
	Evaluate the use of different energy resources, taking into account any ethical and			
	Justify the use of energy resources, with reference to both environmental issues and			

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AQA Physics (8463) from 2016 Topics P4.2. Electricity				
Topic	**Student Checklist**	**R**	**A**	**G**
4.2.1 Current, potential difference and resistance	Draw and interpret circuit diagrams, including all common circuit symbols			
	Define electric current as the rate of flow of electrical charge around a closed circuit			
	Calculate charge and current by recalling and applying the formula: ***[Q = It]***			
	Explain that current is caused by a source of potential difference and it has the same value at any point in a single closed loop of a circuit			
	Describe and apply the idea that the greater the resistance of a component, the smaller the current for a given potential difference (p.d.) across the component			
	Calculate current, potential difference or resistance by recalling and applying the equation: ***[V = IR]***			
	Required practical 3: *Use circuit diagrams to set up and check circuits to investigate the factors affecting the resistance of electrical circuits*			
	Define an ohmic conductor			
	Explain the resistance of components such as lamps, diodes, thermistors and LDRs and sketch/interpret IV graphs of their characteristic electrical behaviour			
	Explain how to measure the resistance of a component by drawing an appropriate circuit diagram using correct circuit symbols			
	Required practical 4: *use circuit diagrams to construct appropriate circuits to investigate the I–V characteristics of a variety of circuit elements*			
4.2.2 Series and parallel circuits	Show by calculation and explanation that components in series have the same current passing through them			
	Show by calculation and explanation that components connected in parallel have the same the potential difference across each of them			
	Calculate the total resistance of two components in series as the sum of the resistance of each component using the equation: ***[$R_{total} = R_1 + R_2$]***			
	Explain qualitatively why adding resistors in series increases the total resistance whilst adding resistors in parallel decreases the total resistance			
	Solve problems for circuits which include resistors in series using the concept of equivalent resistance			
4.2.3 Domestic uses and safety	Explain the difference between direct and alternating voltage and current, stating what UK mains is			
	Identify and describe the function of each wire in a three-core cable connected to the mains			
	State that the potential difference between the live wire and earth (0 V) is about 230 V and that both neutral wires and our bodies are at, or close to, earth potential (0 V)			
	Explain that a live wire may be dangerous even when a switch in the mains circuit is open by explaining the danger of providing any connection between the live wire and earth			

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4.2.4 Energy transfers	Explain how the power transfer in any circuit device is related to the potential			
	Calculate power by recalling and applying the equations: ***[P = VI]*** and ***[$P = I^2 R$]***			
	Describe how appliances transfer energy to the kinetic energy of motors or the ther-			
	Calculate and explain the amount of energy transferred by electrical work by re-			
	Explain how the power of a circuit device is related to the potential difference			
	Describe, with examples, the relationship between the power ratings for domestic			
	Identify the National Grid as a system of cables and transformers linking power sta-			
	Explain why the National Grid system is an efficient way to transfer energy, with			
4.2.5 Static electricity	*PHY ONLY: Describe the production of static electricity by the rubbing of insulating*			
	PHY ONLY: Describe evidence that charged objects exert forces of attraction or repul-			
	PHY ONLY: Explain how the transfer of electrons between objects can explain the phenomenon of static electricity, including how insulators are charged and sparks are			
	PHY ONLY: Draw the electric field pattern for an isolated charged sphere			
	PHY ONLY: Explain the concept of an electric field and the decrease in its strength as			
	PHY ONLY: Explain how the concept of an electric field helps to Explain the non-contact force between charged objects as well as other electrostatic phenomena such			

Combined Science
Physics

AQA Physics (8463) from 2016 Topics P4.3. Particle model of matter					
TOPIC	**Student Checklist**	**R**	**A**	**G**	
4.3.1 Changes of state and the particle model	Calculate the density of a material by recalling and applying the equation: [ρ = m/V]				
	Recognise/draw simple diagrams to model the difference between solids, liquids and				
	Use the particle model to explain the properties of different states of matter and				
	Required practical 5: *use appropriate apparatus to make and record the measurements needed to determine the densities of regular and irregular solid objects and liquids*				
	Recall and describe the names of the processes by which substances change state				
	Use the particle model to explain why a change of state is reversible and affects the properties of a substance, but not its mass				
4.3.2 Internal energy and energy transfers	State that the internal energy of a system is stored in the atoms and molecules that				
	Explain that internal energy is the total kinetic energy and potential energy of all the				
	Calculate the change in thermal energy by applying but not recalling the equation				
	Calculate the specific latent heat of fusion/vaporisation by applying, but not recalling,				
	Interpret and draw heating and cooling graphs that include changes of state				
	Distinguish between specific heat capacity and specific latent heat				
4.3.3 Particle model and pressure	Explain why the molecules of a gas are in constant random motion and that the high-				
	Explain, with reference to the particle model, the effect of changing the temperature				
	Calculate the change in the pressure of a gas or the volume of a gas (a fixed mass held at constant temperature) when either the pressure or volume is increased or decreased				
	PHY ONLY: Explain, with reference to the particle model, how increasing the volume in which a gas is contained can lead to a decrease in pressure when the temperature is constant				
	PHY ONLY: Calculate the pressure for a fixed mass of gas held at a constant temperature by applying, but not recalling, the equation: [pV = constant]				
	PHY & HT ONLY: Explain how work done on an enclosed gas can lead to an increase				

Combined Science
Physics

AQA Physics (8463) from 2016 Topics P4.4. Atomic structure				
TOP-	**Student Checklist**	**R**	**A**	**G**
4.4.1 Atoms and isotopes	Describe the basic structure of an atom and how the distance of the charged particles			
	Define electrons, neutrons, protons, isotopes and ions			
	Relate differences between isotopes to differences in conventional representations of			
	Describe how the atomic model has changed over time due to new experimental evidence, inc discovery of the atom and scattering experiments (inc the work of James			
4.4.2 Atoms and nuclear radiation	Describe and apply the idea that the activity of a radioactive source is the rate at which its unstable nuclei decay, measured in Becquerel (Bq) by a Geiger-Muller tube			
	Describe the penetration through materials, the range in air and the ionising power			
	Apply knowledge of the uses of radiation to evaluate the best sources of radiation to			
	Use the names and symbols of common nuclei and particles to complete balanced			
	Define half-life of a radioactive isotope			
	HT ONLY: Determine the half-life of a radioactive isotope from given information and calculate the net decline, expressed as a ratio, in a radioactive emission after a			
	Compare the hazards associated with contamination and irradiation and outline suitable precautions taken to protect against any hazard the radioactive sources may pre-			
	Discuss the importance of publishing the findings of studies into the effects of radiation on humans and sharing findings with other scientists so that they can be checked			
4.4.3 Hazards and uses of radioactive emissions and of background radi-	*PHY ONLY: State, giving examples, that background radiation is caused by natural and man-made sources and that the level of radiation may be affected by occupation and/ or location*			
	PHY ONLY: Explain the relationship between the instability and half-life of radioactive isotopes and why the hazards associated with radioactive material differ according to the half-life involved			
	PHY ONLY: Describe and evaluate the uses of nuclear radiation in exploration of internal organs and controlling or destroying unwanted tissue			
	PHY ONLY: Evaluate the perceived risks of using nuclear radiation in relation to given data and consequences			
	PHY ONLY: Describe nuclear fission			
	PHY ONLY: Draw/interpret diagrams representing nuclear fission and how a chain reaction may occur			
	PHY ONLY: Describe nuclear fusion			

Combined Science
Physics

T6AQA Physics (8463) from 2016 Topics P4.5. Forces				
Topic	**Student Checklist**	**R**	**A**	**G**
4.5.1 Forces and their interactions	Identify and describe scalar quantities and vector quantities			
	Identify and give examples of forces as contact or non-contact forces			
	Describe the interaction between two objects and the force produced on each as a vector			
	Describe weight and explain that its magnitude at a point depends on the gravitational field strength			
	Calculate weight by recalling and using the equation: ***[W = mg]***			
	Represent the weight of an object as acting at a single point which is referred to as the object's 'centre of mass'			
	Calculate the resultant of two forces that act in a straight line			
	HT ONLY: describe examples of the forces acting on an isolated object or system			
	HT ONLY: Use free body diagrams to qualitatively describe examples where several forces act on an object and explain how that leads to a single resultant force or no force			
	HT ONLY: Use free body diagrams and accurate vector diagrams to scale, to resolve multiple forces and show magnitude and direction of the resultant			
	HT ONLY: Use vector diagrams to illustrate resolution of forces, equilibrium situations and determine the resultant of two forces, to include both magnitude and direction			
4.5.2 Work done and energy trans	Describe energy transfers involved when work is done and calculate the work done by recalling and using the equation: *[W = Fs]*			
	Describe what a joule is and state what the joule is derived from			
	Convert between newton-metres and joules.			
	Explain why work done against the frictional forces acting on an object causes a rise in the temperature of the object			
4.5.3 Forces and elasticity	Describe examples of the forces involved in stretching, bending or compressing an object			
	Explain why, to change the shape of an object (by stretching, bending or compressing), more than one force has to be applied – this is limited to stationary objects only			
	Describe the difference between elastic deformation and inelastic deformation caused by stretching forces			
	Describe the extension of an elastic object below the limit of proportionality and calculate it by recalling and applying the equation: ***[F = ke]***			
	Explain why a change in the shape of an object only happens when more than one force is applied			
	Describe and interpret data from an investigation to explain possible causes of a linear and non-linear relationship between force and extension			
	Calculate work done in stretching (or compressing) a spring (up to the limit of proportionality) by applying, but not recalling, the equation: ***[$E_e = ½ke^2$]***			
	Required practical 6: *investigate the relationship between force and extension for a spring.*			
4.5.4 Moments, levers and gears	*PHY ONLY: State that a body in equilibrium must experience equal sums of clockwise and anti-clockwise moments, recall and apply the equation:* ***[M = Fd]***			
	PHY ONLY: Apply the idea that a body in equilibrium experiences an equal total of clockwise and anti-clockwise moments about any pivot			
	PHY ONLY: Explain why the distance, d, must be taken as the perpendicular distance from the line of action of the force to the pivot			
	PHY ONLY: Explain how levers and gears transmit the rotational effects of forces			

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Physics

4.5.5 Pressure and pressure differences in fluid	*PHY ONLY: Describe a fluid as either a liquid or a gas and explain that the pressure in a fluid causes*			
	PHY ONLY: Recall and apply the equation: ***[p = F/A]***			
	PHY & HT ONLY: Explain why the pressure at a point in a fluid increases with the height of the			
	PHY & HT ONLY: Describe up thrust an object and explain why the density of the fluid has an			
	PHY & HT ONLY: Explain why an object floats or sinks, with reference to its weight, volume and			
	PHY ONLY: Describe a simple model of the Earth's atmosphere and of atmospheric pressure, ex-			
4.5.6 Forces and motion	Define distance and displacement and explain why they are scalar or vector quantities			
	Express a displacement in terms of both the magnitude and direction			
	Explain that the speed at which a person can walk, run or cycle depends on a number of factors			
	Make measurements of distance and time and then calculate speeds of objects in calculating aver-			
	Explain why the speed of wind and of sound through air varies and calculate speed by recalling			
	Explain the vector–scalar distinction as it applies to displacement, distance, velocity and speed			
	HT ONLY: Explain qualitatively, with examples, that motion in a circle involves constant speed			
	Represent an object moving along a straight line using a distance-time graph, describing its motion			
	Draw distance–time graphs from measurements and extract and interpret lines and slopes of dis-			
	Describe an object which is slowing down as having a negative acceleration and estimate the mag-			
	Calculate the average acceleration of an object by recalling and applying the equation: ***[a = Δv/t]***			
	Represent motion using velocity–time graphs, finding the acceleration from its gradient and dis-			
	HT ONLY: Interpret enclosed areas in velocity–time graphs to determine distance travelled (or			
	HT ONLY: Measure, when appropriate, the area under a velocity– time graph by counting square			
	Apply, but not recall, the equation: ***[$v^2 - u^2 = 2as$]***			
	PHY ONLY: Draw and interpret velocity-time graphs for objects that reach terminal velocity			
	PHY ONLY: Interpret and explain the changing motion of an object in terms of the forces acting on			
	PHY ONLY: Explain how an object falling from rest through a fluid due to gravity reaches its termi-			
	Explain the motion of an object moving with a uniform velocity and identify that forces must be in			
	Define and apply Newton's second law relating to the acceleration of an object			
	Recall and apply the equation: ***[F = ma]***			
	HT ONLY: Describe what inertia is and give a definition			
	Estimate the speed, accelerations and forces of large vehicles involved in everyday road			
	Required practical 7: *investigate the effect of varying the force on the acceleration of an object of*			

Combined Science
Physics

Apply Newton's Third Law to examples of equilibrium situations			
Describe factors that can affect a driver's reaction time			
Explain methods used to measure human reaction times and recall typical results			
Interpret and evaluate measurements from simple methods to measure the different reaction			
Evaluate the effect of various factors on thinking distance based on given data			
PHY ONLY: Estimate the distance required for an emergency stop in a vehicle over a range of typical			
PHY ONLY: Interpret graphs relating speed to stopping distance for a range of vehicles			
State typical reaction times and describe how reaction time (and therefore stopping distance) can			
Explain methods used to measure human reaction times and take, interpret and evaluate measure-			
Explain how the braking distance of a vehicle can be affected by different factors, including implica-			
Explain how a braking force applied to the wheel does work to reduce the vehicle's kinetic energy			
Explain and apply the idea that a greater braking force causes a larger deceleration and explain			
HT ONLY: Estimate the forces involved in the deceleration of road vehicles			

4.5.7 Momentum	**HT ONLY: Calculate momentum by recalling and applying the equation: *[p = mv]***			
	HT ONLY: Explain and apply the idea that, in a closed system, the total momentum be-			
	HT ONLY: Describe examples of momentum in a collision			
	PHY & HT ONLY: Complete conservation of momentum calculations involving two ob-			
	PHY & HT ONLY: Explain that when a force acts on an object that is moving, or able to			
	PHY & HT ONLY: Calculate a force applied to an object, or the change in momentum it			
	PHY & HT ONLY: Explain that an increased force delivers an increased rate of change of			
	PHY & HT ONLY: Apply the idea of rate of change of momentum to explain safety fea-			

Combined Science
Physics

AQA Physics (8463) from 2016 Topics P4.6. Waves				
Topic	**Student Checklist**	**R**	**A**	**G**
4.6.1 Waves in air, fluids and solids	Describe waves as either transverse or longitudinal, defining these waves in terms of the direc-			
	Define waves as transfers of energy from one place to another, carrying information			
	Define amplitude, wavelength, frequency, period and wave speed and Identify them where ap-			
	State examples of methods of measuring wave speeds in different media and Identify the suita-			
	Calculate wave speed, frequency or wavelength by applying, but not recalling, the equation: ***[v***			
	Identify amplitude and wavelength from given diagrams			
	Describe a method to measure the speed of sound waves in air			
	Describe a method to measure the speed of ripples on a water surface			
	PHY ONLY: Demonstrate how changes in velocity, frequency and wavelength are inter-related in			
	Required practical 8: *make observations to identify the suitability of apparatus to measure the*			
	PHY ONLY: Discuss the importance of understanding both mechanical and electromagnetic			
	PHY ONLY: Describe a wave's ability to be reflected, absorbed or transmitted at the boundary			
	PHY ONLY: Draw the reflection of a wave at a surface by constructing ray diagrams			
	Required practical 9 *(physics only): investigate the reflection of light by different types of surface*			
	PHY & HT ONLY: Describe, with examples, processes which convert wave disturbances be-			
	PHY & HT ONLY: Explain why such processes only work over a limited frequency range and the			
	PHY & HT ONLY: Define ultrasound waves and explain how these are used to form images of			
	PHY & HT ONLY: Compare the two types of seismic wave produced by earthquakes with refer-			
	PHY & HT ONLY: Describe how echo sounding using high frequency sound waves is used to detect objects in deep water and measure water depth			

Combined Science
Physics

4.6.2 Electromagnetic waves	Describe what electromagnetic waves are and explain how they are grouped			
	List the groups of electromagnetic waves in order of wavelength			
	Explain that because our eyes only detect a limited range of electromagnetic waves, they can only			
	HT ONLY: Explain how different wavelengths of electromagnetic radiation are reflected, refract-			
	Illustrate the refraction of a wave at the boundary between two different media by constructing ray			
	HT ONLY: Describe what refraction is due to and illustrate this using wave front diagrams			
	Required practical activity 10: *investigate how the amount of infrared radiation absorbed or radiat-*			
	HT ONLY: Explain how radio waves can be produced by oscillations in electrical circuits, or ab-			
	Explain that changes in atoms and the nuclei of atoms can result in electromagnetic waves being			
	State examples of the dangers of each group of electromagnetic radiation and discuss the effects of			
	State examples of the uses of each group of electromagnetic radiation, explaining why each type of			
	PHY ONLY: State that a lens forms an image by refracting light and that the distance from the lens			
	PHY ONLY: Explain that images produced by a convex lens can be either real or virtual, but those			
	PHY ONLY: Construct ray diagrams for both convex and concave lenses			
	PHY ONLY: Calculate magnification as a ratio with no units by applying, but not recalling, the formu-			
	PHY ONLY: Explain how the colour of an object is related to the differential absorption, transmission			
	PHY ONLY: Describe the effect of viewing objects through filters or the effect on light of passing			
	PHY ONLY: Explain why an opaque object has a particular colour, with reference to the wavelengths			
	PHY ONLY: State that all bodies, no matter what temperature, emit and absorb infrared radiation			
	PHY ONLY: Describe a perfect black body as an object that absorbs all the radiation incident on it			
	PHY ONLY: Explain why when the temperature is increased, the intensity of every wavelength of			
	PHY & HT ONLY: Explain and apply the idea that the temperature of a body is related to the bal-			
	PHY & HT ONLY: Describe how the temperature of the Earth as dependent on the rates of absorp-			

Combined Science
Physics

AQA Physics (8463) from 2016 Topics P4.7. Magnetism and electromagnetism				
TOPIC	**Student Checklist**	**R**	**A**	**G**
4.7.1 Permanent and induced magnetism, magnetic forces and fields	Describe the attraction and repulsion between unlike and like poles of permanent magnets			
	Draw the magnetic field pattern of a bar magnet, showing how field strength and direction			
	Explain how the behaviour of a magnetic compass is related to evidence that the core of the			
	Describe how to plot the magnetic field pattern of a magnet using a compass			
4.7.2 The motor effect	State examples of how the magnetic effect of a current can be demonstrated and explain how			
	Draw the magnetic field pattern for a straight wire carrying a current and for a solenoid			
	PHY ONLY: Interpret diagrams of electromagnetic devices in order to explain how they work			
	HT ONLY: State and use Fleming's left-hand rule and explain what the size of the induced			
	HT ONLY: Calculate the force on a conductor carrying a current at right angles to a magnetic			
	HT ONLY: Explain how rotation is caused in an electric motor			
	PHY & HT ONLY: Explain how a moving-coil loudspeaker and headphones work			
4.7.3 Induced potential, transformers and the National Grid	***PHY & HT ONLY: Describe the principles of the generator effect, including the direction of induced current, effects of Lenz' Law and factors that increase induced p.d.***			
	PHY & HT ONLY: Explain how the generator effect is used in an alternator to generate a.c.			
	PHY & HT ONLY: Draw/interpret graphs of potential difference generated in the coil against			
	PHY & HT ONLY: Explain how a moving-coil microphone works			
	PHY & HT ONLY: Explain how the effect of an alternating current in one coil inducing a cur-			
	PHY & HT ONLY: Explain how the ratio of the potential differences across the two coils de-			
	PHY & HT ONLY: Apply the equation linking the p.d.s and number of turns in the two coils of a transformer to the currents and the power transfer			
	PHY & HT ONLY: Apply but not recalling the equations: [Vs × Is = Vp × Ip] and [vp / vs =			

AQA Physics (8463) from 2016 Topics P4.8. Space physics				
TOPIC	**Student Checklist**	**R**	**A**	**G**
4.8.1 Solar system; stability of orbital motions; satellites	*PHY ONLY: List the types of body that make up the solar system and describe our solar system as part of*			
	PHY ONLY: Explain how stars are formed			
	PHY ONLY: Describe the life cycle of a star the size of the Sun and of a star which is much more massive			
	PHY ONLY: Explain how fusion processes lead to the formation of new elements and how supernovas			
	PHY & HT ONLY: Explain that, for circular orbits, the force of gravity leads to a constantly changing			
	PHY & HT ONLY: Explain that, for a stable orbit, the radius must change if the speed changes			
4.8.2 Red-shift	*PHY ONLY: Explain, qualitatively, the red-shift of light from galaxies that are receding and how this red-*			
	PHY ONLY: Explain why the change of each galaxy's speed with distance is evidence of an expanding			
	PHY ONLY: Explain how scientists are able to use observations to arrive at theories, such as the Big Bang			

History

GCSE History AQA
PLC Paper 1: Section A
Germany, 1890-1945: Democracy and dictatorship

Topic	I can explain...		Learning journey (class notes)	After learning challenge(s)	After Learning Journey
Part 1: Germany and the growth of democracy					
1. Kaiser Wilhelm and the difficulties of ruling Germany (before WW1)	Creation of a unified Germany (1871): • The growth of parliamentary government • The influence of Prussian militarism in Germany				
	Development of Germany • Industrialisation • Social reform and the growth of socialism				
	The domestic importance of the Navy Laws				
2. Impact of the First World War	War weariness and economic problems				
	The end of the monarchy – the rise of the Weimar Republic				
	Attitudes towards defeat				
	Post-war problems	• The issue of reparations • Occupation of the Ruhr			
		• Hyperinflation			
3. Weimar democracy	Why there was political change and unrest, 1919-1923 (Uprisings)	• Spartacists • Kapp Putsch • Red Rising in the Ruhr			
		• Munich Putsch			
	The extent of recovery during the Stresemann era (1924-1929)	• Introduction of a new currency			
		International agreements: • Dawes Plan • Young Plan • Locarno Pact			
		• The impact of international agreements on recovery			
	Weimar culture – a golden age?				

Before Learning Journey: My target for this term	After Learning Journey: My target for next term

GCSE History AQA
PLC Paper 1: Section A
Germany, 1890-1945: Democracy and dictatorship

Topic	I can explain...		Learning journey (class notes)	After learning challenge(s)	After Learning Journey
Part 3: The experiences of Germans under the Nazis					
1. Economic changes	• Hitler's economic changes – increasing employment, rearmament, self-sufficiency				
	• Economic plans – New Plan and 4 Year Plan				
	• Successes and drawbacks				
	• the impact of war on the economy and the German people	- Bombing - Rationing - Labour shortages - Refugees			
2. Social policy and practice	• Women	- reasons for policies - practices - impact and success			
	• Young people and youth groups	- reasons for policies - practices - education - impact			
	• control of churches and religion				
	• Aryan ideas, racial policy and persecution				
	• the Final Solution				
3. Control	• Goebbels, the use of propaganda and censorship				
	• Nazi culture				
	• repression and the police state and the roles of Himmler, the SS and Gestapo				
	• opposition and resistance	- White Rose group - Swing Youth - Edelweiss Pirates - July 1944 bomb plot			

Before Learning Journey: My target for this term	After Learning Journey: My target for next term

GCSE History AQA
PLC Paper 1: Section A
Germany, 1890-1945: Democracy and dictatorship

Topic	I can explain...		Learning journey (class notes)	After learning challenge(s)	After Learning Journey
Part 2: Germany and the Depression					
1. The impact of the Depression - rise of the Nazi party	• Reasons for the growth in support for the Nazis and other extremist parties (1928-1932)	- The Wall Street Crash - rise in unemployment; unhappiness with the Weimar government			
		- Hitler's appeal (his aims/beliefs; his leadership skills)			
		- Nazi party tactics (including their organisation, propaganda and promises)			
		- Fear of communism and the role of the SA			
2. The failure of Weimar democracy	• Election results after 1928 – Who voted for the Nazis? Why?				
	• Hitler's appointment as Chancellor – the role of Papen and Hindenburg.				
3. The establishment of Hitler's dictatorship	1933	• the Reichstag Fire • the Enabling Act • elimination of political opposition • elimination of trade unions			
	1934	• Rohm and the Night of the Long Knives			
		• Death of Hindenburg - Hitler becomes Führer			

Before Learning Journey: My target for this term	After Learning Journey: My target for next term

History

GCSE History AQA
PLC Paper 2: Section A
Migration, Empires and the people: 790 CE to Present day

Topic	I can explain...		Before Learning journey	Learning challenge (mark)	After Learning Journey
Part 1: Conquered and Conquers					
1. Early Britain	• Introduction to the course • Early Britons and the Viking invasion • Alfred and the Danelaw				
	• Cnut and the North Sea Empire Pt 1- Aethelred and Emma of Normandy				
	• Cnut and the North Sea Empire Pt2 - Emma of Normandy and Cnut				
2.Impact of the Norman invasion and the expansion of the Empire	• How did the Normans Govern England				
	• Henry II and the Angevin Empire				
	• Why did the Angevin Empire collapse under King John?				
3. The Hundred years war and its impact on England	• The Hundred Years war	• The Hundred years war			
		• Legacy and significance of the war			

Before Learning Journey: My target for this term	After Learning Journey: My target for next term

GCSE History AQA
PLC Paper 2: Section A
Migration, Empires and the People

Topic	I can explain...		Learning journey (class notes)	Learning challenge(mark)	After Learning journey
Part 2: Looking West					
1. Tudor and Stuart Exploration	• Why did the Tudors begin to explore?	• Cabot			
		• Colonisation			
		• Sir John Hawkins			
	• Why was Piracy replaced by Plantations				
	• The Impact of the Slave Trade on Britain				
2. Colonisation of the Americas	• British colonies in America • The Importance of Sir Walter Raleigh • 13 colonies				
	• British Colonies in the Americas				
	• Impact of Native Americans - Case studies: Massachusetts and James town				
	• How Does Walt Disney show the effect of colonisation				
	• Why did America want independence?				
	• What was the impact of the American war of Independence				
3. Migration to and from Britain	• The First 'Refugee's: The Huguenots migration				
	• Scotland and Ireland	• Highland clearances			
		• Ulster plantations			

Before Learning Journey: My target for this term	After Learning Journey: My target for next term

GCSE History AQA
PLC Paper 2: Section A
Empires, Migration and the People: 790CE to Present day

Topic	I can explain...	Learning journey (class notes)	After learning challenge(s)	After Learning Journey
Part 3: Expansion and empire				
1. Britain and India	• How did Britain gain control of India			
	• The Sepoy Uprising 1857			
	• The impact of empire on India and Britain			
2. Africa, Rhodes and the Empire	• Why did Britain join the Scramble for Africa?			
	• The Impact of Rhodes: Should the statue of Rhodes be removed?			
	• Why did Britain get involved in Egypt?			
	• Why did Britain fight the Boer war? - Impact of the Boer war on Africa and Britain			
	• What did The British think of their Empire?			
3. 19th Century migration to Britain	• Why were the Irish forced to migrate?			
	• What was the impact of the Irish migration on the empire			
	• What was the impact of the Jewish Migration on Britain			
	• Why did some many people migrate in the 19th C			

Before Learning Journey: My target for this term	After Learning Journey: My target for next term

GCSE History AQA
PLC Paper 2: Section A
Health and the People: c1000 to the present day

Topic	I can explain...		Learning journey (class notes)	After learning challenge(s)	After Learning Journey
Part 4: Britain in the 20th and 21st Century					
1. Impact of the Wars	• Weaking of the Empire	- Impact of WW1			
		- Impact of WW2			
	• Post WW migration				
	• Modern diseases and treatments including alternative treatments				
	• Current healthcare issues including antibiotic resistance				
2. Windrush and their impact	• The Windrush Generation				
	• Impact and reaction to the Windrush Generation				
3. legacy of empire and Modern Britain	• Impact of the Falklands War				
	• Britain and its relationship with Europe				
	• Migration in Europe				
	• Immigration to the UK				

Before Learning Journey: My target for this term	After Learning Journey: My target for next term

History

GCSE History AQA
PLC Paper 2: Section B
Elizabethan England c.1568-1603

Topic	I can explain…	Learning journey (class notes)	After learning challenge	After Learning Journey
Part 1: Elizabeth's Court and Parliament				
1. Elizabeth I and her Court	• The background and character of Elizabeth I			
	• Court Life, including patronage			
	• Structure of Elizabethan government – Privy Council, Parliament, royal progresses, the Court			
	• Key ministers			
2. The difficulties of a female ruler	• Relations with Parliament			
	• The problem of marriage and the succession			
	• The strength of Elizabeth's authority at the end of her reign, including Essex's rebellion in 1601			

Before Learning Journey: My target for this term	After Learning Journey: My target for next term

GCSE History AQA
PLC Paper 2: Section B
Elizabethan England c.1568-1603

Topic	I can explain…	Learning journey (class notes)	After learning challenge	After Learning Journey
Part 2: Life in Elizabethan Times				
1. A 'Golden Age'	• Social structure, living standards and fashions			
	• Growing prosperity and the rise of the gentry (including changes to architecture, music, & art)			
	• The Elizabethan theatre and its achievements			
	• Attitudes to the theatre			
2. The poor	• Reasons for the increase in poverty			
	• Attitudes and responses to poverty			
	• The reasons for government action and the seriousness of the problem.			
3. English Sailors	• Hawkins and Drake			
	• Circumnavigation 1577-1580, voyages and trade			
	• The role of Raleigh			

Before Learning Journey: My target for this term	After Learning Journey: My target for next term

GCSE History AQA
PLC Paper 2: Section B
Elizabethan England c.1568-1603

Topic	I can explain…	Learning journey (class notes)	After learning challenge	After Learning Journey
Part 3: Trouble at home and abroad				
1. Religious matters	• Elizabethan religious settlement			
	• The Northern Rebellion			
	• Elizabeth's excommunication			
	• Catholic plots and the threat to the Elizabethan settlement including missionaries (Jesuits)			
	• The nature, ideas and threat of the Puritans and Puritanism			
	• Elizabeth and her government's responses and policies towards religious matters			
2. Mary Queen of Scots	• Her background			
	• Elizabeth and Parliament's treatment of Mary			
	• The challenge posed by Mary (including the Ridolfi Plot; Throckmorton Plot; Babington Plot)			
	• Execution and its impact			
3. Conflict with Spain	• reasons for			
	• events during			
	• Naval warfare, including tactics and technology			
	• The defeat of the Spanish Armada			

Before Learning Journey: My target for this term	After Learning Journey: My target for next term

GCSE History AQA
PLC Paper 2: Section B
Elizabethan England c.1568-1603

Topic	I can explain…	Learning journey (class notes)	After learning challenge	After Learning Journey
Part 4: Historic Environment				
Lord Burghley's Almshouses	• Location			
	• Function			
	• The structure			
	• People connected with the site:			
	• Design			
	• How the design reflects the culture, values, fashions of the people at the time			
	• How the key features of the site have changed or stayed the same from earlier periods			

Before Learning Journey: My target for this term	After Learning Journey: My target for next term

History

Paper 1: Understanding the modern world	Paper 2: Shaping the nation
How it's assessed • Written exam: 2 hours • 84 marks (including 4 marks for SPaG and specialist terminology) • 50 % of GCSE	**How it's assessed** • Written exam: 2 hours • 84 marks (including 4 marks for SPaG and specialist terminology) • 50 % of GCSE
Section A **Germany, 1890-1945: Democracy and dictatorship** 6 Questions 40 marks **Topics to revise**: Germany and the growth of democracy including: Kaiser Wilhelm; Impacts of WW1; Weimar Republic Germany and the depression including: impacts of; failure of Weimar Republic; establishment of Hitler's dictatorship The experiences of Germans under the Nazis including: the economy, women, youth and racial policy See PLC for more specific detail	**Section A** **Britain: Migration, empires and the people, c790 to the present day** 4 Questions 40 marks (+ 4 SPaG) **Topics to revise**: Conquered and conquerors including: invasion of Vikings and Anglo-Saxons; King Alfred; King Cnut and North Sea Empire Looking West including: piracy and profiteering; development and impact of the slave trade; colonisation in North America; Migration to/from Britain Expansion and Empire including: expansion in India; expansion in Africa; further migration to/from Britain Britain in the 20th Century including: End of Empire; legacy of Empire; Britain's relationship with Europe. See PLC for more specific detail
Section B **Conflict and Tension: the inter-war years, 1918-1939** 4 Questions 40 marks (+ 4 SPaG) **Topics to revise**: Peace making including: Aims of the Peacemakers; terms of Treaty of Versailles (ToV); impact of the ToV The League of Nations including: its formation, actions (successes and failures) and its collapse Origins and outbreak of WW2 including: Development of tensions (Hitler's first steps to rearmament); escalation of tensions; outbreak of war See PLC for more specific detail	**Section B** **Elizabethan England, c1568-1603** 4 Questions 40 marks **Topics to revise**: Elizabeth's court and Parliament including: life at court; the difficulties of a female ruler; strength of Elizabeth's reign Life in Elizabethan times including: prosperity and achievements; poverty; exploration Troubles at home and abroad including: Religious conflict; Mary Queen of Scots; Conflict with Spain Historic Environment – Sheffield Manor See PLC for more specific detail

History

Helpful revision sources

CGP Revision guide
All students have been given a revision guide to use

A range of retrieval and activity booklets including:
- key knowledge questions and answer (for pupils to self-test),
- Question banks – covering the topics and different question styles (that encourage the application of knowledge)

SENECA – https://senecalearning.com/en-GB/
Overview knowledge questions – that can be tested and retested

GCSE Pod - https://www.gcsepod.com/
Helpful short videos linked specifically to the AQA History topics

Tutor 2u - https://www.tutor2u.net/history
Has both free and subscription resources, to help with knowledge AND exam technique

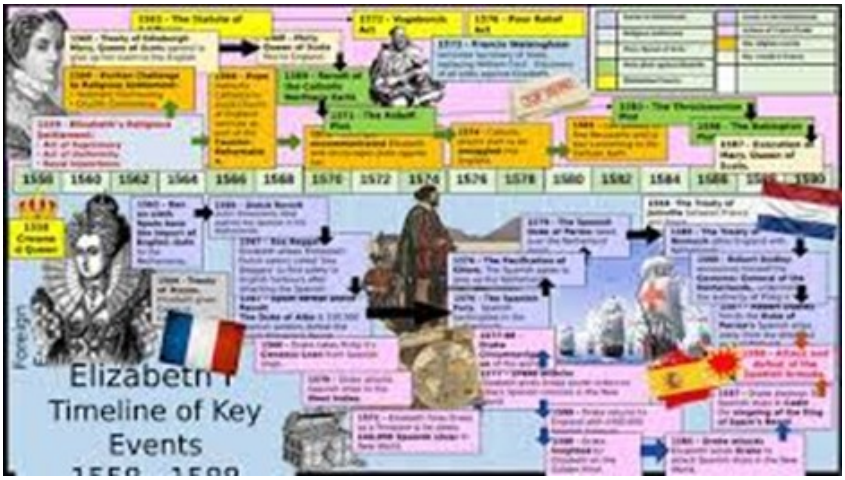
YouTube
Has a range of videos covering content and exam technique. Search for:

'AQA GCSE history (+topic)'

e.g., AQA GCSE history Treaty of Versailles

Podcasts (freely accessible):

'You're dead to me' - by Greg Jenner (who wrote Horrible Histories). It covers all the GCSE subjects with some key figures and events in detail. Available on BBC sounds



Geography

Paper 1: Living with the physical environment **Section A: The challenge of natural hazards**	**Learning Journey: CLASS NOTES**	**Learning Consolidation: RE-VISION NOTES**	**Learning Challenge: Exam Question /9 + SPaG**
Natural hazards - introduction			
Definition of a natural hazard. Types of natural hazard.			
Tectonic hazards			
Describe and explain the distribution of earthquakes and volcanoes			
Plate tectonics theory			
The physical processes taking place at different types of plate margins (constructive,			
The effects of and responses to a tectonic hazard vary between areas of contrasting			
Primary and secondary effects of a tectonic hazard.			
Immediate and long-term responses to a tectonic hazard.			
Case study of an earthquake in an LIC			
Case study of an earthquake in an HIC			
Comparison and evaluation of the levels of impacts and effectiveness of responses			
Explain why people choose to live in tectonically active areas			
Describe and explain how countries are reducing the risk of tectonic hazards by			
Weather hazards			
General atmospheric circulation model: pressure belts and surface winds.			
Global distribution of tropical storms (hurricanes, cyclones, typhoons). An understanding of the relationship between tropical storms and general atmos-			
Cause of tropical storms and the sequence of their formation and development.			
How climate change might affect the distribution, frequency and intensity of tropi-			
Tropical storms have significant effects on people and the environment.			
Primary and secondary effects of tropical storms.			
Immediate and long-term responses to a tropical storm.			
Use named example of a tropical storm to show its effects and responses.			
How monitoring, prediction, protection and planning can reduce the effects of trop-			

Geography

Extreme weather in the UK			
Overview of types of weather hazard experienced in the UK.			
One example of a recent extreme weather event in the UK to illustrate: • causes • social, economic and environmental impacts • how management strategies can reduce risk			
Evidence that weather is becoming more extreme in the UK.			
Climate change			
Evidence for climate change from the beginning of the Quaternary period to the present day. Possible causes of climate change: Natural factors: orbital changes, volcanic activity and solar output. Human factors: use of fossil fuels, agriculture and deforestation			
Overview of the effects of climate change on people and the environment.			
Managing climate change: mitigation – alternative energy production, carbon capture, planting trees, international agreements adaptation – change in agricultural systems, managing water supply, reducing risk from rising sea levels.			
Prior Knowledge: Unit Learning Consolidation: Economic World Retrieval Booklet			
Current Content Unit Learning Challenge: Assessment _____% Grade: _____			

Geography

Paper 1: Living with the physical environment **Section B: Living World** **(Ecosystems, Biomes, Tropical Rainforests and Hot Deserts)**	**Learning Journey: CLASS NOTES**	**Learning Consolidation: RE-VISION NOTES**	**Learning Challenge: Exam Question /9 + SPaG**
Ecosystems - introduction			
Define what an ecosystem is and know their key components Describe and Explain how changes to an ecosystem can have a knock on effect on its features, food chains and food webs			
Describe and explain the distribution of global biomes Describe explain and characteristics of biomes			
One example of a small-scale UK ecosystem, to illustrate the concept of interrelationships within a natural system, an understanding of producers, consumers, decomposers, food chain, food web and nutrient cycle.			
Tropical rainforests			
The physical characteristics of a tropical rainforest. The interdependence of climate, water, soils, plants, animals and people.			
Describe and explain how plants and animals adapt to the physical environment			
Issues related to biodiversity.			
Changing rates of deforestation. A case study of a tropical rainforest to illustrate: causes of deforestation – subsistence and commercial farming, logging, road building, mineral extraction, energy development, settlement, population growth			
A case study of a tropical rainforest to illustrate: impacts of deforestation - economic development, soil erosion, loss of biodiversity, contribution to climate change.			

Geography

Value of tropical rainforests to people and the environment			
Strategies used to manage the rainforest sustainably: selective logging and replanting conservation and education ecotourism and international agreements about the use of tropical hardwoods debt reduction. Evaluation of these strategies			
Hot deserts			
The physical characteristics of a hot desert. The interdependence of climate, water, soils, plants, animals and people.			
Describe and Explain how plants and animals adapt to the physical conditions. Issues related to biodiversity.			

A case study of a hot desert to illustrate: development opportunities in hot desert environments: mineral extraction, energy, farming, tourism challenges of developing hot desert environments: extreme temperatures, water supply, inaccessibility.			
Causes of desertification: climate change population growth removal of fuel wood overgrazing over-cultivation and soil erosion. Strategies used to reduce the risk of desertification: • water and soil management, • tree planting and use of appropriate technology.			
Prior Knowledge: Unit Learning Consolidation: Urban Retrieval Booklet			
Current Content Unit Learning Challenge: Assessment _____% Grade: _____			

Geography

Paper 2: Challenges in the human environment Section A: Urban issues and challenges	Learning Journey: CLASS NOTES	Learning Consolidation: RE-VISION NOTES	Learning Challenge: Exam Question /9 +SPaG
A growing percentage of the world's population lives in urban areas			
Describe and explain the global pattern of urban change			
Describe urban trends in different parts of the world comparing HICs and LICs.			
Describe and explain factors affecting the rate of urbanisation – migration (push–pull theory), natural increase.			
Describe the emergence of megacities.			
Urban growth creates opportunities and challenges for cities in LICs and NEEs			
A case study of a major city in an LIC or NEE:			
Describe the location and explain the importance of the city, regionally, nationally and internationally			
Describe and explain the causes of growth: natural increase and migration			
Explain how urban growth has created opportunities: • social: access to services – health and education; access to resources – water supply, energy • economic: how urban industrial areas can be a stimulus for economic development			
Explain how urban growth has created challenges: • managing urban growth – slums, squatter settlements • providing clean water, sanitation systems and energy • providing access to services such as health and education • reducing unemployment and crime • managing environmental issues – waste disposal, air and water pollution, traffic congestion.			
Using an example describe and explain how urban planning is improving the quality of life for the urban poor.			
Urban change in cities in the UK leads to a variety of social, economic and environmental opportunities and challenges.			
Describe the distribution of population and the major cities in the UK.			
A case study of a major city in the UK:			
•describe the location and explain the importance of the city in the UK and the wider world			
•describe and explain the impacts of national and international migration on the growth and character of the city			

Geography

Describe and explain and assess how urban change has created opportunities: social and economic: cultural mix, recreation and entertainment, employment, integrated transport systems, environmental: urban greening			
Describe and explain and assess how urban change has created challenges: • social and economic: urban deprivation, inequalities in housing, • environmental: dereliction, building on brownfield and greenfield • the impact of urban sprawl on the rural–urban fringe, and the			
Using an example of an urban regeneration project to describe, ex- • the reasons why the area needed regeneration • the main features of the project.			
Urban sustainability requires management of resources and transport.			
Describe, explain and assess the features of sustainable urban living • water and energy conservation • waste recycling • creating green space.			
Describe and explain how urban transport strategies are used to reduce traffic con-			
Prior Knowledge: Unit Learning Consolidation: River and Coasts Retrieval Booklet			
Current Content Unit Learning Challenge: Assessment _____% Grade: _____			

Geography

Paper 2: Challenges in the human environment **Section B: The changing economic world**	**Learning Journey - CLASS NOTES**	**Learning Consolidation- REVISION NOTES**	**Learning Challenge: Exam Question /9 + SPaG**
There are global variations in economic development and			
Explain that there are different ways of classifying parts of the world according to their level of economic develop-			
Describe and explain the different economic and social measures of development: gross national income (GNI) per head, birth and death rates, infant mortality, life expectancy, people per doctor, literacy rates, access to safe water,			
Explain the limitations of different measures of development			
Describe and explain the links between stages of the De-			
Describe and explain the causes of uneven development:			
Describe and explain the consequences of uneven devel-			
Various strategies exist for reducing the global develop-			
Overview of the strategies used to reduce the development gap: • Investment • industrial development • tourism • aid • using intermediate technology • fair trade			
Using an example describe and explain how the growth of tourism in an LIC or NEE helps to reduce the development gap.			

Geography

Some LICs and NEEs are experiencing rapid economic development which leads to significant social, environmental			
Explain the location and importance of the country, regionally and globally			
Describe and explain the wider political, social, cultural and			
Outline explain the changing industrial structure of the country, the balance between different sectors of the economy and how manufacturing industry can stimulate			
Outline the role of transnational corporations (TNCs) in relation to industrial development. Explain and evaluate the advantages and disadvantages of TNC(s) to the host coun-			

Describe the changing political and trading relationships			
Describe international aid and the types of aid and explain			
Describe the environmental impacts of economic develop-			
Describe the effects of economic development on quality			

Geography

Major changes in the economy of the UK have affected, and will continue to affect, employment patterns and regional growth.			
describe and explain the causes of economic change: de-industrialisation and decline of traditional industrial base, globalisation and government policies			
describe and explain reasons for moving towards a post-industrial economy: development of information technology, service industries, finance, research, science and business parks			
Describe the impacts of industry on the physical environment. Using an example explain how modern industrial development can be more environmentally sustainable			
Describe and explain the social and economic changes in the rural landscape in one area of population growth and one area of population decline			
Describe and explain the improvements and new developments in road and rail infrastructure, port and airport capacity			
Explain the north–south divide. Outline strategies used in an attempt to resolve regional differences			
Describe the place of the UK in the wider world. Describe and explain the links through trade, culture, transport, and electronic communication and the economic and political links looking specifically at the European Union (EU) and Commonwealth.			
Prior Knowledge: Unit Learning Consolidation: Living World Retrieval Booklet			
Current Content Unit Learning Challenge: Assessment _____% Grade: _____			

Geography

Water ***Key Idea - Demand for water resources is rising globally but supply can be insecure, which may lead to conflict.***			
Describe and explain areas of surplus (security) and deficit (insecurity)			
Describe an explain reasons for increasing water consumption: economic development, rising population			
Describe and explain factors affecting water availability: climate, geology, pollution of supply, over-abstraction, limited infrastructure, poverty.			
Describe, explain and assess the impacts of water insecurity – waterborne disease and water pollution, food production, industrial output, potential for conflict where demand exceeds supply.			
Key Idea - Different strategies can be used to increase water supply. ***Outline the strategies used to increase water supply:***			
• diverting supplies and increasing storage, dams and reservoirs, water transfers and desalination			
• use an example of a large scale water transfer scheme to show how its development has both advantages and disadvantages.			
Explain and discuss the moving towards a sustainable resource future using:			
• water conservation, groundwater management, recycling, 'grey' water			
• use an example of a local scheme in an LIC or NEE to describe and explain how to increase sustainable supplies of water.			
Prior Knowledge: Unit Learning Consolidation: Ecosystems, Deserts, TRF retrieval Booklet			
Current Content Unit Learning Challenge: Assessment _____% Grade: _____			

Spanish

Topics for Year 11 revision guide from your revision organiser

Theme 1: Identity and Culture.

Topics:

- Me, my family and friends
- Technology in everyday life
- Free time activities
- Customs and festivals in Spanish speaking countries

Theme 2: Local, National, International and Global areas of interest.

Topics:

- Home, town, neighbourhood and region
- Charity and voluntary work
- Healthy living
- The environment
- Poverty and homelessness
- Travel and tourism

Theme 3: Current and Future study and employment.

Topics:

- My studies
- Life at school
- Education post- 16
- Jobs, career choices and ambitions

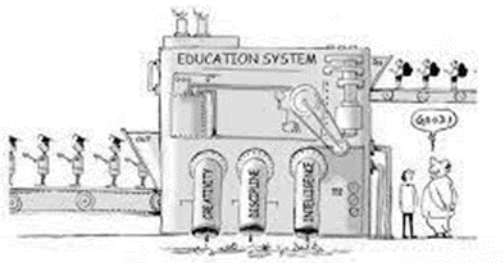
All topic related vocabulary is in GCSE knowledge organiser, together with essential grammar.

Sociology

key areas to revise: use PLC's and revision pages on One Note to support this

Social Stratification	Crime and Deviance
Revise Key definitions (highlighted in booklets)	Revise Key definitions (highlighted in booklets)
Theories- Functionism, Marxism, Feminism, interactionism	Theories- Functionism, Marxism, Feminism, interactionism, New Right
Key theorists- Davis and Moore, Devine, Weber, Murray, Town-	Key theorists- Becker, Carlen, Co-hen, Heidensohn, Merton
Key themes- Life chances, distri-bution of power, links to class, gender and ethnicity	Key themes- Causes of crime, dif-ferent forms of crime statistics, links to class, gender and ethnicity

Families and Households	Education
Revise Key definitions (highlighted	Revise Key definitions (highlighted
Theories- Functionism, Marxism, Feminism, New Right	Theories- Functionism, Marxism, Feminism, interactionism
Key theorists- Rapoport and Rapoport, Oakley, Delphy and Leonard, Parsons, Young and Wil-mott, Zaretsky	Key theorists- Ball, Ball Bowe and Gerwitz, Durkheim, Parsons, Bowles and Gintis, Willis, Halsey, Heath and Ridge
Key themes- Different family struc-tures, marriage and divorce rates, links to class, gender and ethnicity	Key themes- Different school types, internal vs external factors, links to class, gender and ethnicity



Health & Social Care

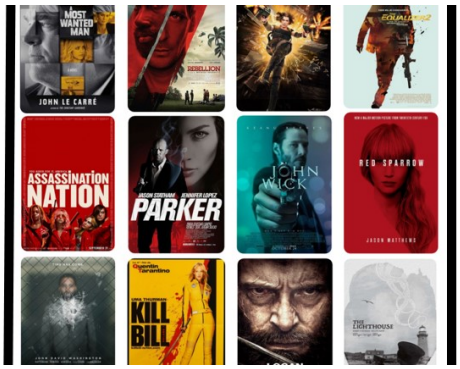
Key areas to revise

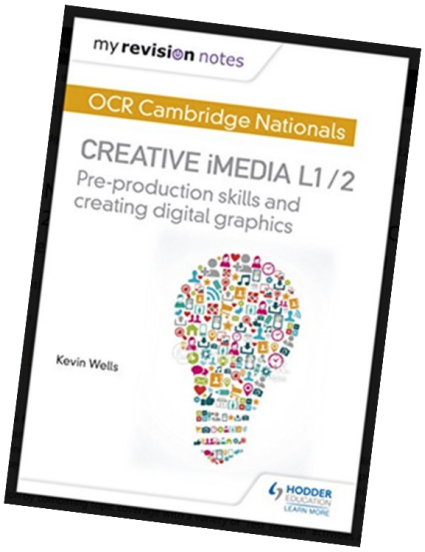
Maintaining Rights LO1	Importance of Care Values LO2
Choice, Confidentiality, Protection form abuse and harm, Equal and Fair treatment, consultation	What are they? Where are they applied?
Why is it important – Impact of NOT applying	H&SC - Promoting equality and diversity. Maintaining confidentiality, promoting rights and beliefs
Complaints procedures	EY – Welfare paramount, keeping children safe, partnership families, encouraging learning, valuing diversity, equality of opportunity
Providing advocacy	Why are they important? Reflective practice, Effects on PIES if not applied

What does legislation do? LO3	Personal Hygiene LO4
Vulnerable groups covered	Protecting individuals
Equality Act 2010, Children's Act 2004, Data protection Act 1998, HASAWA 1974, MH Act 2007	Safety procedures emergency, moving and handling
How legislation impacts service users, providers	Methods for reducing spread of infection, methods for reducing risks and dangers
Legislation as a system of redress	Procedures to prevent accidents and promote good practice

Creative I Media

- Pre-production documents – what are they and what elements do they include?
-
- Client briefs
- Mood boards
- Mind maps
- Visualisation diagrams
- Storyboards
- Scripts
- Workplans
- Location recce
- Media legislation
- Target audience, primary and secondary research
- Hardware and software
- Health and safety requirements
- File formats





Catering

REVISION TOPICS

SUBJECT: AQA FOOD PREPARATION AND NUTRITION

TOPIC/AREA

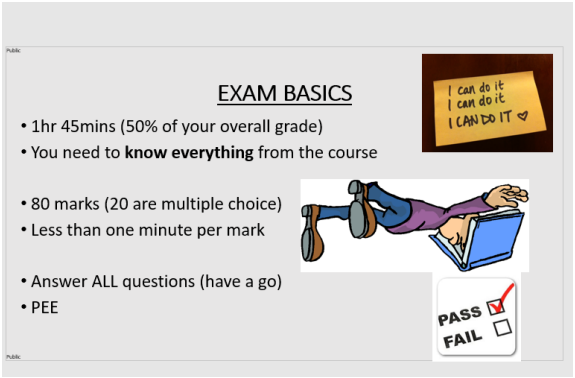
Food, Nutrition and Health
- Protein, Fats and Carbohydrates
- Vitamins and Minerals
- Fibre and Water
- Healthy eating guidelines
- Nutritional needs
- Diet related health problems
- Energy needs
- Nutritional Analysis
- Planning meals for different groups

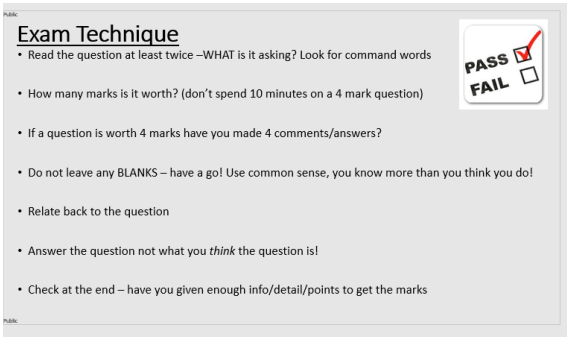
Food Science
- Why is food cooked
- Heat transfer and cooking methods
- Changing properties
- Raising agents

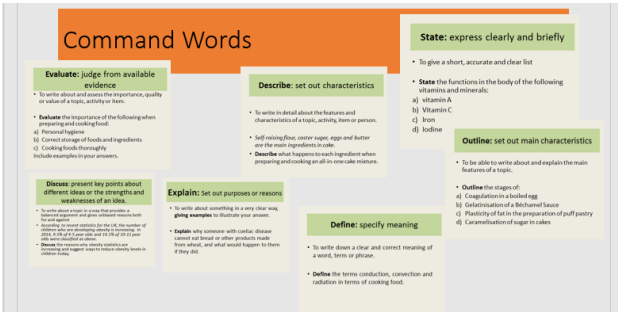
Food safety
- Food spoilage
- Storing food safely and preparing food safely
- Food poisoning
- Uses of microorganisms

Food choice
- Influences on food choice
- Cultural religious and moral food choices
- Food labelling and Influences of marketing

Food provenance
- Grown food and GM crops
- Reared food and Caught food
- Waste food and Packaging
- Food miles and carbon footprint
- Global food production
- Primary food processing and Secondary food processing
- Food fortification and modification
- Additives







Use **GCSEbitesize** for content, short video clips and tests (make a note of your test scores https://www.bbc.co.uk/bitesize/subjects/zdn9jhv

Use **GCSEpod** for short podcasts on most if the topics. https://members.gcsepod.com/shared/podcasts#6006/6013

SENECA

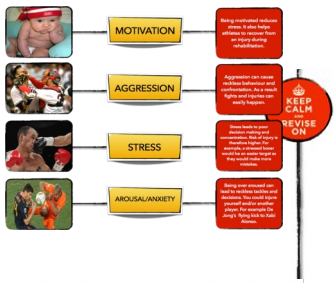
Catering

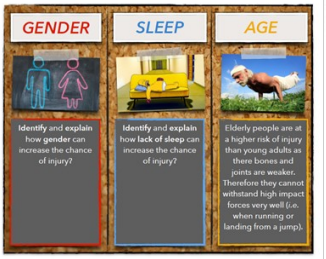
USEFUL APPS/BLOGS/BOOKS ETC
GCSE Food Preparation& Nutrition For AQA (Grade 9-1)
AQA GCSE Food Preparation and Nutrition (Anita Tull Gary Little wood)
https://www.aqa.org.uk/subjects/food/gcse/food-preparation-and-nutrition-8585
https://foodafactoflife.org.uk/14-16-years/ Useful you tube experiments https://www.youtube.com/watch?v=0oaQVdSXR48&app=desktop Different flours > amount of gluten > stretching dough https://www.youtube.com/watch?v=0USi4DbRVVQ Raising agents https://www.youtube.com/watch?v=bJ7uXScRTWw Coagulation https://www.youtube.com/watch?v=vg5k6t6uZwE Conduction of heat https://www.youtube.com/watch?v=xyQY8a-ng6g Effects of food on your brain https://www.youtube.com/watch?v=JIhhAPxEY6I Food contamination https://www.youtube.com/watch?v=2QQvhFPZedM Foodborne illnesses (11mins) https://www.youtube.com/watch?v=eKaBQrFdNtw Digestion (7mins) https://www.youtube.com/watch?v=9iMGFqMmUFs What happens If we do not drink water (5mins) http://ed.ted.com/lessons/how-the-food-you-eat-affects-your-brain-mia-nacamulli How the food we eat affects our brain http://ed.ted.com/lessons/what-is-a-calorie-emma-bryce What is a calorie? http://www.bbcgoodfood.com/videos/techniques/knife-skills Knife skills https://www.youtube.com/watch?v=TGSgZiEUdYw 4 Cshttps://www.youtube.com/watch?v=8aWqZd9RScQ Eatwell Guide https://www.youtube.com/watch?v=UyDqrhQLOHM https://www.youtube.com/watch?v=iQ0dvzA1ynY Intro to food allergens https://www.youtube.com/watch?v=rNARXtO1Gr0 Intro to Food room – safety & hygiene https://www.youtube.com/watch?v=RkdBKb0nokM Hugh's fat fight https://www.bbc.co.uk/iplayer/episode/b0b0y27w/britains-fat-fight-with-hugh-fearnleywhittingstall-series-1-episode-1

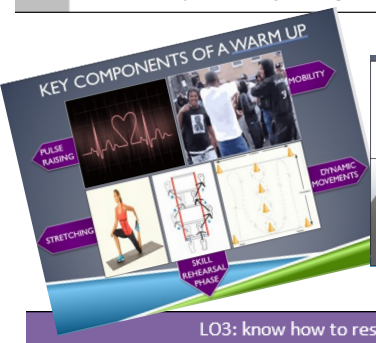
TOP REVISION TIPS!
Plan out a revision schedule
Make flash cards from the revision power point given
Don't revise while hungry
Practice, Practice, Practice

OCR Sport Science

LO1 : Understand different factors which influence the risk of injury, Extrinsic risk factors of injury LEARNING OUTCOMES	
1	Identify the 5 different **extrinsic risk factors** which can influence injury
2	Describe/explainhow the **type of activity** can cause an injury
3	Describe/explainhow **coaching/supervision** can cause an injury
4	Describe/explain how**equipment** can cause an injury
5	Describe/explainhow **safety hazards** can cause an injury
6	Describe/explainhow **environmental factors** can cause an injury
7	Identify the 5 different**intrinsic risk factors** which can influence injury
8	Describe/explain**how physical preparation** can cause an injury
9	Describe/explain how**individual variables** can cause an injury
10	Describe/explain how**psychological factors** can cause an injury
11	Describe/explainhow **posture and causes of poor posture** can cause an injury
12	Describe/explainhow **sports injuries related to poor posture** can cause an injury

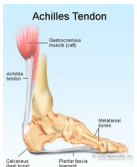


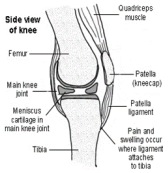




LO2: Understand how appropriate warm up & cool Down routines can help to prevent injury LEARNING OUTCOMES	
1	**The Physical benefits** of a **warm up**
2	The **psychological** benefits of a warm up
3	**Key components** of a warm up
4	**Physical benefits** of a cool down
5	**Specific** needs which a warm up and cool down must consider

LO3: know how to respond to injuries within a sporting context LEARNING OUTCOMES	
1	Define acute injury and provide an example of one
2	Define chronic injury and provide an example of one
3	What does R.I.C.E stand for?
4	Identify 2 soft tissue injuries
5	How is a sprain caused? Provide a sporting example
6	How is a strain caused? Provide a sporting example
7	How are shin splits caused?
8	Define Severs disease?
9	Define Osgood Schlatters disease?
10	Define cramp and explain how is it treated?
11	Define splints and explain what taping used for?
12	Identify the 3 parts of an emergency action plan?





LO4: Know how to respond to injuries within a sporting context. LEARNING OUTCOMES	
1	Develop knowledge and understanding of **common medical conditions**
2	Research and explain **the symptoms** of **common medical conditions**
3	Research and explain **how to treat** common medical conditions
4	Create and answer exam style questions of the symptoms and treatment of common medical conditions
5	

Business Studies

OCR Level 1/2 Cambridge National Certificate in Enterprise and Marketing J819

Understand how to target a market			
The need for customer segmentation			
Types of market segmentation			
The benefits of market segmentation			
The purpose of market research			
Primary (field) market research methods (physical or digital) and their benefits			
Secondary (desk) market research sources and their benefits			
The types of customer feedback techniques available to business start-ups			
Understand what makes a product or service financially viable			
Cost of producing the product or service			
Revenue generated by sales of the product or service			
Use of break-even as an aid to decision making,			
Break-even graphs - interpretation of a break-even graph in order to identify the break-			
How profit per unit is calculated			
Understand product development			
The product lifecycle			
Extension strategies for products in the product lifecycle and the appropriateness of each			
How to create product differentiation			
The impact of external factors on product development			
Understand how to attract and retain customers			
Factors to consider when pricing a product to attract and retain customers			
Types of pricing strategies and the appropriateness of each			
Types of advertising methods used to attract and retain customers and the appropriateness			
Sales promotion techniques used to attract and retain customers and the appropriateness			
How customer service is used to attract and retain customers			
Understand factors for consideration when starting up a business			
Appropriate forms of ownership for business start-ups			
Source(s) of capital for business start-ups			
The importance of a business plan			
Understand different functional activities needed to support a business			
The purpose of each of the main functional activities that may be needed in a new busi-			
The main activities of each functional area			

Computer Science

Unit 1

1.1 System Architecture

1.1.1 Architecture of the CPU

- The purpose of the CPU:
  - The fetch-execute cycle
- Common CPU components and their function:
  - ALU (Arithmetic Logic Unit)
  - CU (Control Unit)
  - Cache
  - Registers
- Von Neumann architecture:
  - MAR (Memory Address Register)
  - MDR (Memory Data Register)
  - Program Counter
  - Accumulator

1.1.2 CPU performance

- How common characteristics of CPUs affect their performance:
  - Clock speed
  - Cache size
  - Number of cores

1.1.3 Embedded systems

- The purpose and characteristics of embedded systems
- Examples of embedded systems

1.2 – Memory and storage

1.2.1 Primary storage (Memory)

- The need for primary storage
- The difference between RAM and ROM
- The purpose of ROM in a computer system
- The purpose of RAM in a computer system
- Virtual memory

1.2.2 Secondary storage

- The need for secondary storage
- Common types of storage:
  - Optical
  - Magnetic
  - Solid state
- Suitable storage devices and storage media for a given application
- The advantages and disadvantages of different storage devices and storage media relating to these characteristics:
  - Capacity
  - Speed
  - Portability
  - Durability
  - Reliability
  - Cost

1.2.3 Units

- The units of data storage:
  - Bit
  - Nibble (4 bits)
  - Byte (8 bits)
  - Kilobyte (1,000 bytes or 1 KB
    Megabyte (1,000 KB)
  - Gigabyte (1,000 MB)
  - Terabyte (1,000 GB)
  - Petabyte (1,000 TB)
- How data needs to be converted into a binary format to be processed by a computer
- Data capacity and calculation of data capacity requirements

1.2.4 Data storage

Computer Science

- Characters
  - The use of binary codes to represent characters
  - The term 'character set'
  - The relationship between the number of bits per character in a character set, and the number of characters which can be represented, e.g.:
  - ASCII
  - Unicode
- Images
  - How an image is represented as a series of pixels, represented in binary
  - Metadata
  - The effect of colour depth and resolution on:
  - The quality of the image
  - The size of an image file
- Sound
  - How sound can be sampled and stored in digital form
  - The effect of sample rate, duration and bit depth on:
  - The playback quality
  - The size of a sound file

1.2.5 Compression

- The need for compression
- Types of compression:
  - Lossy
  - Lossless

1.3 Computer networks, connections, and protocols

1.3.1 Networks and topologies

- Types of network:
  - LAN (Local Area Network)
  - WAN (Wide Area Network)
- Factors that affect the performance of networks
- The different roles of computers in a client-server and a peer-to-peer network
- The hardware needed to connect stand-alone computers into a Local Area Network:
  - Wireless access points
  - Routers
  - Switches
  - NIC (Network Interface Controller/ Card)
  - Transmission media
- The Internet as a worldwide collection of computer networks:
  - DNS (Domain Name Server)
    - Hosting
  - The Cloud
  - Web servers and clients
- Star and Mesh network topologies

1.3.2 Wired and wireless networks, protocols and layers

- Modes of connection:
  - Wired
    - Ethernet
  - Wireless
    - Wi-Fi
    - Bluetooth
- Encryption
- IP addressing and MAC addressing
- Standards

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1.4 – Network security

1.4.1 Threats to computer systems and networks

- Forms of attack:
  - Malware
  - Social engineering, e.g. phishing, people as the 'weak point'
  - Brute-force attacks
  - Denial of service attacks
  - Data interception and theft
  - The concept of SQL injection

1.4.2 Identifying and preventing vulnerabilities

- Common prevention methods:
  - Penetration testing
  - Anti-malware software
  - Firewalls
  - User access levels
  - Passwords
  - Encryption
  - Physical security

1.5 – Systems software

1.5.1 Operating systems

- The purpose and functionality of operating systems:
  - User interface
  - Memory management and multitasking
  - Peripheral management and drivers
  - User management
  - File management

1.5.2 Utility software

- The purpose and functionality of utility software
- Utility system software:
  - Encryption software
  - Defragmentation
  - Data compression

1.6 – Ethical, legal, cultural and environmental impacts of digital technology

1.6.1 Ethical, legal, cultural and environmental impact

- Impacts of digital technology on wider society including:
  - Ethical issues
  - Legal issues
  - Cultural issues
  - Environmental issues
  - Privacy issues
- Legislation relevant to Computer Science:
  - The Data Protection Act 2018
  - Computer Misuse Act 1990
  - Copyright Designs and Patents Act 1988
  - Software licences (i.e. open source and proprietary)

Revision topic checklist

Revision		
Topic	**Additional info** (how will I do this? Where will I find the info I need?)	**Done!**

Revision topic checklist

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