

# Sample Strategies

*from*

## POWERFUL LEARNING STRATEGIES THAT SCHOOLS DON'T TEACH

Graphic Organizers-the key to easier study



ENGAGING STUDY TECHNIQUES FOR  
STUDENTS AGED 12 AND OVER

**DR. PENNY MCGLYNN**

Powerful Learning Strategies That Schools Don't  
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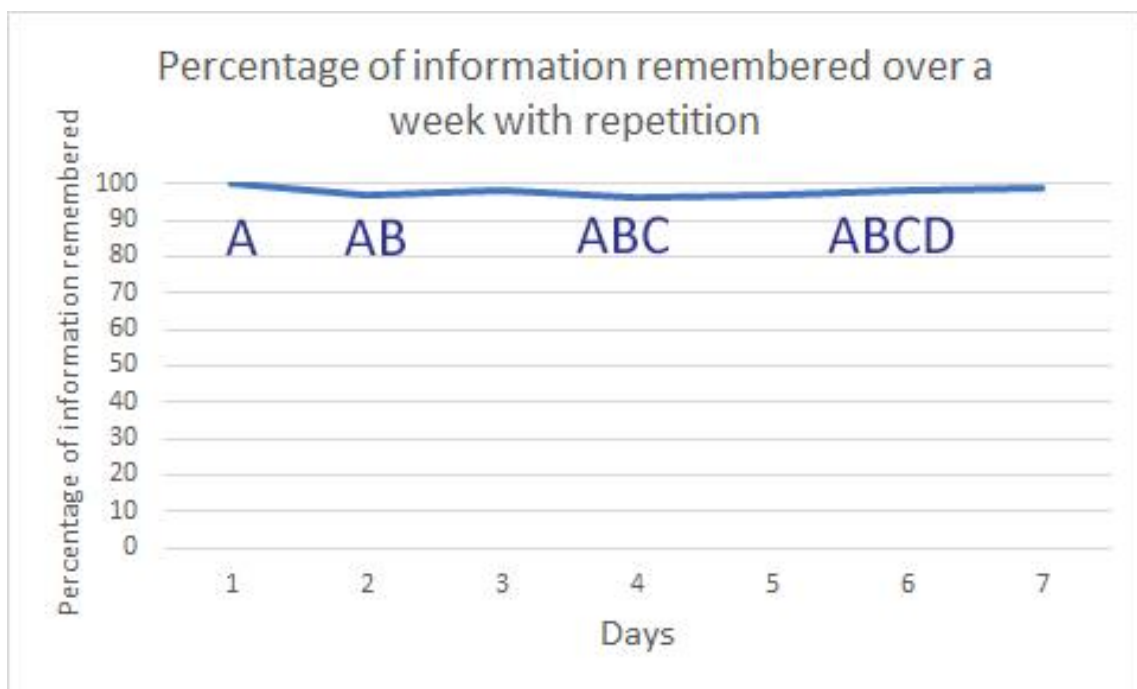
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## The Importance of Spaced Repetition

**Repetition** of new information is essential to switch it from **short-term memory** to **long-term memory**, so that you won't forget it. It allows the formation of superhighways of nerve fibres (pp. 21-22) in the brain.

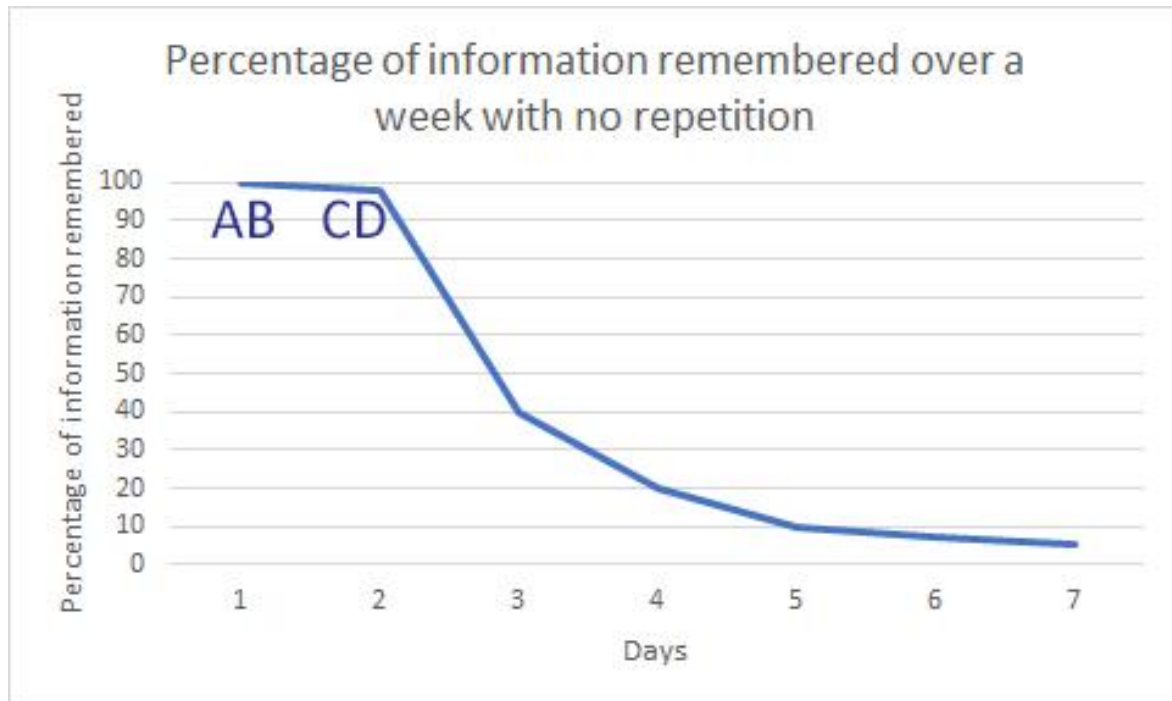
The following graphs show how two students spend the **same amount of time** studying for an assessment. It is the **timing** and **content** of that revision which affects how well they remember it. Both students spent a total of 4 hours studying for a Topic Test.



In this graph, the student has spread her study into four sessions spread over the whole week, and divided the material covered by the test into four sections, A, B, C and D. She has repeated practising earlier sections before learning new sections.

On her first study session she studied section A. On her second session, she revised section A before studying section B. For her third study session, she revised sections A and B, before learning section C. On her final revision period, she studied sections A, B and C before learning section D,

She has remembered everything for the assessment on day 7.



This graph shows how a different student has spent the same amount of time studying as the first girl did (4 hours). However, she has done all of it on days 1 and 2 with no practise during the week, and no repetition on her second study session. She has forgotten almost everything for the assessment on day 7.

**What you can do:**

The next time you have a Topic Test coming up in any subject, practise dividing the information covered in the test into sections. Do this at least a week before the test. Use the Assessment Planner on p. 160 to plan your study.

Work out how many study sessions you can fit into the week and revise previous sections before learning new sections. Make sure you spread the study sessions over the whole week.



## How to Fill in an Assessment Planner

1. Photocopy several copies of the blank Assessment Planner on p.160.
2. Refer to the Sample Completed Assessment Planner on the p. 161.
3. A week before your next assessment date, begin filling in a blank Assessment Planner using the instructions below.
4. Tick the mark you would like to achieve in the boxes at the top of the Planner.

If you have several assessments in the week, use single or multiple asterixis \* to identify the mark range which matches each assessment.



5. Starting on the **right-hand side** of Row 1, enter the **day** and **date** of the last assessment for the week.

Then **working backwards to the left**, fill in the days and dates for the week leading up to the assessments.

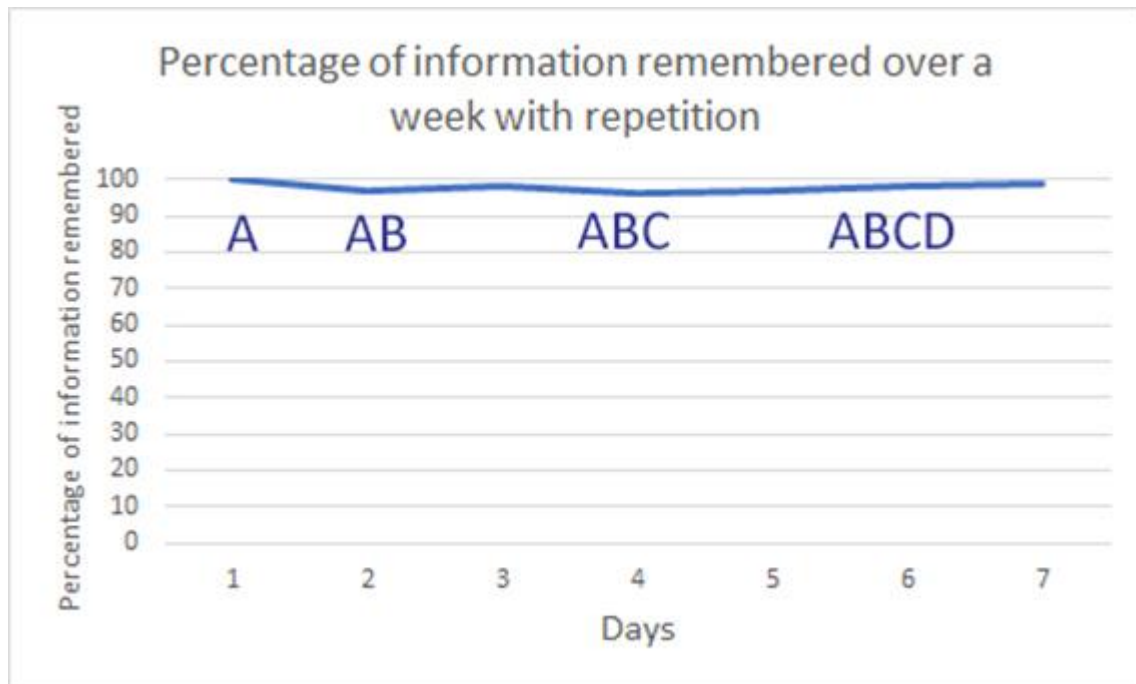
6. Put your assessments for that week into Row 2, together with the percentage of the semester mark they are worth. Ask your teacher for this information if you don't have it.



7. In Row 3 include all of your activities and commitments that will effect how much time you have left to study.



8. In Row 4, allocate the time you intend to study for each subject for each day
9. Remember from the Retention Graph repeated below, that it is important to spread your study out over the week. Also revise sections studied earlier, before studying new information.



10. Record how much time you actually spent studying in your Assessment Planner and see how it matches up to your planned time.

Did something come up that you had to do, or do you need to be more realistic with your planned study times?

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Or were you lacking the motivation to stick to your plan? How can you change this for future assessments?

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Here are some suggestions:

- a) Try reading the Pomodoro Technique on p. 53. You could negotiate rewards with your parent/s or guardian for sticking to this approach.

Maybe an amount of pocket money for each Pomodoro session? You would need to show your parent/s or guardian the work that you had done during each study period!

This system needs a timer which you will find on a phone or smart watch. This will allow you to keep track of when you are supposed to be working, and when you should be taking a timed break.



- b) Also review the Goal Setting information on pp.43-47.

A sample Assessment planner. Actual layout is in landscape orientation.

Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Test day Test date
Assessments - %	Assessments - %	Assessments - %	Assessments - %	Assessments - %	Assessments - %	Assessments - %
Activities	Activities	Activities	Activities	Activities	Activities	Activities
Planned time revising	Planned time revising	Planned time revising	Planned time revising	Planned time revising	Planned time revising	Planned time revising
Actual time revising	Actual time revising	Actual time revising	Actual time revising	Actual time revising	Actual time revising	Actual time revising

## The Pomodoro Technique

The **Pomodoro Technique** is a time management method developed by Francesco Cirillo in the late 1980s.

As well as helping you to understand and remember information, the technique will make you much more productive. Assignments will be done on time, tests and examinations will be prepared for, and you will be rewarded with a better performance at school.

Brain research tells us that information is best retained and processed in the brain by working in a focused way using 'deliberate practice' (p. 130) for **25 minutes** followed by a **5 minute break** with a **reward**. During that break, the brain continues to work on what you were learning in the previous 25 minutes.

The reward can be anything e.g. eating a healthy snack, jumping on a trampoline or using your phone. It is really important that you set a timer to remind you to start the next 25 minute session after the 5 minute break.

For older students, take a 10 minute break after completing two Pomodoro sessions.



## Summarising – Making Study Easier

Summarising is an essential skill if you want to make studying for tests and examinations easier. In order to summarise well, you must first be able to highlight key information (p. 64)

The following pages describe three different summary techniques. Try all of them and see which you prefer. Sometimes different methods are useful for different purposes.

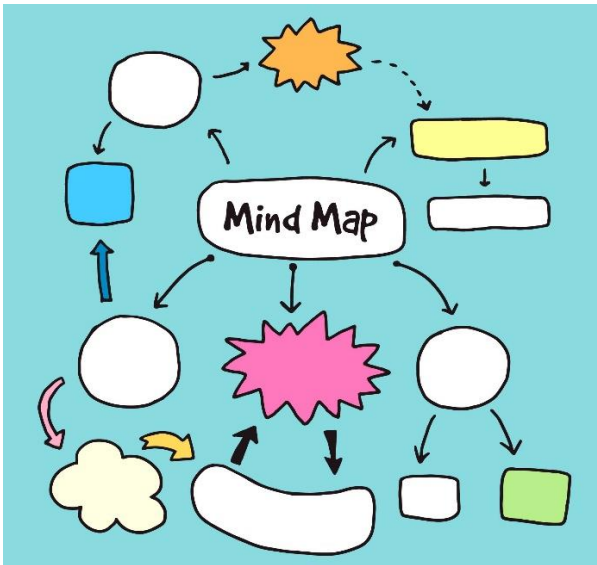
This section includes information about:

- Mind Maps
- Idea Organisers
- Quizlet (an on-line program)

These are very powerful tools and if you use them, you will have an advantage over students who don't summarise. The trick is to keep summaries going each time you do homework, (especially for Humanities and Social Science, or Social Studies, Science, English and Mathematics).

The three summary strategies all rely on you **highlighting the key words** (p.64) in the document you are studying. This reduces the word count (number of words left to study).

Then producing a Mind Map, Quizlet set or Idea Organiser, **from those highlighted sections** reduces the word count even further. You are likely to be left with **less than 10% of the original number of words to remember.**





Refer to the image above. As test or examination time comes around, you will have a collection of summaries which form a small stack, compared to other students who didn't summarise and are left with large amounts of information, like the stack of files (digital or paper based) shown in the image above.

In the process of making your summaries, you are already beginning to **understand** and **learn** the information.

#### **What you can do:**

Start summarising for Humanities and Social Science, or Social Studies, Science, English and Mathematics once you have completed Section 9. Add new information to your summaries each night for 20 minutes each night and spend more time on them during weekends.

This will help you to understand the information, and make sure that your summaries don't turn into big tasks when assessments are coming up.

## Summarising With Mind Maps

A Mind Map about 'Saving the Earth' is shown on the next page.

List the good things about this Mind Map:

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List any negative features you think this Mind Map has:

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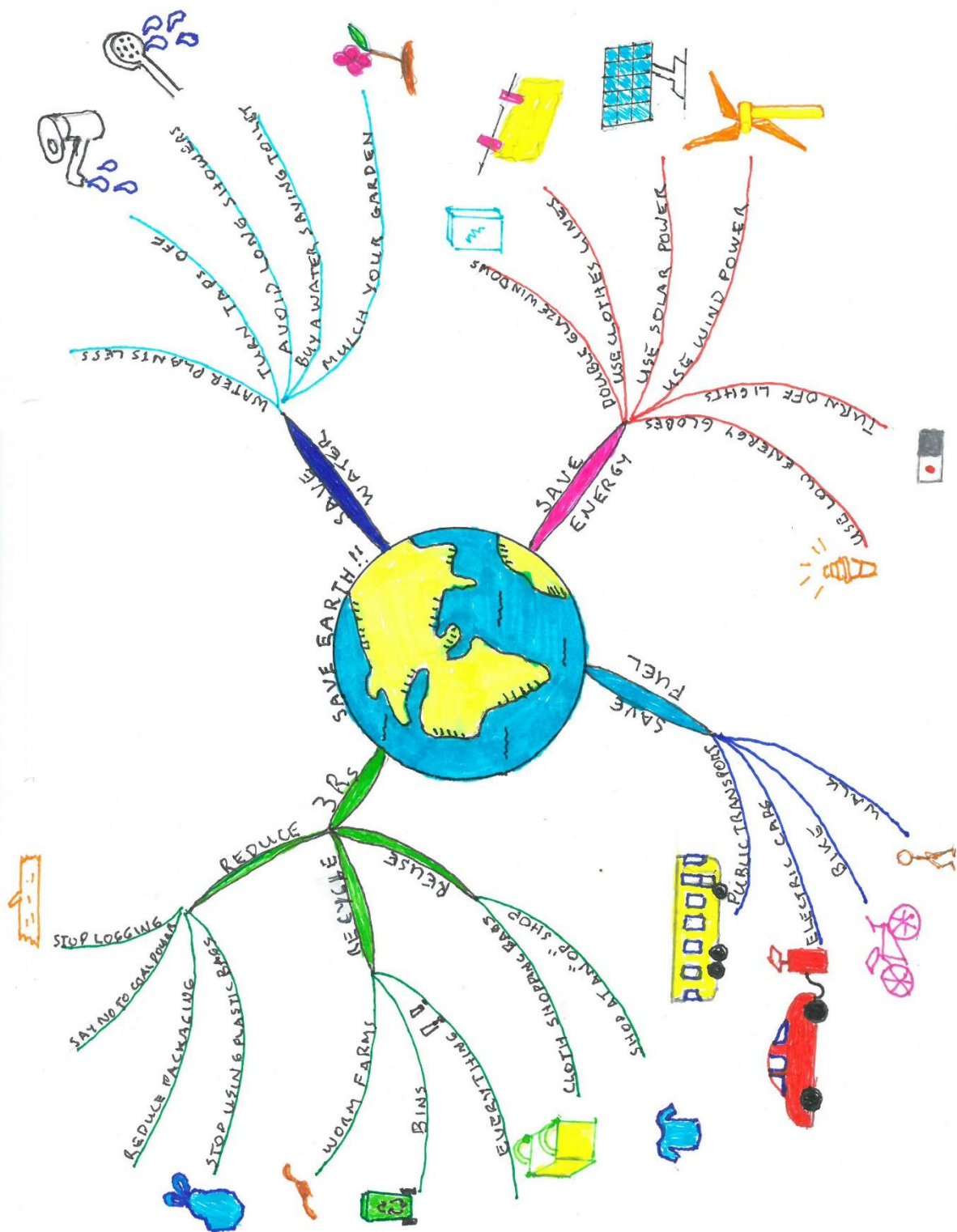
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## Mind Mapping

Highlight the key words in the Volcano article in the passage below. Only highlight sections you don't know, or think are important. Count how many words you highlighted.

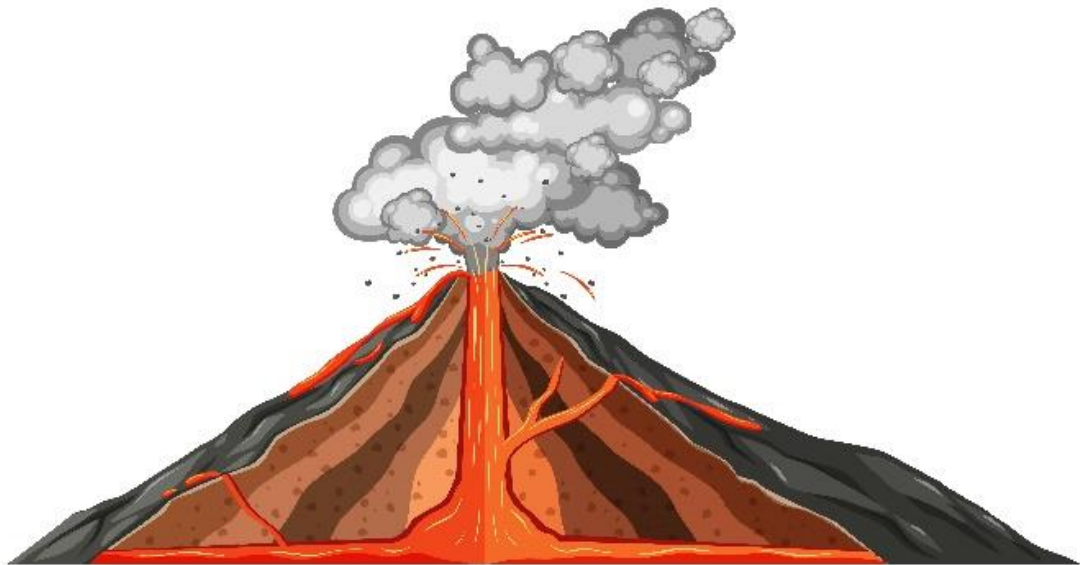
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Then draw a Mind Map on p. 73 of the Volcano article, using the words you have highlighted. First look at the Mind Map on p.70 to get an idea of how the 'arms' are chosen and laid out.

The aim is to get rid of as many unnecessary words as possible and to use images to save writing words.

After you have drawn your Mind Map, you need to **mark it yourself** (p. 74). This gives you immediate feedback about how well you have managed the task. It also gives you information about what you did and didn't do correctly.

### Volcanoes



A **volcano** is a break in the crust of the Earth, that forms an upside-down cone shape, which releases ash, lava, and gases from a magma chamber underneath the surface when it erupts. (Until it reaches the surface, the emerging molten rock is called magma. Once it has reached the surface, the molten rock is called lava.)

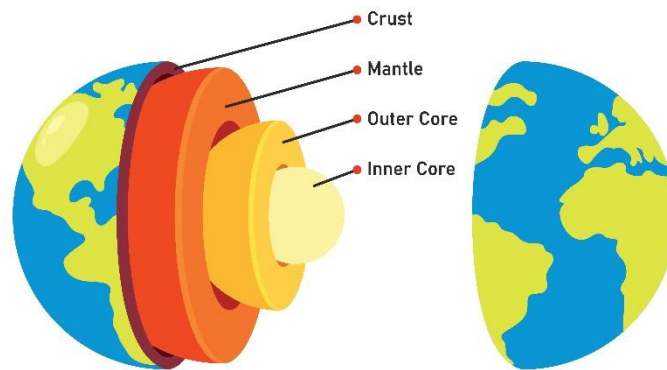
Earth's crust is broken into very large, inflexible tectonic plates that float on a warm, soft layer in the mantle (see picture on the following page). Volcanoes are mostly found where tectonic plates are spreading apart or coming together, and many of them are found beneath the sea.

Erupting volcanoes can cause many hazards both near the volcano, and further away. For example, volcanic ash can be a danger to aeroplanes, especially those with jet engines. When hot ash sticks to the turbine blades of engines, it alters their shape. This can change the air flow through the engines, causing them to stop working, leading to loss of control of the aircraft, often resulting in crashes.

A second hazard is that they can affect the temperature of Earth's atmosphere, as ash and particles of sulfuric acid block the sun and result in the cooling of the Earth's atmosphere.

The lack of sunlight causes the plants to die and this is followed by the deaths of first order consumers such as cows which eat grass, then second order consumers such as humans, who eat cows. In the past, these **volcanic winters** have caused humans to die of starvation following the loss of crops and animals.

(259 words)



**Draw your own version of a Mind Map about Volcanoes below.** Remember to use lots of images and as few words as possible.

**Mark Your Mind Map: This will help you learn how to do them properly.**

Is it laid out so that you can see all the sections clearly? \_\_\_\_\_ (2 marks)

Does it cover all the information? \_\_\_\_\_ (3 marks)

Does it have one arm for structure (first paragraph), one arm for causes (paragraph two) and one arm with two branches for hazards (paragraphs three and four)? \_\_\_\_\_ (3 marks)

How accurate is your information? \_\_\_\_\_ (2 marks)

Is it neat enough to read clearly? \_\_\_\_\_ (2 marks)

Have you used images and colour? (this aids memory) \_\_\_\_\_ (3 marks)

What percentage of words did you get rid of from the 259 words in the original article?

To work this out, first count the number of words on your mind map \_\_\_\_\_

Divide this number by the original 259 and multiply this number by 100 \_\_\_\_\_

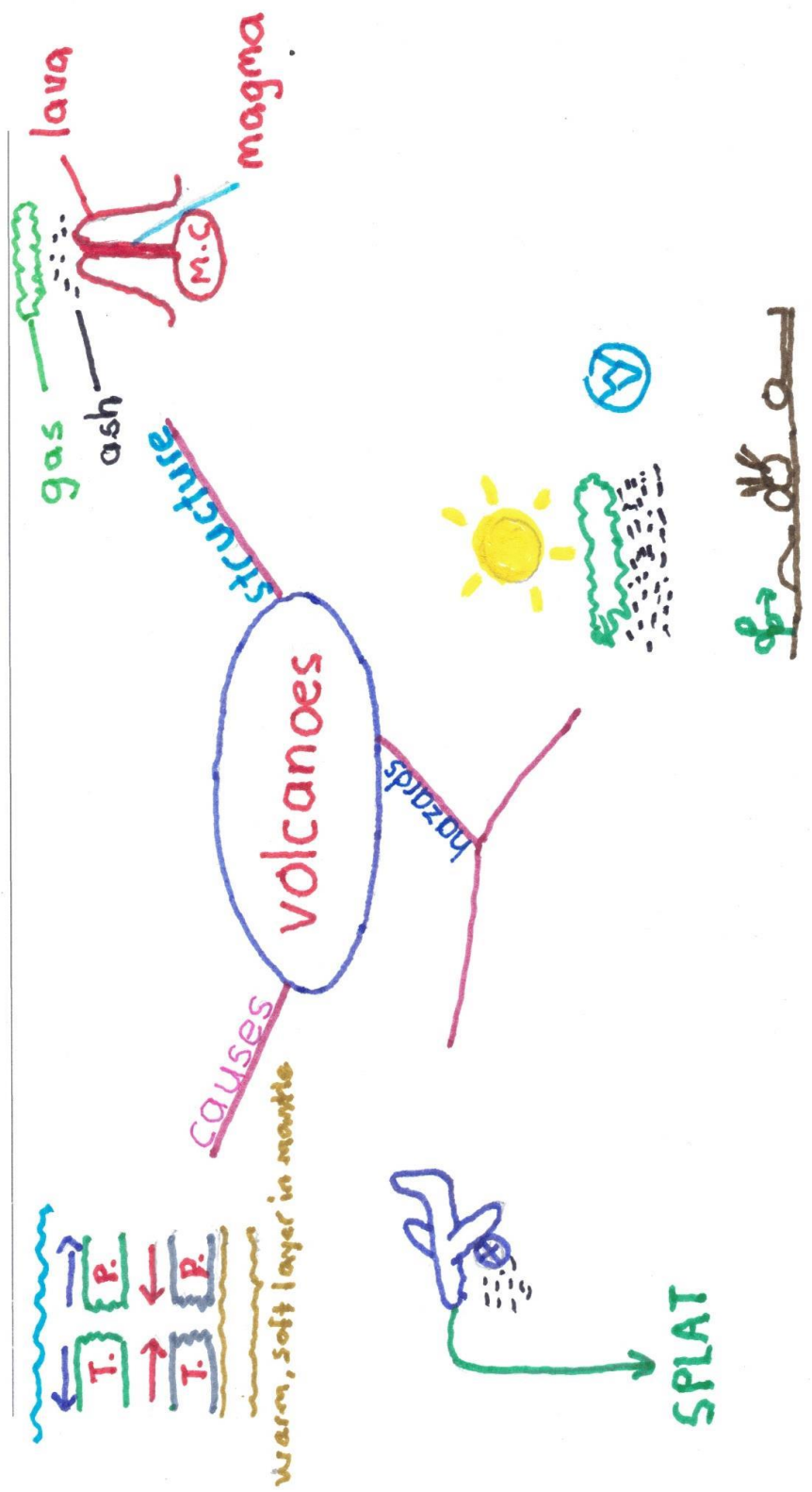
This is the percentage of **words remaining**. To calculate the **percentage of words you got rid of** and **don't have to study**, subtract your answer from 100% \_\_\_\_\_

**If you got rid of 95% of the words you score (5 marks)**

Total Score for Mind Map \_\_\_\_\_ ( ... /20 marks)

A completed Mind Map on Volcanoes can be found on the next page.

Here is a student's Mind Map of the Volcano information that scored 20/20. Compare it with yours. What could you have done differently?



## How to Study a Mind Map

To study a Mind Map:

- practise looking at one arm of the Volcano Mind Map (we will call it section A)
- cover it, then try to re-draw the section from memory on a separate piece of paper
- repeat this with section A until you can redraw it from memory
- do this for the next arm of the Mind Map (section B)
- then redraw section A from memory before re-drawing section B
- proceed in this way, always re-drawing previous sections before moving on to the next section. You will find this re-drawing becomes very fast with practise so that most of the time is used for learning the new section.
- repetition of earlier work means you will have laid down new nerve fibres (neurons p.22) to form a permanent long-term memory in your brain.
- the final step is to be able to turn the information in the Mind Map back into an answer to a series of questions you make up about the topic (Volcanoes).

**This method should be followed whenever you are memorising information.**

Practise answering this 'test question': **Describe the structure and formation of volcanoes and outline the hazards they can cause.**

Write your answer on a separate piece of paper and when you have finished, compare it with your Mind Map see how well you did.

## Summarising with Quizlet

TM



Quizlet <sup>TM</sup> is a wonderful tool for summarising. It helps you practise and master whatever you are learning from the **Times Tables** (refer to Section 6 [pp.27-32] 'Learn the Times Tables Easily with Quizlet' for more information about Quizlet <sup>TM</sup>) to Year 12 Biology or Politics, and everything else which uses terms and definitions.

Quizlet <sup>TM</sup> is recognised worldwide as one of the best tools for learning terms and definitions.

Search the web for Quizlet.com or go to the App Store. Make sure you purchase Premium, to give you access to images, which are very important, as they assist memory.

**Watch the video:** YouTube. Yakubov, R. (2016) [How to Use Quizlet - Official Tutorial for New Users](#). (16:20 minutes)

The video suggests searching for sets other people have made. There is a problem with using other peoples' study sets, other than Mathematics sets. They nearly always use too many words. You are better off making your own sets as in the process of making them, you can reduce the **number of words** and **start learning the content** as you make up cards.

## Using Interleaving to Study

**Source:** Weinstein, W and Smith, M. (nd) *Learn to Study Using Interleaving*. The Learning Scientists. Retrieved 06/08/2021 from <https://www.learningscientists.org/blog2016/8/11-1#:text=What%20should%20you%20do%20while.order%20to%20strengthen%20your%20u%20nderstanding.>

**Watch the video:** *Study Strategies: Interleaving - The Learning Scientists* (2.05 minutes)  
YouTube.<http://www.youtube.com/watch?v=kV64Bu6sec0>

### What is interleaving?

Interleaving means **switching between ideas** while you study.

Imagine you are beginning a study session. You have a test or an examination coming up, and various different topics to study for it. What is the best way to study the different topics?

The research says that you should change ideas, topics and types of problem often. This is called **interleaving**.

This may seem more difficult than studying one type of material for an extended time, but is more helpful in the long run. This strategy is particularly useful if you're studying something that includes problem solving e.g. Mathematics or Chemistry.

Coming back to earlier work gives your mind the space to realise that there are other, easier ways to solve a problem or remember an idea (see diffuse thinking p. 154). Interleaving can also help you to see the connections, likenesses, and differences between ideas.

### How often should you switch topics?

Avoid switching ideas, topics or problem solving too often. Spend a good 15 to 25 minutes on one thing before switching. You need to have a good grasp of the concept before you move on to another topic. Otherwise, you won't remember anything!



### What should you do while interleaving?

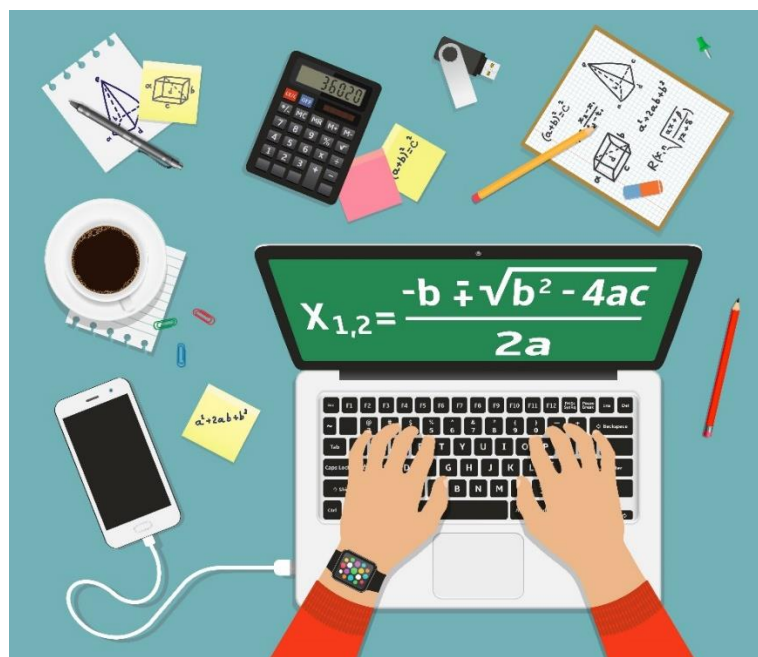
Don't just switch and ignore each idea once you've changed from it. Instead, try to make connections between different ideas as you switch between them. Then, return to earlier ideas in a different order, to strengthen your understanding.

#### What you can do:

Practise Interleaving the next time you have a Mathematics Topic Test coming up.

If you have two types of problems or topics to study, label them A and B. Then switch them around as follows:

- spend 15-25 minutes on one type of problem (Set A)
- have a 5 minute break with a reward, then switch to spend 15-25 minutes on a different type of problem (Set B)
- switch back to spend the same amount of time on Set A after a 5 minute break with a reward
- then do the same for Set B



## Studying Smarter Not Harder

**Watch the Video:** ProjectElon (2021, February 22) *How to Study Smarter Not Harder: ElonProject* (11.34minutes)

YouTube.[www.google.com/search?q=how+to+study+smarter+not+harder+elon+project](https://www.google.com/search?q=how+to+study+smarter+not+harder+elon+project)

This video shows some highly effective techniques to add to the learning strategies in this book. It is the most viewed video on a 'how to study' YouTube channel with 4,600,000 views. Make sure the one you watch matches the time (11:34 minutes), as Elon has made some similar videos. The one listed above is the best.

An important principle is to **ask and answer questions** as you are reading through a text. Details of how to do this are provided in the video. **Just reading a text is a waste of time.** This work draws on the expertise of Jim Kwik in his book *Limitless*, Kwik, J. (2020), Hay House Publisher.

**Spaced repetition**, an essential tool, is mentioned in the video but is treated more extensively on p. 128 of this text.

### The Pareto Principle:

Elon goes on to mention the Pareto Principal which suggests you only really need to study hard for the key 20% of the content covered in class. This involves **completing previous test papers, watching relevant YouTube videos and summarising notes** (details of how to do this are found in Section 9 of this book).

The remaining 80% is made up of assignments, background reading, reading sections of the text without asking and answering questions. This is the 80% of pretty much wasted time if you are preparing for an examination. But doing assignments is essential if they contribute to your overall mark for a subject. Mention is also made of the **Pomodoro Method** detailed on p. 53 of this book.

### The Feynman Technique:

<https://medium.com/taking-note/learning-from-the-feynman-technique-5373014ad230>

Retrieved on 06/08/2021. Start reading this article after the second diagram.

This is a must read and involves you teaching other students or parents who have no background knowledge in an area, a section of work you have studied. You need to refine points you were weak in, or get help for concepts you didn't understand and then repeat the teaching process with a new listener until you are sure you know everything.

