SMITH'S WOOD ACADEMY

Home learning activities

Subject
Science
Year Group
Year 11
Unit of work / Knowledge organiser
Biology, Chemistry and Physics (Papers 1 & 2)
Activities
• Complete the assigned activities for the current week of the 'Revision Plans' for Biology, Chemistry and Physics (it is important that you keep up the momentum and follow the revision plans!). • Watch all 'GCSEPod' clips for this week's topics on the revision plans. • Complete the 'GCSEPod' Questions assigned for this Unit of work and any additional assignments which have been set by your teacher.
Where do you complete the work?
Use computer/phone for 'GCSEPod' and revision materials as appropriate.
What to do if you finish the work? (Extension activity)
• Visit 'AQA' site and select Science -> GCSE -> Combined Science Trilogy then choose 'past papers and mark schemes'. Answer past paper questions on the current unit being revised.
These websites might help:
• BBC Bitesize -> Secondary -> GCSE -> Combined Science -> AQA Trilogy • www.freesciencelessons.co.uk • www.aqa.org.uk • Further websites as indicated in 'revision plans'.
If you are struggling with your work or if you have finished.
Please email your classroom teacher directly using the email list found in the Home Learning section of the website.

Weekly Biology Revision Plan 2020

As a minimum you should be spending 30-45 minutes on Biology revision per week. The tasks listed below could take more than this if you do all of them so you will need to plan your time effectively. Regular revision is the key to success at GCSE, don't do too much in one go! We recommend approaching this revision as follows:

Primrose Kitten: Combined Science Biology Paper 1 https://www.youtube.com/watch?v=mKYQ-K23Mr4

Primrose Kitten: Combined Science Biology Paper 2 https://www.youtube.com/watch?v=Uqti-xPnT-8

GCSE AQA Combined Science TRILOGY https://www.bbc.co.uk/bitesize/examspecs/z8r997h

1. 10-15mins Read, cover and try to remember the information from You Tube and BBC Bitesize
2. 10-15mins creating your own revision resource to add to your folder (DO NOT COPY…TRANSFORM the information you have just read into something visual that you can remember)
3. 10-15mins Practicing application of what you have just revised, try exam questions and mark them using the mark schemes so you can correct your mistakes immediately!

Week beginning	**Paper**	**Topic**	**Review** (Read, cover, remember)	**Revise and add to your revision folder**	**Teacher signed**
Week 1	PAPER 1	Cell Biology	Cell structure Investigating cells	Create a set of flash cards for each cell and microscope type	
Week 2			Cell Division	Create a mind map linking chromosomes, mitosis, stem cells and their uses	
Week 3			Transport in and out of cells	Create a comparison table for diffusion, osmosis and active transport	
Week 4		Organisation	Levels of organisation	Create a pneumonic to remember the order of the levels of organisation	
Week 5			Digestion	Draw an outline of the digestive system and label on what happens at each part (including which enzymes work at each part AND what they break down)	
Week 6			Blood and circulation	Make 3 posters to put up in your room - The make up of blood and the differences between the 3 different blood vessels - The heart and the direction of blood flow through it - Gas exchange in the lungs	
Week 7			Non-communicable diseases	Create flash cards for the different types of disease and their risk factors	
Week 8			Transport in plants	Draw a plant and a cross section of a leaf and label on the different types of transport. Include information of factors which may affect the speed of the transport.	
Week 9		Infection and response	Pathogens and disease	Create a table of diseases including information on pathogen, causes, symptoms and treatment.	
Week 10			Human defences against disease	Create a mind map of all the ways your body defends against	

			Treating diseases	pathogens and then link this to boosting immunity with vaccines and the different ways we can treat diseases.	
Week 11		Bioenergetics	Photosynthesis	Draw out the 3 rate of photosynthesis graphs and write a sentence to explain what is happening in each one.	
Week 12			Respiration and exercise	Make flashcards for each of the key subtitles on this page, be sure to include the 3 equations you need to learn.	
Week 13	P A P E R 2	Homeostasis and response	Homeostasis and the nervous system	Make a flowchart to show the order of the neurones in the nervous system and reflex arc responses.	
Week 14			Hormones and homeostasis Hormones and reproduction	1. Draw an outline of the human body and label on all the glands, what hormone they produce and what that hormone is used for 2. Create a flow chart to show how hormones control the menstrual cycle and fertility	
Week 15		Inheritance, variation and evolution	Sexual and Asexual reproduction	Create flashcards on asexual reproduction and the genome. Create a comparison table for mitosis and meiosis.	
Week 16			Patterns of inheritance Variation and evolution	Create a mind map linking all of these subheadings together through the use of colour, pictures and words	
Week 17			Manipulating genes Classification	1. Brainstorm selective breeding and genetic engineering, remember to include the advantages and disadvantages of each. 2. Create a pneumonic to remember the correct order of classification. 3. Draw an evolutionary tree and explain how it works.	
Week 18		Ecology	Ecosystems Cycles and feeding relationships	1. Create a glossary of terms for all the key words in red, then write a paragraph linking all the key words together to summarise the double page spread. 2. Draw and label the carbon cycle to put up as a poster in your room.	
Week 19			Disrupting ecosystems	Draw a simple diagram of the world and label in RED all of the ways in which humans cause problems for plants and animals…then label in GREEN the ways we are trying to fix the problems we have created.	

Weekly Chemistry Revision Plan 2020

As a minimum you should be spending 30-45 minutes on Chemistry revision per week (plus upgrade). The tasks listed below could take more than this if you do all of them so you will need to plan your time effectively. Regular revision is the key to success at GCSE, don't do too much in one go! We recommend approaching this revision as follows:

Primrose Kitten: Combined Science Chemistry Paper 1 https://www.youtube.com/watch?v=MpQ-3YAwNhI

Primrose Kitten: Combined Science Chemistry Paper 2 https://www.youtube.com/watch?v=_HJu8WTtZJU

GCSE AQA Combined Science TRILOGY https://www.bbc.co.uk/bitesize/topics/z88jjty

1. 10-15mins Read, cover and try to remember the information in the revision guide
2. 10-15mins creating your own revision resource to add to your folder (DO NOT COPY…TRANSFORM the information you have just read into something visual that can help you to remember)
3. 10-15mins Practicing application of what you have just revised, try exam questions and mark them using the mark schemes so you can correct your mistakes immediately!

Week beginning	Paper	Topic	Review (Read, cover, remember)	Revise and add to your revision folder	Teacher signed
Week 1	PAPER 1	Atomic Structure and the Periodic Table	Atoms, elements, compounds and mixtures	Write a key word glossary for atoms, elements, compounds and equations…then write a summary paragraph linking all of these key words together. Create flash cards for each of the separation techniques, include labelled diagrams.	
Week 2			Atoms and the Periodic Table	Create a comparison table for the three subatomic particles to display on your wall. Draw labelled dot and cross diagrams for some of the first 20 elements.	
Week 3			The Periodic Table	Create a timeline for the development of the period table. Create flash cards for the properties of elements in groups 0, 1 and 7.	
Week 4		Bonding, Structure and Properties of Matter	States of Matter	Make a poster including diagrams of the three states of matter, their state symbols and change of state arrows.	
Week 5			Ionic Compounds	Create an ionic bonding flash card which includes an ionic bonding dot and cross diagram and the properties of ionic compounds.	
Week 6			Covalent Componds	Create a covalent bonding flash card which includes covalent bonding dot and cross diagrams, the properties of diamond, graphite and silicon dioxide and a diagram to show the intermolecular forces between small molecules.	
Week 7			Metals and special materials	Make a mind map of this double page spread, be sure to include relevant diagrams (e.g. pure metals vs alloys), lots of colour and more in depth explanations of the links between each subheading.	
Week 8		Quantitative Chemistry	Conservation of Mass	Create flash cards to remind you of the rules for calculating Mr and create a flashcard to remind you of the definition of conservation of mass.	
Week 9			Amount of substance	Simplify this page into one or two flashcards which will help you remember the calculations then… PRACTICE,PRACTICE, PRACTICE!!	
Week 10		Chemical Changes	Reactivity of Metals	Write a glossary for each of the key words and then write a summary paragraph for each of the subheadings on the double page spread.	

Week 11			The pH Scale and Salts	Create a colourful poster on the pH Scale including neutralisation of acids and making salts. The poster should include a labelled diagram of the making salts practical AND the 3 generalised word equations you MUST remember and be able to apply.	
Week 12			Electrolysis	Draw a labelled diagram of the electrolysis practical and around the diagram summarise extraction of metals and electrolysis of aqueous solution (HT and oxidation and reduction) into no more than 3 bullet points each.	
Week 13		Energy Changes	Exothermic + Endothermic Reactions Measuring Energy Changes	Create flash cards for endothermic and exothermic reactions, including how you can measure the energy change by taking temperature readings before and after a reaction. Draw the two different energy level diagrams and annotate them to explain what happens at each stage of the endo and exothermic reactions.	
Week 14	P A P E R 2	The Rate and Extent of Chemical Change	Rate of Reaction Reversible Reactions	Create flash cards for the 4 different factors effecting rate of reaction, include annotated diagrams to describe how collision theory works for each. Create a glossary of terms for each of the key words on these double pages and write a simple paragraph to explain what a reversible reaction is	
Week 15		Organic Chemistry	Alkanes	Draw a diagram of a fractional distillation column and annotate to explain how it works. Include the formula, diagrams and properties of each type of fuel and what it is used for.	
Week 16			Cracking Hydrocarbons	Write a summary paragraph to compare steam cracking and catalyst cracking. Create a flash card to remember the test for alkenes (bromine water).	
Week 17		Chemical Analysis	Chemical Analysis	Create a flash card to remember ALL of the gas tests. Compare pure and impure substances in a table. Draw a labelled diagram of the chromatography practical.	
Week 18		Chemistry of the Atmos phere	The Earths Atmosphere Greenhouse Gases	Create a timeline to show the evolution of the earths atmosphere, annotate what contributes to these changes around the timeline (include both human activity and causes in nature). Write a summary paragraph including all the greenhouse gases, their causes/effects and how humans are trying to reduce their carbon footprint.	
Week 19		Using Resources	Earths resources	Create a mindmap which includes pictures, colour and arrows linking all of earths resources and how we as humans both take away and contribute to these resources.	
Week 20			Using resources	Create two advantages and disadvantages tables for LCA and Recycling	

Weekly Physics Revision Plan 2020

As a minimum you should be spending 30-45 minutes on Physics revision per week (plus upgrade). The tasks listed below could take more than this if you do all of them so you will need to plan your time effectively. Regular revision is the key to success at GCSE, don't do too much in one go! We recommend approaching this revision as follows:

Primrose Kitten: Combined Science Physics Paper 1 https://www.youtube.com/watch?v=xtw-Z0nllA4

Primrose Kitten: Combined Science Physics Paper 2 https://www.youtube.com/watch?v=X1aMXCr75Kw

GCSE AQA Combined Science TRILOGY https://www.bbc.co.uk/bitesize/topics/zqw77p3

1. 10-15mins Read, cover and try to remember the information in the revision guide
2. 10-15mins creating your own revision resource to add to your folder (DO NOT COPY…TRANSFORM the information you have just read into something visual that can help you to remember)
3. 10-15mins Practicing application of what you have just revised, try exam questions and mark them using the mark schemes so you can correct your mistakes immediately!

Week beginning	Paper	Topic	Review (Read, cover, remember)	Revise and add to your revision folder	Teacher signed
Week 1	PAPER 1	Energy	Energy Stores and Transfers	Create a glossary of the key words in RED on this double page spread. Create flash cards containing the rearrangement triangles for the two energy equations you need to learn here.	
Week 2			Energy transfers and resources	Create sample flow diagrams for 3 or 4 different energy changes e.g. a car accelerating, a skateboarder at the top of a ramp, boiling water in a kettle. Make flashcards for all the different types of energy resources, include whether they are renewable or not and their advantages and disadvantages.	
Week 3		Electricity	Introduction to electricity	Create a poster of all the different components, their symbols and what they are used for. Include the charge equation, power equation, efficiency equation and energy transferred equation. Try and put the equations into the rearrangement triangles.	
Week 4			Circuits and resistance	Draw the 3 current/voltage graphs for resistors, filament lamps and diodes and annotate around them to describe what is happening.	
Week 5			Circuits and power	Draw a comparison table for series and parallel circuits. Include diagrams, information on current, resistance and potential difference.	
Week 6			Domestic uses of electricity	Draw and label/annotate diagrams for D.C, A.C (give examples of appliances that use both current types) and Wiring a three pin plug (explain what each part does).	
Week 7			Electrical energy in devices	Draw a flow chart to show how electricity gets from the power stations into our homes. Create a flash card with the advantages and disadvantages of overhead and underground cables.	
Week 8		Particle Model of Matter	Particle model of matter	Draw the particle model for solids, liquids and gasses and annotate the diagrams to include information on their properties. Draw a labelled diagram of the density practical and annotate with summarised method type bullet points.	
Week 9		Atomic Structure	Atoms and isotopes	Create a timeline for the development of the model of the atom. Include diagrams of previous models as well as the current accepted model and include the diagrams of the experiments that helped prove this new model.	
Week 10			Nuclear radiation	Create flash cards for each type of radiation to include their components (diagrams), hazards and what they may be absorbed by.	

				Create a glossary of key terms for the key words in RED and summarise radioactive contamination into a short paragraph.	
Week 11			Half life	Draw the count rate graph for iodine-128 and explain what its half life is and how you calculate it using the graph. Create a flash card for nuclear equations and then…PRACTICE, PRACTICE, PRACTICE!!	
Week 12	P A P E R 2	Forces	Forces Introduction	Make a flashcard including the definition of scalar, vector, contact and non contact…include examples of each. Draw a diagram of a car accelerating, a sky diver falling and a book on a table. Add force arrows to show the name, size and direction of the forces acting upon the objects.	
Week 13			Forces in action	Make flashcards for all of the equations in this topic, put the equations into the rearrangement triangles to help with the harder questions. Draw and label the diagram for the extension of a spring practical and annotate it with a simplified method. Define the key terms; elastically deformed, inelastically deformed and limit or proportionality.	
Week 14			Forces and motion	Draw and example of a distance time graph and a velocity time graph and compare what each type of line means is happening. Summarise the difference between distance+displacement.	
Week 15			Forces and acceleration	Make flash cards for Newtons 1st, 2nd and 3rd Laws Create a key terms glossary for the key words in RED and write a short summary paragraph of the double page spread.	
Week 16			Terminal velocity and momentum	Draw a diagram of a parachutist at 3 stages: Just jumped out of the plane Falling at terminal velocity Opening his parachute Label on the force arrows to show what happens at each stage and explain why he reaches terminal velocity twice during the journey.	
Week 17			Stopping and breaking	Make a flashcard for calculating stopping distance. Include factors effecting thinking distance and factors effecting breaking distance.	
Week 18		Waves	Waves and wave properties	Make a poster on the properties of waves including the wave speed equation, diagrams of transverse and longitudinal waves (and examples) and a diagram of wave oscillations including labels for wavelength, frequency (and how this effects the type of sound), amplitude (and how this effects the type of sound) and period.	
Week 19			Electromagnetic waves The Electromagnetic spectrum	Draw a ray diagram to show a visible light wave passing through a Perspex block. Annotate around the diagram to explain why this refraction (bending) occurs when it changes density. Draw a flow chart of the electromagnetic spectrum from least dangerous waves to most dangerous waves. In each box include the name of the wave, approximate wavelength and uses as well as how dangerous the wave is (and why).	
Week 20		Magnetism and Electromagnetism	Magnetism and Electromagnetism (HT) The Motor effect	Create a mind map linking all the ideas from both double page spreads, include diagrams of magnetic poles, plotting magnetic fields and electromagnets/solenoids. HT make a flashcard to remind you of Fleming's left hand rule and then…PRACTICE, PRATICE, PRACTICE!!	