

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 Educake quizzes that you can use to support your revision.

Week	Topic Area	Video Link	Activity	Exam question: EXTENSION
1	<p style="text-align: center;">Biology</p> <p style="text-align: center;">DNA structure</p> <p style="text-align: center;">Extracting DNA</p> <p style="text-align: center;">Human Genome project</p>	GCSE Biology - What is DNA? (Structure and Function of DNA) #65 (youtube.com)	<ul style="list-style-type: none"> - Watch the video on DNA structure and make flash cards – Test yourself using those flash cards - Complete the educake on DNA structure - Revise the human genome project using the below link From DNA to genomes - Reproduction, the genome and gene expression - Edexcel - GCSE Combined Science Revision - Edexcel - BBC Bitesize 	<p>State 2 benefits of the human genome project (2)</p>
1	<p style="text-align: center;">Chemistry</p> <p style="text-align: center;">Key concepts in Chemistry</p> <p style="text-align: center;">Atomic structure & Periodic Table</p>	<p>Atoms Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>The History of The Atom Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>Group 1 (Alkali Metals) Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>Group 7 & Group 0 (Halogens & Noble Gases) Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)</p>	<p>Create revision cards/flashcards about the structure of an atom and history.</p> <p>Draw a timeline to show how the atom was discovered.</p> <p>Ask the teacher for a blank Periodic Table and write as much as you can around this:</p> <p style="text-align: center;">Include</p> <p>Physical and chemical properties of Group 1, 7 and 0</p>	<p>In the periodic table, elements are arranged in rows and columns.</p> <p>The position of an element in the periodic table depends on its atomic weight. Elements with similar chemical properties are found in the same parts of the periodic table.</p> <p>Identify different parts of the periodic table and explain how the position of the element is linked to its chemical properties and atomic structure (6 marks)</p>
1	<p style="text-align: center;">Physics</p> <p style="text-align: center;">Acceleration</p> <p style="text-align: center;">Newton's Laws</p>			<p>2.2 Forces.pdf (physicsandmathstutor.com)</p>

	Momentum	<p>Acceleration Lesson GCSE Physics Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>Newtons 1st & 2nd Laws Lesson GCSE Physics Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>Momentum Part 1 Lesson GCSE Physics Edexcel Higher Triple Cognito (cognitoedu.org)</p>	<p>List 3 equations that contain acceleration and write out a numerical example for each one</p> <p>Make a revision flashcard for each of Newton's 3 laws</p>	
--	----------	---	---	--

WEEK 2

2	<p>Biology</p> <p>Enzymes and temperature</p> <p>Light vs. Electron microscope</p> <p>Prepare a microscope slide (onion)</p>	<p>GCSE Biology - Enzymes - How Temperature and pH Affect Rate of Reaction - YouTube</p> <p>GCSE Biology Revision "Microscopy" (youtube.com)</p>	<p>- Watch the videos on enzymes and then microscopes. Make flash cards comparing light and electron microscopes. Test yourself using those flash cards</p> <p>- Complete the educake on enzymes and microscopes.</p>	<p>(e) The real length of one villus is 0.8 mm</p> <p>Calculate the image length if the villus is viewed at a magnification of ×20</p> <p>Use the equation:</p> $\text{magnification} = \frac{\text{size of image}}{\text{size of real object}}$ <p>_____</p> <p>_____</p> <p>_____</p> <p>Image length = _____ mm</p> <p align="right">(3)</p>
---	--	--	---	---

2	<p>Chemistry</p> <p>Covalent bonding</p> <p>Types of substances</p> <p>Law conservation of mass</p>	<p>Covalent Bonding Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>Soluble & Insoluble Salts Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)</p>	<p>Create revision cards/flashcards about Covalent bonding and structures that are formed by covalent bonding.</p> <p>Watch the videos and mind map the key words to support your understanding of the key learning in the videos.</p>	<p>Q. Figure 18 shows the ability of different substances to conduct electricity.</p> <table border="1"> <thead> <tr> <th>substance</th> <th>conducts electricity</th> </tr> </thead> <tbody> <tr> <td>solid calcium chloride</td> <td>no</td> </tr> <tr> <td>molten calcium chloride</td> <td>yes</td> </tr> <tr> <td>diamond</td> <td>no</td> </tr> <tr> <td>zinc</td> <td>yes</td> </tr> </tbody> </table> <p>Explain these results by referring to the structures of the substances. (6)</p>	substance	conducts electricity	solid calcium chloride	no	molten calcium chloride	yes	diamond	no	zinc	yes
substance	conducts electricity													
solid calcium chloride	no													
molten calcium chloride	yes													
diamond	no													
zinc	yes													

		Diamond & Graphite Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)												
2	<p>Physics</p> <p>Non-renewable energy</p> <p>Renewable energy</p>	<p>Energy Resources Introduction Lesson GCSE Physics Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>Fossil Fuels & Nuclear Energy Lesson GCSE Physics Edexcel Higher Triple Cognito (cognitoedu.org)</p>	<p>Explain the similarities and differences between the renewable energy resources</p> <p>Write a table of pros and cons for fossil fuels and nuclear fuels.</p>											
Week 3														
3	<p>Biology</p> <p>Communicable diseases.</p> <p>Non communicable diseases.</p>	<p>GCSE Biology - Communicable Disease #34 - YouTube</p> <p>GCSE Biology - Is Your Lifestyle Really a Personal Choice? - Lifestyle & Risk Factors #42 (youtube.com)</p>	<p>-Draw a mindmap including knowledge of pathogens and communicable diseases.</p> <p>-Complete the educake on non communicable diseases and pathogens.</p>	<table border="1"> <thead> <tr> <th>BMI</th> <th>BMI category</th> </tr> </thead> <tbody> <tr> <td><18.5</td> <td>Underweight</td> </tr> <tr> <td>18.5 to 24.9</td> <td>Healthy weight</td> </tr> <tr> <td>25.0 to 29.9</td> <td>Overweight</td> </tr> <tr> <td>>29.9</td> <td>Obese</td> </tr> </tbody> </table> <p>A person is 1.64 m tall and has a mass of 69 kg.</p> <p>Determine the BMI category for this person.</p> <p>Use the BMI equation and the table above.</p> <hr/>	BMI	BMI category	<18.5	Underweight	18.5 to 24.9	Healthy weight	25.0 to 29.9	Overweight	>29.9	Obese
BMI	BMI category													
<18.5	Underweight													
18.5 to 24.9	Healthy weight													
25.0 to 29.9	Overweight													
>29.9	Obese													
3	<p>Chemistry</p> <p>Chemical changes - Electrolytic Processes</p>	<p>Electrolysis 1 - Introduction Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>Electrolysis 2 - Aluminium Oxide Lesson GCSE Chemistry Edexcel Higher Combined Cognito (cognitoedu.org)</p>	<p>Draw a diagram of electrolysis – clearly label the anode and cathode</p> <p>Bullet point what happens in a molten solution</p> <p>Detailed revision cards about electrolysis</p> <p>(Higher to include in aqueous example)</p>	<p>1. Chlorine and hydrogen are manufactured by the electrolysis of saturated sodium chloride solution.</p> <p>The gases have important uses so must be produced in large amounts.</p> <p>However, both gases are hazardous and leaks of the gases would be very serious.</p> <p>Describe the important uses and hazards of each gas and the test for chlorine that might be used to detect a small leak of the gas.</p>										

[Electrolysis 3 - Aqueous Solutions Lesson | GCSE Chemistry Edexcel Higher Triple | Cognito \(cognitoedu.org\)](#)

3

Physics

Refraction

Sound waves

[Refraction Lesson | GCSE Physics Edexcel Higher Triple | Cognito \(cognitoedu.org\)](#)

[Sound Waves & Hearing Lesson | GCSE Physics Edexcel Higher Triple | Cognito \(cognitoedu.org\)](#)

Draw an accurate diagram to show refraction of a single light ray through a rectangular prism

Draw a flow diagram of how a sound wave becomes an auditory signal

(b) Figure 7 shows the difference in refraction of sound waves and light waves when these waves travel from air into water.

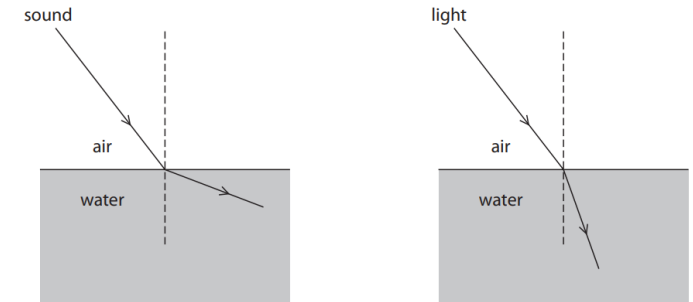


Figure 7

Explain why the refraction of the sound wave is different from the refraction of the light wave in Figure 7.

(3)

Week 4

4	Biology Osmosis	GCSE Biology - Osmosis #8 (youtube.com)	-Watch the video on osmosis. Create flash cards using the video and then test yourself. -Complete the educake on osmosis.	(e) Explain why there would be no change in mass of a piece of potato at the salt concentration you gave in part (d). _____ _____ _____ _____ _____ (3)
	Chemistry Reactivity series Metal Ores	The Reactivity Series & Displacement Reactions Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org) Separating Metals from Metal Oxides Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org) Chemistry Edexcel Higher Triple Cognito (cognitoedu.org) Sustainable Development - Reuse & Recycling Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)	Create revision cards/flashcards about reactivity and about metal ores Watch the videos and mind map the key words to support your understanding of the key learning in the videos. Hight tier – check your understanding of Phytoextraction – add to your revision cards	4. The method of extraction of a metal from its ore depends on the reactivity of the metal and, in some cases, on the cost of the extraction process. The list shows some metals in the reactivity series from the most reactive at the top to the least reactive at the bottom. most reactive magnesium aluminium zinc iron copper least reactive gold Aluminium, iron and gold are obtained by different methods. Describe how the method of obtaining these metals is related to their position in the reactivity series and to the cost of the extraction process.
4	Physics Electromagnetic waves Wave speeds	Electromagnetic Waves Lesson GCSE Physics Edexcel Higher Triple Cognito (cognitoedu.org) Longitudinal and Transverse Waves Lesson GCSE Physics Edexcel Higher Triple Cognito (cognitoedu.org)	Draw a pictorial electromagnetic spectrum include wavelength, frequency, uses and dangers of all 7 parts Explain how the particle movement is similar and	4.1 Properties of Waves.pdf (physicsandmathstutor.com) (c) Light is one example of an electromagnetic wave. Light can transfer energy from a lamp to the leaf of a plant, causing chemical reactions in the leaf. Describe examples of two other electromagnetic waves transferring energy. (4)

different in longitudinal and transverse waves.

Week 5

<p>5</p>	<p>Biology Selective breeding</p>	<p>GCSE Biology - Selective Breeding #77 (youtube.com)</p>	<p>-Watch the video on selective breeding and create a mindmap on the key information. Revise from the mindmap – What can you remember? -Complete educake on selective breeding</p>	<p>(b) The cat breeder wants to use selective breeding so that all new kittens have blue tail tips. Describe the process of selective breeding the cat breeder could use.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>(3)</p>
	<p>Chemistry</p> <p>Masses and empirical Formulae</p> <p>Conservation of mass</p> <p>States of Matter</p>	<p>Conservation of Mass Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>Molecular & Empirical Formulas Lesson GCSE Chemistry Edexcel Higher Combined Cognito (cognitoedu.org)</p> <p>Calculating Mass in Reactions Lesson GCSE Chemistry Edexcel Higher Combined Cognito (cognitoedu.org)</p> <p>Chemistry Lessons GCSE Chemistry Edexcel Higher Combined Cognito (cognitoedu.org)</p>	<p>Use GCSE bitesize to support your practice and understanding of empirical formulae Conservation of mass And calculating mass</p> <p>Relative formula mass - Calculations for all students - Edexcel - GCSE Combined Science Revision - Edexcel - BBC Bitesize</p>	<p>Describe the arrangement and movement of particles in each of the 3 states of matter. Explain what happens to the particles in a liquid during boiling (6 marks)</p> <p style="text-align: center;">Higher/sep tier question below</p> <p>2. An experiment is carried out to determine the empirical formula of magnesium oxide.</p> <p style="text-align: center;">magnesium + oxygen → magnesium oxide</p> <p>The following results are obtained</p> <p style="padding-left: 40px;">mass of magnesium ribbon reacted = 0.420 g</p> <p style="padding-left: 40px;">mass of magnesium oxide formed = 0.700 g</p> <p>Describe an experiment to produce these results. As part of your answer show how these results can be used to obtain the empirical formula of the magnesium oxide.</p> <p>(relative atomic masses: Mg = 24.0, O = 16.0)</p>
<p>5</p>	<p>Physics</p> <p>Background radiation</p> <p>Types of radiation</p>	<p>GCSE Physics Revision "Background Radiation" (Triple) (youtube.com)</p>	<p>Explain what background radiation is and list the main sources.</p>	<p>Multiple choice questions - Sample exam questions - radioactivity - Edexcel - GCSE Combined Science Revision - Edexcel - BBC Bitesize</p>

		(1187) GCSE Physics Revision "Properties of Alpha, Beta and Gamma Radiation" - YouTube	Draw a table summarising the properties of the 5 ionising radioactivities	<p>*(d) Gamma radiation is produced by radioactive decay.</p> <p>Alpha radiation and beta radiation are also produced by radioactive decay.</p> <p>Compare the processes of alpha decay and beta decay.</p> <p>Your answer should include what each radiation is and what effect each decay has on the original nucleus.</p> <p style="text-align: right;">(6)</p>
--	--	--	---	--

Week 6

6	Biology Immune system	GCSE Biology - Immune System (Defences Against Pathogens) #38 (youtube.com)	<p>-Watch the video and create flash cards on how the defence system defends against pathogens</p> <p>-Complete educake on immune system</p>	<p>Describe how pathogens cause infections and describe how the immune system defends the body against these pathogens.</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
----------	--	---	--	--

	<p style="text-align: center;">Chemistry</p> <p style="text-align: center;">Properties of metals</p> <p style="text-align: center;">Distillation</p> <p style="text-align: center;">Fuels</p>	<p>Metals & Non-Metals Lesson GCSE Chemistry Edexcel Higher Combined Cognito (cognitoedu.org)</p> <p>Distillation Lesson GCSE Chemistry Edexcel Higher Combined Cognito (cognitoedu.org)</p> <p>Fuels and Earth science - GCSE Combined Science - BBC Bitesize</p>	<p>Create revision cards/flashcards about the properties of metals and non metals</p> <p>Watch the videos and mind map the key words to support your understanding of the key learning in the videos.</p>	<p>14. Magnesium ethanoate is a salt which is soluble in water.</p> <p>It can be made by reacting magnesium carbonate powder with dilute ethanoic acid.</p> <p>Magnesium carbonate is insoluble in water.</p> <p>The equation for the reaction is</p> <p>ethanoic acid (aq) + magnesium carbonate (s) → magnesium ethanoate (aq) + carbon dioxide (g) + water (l)</p> <p>You are given some dilute ethanoic acid and magnesium carbonate powder.</p> <p>Describe how you would prepare a pure solution of magnesium ethanoate and how you would obtain pure, dry magnesium ethanoate crystals from that solution.</p>
--	--	--	---	---

6	<p>Physics</p> <p>Radiation and decay</p> <p>Half life</p> <p>Using radioactivity</p>	<p>Nuclear Decay Equations Lesson GCSE Physics Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>Radioactive Decay & Half Life Lesson GCSE Physics Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>Using Radiation in Medicine Lesson GCSE Physics Edexcel Higher Triple Cognito (cognitoedu.org)</p>	<p>Note a decay equation example for alpha, beta and gamma.</p> <p>Draw a half life decay curve graph showing how it can be used to find the age of a sample</p> <p>List and explain some medical and non-medical uses of radioactivity.</p>	<p>(b) The activity of a radioactive source is measured as 128 Bq. This is shown as a point on the graph in Figure 10. (3)</p> <p>Figure 10</p> <p>The half-life of this radioactive source is 17 s.</p> <p>Use this information to plot three more points on the graph grid in Figure 10 to show how the activity of the source changes with time.</p> <p>(c) Describe what happens in the nucleus of an atom when a positron is emitted. (2)</p>
---	--	---	--	---

TRIPLE Biology

All the above, plus:

The eye	<p>Eyes 1 - Eye Structure & Iris Reflex Lesson GCSE Biology Edexcel Higher Triple Cognito (cognitoedu.org)</p> <p>Eyes 2 - Accommodation & Visual Defects Lesson GCSE Biology Edexcel Higher Triple Cognito (cognitoedu.org)</p>	Watch the videos and mind map the key words to support your understanding of the key learning in the videos.	
Microbiology – agar method	Microbiology - GCSE Science Required Practical (Triple) (youtube.com)	Write the steps of the practical	
Mitosis	Mitosis Lesson GCSE Biology Edexcel Higher Triple Cognito (cognitoedu.org)	<p>Create a set of flashcards</p> <p>Draw a flow diagram of the stages of mitosis</p>	

Vaccinations and immune system	Vaccinations & Immunisation Lesson GCSE Biology Edexcel Higher Triple Cognito (cognitoedu.org)	Watch the videos and mind map the key words to support your understanding of the key learning in the video.	
Cloning and plant tissue culture	Cloning Plants & Tissue Culture Lesson GCSE Biology Edexcel Higher Triple Cognito (cognitoedu.org)	Make flashcards of the key information. Work through the online lesson and answer the questions.	
Genetic engineering	Genetic Engineering/Modification Lesson GCSE Biology Edexcel Higher Triple Cognito (cognitoedu.org)	Watch the videos, make a mind map of the information. Answer the questions.	

TRIPLE Chem

All the above, plus:

Transition metals and Corrosion (H&F)	Transition metals - Transition metals, alloys and corrosion - Edexcel - GCSE Chemistry (Single Science) Revision - Edexcel - BBC Bitesize	Create a spider diagram for the chemical and physical properties of the transition metals. Define corrosion and list the ways we can prevent corrosion.	
Atom economy and percentage yield (H&F)	GCSE Chemistry - Percentage Yield #33 (youtube.com) Atom economy - Percentage yield, atom economy and gas calculations - Edexcel - GCSE Chemistry (Single Science) Revision - Edexcel - BBC Bitesize	Try the quiz questions here: Atom Economy Quiz GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org) Percentage Yield Quiz GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)	Atom Economy & Percentage Yield Exam-style Questions GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)
Factors that affect dynamic equilibrium (H only)	Changing the position of equilibrium - Higher - Reversible reactions and	Create a table that summarises how temperature, pressure and	Reversible Reactions & Dynamic Equilibrium Quiz GCSE Chemistry

	equilibria - Edexcel - GCSE Chemistry (Single Science) Revision - Edexcel - BBC Bitesize	concentration effect equilibrium in reactions.	Edexcel IGCSE Triple Cognito (cognitoedu.org)
Titration (H&F) and titration calculations (H only)	Titration Practical Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org) Acid-alkali titration practical - Percentage yield, atom economy and gas calculations - Edexcel - GCSE Chemistry (Single Science) Revision - Edexcel - BBC Bitesize	Describe how to accurately carry out a titration. Try the quiz questions here: Titration Practical Quiz GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org)	
Alloys (F only)	Metallic Bonding Lesson GCSE Chemistry Edexcel Higher Triple Cognito (cognitoedu.org) Alloys - Transition metals, alloys and corrosion - Edexcel - GCSE Chemistry (Single Science) Revision - Edexcel - BBC Bitesize	Write a definition for alloys. Draw and compare a diagram of a pure metal and to a diagram of an alloy. Explain how alloying changes the properties of metals.	

TRIPLE Physics

All the above, plus:

Fusion v Fission (H&F)	Nuclear fission - Nuclear power - Edexcel - GCSE Physics (Single Science) Revision - Edexcel - BBC Bitesize GCSE Physics - Nuclear Fission #38 (youtube.com) GCSE Physics - Nuclear Fusion #39 (youtube.com)	Describe the key similarities and differences between fusion and fission. Create a flow chart that shows what happens in a chain reaction	
------------------------	--	--	--

Nuclear Reactors (H)	Nuclear Reactors Edexcel GCSE Physics Revision Notes 2018 (savemyexams.com) Nuclear Reactor Explained GCSE Physics (youtube.com)	<p>Bullet point how a nuclear reactor generates energy.</p> <p>How is the reaction controlled and what are the dangers?</p>	
Red Shift (H)	GCSE Physics - What is Red Shift? #87 (youtube.com) Red-shift - The Universe - Edexcel - GCSE Physics (Single Science) Revision - Edexcel - BBC Bitesize	<p>What causes red-shift</p> <p>What theory does red shift support?</p> <p>Have a go at the exam questions on the bitesize link.</p>	
CMB radiation & Cosmic background radiation (H)	Cosmic Microwave Background Radiation (CMBR) - What is it? Where does it come from? - GCSE Physics (youtube.com) The Cosmic Microwave Background Edexcel GCSE Physics Revision Notes 2018 (savemyexams.com)	<p>Be secure in what CMB stands for.</p> <p>Where does this radiation come from?</p> <p>Produce a definition of the doppler effect)</p>	