



Science Revision Strategies

- FOLLOW A PLAN!
- START NOW!

Lunchtimes at 12.35

Day	Revision Session	Location
Monday	Y11 Triple Physics	E4
Tuesday	Y11 Triple Chemistry	C2
Wednesday	Y11 Biology	C4
Thursday	Y11 Combined Physics	E6
Friday	Y11 Combined Chemistry	C1

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

Documents > General > Class Materials  > **Chemistry Complete Course and Revision Dr Griffiths**

 Name ▾	Modified ▾	Modified By ▾
 Lesson presentations Paper 1	September 30	Griffiths G
 Lesson presentations Paper 2	September 30	Griffiths G
 Topics for revision or if absent	September 30	Griffiths G

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

Documents > General > Class Materials > Chemistry Complete Course and Revision Dr Griffiths > Topics for revision or if absent >					
	 Name ▾		Modified ▾	Modified By ▾	+ Add column ▾
☐	 <u>100 % Atomic Structure.docx</u>  ...		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	
	 Atomic Structure Comprehension Sheet.pptx		September 30	Griffiths G	
	 Checklist Chemistry paper 1.docx		September 30	Griffiths G	
	 Overview - Atomic Structure and the Periodic Table.docx		September 30	Griffiths G	
	 S_NS_09 - what is the periodic table.mp4		September 30	Griffiths G	

100% Sheets

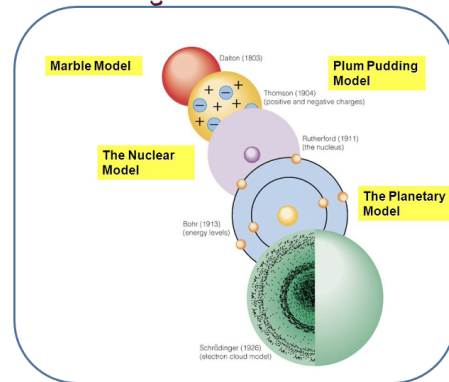
You need to know the content of this sheet. 100%

100% Sheet Atomic Structure

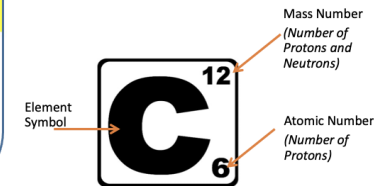


Matter

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



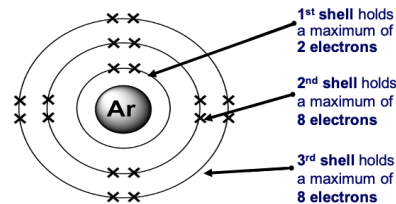
Sub-atomic Particle	Mass	Charge
Proton	1	+1
Neutron	1	0
Electron	Almost 0	-1



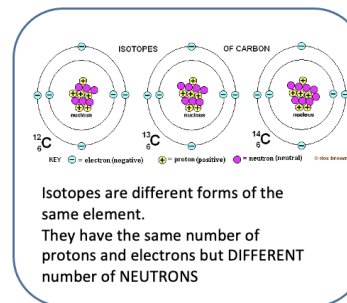
Number of Protons = Number of Electrons (shown by the bottom number)
 Number of Neutrons = Mass Number - Atomic Number
 Top number - Bottom number

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.



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

Expected

Greater Depth

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

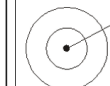
How did Mendeleev know that there must be undiscovered elements and how did he take this into account when he designed his periodic table?

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

Oxygen atoms have 8 electrons.

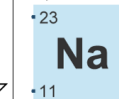
Complete the diagram to represent the arrangement of electrons in an oxygen atom. Use crosses (x) to represent the electrons.



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

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

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



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

Ideal for self testing or for others to test

Essential Learning Lists

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 <u>rain water</u>	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 <u>table</u> <u>Learning</u> 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, <u>neutrons</u> and electrons).			
Give the relative mass and relative charge for each subatomic particle.			
Calculate the number of protons, <u>neutrons</u> 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

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Online resources:

- AQA website for past papers and mark schemes
- Seneca Learning
- BBC Bitesize (select the correct course!)
- Kuizical
- Isaac Physics

CGP Online:

Username:

ThirskScience

Password: Science
2016

Combined Science vs Separate Sciences (AQA GCSE)

Combined Science = 2 GCSEs covering Biology, Chemistry and Physics.

Separate Sciences = 3 individual GCSEs (more content, more depth).

Core content is shared, but Separate Sciences **include extra topics and calculations.**

30 marks extra per paper

The content to make up these extra 30 marks is always assessed

- Don't start your revision sequentially
 - Prioritise **Separate only content** and **Required Practical** knowledge
-

30 marks extra per
paper

The content to make
up these extra 30
marks is always
assessed alongside ALL
required Practicals



Biology – Extra Topics

Culturing
microorganisms,
calculating growth
rates

Monoclonal antibodies
and their uses

Plant Diseases

Kidney structure,
function and
osmoregulation; plant
hormones (tropisms,
auxins)

Brain & Eye

Protein synthesis,
Human Genome
Project, DNA structure,
cloning, evolution

Quantitative aspects of
ecosystems and
material cycles. Trophic
levels. Decomposition,
food production



Chemistry – Extra Topics

- Transition metals and catalysts

- Nanoparticles and their uses

- Titrations and quantitative chemistry

- Strong vs weak acids

- Chemical and fuel cells

- Haber process and equilibrium detail

- Alkenes, alcohols and carboxylic acids

- Ion tests (flame, precipitation)

- Using materials. Fertilizers

No equations are given, You must learn them all



Physics – Extra Topics

- Nuclear fission and fusion

- Gas laws

- Moments, levers and gears

- Pressure in fluids and gas laws

- Space physics (life cycle of stars, solar system, red-shift)

Build your revision around the Required Practicals – How to make a pure, dry salt.

KNOWLEDGE

Definitions

Formula

General word equations

Naming salts

APPLICATION

Describe the method (How)

- Plan
- Equipment names

Explain the different steps (why)

Biology Required Practicals

PAPER 1

- Microscopy
- Microbiology (culturing bacteria)
- Osmosis in potatoes
- Enzymes – effect of temperature/pH
- Photosynthesis – light intensity

PAPER 2

- Reaction times
- Field investigations (quadrats and transects)
- Decay
- Food tests
- Plant responses

Chemistry Required Practicals

PAPER 1

Making salts

Titrations

Electrolysis

Temperature changes
(exothermic/endothermic)

Chemical cells

PAPER 2

Rates of reaction X2

Chromatography

Water purification

Physics Required Practicals

PAPER 1

Specific heat capacity

Thermal insulation

Resistance of a wire

I–V characteristics

Density

PAPER 2

Force and extension (Hooke's Law)

Acceleration ($F=ma$)

Waves (ripple tank)

Light (refraction/reflection)

Radiation and absorption



Over to you
- Get Learning and Memorising!

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