Year 11 Science Revision Schedule 2022/23 – Half-term 3 and 4

Each week your son should complete these revision tasks. They should take approximately an hour. The task involves studying the given page numbers from his revision guide. There may also be useful short videos on www.freesciencelessons.co.uk.

Combined Science:

Week Number	Week Beginning	Task
1	**30/01/23**	**Physics Paper 1** Particle model of matter - pg 210
2	**06/02/23**	**Biology Paper 1** Transport in plants - pg 32 Pathogens and disease - pg 40
3	**13/02/23**	**Chemistry Paper 1** Conservation of mass - pg 102 Amount of substance - pg 104 (Mostly HT)
4	**20/02/23**	**Physics Paper 1** Atoms and isotopes - pg 212 Nuclear radiation - pg 214 Half-life - pg 216
5	**27/02/23**	**Biology Paper 1** Human defences against disease - pg 42 Treating diseases - pg 44
6	**06/03/23**	**Chemistry Paper 1** Reactivity of metals - pg 114 pH scale and salts - pg 116 Electrolysis - pg 118
7	**13/03/23**	**Physics Paper 2** Forces - An introduction - pg 158 Forces in action - pg 160
8	**20/03/23**	**Biology Paper 1** Photosynthesis - pg 46 Respiration and exercise - pg 48
9	**27/03/23**	**Chemistry Paper 1** Exo and endothermic reactions - pg 120 Measuring energy changes - pg 122 (Mostly HT)

Triple Science

Week Number	Week Beginning	Task
1	30/01/23	**Physics Paper 1** Particle model of matter - pg 84-85
2	06/02/23	**Biology Paper 1** Transport in plants - pg 24 Pathogens and disease - pg 34
3	13/02/23	**Chemistry Paper 1** Conservation of mass - pg 30 Amount of substance - pg 32 Titrations – pg 34 Percentage yield and atom economy –pg 36
4	20/02/23	**Physics Paper 1** Atoms and isotopes - pg 86-87 Nuclear radiation - pg 88-89 Half-life - pg 90-91
5	27/02/23	**Biology Paper 1** Human defences against disease - pg 36 Treating diseases - pg 38
6	06/03/23	**Chemistry Paper 1** Reactivity of metals - pg 38 pH scale and salts - pg 40 Electrolysis - pg 42
7	13/03/23	**Physics Paper 2** Forces - An introduction - pg 8 Forces in action - pg 10 TRIPLE - Moments and levers - pg10
8	20/03/23	**Biology Paper 1** Photosynthesis - pg 42 Respiration and exercise - pg 44
9	27/03/23	**Chemistry Paper 1** Exo and endothermic reactions - pg56 Measuring energy changes - pg57 (Mostly HT) TRIPLE - Fuel Cells - pg58

Week 1 - 30/01/23

1	How would you describe the arrangement of particles in a solid? (1 mark)	
2	How would describe the movement of particles in a solid? (1 mark)	
3	How does the arrangement of particles change as a substance changes from a solid to a liquid or gas? (1 mark)	
4	Which state of matter is being described here: particles have a random arrangement, have a fixed volume but are free to move so that they can fill and take the shape of a container. (1 mark)	
5	What do we call the mass per unit volume of a substance? (1 mark)	
6	What is the density of a 13kg stone that has a total volume of $2m^3$? (1 mark)	
7	What is being described here: the amount of energy needed for a substance to change from a solid to a liquid? (1 mark)	
8	What is the name for the change of state when a substance changes from a solid straight to a gas? (1 mark)	
9	Explain how increasing the temperature of a gas in a sealed container affects the pressure exerted by the gas. (4 marks)	
10	How much energy is required to evaporate 32kg of water? $L(H_2O)$ = 4200 J/Kg °C (1 mark)	

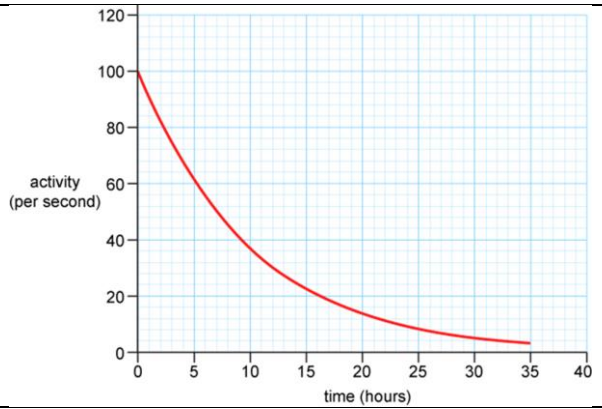
Week 2 - 06/02/23

1	Which vessel in plants transports water and dissolved mineral ions?	
2	Which vessel in plants transports dissolved food materials?	
3	How does water enter the root hair cell in the soil?	
4	What is the name that describes the movement of water through a plant?	
5	Name 3 factors that affect the rate of the process named in question 4? (3 marks)	
6	What is the name for the movement of food by the phloem from the leaves to the rest of the plant?	
7	Name the piece of laboratory equipment used to measure the rate of transpiration?	
8	What is a pathogen?	
9	The mosquito is a living organism that carries and passes on the malaria pathogen without getting the disease itself. What is the name for living organisms that do this?	
10	Why does Tobacco Mosaic Virus (TMV) result in a stunted growth in plants?	

Week 3 - 13/02/23

1	Describe the law of conservation of mass.	
2	If 14g of magnesium reacts with 10g of HCl and 20g of $MgCl_2$ is produced, how much hydrogen gas is produced? **$Mg + 2HCl \rightarrow MgCl_2 + H_2$**	
3	What will appear to be happening to the mass during this reaction: **$2Mg\ (s) + O_2\ (g) \rightarrow 2MgO\ (s)$**	
4	What will appear to be happening to the mass during this reaction: **$CaCO_3\ (s) \rightarrow CaO\ (s) + CO_2\ (g)$**	
5	What is a mole a measure of?	
6	Can you balance the symbol equation?	___ H_2 + ___ O_2 → ___ H_2O
7	What is the relative formula mass of Na_2SO_4?	
8	How many moles are there in 12.3g of sodium sulphate, Na_2SO_4?	
9	If 2.37g of NaCl is dissolved in 1.5dm^3, what is the concentration in g/dm^3?	
10	**$2Na + S \rightarrow Na_2S$** In this reaction, 9.2g of sodium is reacted with 8.0g of sulphur. Which one is the limiting reactant?	

Week 4 - 20/02/23

1	What is the approximate size of the atom?	
2	What is an isotope?	
3	How many neutrons does the following atom have? $^{235}_{92}U$	
4	How did Ernest Rutherford's alpha-particle scattering experiment show that most of an atom was empty space?	
5	Name the 3 types of radiation that can be released when an unstable nucleus decays to become more stable?	• • •
6	Which type of radiation is the most ionising?	
7	Which type of radiation is the least penetrating?	
8	What word describes when an object is exposed to nuclear radiation but does not become radioactive itself?	
9	Complete the equation to show the beta decay of carbon-14.	$^{14}_{6}C \rightarrow \quad N + \beta$
10	The half-life of protactinium-234 is 6.75 hours. What percentage of a sample will remain after 27 hours?	
11		What is the half-life of the isotope in this graph?

Week 5 - 27/02/23

1	What is a pathogen?	
2	Name a non-specific defence against disease and describe how it defends us against disease.	
3	What is the name for the non-specific process whereby white blood cells surround, engulf and digest a pathogen?	
4	Some white blood cells release proteins called antibodies that recognise and attach to pathogens. What is the name of the protein markers on the surface of the pathogen that antibodies attach to?	
5	What can some white blood cells release to defend us against toxins released by some pathogens?	
6	How does vaccination lead to immunity? (4 marks)	• • • •
7	What do we call the class of medicines that kill bacteria but do not kill viruses?	
8	Traditionally, drugs were extracted from plants and microorganisms. What plant or microorganism do these drugs come from?	Digitalis – Aspirin – Penicillin -
9	What is a placebo?	
10	What is a double-blind trial? (2 marks)	• •

Week 6 - 06/03/23

1	Write a word equation to show what happens when lead oxide is heated with carbon.	
2	Identify the most and least reactive metal from the reactivity series.	
3	Complete the equation for the displacement reaction	magnesium + copper sulphate →
4	What are soluble bases called? Write down the name and formula for one soluble base.	
5	Identify two ways to measure the pH of a solution	
6	Acids are neutralised by bases to produce salts. Name the salts produced from the following acids	• Hydrochloric acid produce _____ • Nitric acid produce _____ • Sulfuric acid produce _____
7	Electrolysis uses electricity to break down substances. Where do negativity charged ions move towards? Where do positively charged ions move towards?	
8	Aluminium oxide needs to be melted before electrolysis is carried out. What is added to it to lower the melting point?	
9	In the electrolysis of aluminium oxide, what is formed at the positive electrode?	
10	In the electrolysis of aluminium oxide, what is formed at the positive electrode?	