GCSE Combined Science

Revision Success

Subject Leader: Miss L White

Why revise?

- Activity 1
- Try to remember what you did on your birthday three years ago.
- Write down as much as you can, you must include:
  - Where you were
  - What you did
  - The presents you received
  - Who gave you each of those presents

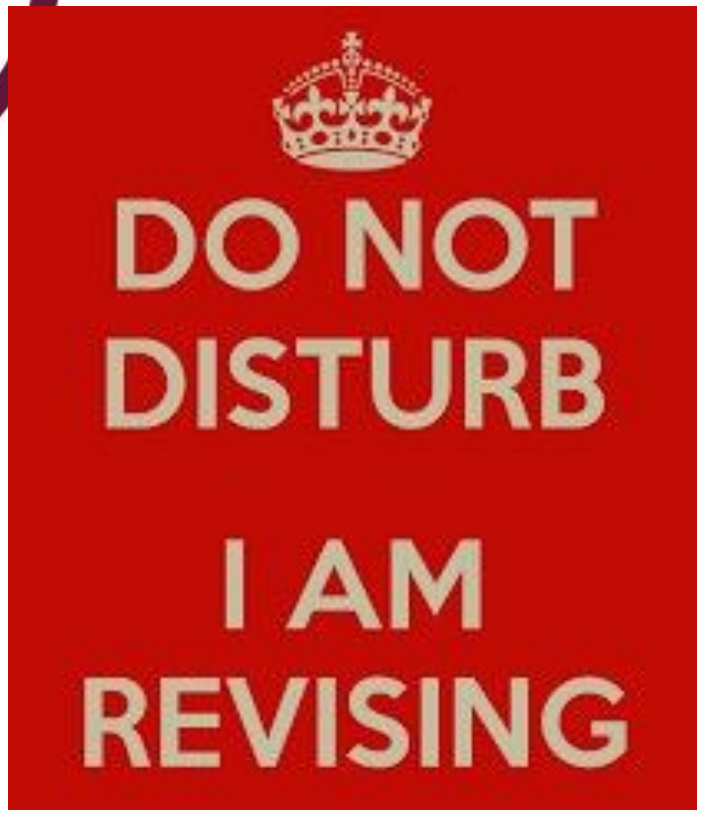
How did you do?

- How would you rate your performance
- Green – I could remember everything – no problemo!
- Amber – I managed to remember something about the day
- Red – What birthday? – I'm only 21 after all so I must have missed a few!

What am I trying to prove?

- Your birthday is quite an important event
- An ordinary lesson is even harder to remember
- Your birthday is one day
- Science lessons happen every day
- If the lesson happened in year 9… would YOU remember it

- Do you know what is happening behind closed doors?



“But I am revising – I’m using my revision guide”

- OK let’s see how that works…
- Here is a double page from the revision guide (pg 98-99)
- You have 3 minutes to read it
- Only read it.

Now try to answer

- Describe how covalent bonding occurs between two chlorine atoms and explain why this bond forms.
- Why are fluorine and chlorine gases at room temperature?
- Explain why diamonds are very hard
- Explain two reasons why graphite can conduct electricity

Can you answer questions easily by just reading?

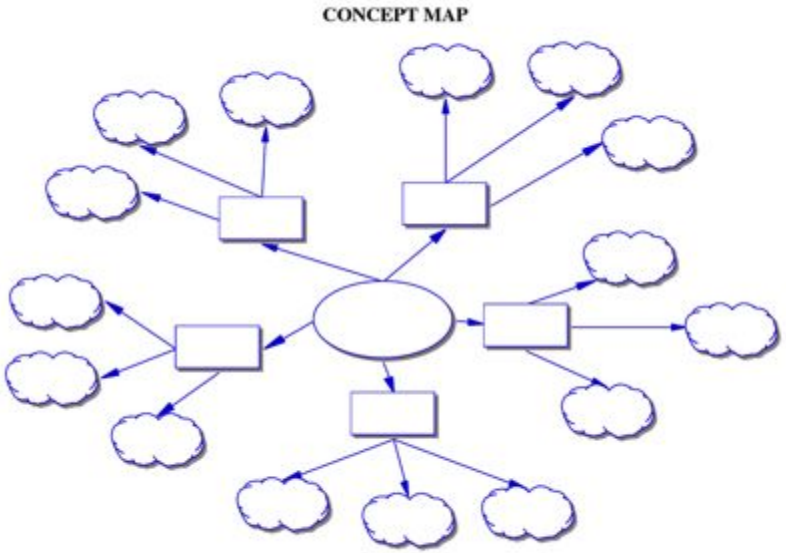
- Research tells us that reading without any other activity is the least effective way of revising
- We know that a lot of our students revise this way – because they tell us that they do.
- If you have just read the material – it is very hard to memorise it or use it to answer questions

Reading a texting

- Many teenagers revise and use social media at the same time.
- Be strong and say no to phones, computers or TV's while revising

Making a mind map

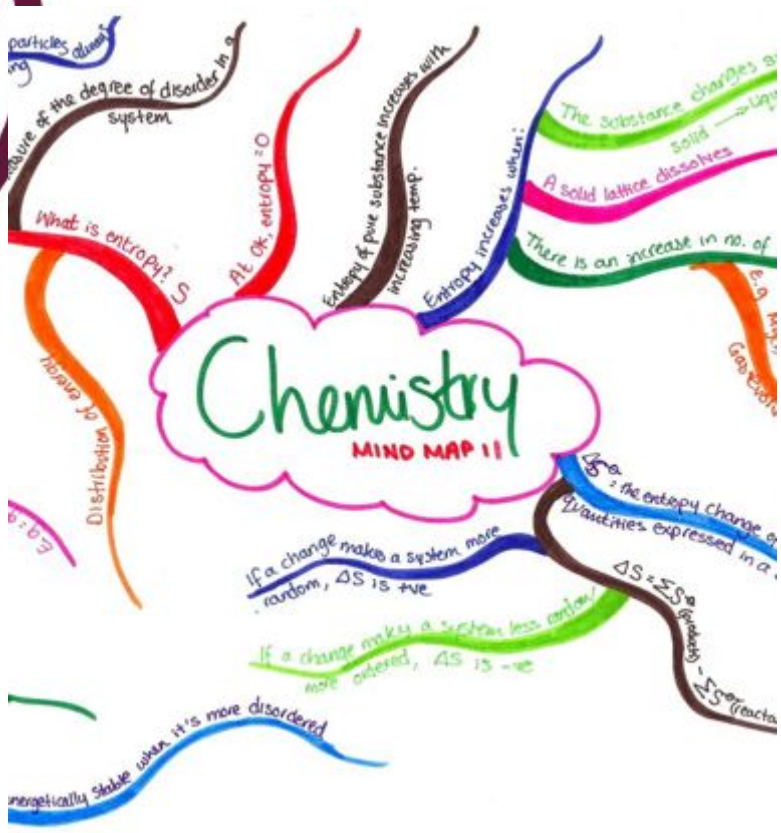
- As a family on your table I would like you to use the plain piece of paper to create a mind map on the topic:
- Giant covalent structures



Using your mind map (close the revision guide) try to answer

- Why do giant covalent structures have high melting points?
- Name two forms of carbon that are giant covalent structures?
- Name a form of carbon that is a football shaped molecule
- Why is graphite able to conduct electricity?
- How many bonds does each carbon atom make in diamond?

Which looks nicer – which is more useful?



Question	Facts
What are the particles that make up an atom?	Protons Neutrons Electrons
Which particles can be found in the nucleus?	Protons and Neutrons
What is an ore?	The name for metal which is bound in a compound inside a rock for example iron oxide
What is the name for the reaction which extracts metals from their ores?	Reduction
Name a metal that does not need extracting from an ore	Gold
How do we extract copper from plants?	Phytomining
What are the two ways that carbon dioxide is produced in a lime kiln	Carbon dioxide is produced from the thermal decomposition of calcium carbonate (limestone). Carbon dioxide is also produced when the fuel used to heat the kiln (methane) burns
What are the two products of complete combustion of a hydrocarbon fuel?	Carbon dioxide Water
What are two additional products made when incomplete combustion occurs?	Carbon monoxide Carbon (soot)
What type of pollution does burning sulphur cause?	Burning sulphur makes sulphur dioxide which causes acid rain
Name the three main steps in fractional distillation of crude oil	Heat the crude oil to make it a vapour Cool to condense Different fractions condense at different temperatures
How is oil hardened to make margarine?	Bubble hydrogen through With a nickel catalyst At 60 degrees
How do we test for double bonds (unsaturation)	Add bromine water Which decolorises if there are any double bonds present
Which oils are generally thought to be healthier?	Unsaturated oils that have double bonds are healthier than saturated fats that have only single bonds
What is the name of the region inside the Earth where convection currents happen?	The mantle
How are convection currents (mantle dynamics) caused	The heat released from natural radioactive processes causes the convection of magma in the mantle

What does revision look like in Science?

The following common revision techniques have been proven to be the least effective:

- Highlighting text
- Summarising texts
- Reading and Re-reading information

Although you may feel comfortable with these methods there are a variety of techniques for you to use instead. See below...

Flashcards

Create cards that have questions on one side and answers on the other.
You could create your own or using online tools such as: Quizlet

Once made use the Leitner method to increase retention:
How to study flashcards using the Leitner system - YouTube

How to use in Science

- Definitions of **keywords**
- **Equations** (Physics, Chemistry and Biology)
- Measurement **units** (e.g. g/dm³ concentrations)
- Circuit **symbols**
- **Required practical** methods (create cards to show the stages of each required practical)
- **Evaluation**: cards to show the advantages and disadvantages of a scientific process (e.g. pros and cons of using stem cells)
- Maths **calculations** (e.g. mean, gradient on a graph)

Learning maps

Graphic organisers are a fantastic way of **processing** information and presenting it in a clear way that helps you to remember.

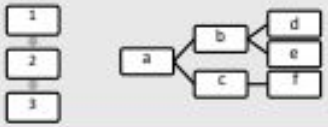
They can be used to make links, compare, show processes etc.

These can be made yourself or you can use online tools such as: coggle

How to use in Science:

- Use **spider diagrams** or **mind maps** to show links (e.g. for a whole topic on Forces)
- Use a **Venn diagram** to compare and contrast (e.g. eukaryotic and prokaryotic cells.

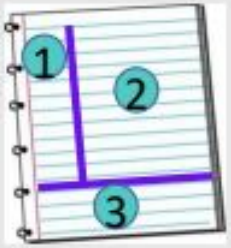
- Use **process diagrams** to sequence scientific processes (e.g. controlling blood sugar levels)



Cornel notes

Use this method to make your **notes effective**. This can be from a lesson, a revision book or a revision video.

Watch the YouTube clip for an explanation of how to make them: https://www.youtube.com/watch?v=ErSjc1PEGKE



1. **Key points** – write down the main points/keywords/diagrams/key questions/study prompts. (do this after making the notes in section 2)
2. **Notes** – In this space you record concisely, simply the things you are LESS likely remember. Not full sentences, use diagrams, lists, abbreviations, equations etc.
3. **Summary** – The most important step that is carried out after the note taking in section 2. This helps to reinforce learning. Write down the main ideas so this section can be used as a quick reference point

Retrieval practice

Testing what you know in Science is a great way to revise and train your brain to remember.

You can create your **own** quizzes using apps such as Quizlet and memrise

There are also **phone apps** with ready made quizzes based on your exam board (AQA) specification. Great examples include:

Temple run

GCSE bitesize

How to use in Science:

- Multiple choice questions
- True or false questions
- Short explanation questions
- Odd one out
- If this is the answer what is the question?

Spaced: Test on old and new topics and mix them up
Knowledge organisers: use these to create your 'must know' quizzes
Use for: equations, math's skills, scientific skills, required practicals, key concepts, anything!
Test yourself and get **others to test you.**

What does revision look like in Science?

Dual Coding

This is the method where you put **pictures alongside text** to reinforce memory and retention of knowledge.

What to do?

1. Use simple drawings with simple text descriptions
2. Your drawing is there to represent your understanding of that topic
3. Draw links between different images

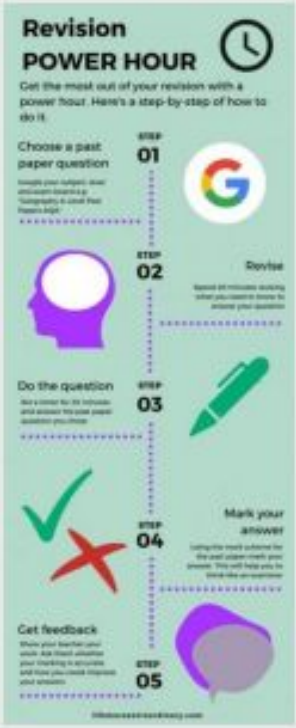
How to use in Science:

- Annotate diagrams:

- Comic strips (e.g. a comic strip outlining digestion or a comic strip to show how to carry out the method for one of your required practicals such as spring extension)

Make sure you are confident with the overall topic before you start to revise the details.

The Power Hour



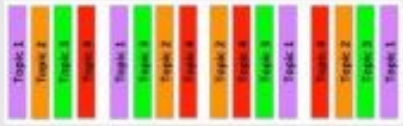
Plan time where you can practice **applying** your knowledge to **exam style questions.**
These must **challenge** you and remember **practice makes perfect!**

How to use in Science:

- Use the **power hour template** above when going through practice questions for the first time. You can get practice papers from the AQA website and your teacher
- Pull apart a **model answer** to a 6 mark question (from your teacher). Identify the **key points** and where the student got their **marks**.

Interleaving

Don't revise all your topics at once (cramming).
Revise **small chunks** of topics at a time (e.g. **20 mins.**) and then move onto another 'chunk' of a topic for next 20 minutes. This will improve your **memory**.



e.g. 20 minutes on covalent bonding, then 20 minutes on homeostasis and the 20 minutes on energy transfers.

How to use in Science:

- Create a **revision timetable** to plan when you are going to cover every topic.
- Revise your **least confident topic first** e.g. forces
- Then go over the topics again
- Use your **flashcards** to test yourself on these topics as you go through them
- Keep **reviewing your revision timetable** as your confidence grows in certain topics (i.e. don't spend the same amount of time on a topic that you are now more confident in)

Knowledge Organisers

Create knowledge organisers for every topic. Use **colour**, **diagrams** and **box** your text so it is organised for your brain to process and **retain**.

How to use in Science:

- Complete at end of topic to highlight key points and process information
- Include: labelled diagrams, keywords and definitions, tables, equation triangles etc.
- Create them for every required practical. Include the method, diagram of equipment, variables, safety precautions, improvements to experiments

REVISION: THE BASICS

Calm space to revise

Limit distractions

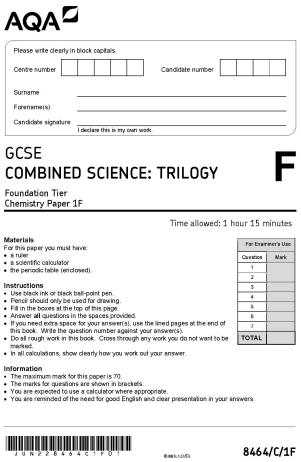
Sleep well

Plan: revision timetable

Take breaks

Exam questions

- Exam questions often bring together a range of topic areas.
- Once you are confident in the topics use the past papers on the exam board website to practice REAL questions.
- http://www.aqa.org.uk/exams-administration/exams-guidance/find-past-papers-and-mark-schemes



AQA

Please write clearly in block capitals.

Centre number | Candidate number

Surname

Forename(s)

Candidate signature

I declare this is my own work.

GCSE

COMBINED SCIENCE: TRILOGY **F**

Foundation Tier

Chemistry Paper 1F

Time allowed: 1 hour 15 minutes

Materials

For this paper you must have:
- a ruler
- a scientific calculator
- the periodic table (enclosed).

Instructions
- Use black ink or black ball-point pen.
- Pencil should only be used for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions in the spaces provided.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.
- In all calculations, show clearly how you work out your answer.

Information
- The maximum mark for this paper is 70.
- The marks for questions are shown in brackets.
- You are expected to use a calculator where appropriate.
- You are reminded of the need for good English and clear presentation in your answers.

For Examiner's Use	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
TOTAL	

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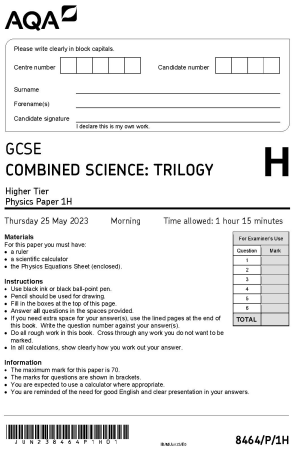

AQA

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Candidate signature

I declare this is my own work.

GCSE

COMBINED SCIENCE: TRILOGY **H**

Higher Tier

Physics Paper 1H

Thursday 25 May 2023 Morning Time allowed: 1 hour 15 minutes

Materials

For this paper you must have:
- a ruler
- a scientific calculator
- the Physics Equations Sheet (enclosed).

Instructions
- Use black ink or black ball-point pen.
- Pencil should be used for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions in the spaces provided.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.
- In all calculations, show clearly how you work out your answer.

Information
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For Examiner's Use	
Question	Mark
1	
2	
3	
4	
5	
6	
TOTAL	

8464/P/1H

Working together

- How much better did it feel to work as a group?
- Encourage productive joint revision
- Be the revision friend

So how do you combat this…..

And this…….

With this…….

And this…….

- I’m not telling you it’s going to be easy.
- But I can promise you it’s worth it.