Science Revision Strategies

- FOLLOW A PLAN!
- START NOW!

What to expect

AQA COMBINED SCIENCE

6 X 70 mark papers = 420 Marks

2 Biology

2 Chemistry

2 Physics

2 GCSE's

Combined Double Grade 9.9 to 1.1

AQA SEPARATE SCIENCES

6 X 100 Mark papers

2 Biology

2 Chemistry

2 Physics

3 GCSE's

3 Separate grades 9 to 1

Higher or Foundation

Higher

Grades 9 to 4

Foundation

Grades 5 to 1

A grade 4 is classed by the government as a pass and a grade 5 as a good pass.

To study at A-level you would need a grade 6/7.

All students WILL receive an equation sheet for GCSE Physics in 2025.

Skills breakdown of each paper

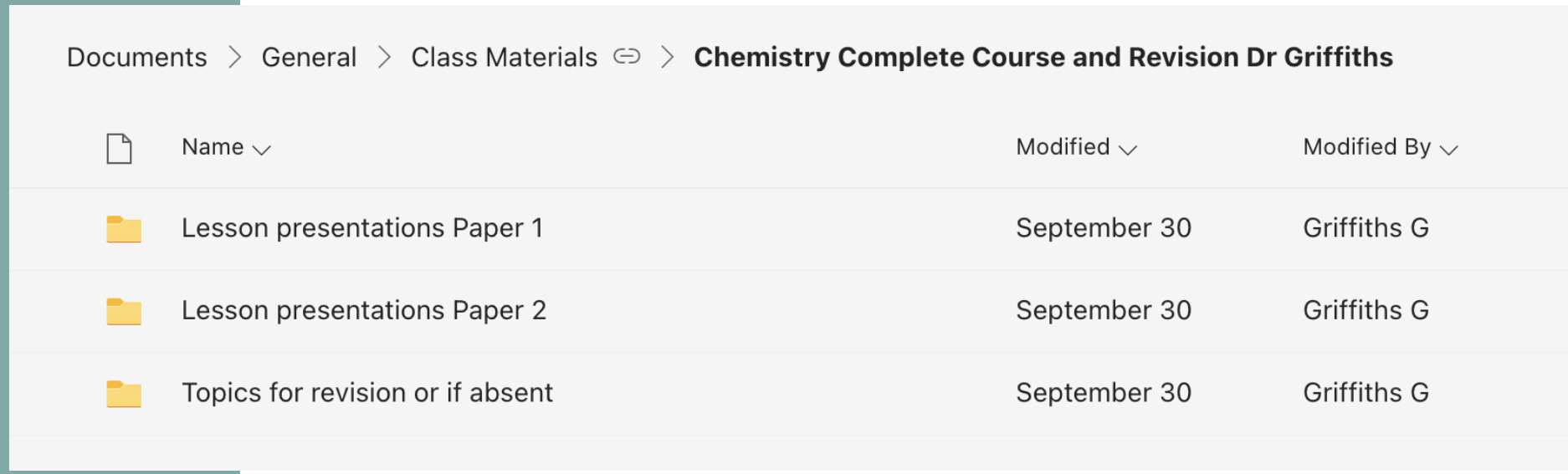
- 40% Knowledge
- 40% Application of knowledge
- 20% Data analysis

You need to learn the facts and definitions

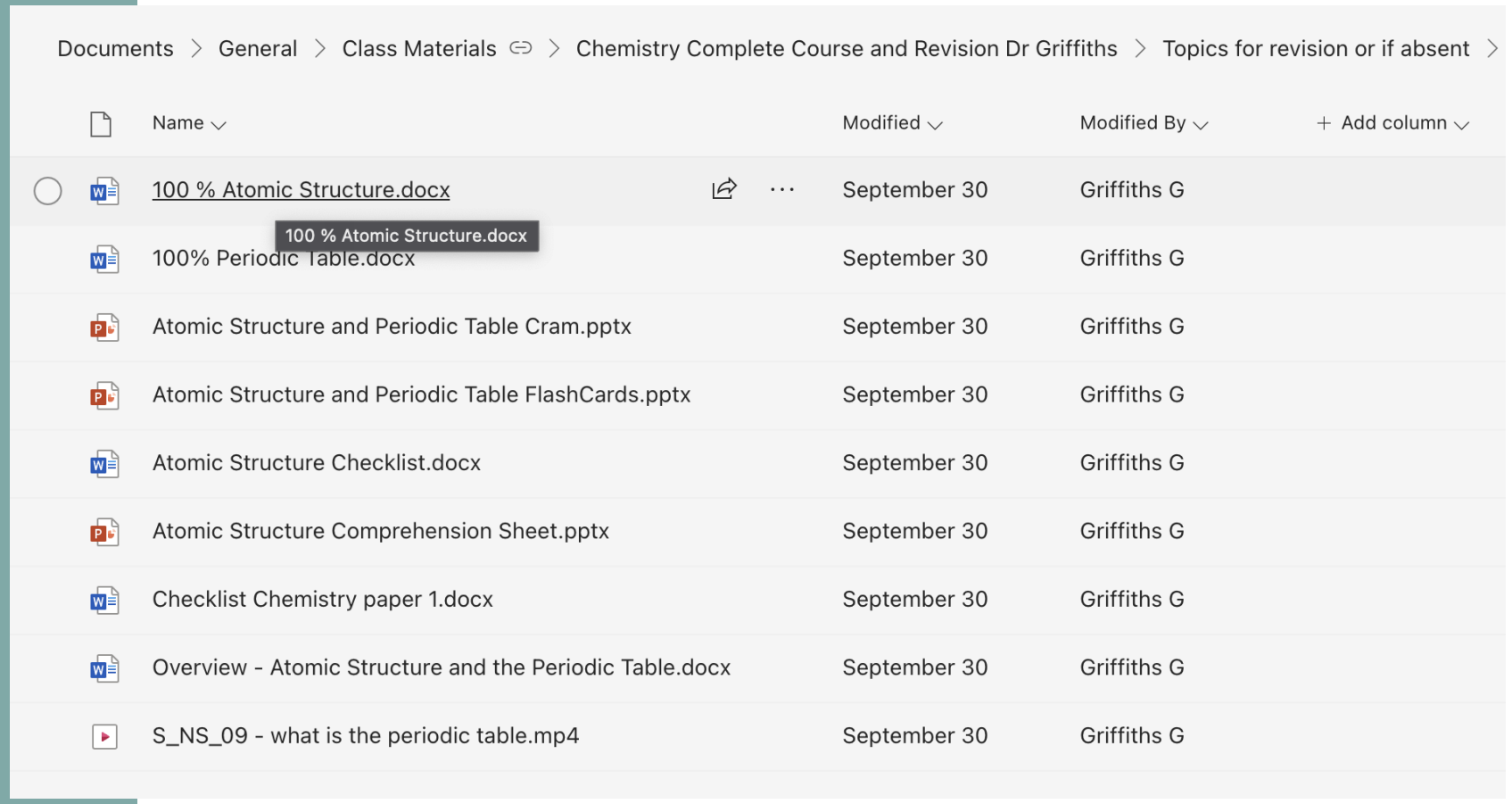
We will practice the skills of applying your knowledge and analysing data.

You cannot apply anything you do not know!

Teams Resources



Topic-by-topic revision resources that focus on knowledge and application of knowledge

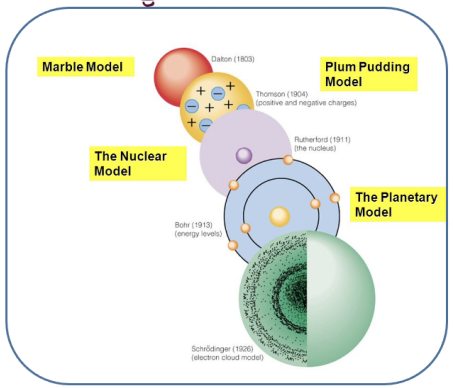


100% Sheets

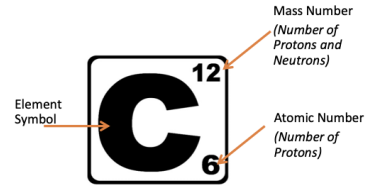
You need to know the content of this sheet. 100%

100% Sheet
Atomic Structure

Matter
All material in the Universe is made of very small particles.



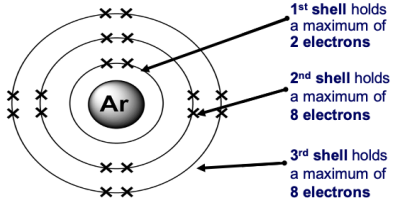
Sub-atomic Particle	Mass	Charge
Proton	1	+1
Neutron	1	0
Electron	Almost 0	-1



Number of Protons = Number of Electrons (shown by the bottom number)
Number of Neutrons = Mass Number – Atomic Number
Top number – Bottom number

How many electrons per shell?

Each shell has a maximum number of electrons that it can hold. Electrons will fill the shells nearest the nucleus first.

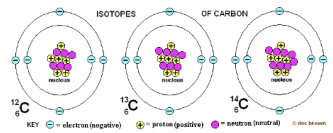


1st shell holds a maximum of **2 electrons**

2nd shell holds a maximum of **8 electrons**

3rd shell holds a maximum of **8 electrons**

This **electron arrangement** is written as **2,8,8.**



Isotopes are different forms of the same element.
They have the same number of protons and electrons but DIFFERENT number of NEUTRONS

Learn the content then apply your knowledge

100% Sheet
Atomic Structure

WORK FOR PROGRESS

Matter
All material in the Universe is made of very small particles.

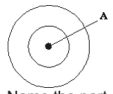
Working Towards

$^{35}_{17}Cl$ $^{37}_{17}Cl$
Describe, in terms of sub-atomic particles, **one** similarity and **one** difference between atoms of the two isotopes of chlorine

Expected

Oxygen atoms have 8 electrons.

Complete the diagram to represent the arrangement of electrons in an oxygen atom.
Use crosses (×) to represent the electrons.



Name the part of the oxygen atom that is labelled **A** on the diagram

How did Mendeleev know that there must be undiscovered elements and how did he take this into account when he designed his periodic table?

By the early 20th century protons and electrons had been discovered.

Describe how this discovery allowed chemists to place elements in their correct order and correct group

Compare the position of the subatomic particles in the plum pudding model with the nuclear model.

Greater Depth

How many protons, neutrons & electrons? Draw the electronic structure and explain why Sodium is in Group 1 and period 3.

23
Na
11

Essential Learning Lists

All the essential facts for a topic on 1 piece of paper.

Ideal for self testing or for others to test

Essential Learning List – Using Resources

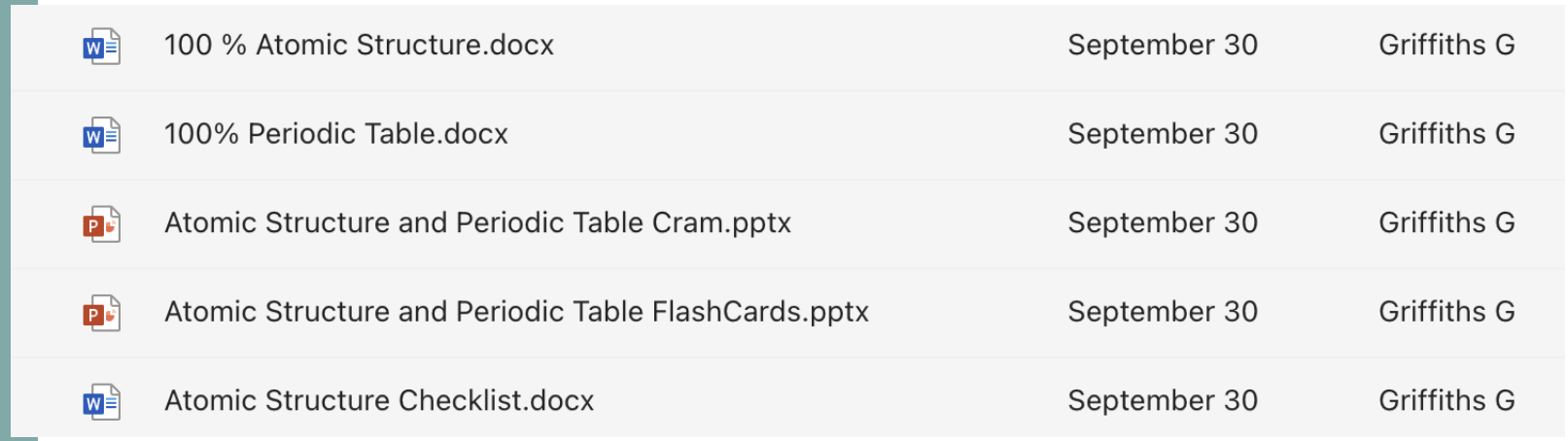
Finite resource	A resource used for fuel or manufacturing that will run out
Sustainable development	Development that meets the needs of the present, without compromising the ability of future generations to meet their own needs
Potable water	Water that is not pure but is safe to drink
Distillation	Process of boiling water to separate the salt from sea water
Sterilisation	Use of chlorine or ozone to kill microbes in water
Filtration / sedimentation	Used to remove solids from water
Expected test results from pure water	pH=7 (Green with UI) No residue after evaporation. Will boil at exactly 100C
Expected test results from bottled or spring water	pH=6 (yellow with UI). Solid white salts after evaporation
Expected test results from sea water	pH=8 (purple with UI). Solid white salts after evaporation
Expected test results from rain water	pH=5 (Orange with UI). No solids after evaporation
Name the 5 steps in treating waste (sewage) water	Screening & grit removal. Sedimentation. Anaerobic digestion of sludge. Aerobic biological treatment of water. Sterilisation.

Topic Checklists

Paper 1 Atomic Structure & periodic table Learning Objective	Red	Amber	Green
Define the key terms “Element”, “Compound” and Mixture			
Write chemical formulae for compounds and identify how many elements/atoms they contain.			
Write word and symbol equations for chemical reactions			
Balance symbol equations for chemical reactions			
Explain the methods of separating mixtures including filtration, crystallization, simple distillation, and chromatography.			
Describe how the model of the atom was developed from experimental evidence including: - How the scattering experiment led to a change in the atomic model. - The difference between the plum pudding and nuclear model of the atom.			
Describe the model of the atom in terms of subatomic particles (protons, neutrons and electrons).			
Give the relative mass and relative charge for each subatomic particle.			
Calculate the number of protons, neutrons and electrons in an atom of an element from its mass number and atomic number.			
Explain why atoms have no overall electrical charge.			
Describe the similarities and differences between isotopes of an element in terms of subatomic particles.			
Explain what the “relative atomic mass” is in terms of isotopes of an element			

Topic Flashcards

- Use on your phone.
- Write or recite answers until you know it all.
- Tick off the section on your checklist



100 % Atomic Structure.docx	September 30	Griffiths G
100% Periodic Table.docx	September 30	Griffiths G
Atomic Structure and Periodic Table Cram.pptx	September 30	Griffiths G
Atomic Structure and Periodic Table FlashCards.pptx	September 30	Griffiths G
Atomic Structure Checklist.docx	September 30	Griffiths G

Online resources:

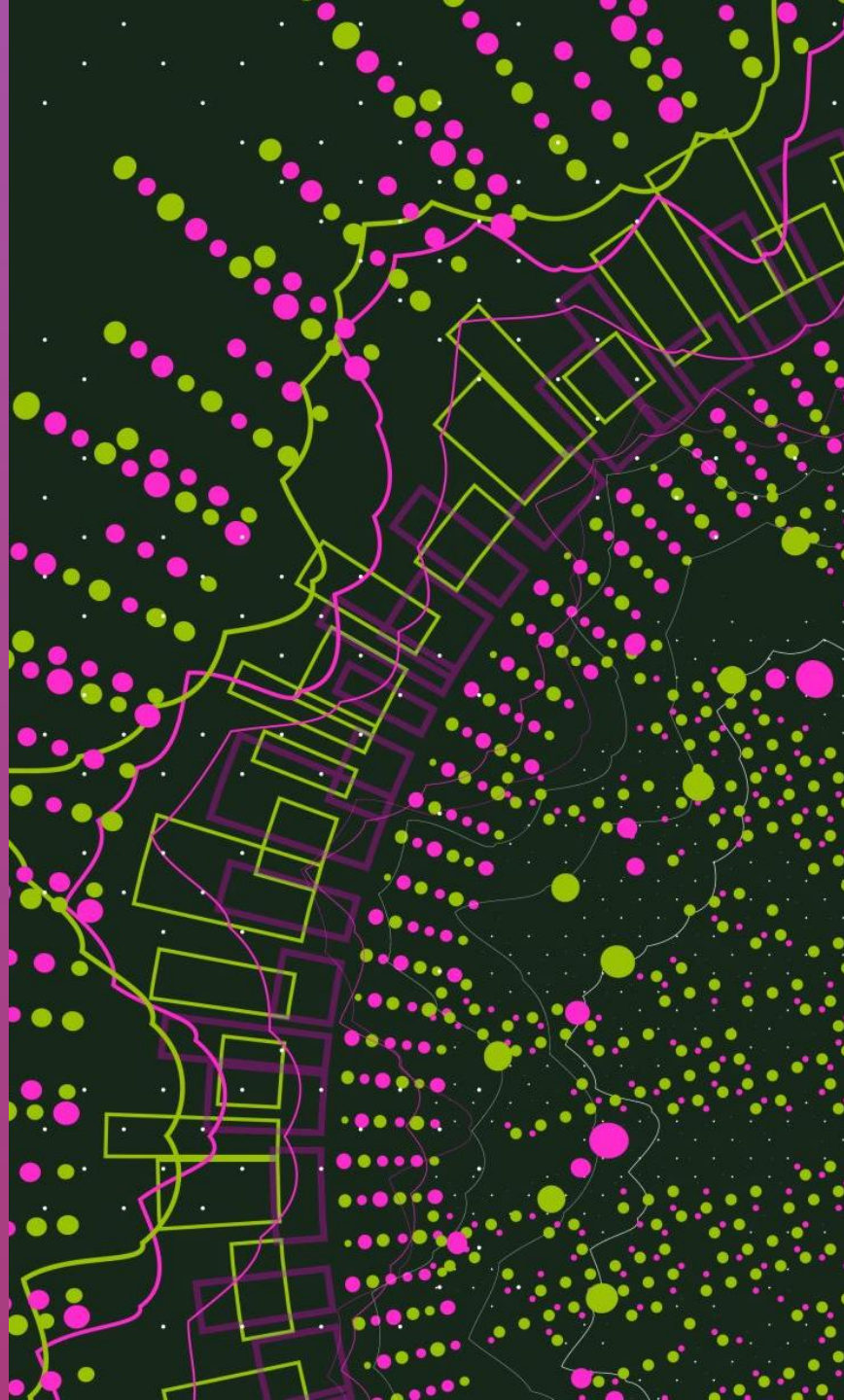
- Seneca Learning
- BBC Bitesize (select the correct course!)
- Kuizical
- Isaac Physics

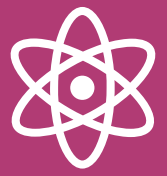
WHAT ARE THESE DEFINITIONS?

ELEMENT

COMPOUND

MIXTURE





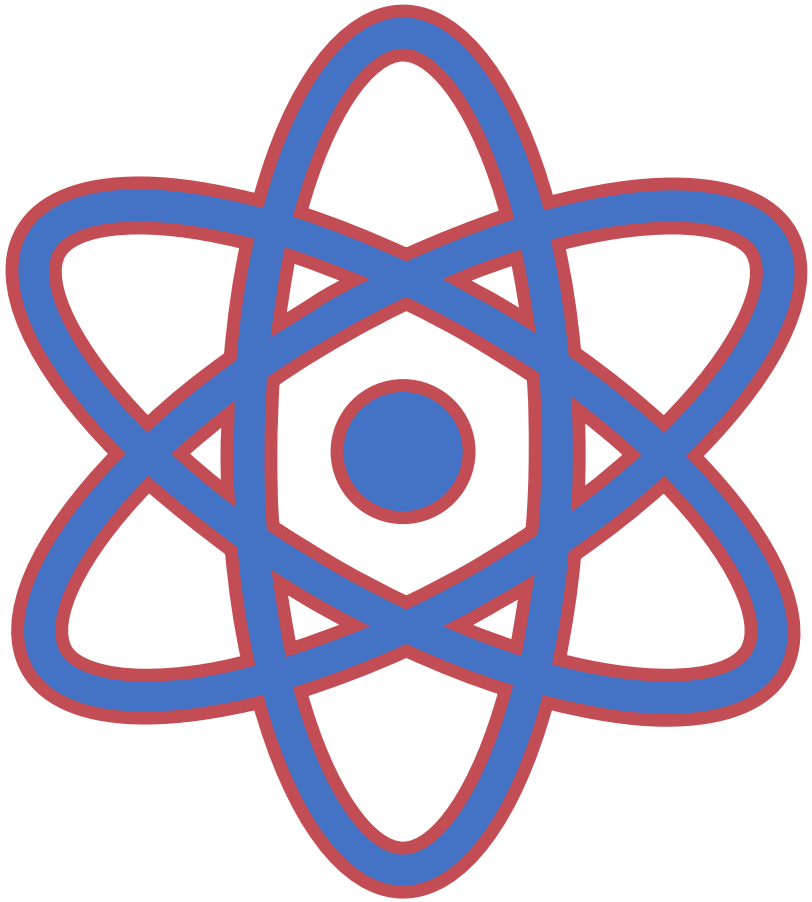
An element is made from only 1 type of atom

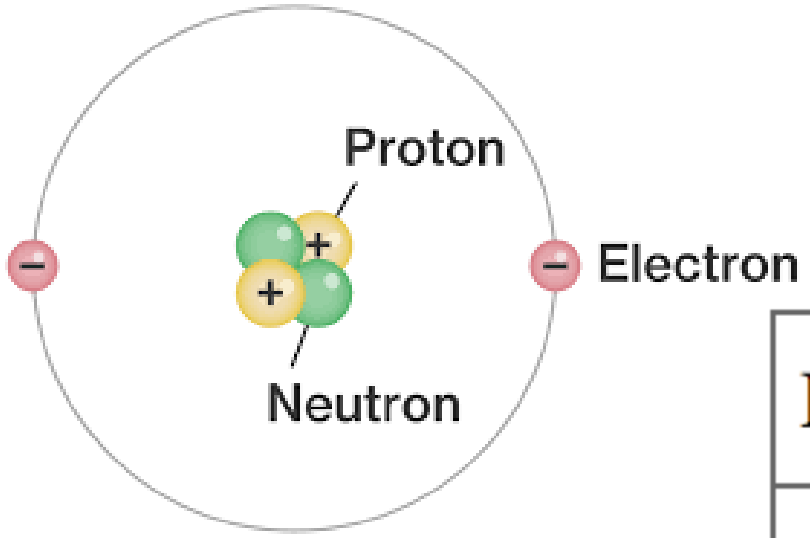
A compound is 2 or more different atoms chemically bonded together

A mixture is 2 or more different elements or compounds NOT chemically bonded together.

State the mass and charge of the sub-atomic particles,

- Proton
- Neutron
- Electron





The radius of the nucleus is 1/10,000 of the radius of the atom

Protons, Neutrons, and Electrons			
	Charge	**Mass (amu)**	**Location**
Proton	+1	1	nucleus
Neutron	0	1	nucleus
Electron	–1	Almost 0	orbitals

- How do you calculate the numbers of each sub-atomic particle (protons, neutrons and electrons) in an atom?

- The number of protons and electrons are given by the bottom number – The atomic number
- The number of neutrons is calculated by top number – bottom number (Mass – Atomic number)
- For Sodium this would be,
  - 11 protons
  - 11 electrons
  - 23 - 11 = 12 neutrons

In any atom the numbers of positive protons is always equal to the negative electrons as all atoms are neutral in charge

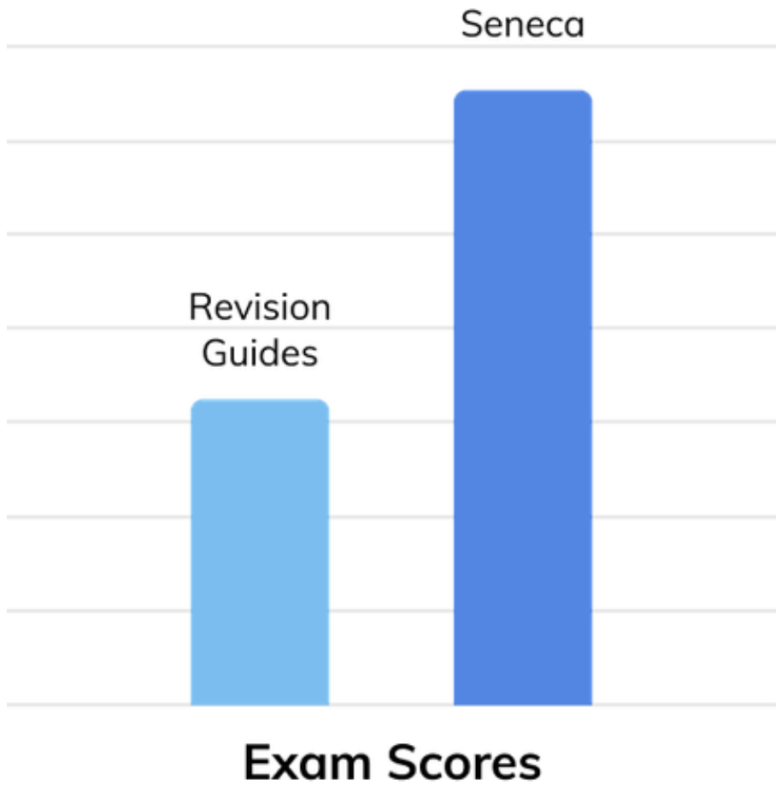
Revision homework's on the Seneca Learning App

Students can also access any topic at any time as part of their revision

Proven to make you learn 2x faster

Our smart learning algorithms are proven to make you **remember topics better**. If you get a question wrong, we'll show you the content again but in a different format. We'll even do it at a time when it's optimal for you to learn it. We've also hand-selected the best GIFs and memes on the internet so revision **makes you laugh instead of stressed.**

Get started free



Parents can access this

SENECA

- Seneca is an online learning platform used in Schools
- The free parent platform allows you to monitor your child's progress
- To sign up simply scan the QR code with your phone camera or go to senecalearning.com/signup
- Once you have signed up connect your account to your child's

SCAN ME

Detailed revision plans with hyperlinks to resources

Higher and Separate students must know everything in the preceding columns			
Date	**Focus**		**Content**
10th Jan	**C6 Reversible Reactions**	Essential	Learn the definition of a dynamic equilibrium and recognise the symbol for it. Know that to alter the direction of a reversible reaction you use conditions that are the direct opposite of the original direction
		Go deeper	Higher - Know how to apply Le Chatelier's principle to alter the equilibrium of a reaction by altering temperature, concentration or pressure. Be able to explain your answers.
		Resources	Teams / Revision / Chemistry / Paper 2 / C6 Rate and Extent of Reactions / Reversible reactions https://www.bbc.co.uk/bitesize/guides/z32bpbk/revision/1
		Check your understanding	https://forms.gle/Wz8EV1cqZrKpwJ6q8 | https://forms.gle/FbaTZ9q1eaYa7NwUA
17th Jan	**C6 Rates of Reaction**	Essential	Be able to explain why all reactions start fast, slow down and then stop. Be able to describe and explain how increasing the temperature, pressure, surface area, concentration of reactants or using a catalyst increases the rate of a reaction. **Required Practical.** Be able to describe how to measure the rate of a reaction after altering temperature or concentration in a **valid** way by explaining the use of controls in the experiment
		Resources	Teams / Revision / Chemistry / Paper 2 / C6 Rate and Extent of Reactions / Rates of Reaction https://www.bbc.co.uk/bitesize/guides/zpkp7p3/revision/1
		Check your understanding	https://forms.gle/yXhiC2wyyTqdex7K6
24th Jan	**C6 Rates of Reaction**	Essential	Be able to calculate rates of reaction using the equation Change in amount of products / time or by calculating the gradient of a graph
		Go deeper	Higher - Be able to calculate exact rate by drawing a tangent to a curve and calculating its gradient.
		Resources	Teams / Revision / Chemistry / Paper 2 / C6 Rate and Extent of Reactions / Rates of Reaction https://www.bbc.co.uk/bitesize/guides/zpkp7p3/revision/1

Over to you
- Get Learning and Memorising!

LITTLE AND OFTEN
IS MUCH BETTER
THAN A PANICKED
LAST-MINUTE CRAM