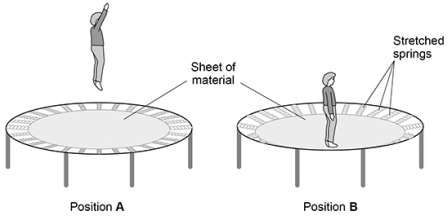
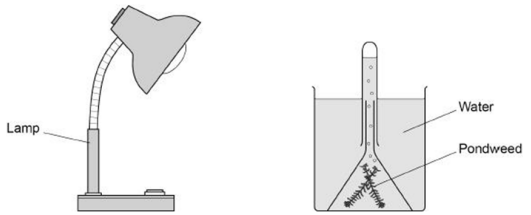
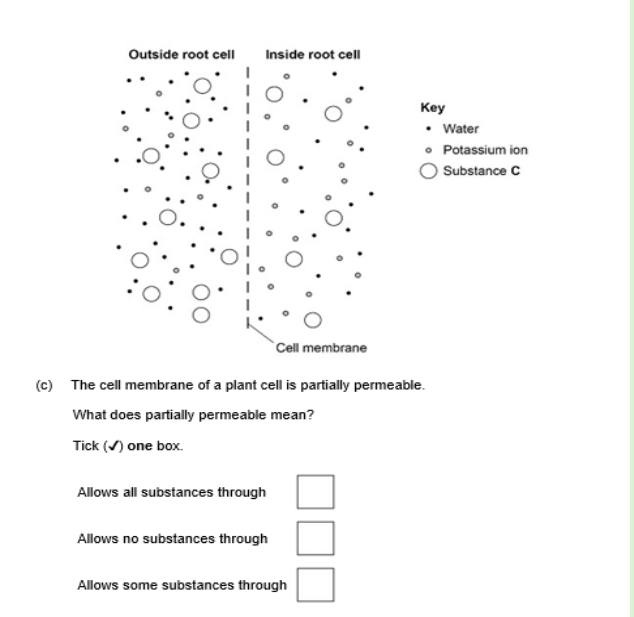
Year 11 Science - Revision Plan Autumn 2 PPE

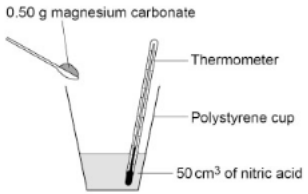
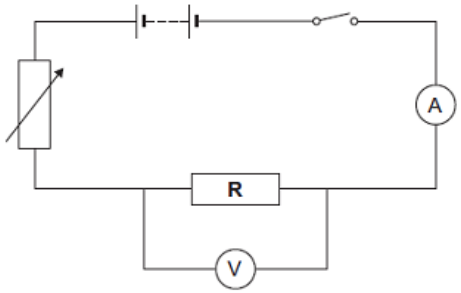
Below are some suggestions for revision that you can complete over the next six weeks – Please also make sure you are using the topic lists to ensure that you have covered everything needed for your exams. Any questions please speak to your science teacher. You also have Sparx Science that you can use to support your revision.

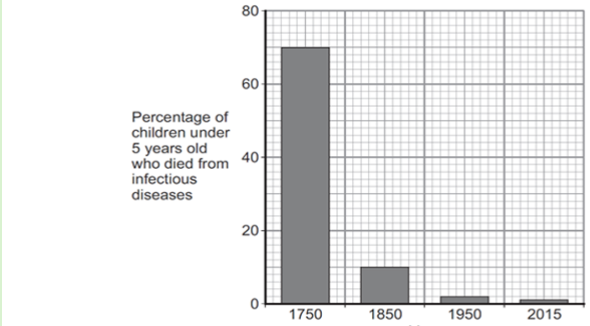
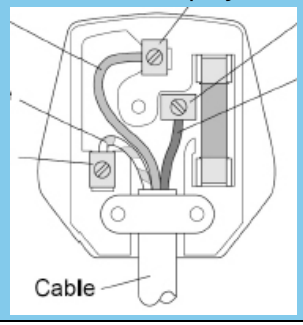
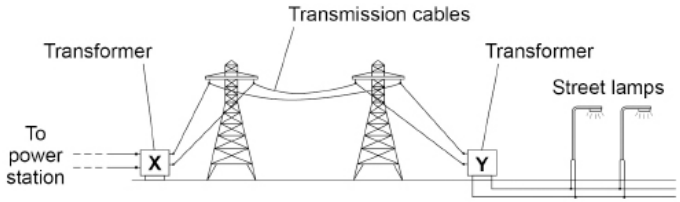
Week	Topic Area	Video Link	Activity	Exam question: EXTENSION
1 Biology	Heart	Circulatory System 1 - Heart Lesson | GCSE Biology AQA Higher Combined | Cognito Circulatory System 2 - Blood Vessels Lesson | GCSE Biology AQA Higher Combined | Cognito Circulatory System 3 - Blood Lesson | GCSE Biology AQA Higher Combined | Cognito	Watch the videos and mind map/ revision cards of the heart-	Sparxs Science – Complete the homework for this week and extra challenge of work. (e) Describe **two** structural differences between a vein and an artery. Do **not** refer to valves in your answer.
1 Chem	Electrolysis	GCSE Chemistry - Electrolysis Part 1/3 - Basics and Molten Compounds GCSE Chemistry - Electrolysis Part 2/3 - Electrolysis to Extract Metals From Oxides GCSE Chemistry - Electrolysis Part 3/3 - Aqueous Solutions	Watch the videos and make a Cornell page for each video.	Sodium chloride solution has a pH of 7 During the electrolysis of sodium chloride solution: • hydrogen gas is produced at the negative electrode • the pH of the solution increases. Explain why. _____ _____ _____ _____ _____ _____ _____ _____ (4)

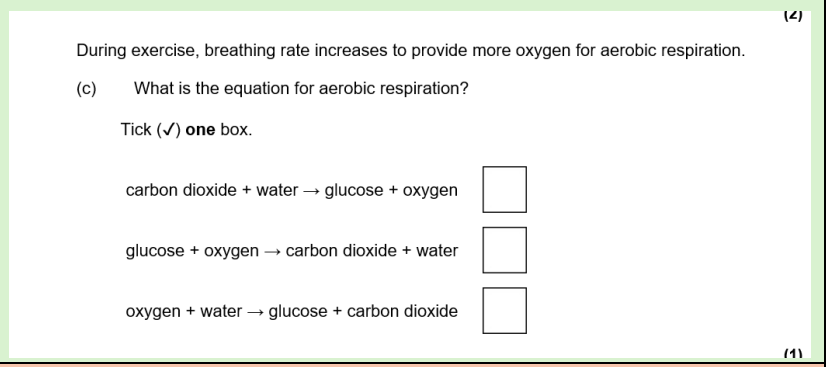
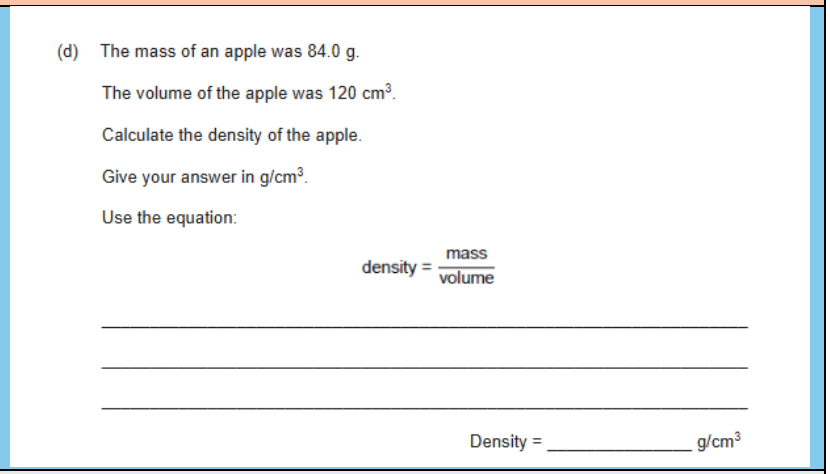
1	Stores and transfers	GCSE Physics - Energy Stores, Transferring Energy & Work Done	Watch the video. Make a mindmap of the different energy stores with an example of each one.	A trampoline is made from a sheet of material held in place by stretched springs. The figure below shows a child on a trampoline.  (a) Position **A** shows the child's maximum height above the trampoline. Position **B** shows the lowest position reached by the child when landing on the trampoline. Describe the changes to the stores of energy of the: • child • springs • surroundings as the child moves from position **A** to position **B**.
WEEK 2				
2 Biology	Light Intensity Required Practical	Photosynthesis Lesson | GCSE Biology AQA Higher Combined | Cognito Factors that Affect Photosynthesis Lesson | GCSE Biology AQA Higher Combined | Cognito GCSE Biology Revision "Required Practical 6: Photosynthesis"	Watch the required practical Can you draw, label the equipment Write the IV, DV and CV Link to photosynthesis equation.	Light intensity affects the rate of photosynthesis. The diagram below shows some of the equipment used to measure the rate of photosynthesis.  (b) Describe a method to investigate the effect of light intensity on the **rate** of photosynthesis. Use the equipment in the diagram above and other laboratory equipment.

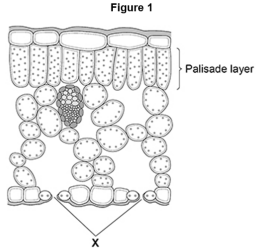
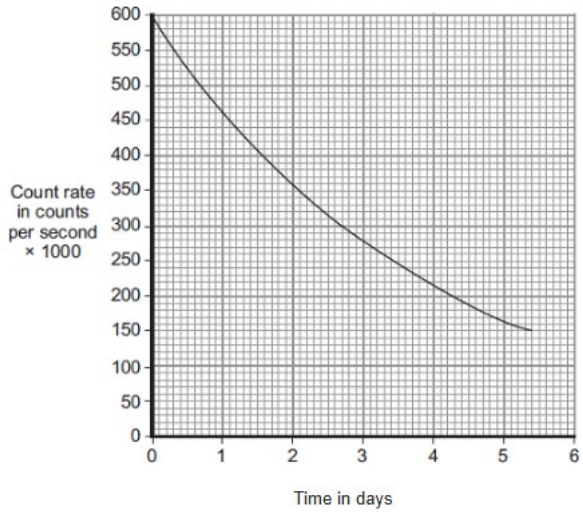
2 Chem	Calculations	GCSE Chemistry - Relative Formula Mass | Mr & Percentage Mass Calculations GCSE Chemistry - Concentration Calculations (grams per dm^3)	Watch the videos and complete the practice questions in the links. 3.2 Use of Amount of Substance on Pure Substances (F) QP.pdf 3.2 Use of Amount of Substance on Pure Substances (F) MS.pdf	Calculate the percentage by mass of oxygen in lithium sulfate (Li_2SO_4). Relative atomic mass (A_r): O = 16 Relative formula mass (M_r): Li_2SO_4 = 110 Give your answer to 2 significant figures. _____ Percentage by mass of oxygen (2 significant figures) = _____ % (4) A solution of lithium sulfate contains 0.30 g of lithium sulfate in 25 cm^3. Calculate the concentration of lithium sulfate in g/dm^3. _____ Concentration = _____ g/dm^3 (3)
2	Resources- non/renewable	GCSE Physics - Energy Resources - Renewables & Non-renewables | Uses | Sources of Electricity GCSE Physics Revision "Renewable Sources of Energy"	Watch the video, then give an advantage, disadvantage and energy store involved in each of the renewable energies mentioned.	A small community of people live in an area in the mountains. The houses are not connected to the National Grid. The people plan to buy an electricity generating system that uses either the wind or the flowing water in a nearby river. **Figure 1** shows where these people live. **Figure 1**  (b) **In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.** Information about the two electricity generation systems is given in **Figure 2**. **Figure 2** The wind turbine costs £50 000 to buy and install. The hydroelectric generator costs £20 000 to buy and install. The average power output from the wind turbine is 10 kW. The hydroelectric generator will produce a constant power output of 8 kW. Compare the advantages and disadvantages of the two methods of generating electricity. Use your knowledge of energy sources as well as information from **Figure 2**. (6)

Week 3				
3 Biology	Movement through cells	Osmosis Lesson | GCSE Biology AQA Higher Combined | Cognito https://cognitoedu.org/coursesubtopic/b2-gcse-aqa-h-c_1.08 GCSE Biology Revision "Required Practical 3: Effects of Osmosis on Plant Tissue"	Mind map and flash cards Re write the practical	

3 Chem	Energy changes	GCSE Chemistry - Exothermic & Endothermic Reactions - Reaction Profiles | Activation Energy Higher: GCSE Chemistry - Bond Energies - Determining if Reactions are Exothermic or Endothermic	Watch the videos and create a series of flash cards to remember key points. Higher: Complete the bond energies video and calculation sheet 5.1 Exothermic & Endothermic Reactions (H) QP.pdf 5.1 Exothermic & Endothermic Reactions (H) MS.pdf	A student investigated the temperature change when different masses of magnesium carbonate were reacted with excess nitric acid. The figure below shows the apparatus.  This is the method used. 1. Pour 50 cm^3 of nitric acid into a polystyrene cup. 2. Measure the temperature of the solution. 3. Add 0.50 g of magnesium carbonate. 4. Stir the mixture. 5. Measure the temperature. 6. Repeat steps 1 to 5 with different masses of magnesium carbonate. (g) Give **two** improvements to the **method** to produce more accurate results. **Do not** refer to improvements to the apparatus in your answer. 1 _____ _____ 2 _____ _____ (2)
3	Circuits	GCSE Physics - V = IR Equation & Current/Potential Difference Graphs	Watch the video Complete the test questions on BBC Bitesize Electric circuits - AQA test questions - GCSE Combined Science - AQA Trilogy - BBC Bitesize	The light sensor detects if it is day or night. **Figure 3** shows part of the circuit in the light sensor. **Figure 3** A resistor is a component that is used in an electric circuit.  (i) Describe how a student would use the circuit to take the readings necessary to determine the resistance of resistor **R**.

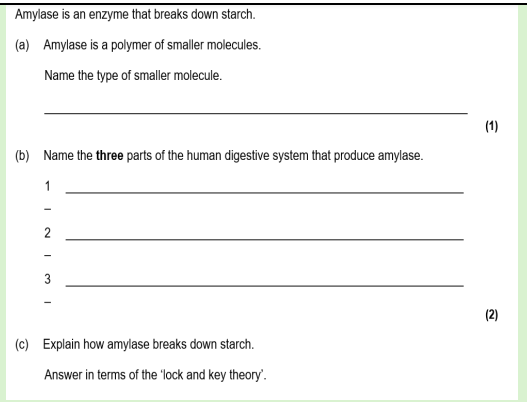
Week 4				
4 Biology	Vaccinations	Communicable Disease 2 - Viruses Lesson | GCSE Biology AQA Higher Combined | Cognito Vaccinations & Immunisation Lesson | GCSE Biology AQA Higher Combined | Cognito	Write a storyboard of how a vaccine works in our bodies	**Q1.** Pathogens are microorganisms that cause infectious diseases. (a) The graph shows the percentage of children under 5 years old who died from infectious diseases, in the UK, in four different years.  Describe using the data what this shows.
4 Chem	Atomic structure	GCSE Physics - Atomic Structure, Isotopes & Electrons Shells GCSE Chemistry - Elements, Isotopes & Relative Atomic Mass - YouTube GCSE Physics - Development of the model of the atom	Watch the videos and try the exam questions. Mark once you've attempted them.	1.1 A Simple Atomic Model (F) QP.pdf 1.1 A Simple Atomic Model (F) MS.pdf
4	Electricity in the home/ national grid	GCSE Physics - National Grid Electrical Safety - GCSE Physics	Draw and label the plug below, explaining how each feature keeps you safe.  	**Figure 1** shows how the National Grid transfers energy from a power station to some street lamps. **Figure 1**  (a) Explain how transformer **X** increases the efficiency of the National Grid.

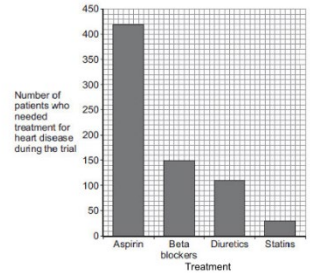
Week 5				
5 Biology	Aerobic and Anaerobic respiration	Aerobic & Anaerobic Respiration Lesson | GCSE Biology AQA Higher Combined | Cognito Exercise Lesson | GCSE Biology AQA Higher Combined | Cognito	Mind map Write questions to in response to the revision notes	 (2) During exercise, breathing rate increases to provide more oxygen for aerobic respiration. (c) What is the equation for aerobic respiration? Tick (✓) **one** box. carbon dioxide + water → glucose + oxygen ☐ glucose + oxygen → carbon dioxide + water ☐ oxygen + water → glucose + carbon dioxide ☐ (1)
5 Chem	Bonding	GCSE Chemistry - Ionic Bonding - Formation | Dot and Cross Diagrams GCSE Chemistry - Covalent Bonding - Formation | Drawing Covalent Bonds GCSE Chemistry - Types of Covalent Structures: Simple Molecular & Giant Covalent Structures	Watch the videos and complete the questions for your tier.	Foundation: 2.2 Bonding and Structure (F) QP.pdf 2.2 Bonding and Structure (F) MS.pdf Higher: 2.2 Bonding and Structure (H) QP.pdf 2.2 Bonding and Structure (H) MS.pdf
5	Particle model	GCSE Physics Revision "Density" Density - Density of materials - AQA - GCSE Physics (Single Science) Revision - AQA - BBC Bitesize	Produce a short summary of what density is and how its calcukated. Produce a worked example	 (d) The mass of an apple was 84.0 g. The volume of the apple was 120 cm^3. Calculate the density of the apple. Give your answer in g/cm^3. Use the equation: $\text{density} = \frac{\text{mass}}{\text{volume}}$ _____ _____ _____ Density = _____ g/cm^3
Week 6				
6 Biology	Leaf structure	Plant Cell Organisation Lesson | GCSE Biology AQA Higher Combined | Cognito		

		Transpiration & Translocation Lesson | GCSE Biology AQA Higher Combined | Cognito	Draw the structure of the leaf and describe the journey for minerals and water Write down the key words and definitions	Q1. **Figure 1** shows a section through a leaf. **Figure 1**  (a) Give **one** way that the palisade layer is adapted for photosynthesis. _____ _____
6 Chem	Chemical changes	GCSE Chemistry - Separating Metals from Metal Oxides | Extraction of Metals & Reduction GCSE Chemistry - The Reactivity Series - Metal Reactions | Displacement Reactions GCSE & KS3 Chemistry - Acids & Bases - pH | Features | Neutralisation Reactions	Watch the videos and complete the questions for your tier.	Foundation: 4.1 Reactivity of Metals (F) QP.pdf 4.1 Reactivity of Metals (F) MS.pdf Higher: 4.2 Reactions of Acids (H) QP.pdf 4.2 Reactions of Acids (H) MS.pdf
6	Atoms/ isotopes	GCSE Physics Revision "Properties of Alpha, Beta and Gamma Radiation" GCSE Physics - Radioactive Decay and Half Life GCSE Physics - Nuclear Decay Equations	Produce a table showing the different properties of alpha, beta and gamma Pause the Nuclear Deacy Equations video at relevant points to practice balancing the equations	The graph shows how the count rate from a sample of gold-198 changes with time.  Use the graph to calculate the half-life of gold-198. Show clearly on the graph how you obtain your answer. _____ _____

TRIPLE Biology

All the above, plus:

Enzymes	Factors Affecting Enzyme Action Lesson | GCSE Biology AQA Higher Triple | Cognito	Enzymes - GCSE Science Required Practical	 Amylase is an enzyme that breaks down starch. (a) Amylase is a polymer of smaller molecules. Name the type of smaller molecule. _____ (1) (b) Name the **three** parts of the human digestive system that produce amylase. 1 _____ 2 _____ 3 _____ (2) (c) Explain how amylase breaks down starch. Answer in terms of the 'lock and key theory'.

Blood plasma and red blood cells	Circulatory System 3 - Blood Lesson | GCSE Biology AQA Higher Triple | Cognito		(a) (i) Describe how the structure of an artery is different from the structure of a vein. _____ _____ _____ _____ (2) (ii) A comparison is made between blood taken from an artery in the leg and blood taken from a vein in the leg. Give **two** differences in the composition of the blood. 1. _____ _____ 2. _____ _____
Stem Cells	Stem Cells in Medicine Lesson | GCSE Biology AQA Higher Triple | Cognito	Stem Cells Lesson | GCSE Biology AQA Higher Triple | Cognito	Stem cells can be used to treat some diseases. (a) What is a stem cell? _____ _____ _____ _____ (2)
Infection and Response	Cognito Resources - Past Papers - GCSE > Videos > Biology > AQA		 (i) How many patients who took aspirin needed treatment for heart disease during the trial? Number of patients = ... (1) (ii) Based **only** on the evidence in the graph, which would be the best treatment to reduce the risk of developing heart disease? ..... (1) (iii) Suggest **one** other factor that a doctor might consider before deciding which treatment to use for a patient. ..... (1)

Enzymes and digestion	Cognito Resources - Past Papers - GCSE > Videos > Biology > AQA Enzymes - GCSE Science Required Practical		

TRIPLE Chem

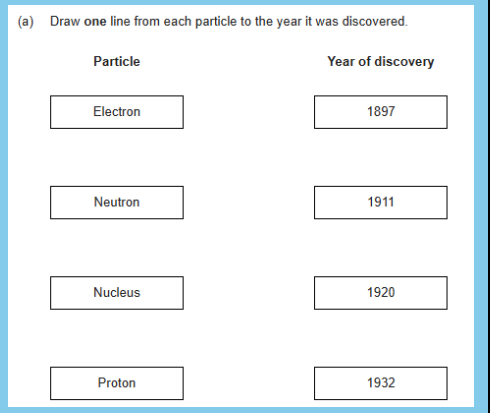
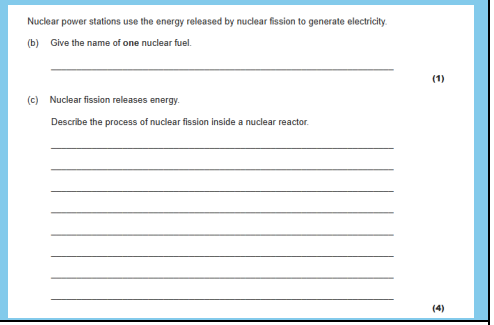
All the above, plus:

Nano particles	GCSE Chemistry - Nanoparticles - Uses | Risks	Watch the video and complete the exam qs	Foundation: 2.4 Bulk and Surface Properties of Matter (F) QP.pdf 2.4 Bulk and Surface Properties of Matter (F) MS.pdf Higher: 2.4 Bulk and Surface Properties of Matter (H) QP.pdf 2.4 Bulk and Surface Properties of Matter (H) MS.pdf

Fuel cells	GCSE Chemistry - Fuel Cells - Structure | How they Work | Half Equations | Pros & Cons	Watch the video and complete the exam qs	Foundation: 5.2 Chemical Cells and Fuel Cells (F) QP.pdf 5.2 Chemical Cells and Fuel Cells (F) MS.pdf Higher: 5.2 Chemical Cells and Fuel Cells (H) QP.pdf 5.2 Chemical Cells and Fuel Cells (H) MS.pdf

TRIPLE Physics

All the above, plus:

Foundation History of the atom Higher Nuclear Fusion v Nuclear Fission	GCSE Chemistry - The History of the Atom | Models & Theories GCSE Physics Revision "Nuclear Fission and Nuclear Fusion" (Triple) Nuclear fusion - Nuclear fission and fusion - AQA - GCSE Physics (Single Science) Revision - AQA - BBC Bitesize	Produce a time line of the development of our understanding of atomic structure Produce a flow chart of nuclear fusion and nuclear fission State the similarities and differences between them	Foundation  (a) Draw **one** line from each particle to the year it was discovered. Particle / Year of discovery Electron — 1897 Neutron — 1911 Nucleus — 1920 Proton — 1932 Higher  Nuclear power stations use the energy released by nuclear fission to generate electricity. (b) Give the name of **one** nuclear fuel. (1) (c) Nuclear fission releases energy. Describe the process of nuclear fission inside a nuclear reactor. (4)