

Study Skills






WE REMEMBER...

- 20% of what we READ
- 30% of what we HEAR
- 40% of what we SEE
- 50% of what we SAY
- 60% of what we DO
- 90% of what we SEE, HEAR, DO AND SAY

KEY PRINCIPLES

We remember better when things are:

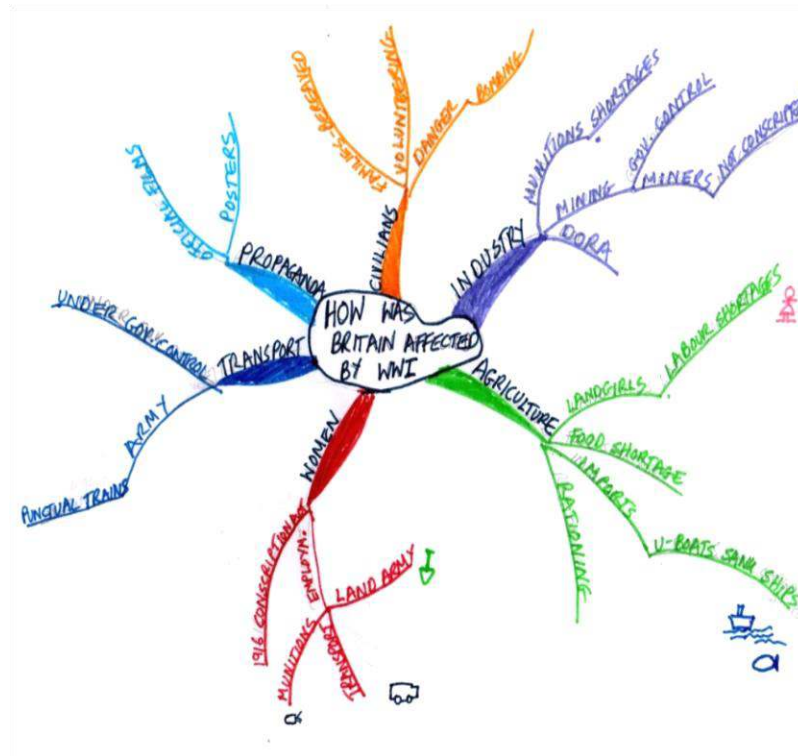
- In colour
- IN CAPITALS
- Underlined
- Pictorial 
- Unusual



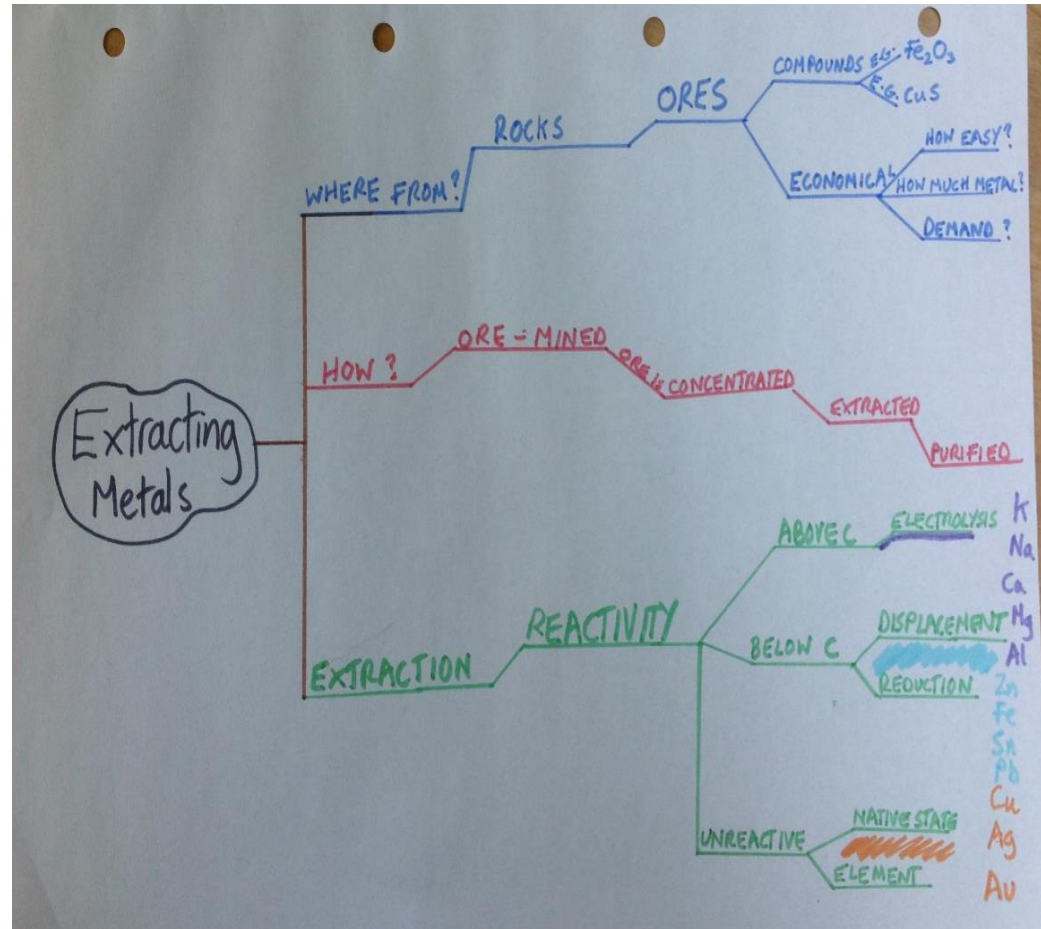


KEEP REVISION ACTIVE!

- Journey it
- Map it
- Index it
- Story it
- Flip It
- Post it
- Comic it
- Sing it



This is the usual approach. On the slide below is a different approach you might prefer.



BONDING AND Structure

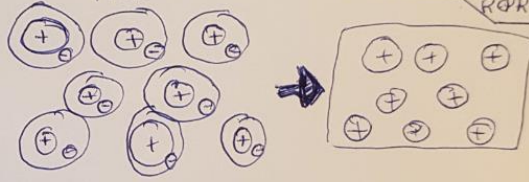
METALLIC BOND

OCCURS IN METALLIC ELEMENTS AND ALLOYS.

Metals consists of giant structures of atoms arranged in regular pattern.

THE ELECTRONS IN THE OUTER SHELL ARE DELOCALISED

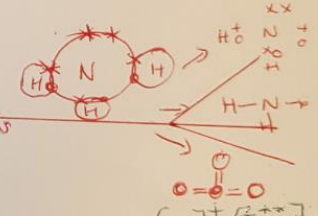
THE BONDING IN METALS MAY BE REPRESENTED



COVALENT BOND

OCCURS IN NON-METALLIC ELEMENTS AND IN COMPOUNDS OF NON METALS.

WHEN ATOMS SHARE PAIRS OF ELECTRONS, THEY FORM COVALENT BONDS. THESE BONDS BETWEEN ATOMS ARE STRONG.

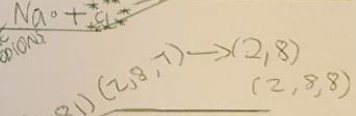


IONIC BOND

OCCURS ONLY IN COMPOUNDS FORMED FROM METALS COMBINED WITH NON METALS.

METAL ATOMS LOSE ELECTRONS TO BECOME POSITIVELY CHARGED IONS.

NON METALS GAIN ELECTRONS TO BECOME NEGATIVELY CHARGED IONS.



THE IONS PRODUCED BY METALS IN GROUP ONE AND TWO.

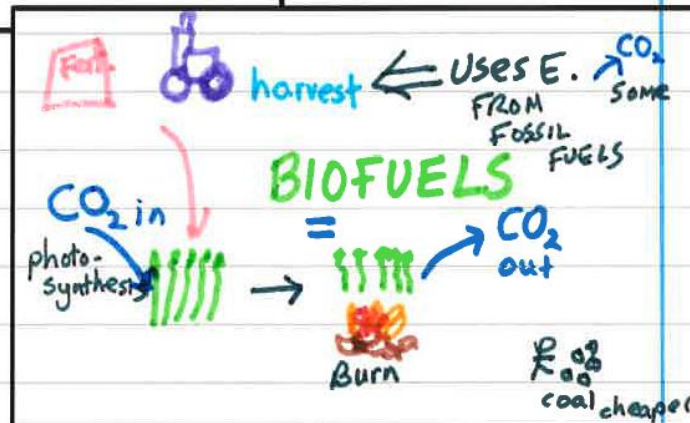
THE ATOM WITH LESS ATOMS LOSES ELECTRONS

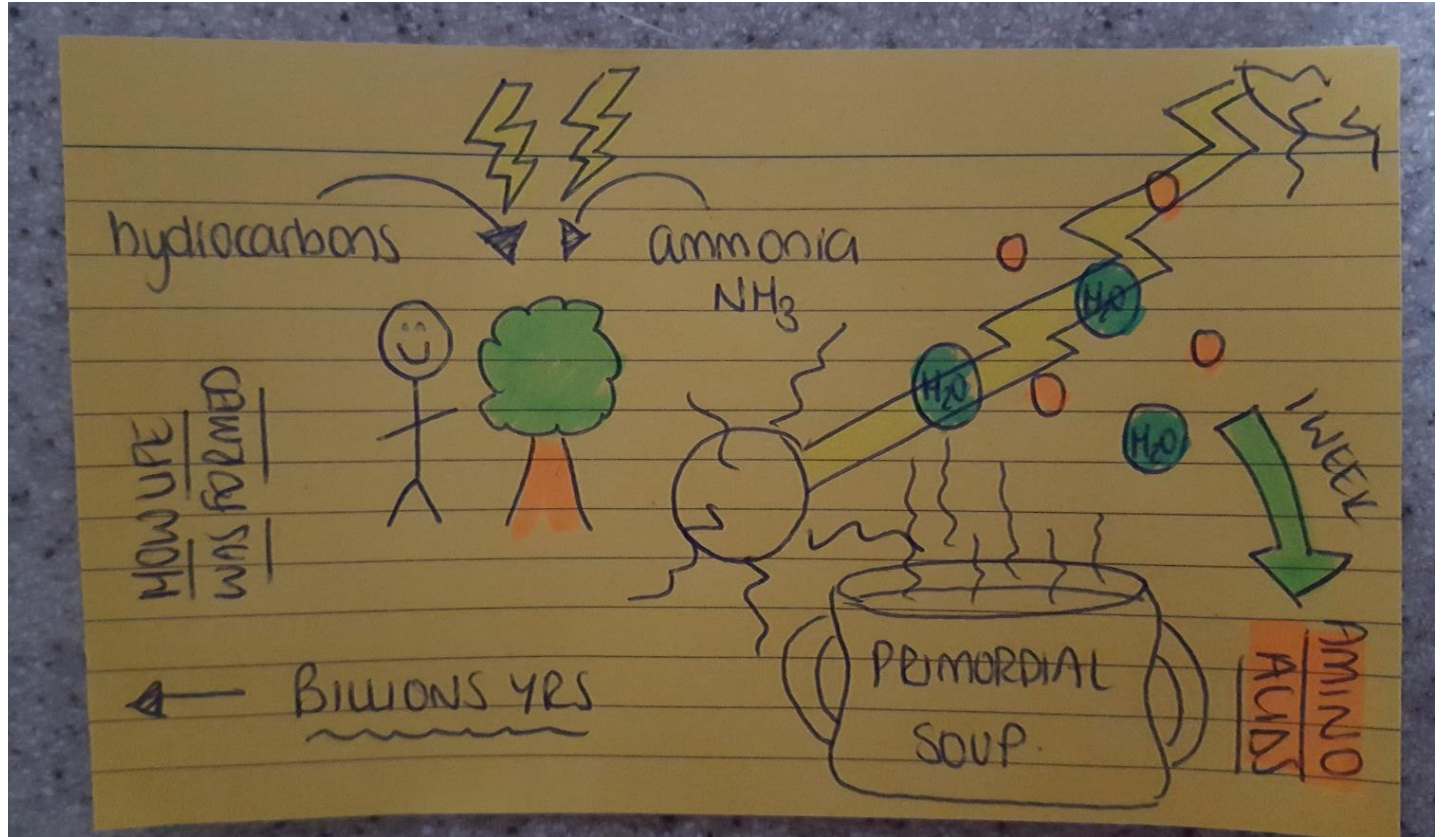
IT ALWAYS REACTS WITH METAL ATOMS IN GROUP 1 AND 2 OR GROUP 2 AND 1

BIOFUELS

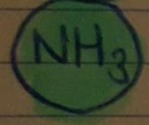
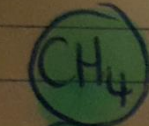
- crops take in CO_2 when growing
- When burnt CO_2 is given out
- overall amount the same
- Energy needed to make fertilisers transport, harvest crop
- coal is cheaper

Which is more effective to make?
Which is easier to remember?



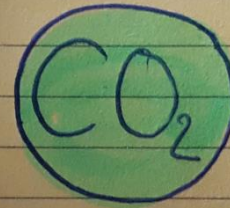


EARLY ATMOSPHERE

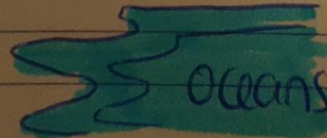
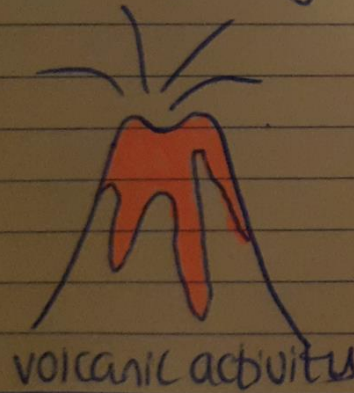


~ 1 billion yrs

gases



Water vapour
condensed.



TODAY

← 200 million yrs

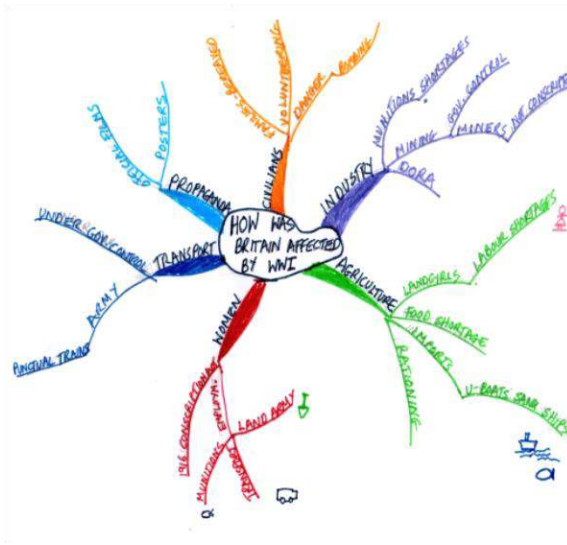
NITROGEN	O_2
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80%

20%

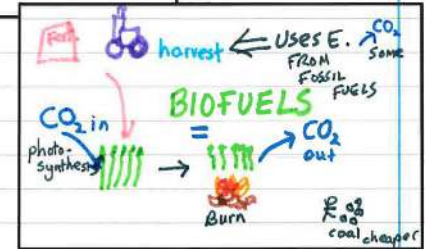
+ CO_2 + H_2O vapour

+ noble gases



BIOFUELS

- Crops take in CO₂ when growing
- When burnt CO₂ is given out
- overall amount the same
- Energy needed to make fertilisers, transport, harvest crop
- Coal is cheaper



India - Economic

Challenges

- Economic → not enough formal jobs for people
- Environmental → 40% of rubbish is officially collected - meaning there are large rubbish dumps containing toxic waste

MANAGEMENT

- Floating School
- 2014 a proto-type was built
- It had classrooms that could hold 60 children
- In 2016 it collapsed due to heavy rainfall

Water Transfer

India - Economic

Challenges

- Economic → not enough formal jobs for people
- Environmental → 40% of rubbish is officially collected - meaning there are large rubbish dumps containing toxic waste

MANAGEMENT

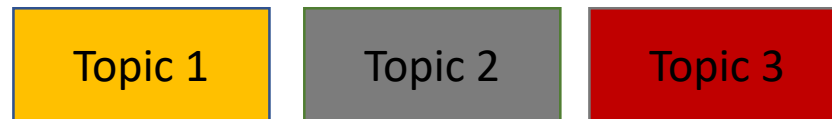
- Floating School
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RETENTION!

- 48 hours after learning a topic we remember less than 20%
- Reviewing the same day and the next day helps you remember **THREE** times as much!

- Ineffective approach



- Retention approach





RETRIEVAL PRACTICE AND INTERLEAVING

Retrieval practice is something many students do anyway but the important thing is that they leave enough time to try and forget the information they have learnt before retrieving it from their memory!

- Decide which topic you are going to revise.
- There are two different approaches (see next slide). Use these after you have learnt the topic. The idea is that you leave a bit of time before revising the topic. The approach works because you are forcing yourself to try and remember.



RETRIEVAL PRACTICE AND INTERLEAVING

APPROACH 1	APPROACH 2
Write down everything you can remember about the topic on a piece of paper.	When you are learning the topic, prepare a set of questions on flash cards.
Really search your memory and try to get as much information down as you can.	When you come to revise the topic, test yourself or get somebody else to test you. You could also make half-completed mind maps that you then try and complete. Do not go over the information first.
Compare the information you have written with your notes or your revision guide, fill any gaps and correct any mistakes.	Check and correct your answers.

- Repeat a few days later.
- Jumbling up topics and making sure that you re-visit them is far more effective than just working your way through from one topic to the next.



USEFUL WEBSITES

<https://www.learningscientists.org/learning-scientists-podcast/2017/12/6/episode-8-interleaving>

<https://www.retrievalpractice.org/strategies/2018/8/3/more-strategies>

<https://www.ocr.org.uk/Images/340584-spaced-review-and-interleaving-teacher-guide.pdf>

https://www.doddlelearn.co.uk/retrieval-practice/?utm_source=google&utm_medium=ads&utm_campaign=retrieval-practice&utm_term=retrieval-practice&utm_content=GL2519&gclid=EAlaIQobChMlv8OE4t6N5wIVibHtCh0VhASNEAMYASAAEgKTefD_BwE