



# New skills

## Essential Study Skills

Sarah Simpson

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# Contents

<b>1</b>	<b>Introduction</b>	<b>9</b>
1.1	Baseline / benchmark questions	9
<b>2</b>	<b>Types of study</b>	<b>10</b>
2.1	To gather information	10
2.2	To learn information	10
2.3	To check learning	10
2.4	To refresh	10
2.5	To improve learning skills	10
2.6	Main ways to improve learning skills	11
<b>3</b>	<b>How do we learn?</b>	<b>12</b>
3.1	Visual	12
3.2	Auditory	13
3.3	Kinaesthetic	15
3.4	VAK questionnaire	16

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<b>4</b>	<b>Acrostics, acronyms, analogies &amp; mnemonics</b>	<b>20</b>
4.1	Acrostics	20
4.2	Acronyms	22
4.3	Analogies	24
4.4	Mnemonics	25
<b>5</b>	<b>Reading skills</b>	<b>27</b>
5.1	Reading materials when studying	28
5.2	Speed reading	28
5.2.1	The speed reading method:	29
5.3	Skim Reading	29
5.4	Scanning	29
<b>6</b>	<b>Condensing &amp; summarising</b>	<b>31</b>
6.1	Keywords	32
6.2	Tree structure	33
6.3	Spider diagrams	36
6.4	Mind maps	37
6.5	Concept maps	39



<b>7</b>	<b>Cue methods</b>	<b>41</b>
<b>8</b>	<b>Note taking</b>	<b>42</b>
8.1	Rewriting your notes method	42
8.2	Skeleton prose	42
8.3	The Cornell note taking system	43
<b>9</b>	<b>Studying from books</b>	<b>46</b>
9.1	PQRST	46
9.2	SQ3R	47
<b>10</b>	<b>Prioritisation</b>	<b>50</b>
10.1	The Traffic light Approach	50
<b>11</b>	<b>Visual methods</b>	<b>53</b>
11.1	Method of Loci	53
11.2	The Peg / Hook System	57

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<b>12</b>	<b>Auditory methods</b>	<b>59</b>
12.1	Pre-recording checklist	61
<b>13</b>	<b>Don't Miss Anything Out</b>	<b>62</b>
13.1	The Black- <b>Red-Green</b> Method	62
13.2	PEE	62
13.3	The Seven Point Scale for Perfect Paragraphs	64
<b>14</b>	<b>A General Study Strategy</b>	<b>65</b>
14.1	ASPIRE Study Strategy method	65
<b>15</b>	<b>Apps / web based study aids</b>	<b>67</b>
15.1	General study	67
15.2	Flashcards	68
15.3	Scanning / photographic	69
15.4	Notes	70
15.5	Spidergram / mind maps / thought maps	70
15.6	Reading	71
15.7	Text to speech	72
15.8	Individual subjects	72



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16	Critical Reflective Learning Questions	74
17	Stop, Start, Continue	76
18	Summary	77
	Appendix 1	78



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# 1 Introduction

We can describe study skills as “*learning how to become a more effective learner*”. They enable you to study and learn more efficiently, however, they do have to be practised and developed.

During your lifetime of learning and study you will have to; learn, interpret, condense and recall huge amounts of information. Clearly the specific skill, tool or technique you will use will be determined by; your preferred learning method, topic of study, environment and the time frame you have available.

This book will cover:

- the 5 types of study
- how we learn
- ways to read
- condensing, summarising and cue methods
- how to take notes & study from books
- prioritisation
- visual & auditory techniques
- how to ensure you don't miss anything out
- how to prioritise
- general study strategy
- app and web based systems and information

Some of these methods may be familiar to you, whilst others will not.

## 1.1 Baseline / benchmark questions

In order to get a picture of your ‘starting point’ please answer the following questions. We will revisit these at the end of the book as part of your critical reflective learning.

1. How do you currently study?
2. Do you feel confident / competent in utilising a range of study skills and techniques?
3. Do you know / have an idea about which method is most effective for your learning?  
*for example visual (seeing), auditory (speaking & hearing) and kinaesthetic (doing)*
4. How would you condense your notes?
5. How do you study from your books?
6. Can you / do you recognise how to prioritise your notes?
7. Are you able to adapt your style to the type of text you are reading?
8. Do you know what apps and web based study aids are currently available?
9. What do you want to get out of this book?

# 2 Types of study

There are 5 main types or reasons to study. In practice you will probably combine elements of all of these.

## 2.1 To gather information

- formulating a complete set of notes method:
  - identify the information you need to learn
  - organise, condense and record this information in a format that promotes your learning
  - verify the completeness & accuracy of your notes

## 2.2 To learn information

- moving information from short to long term memory method:
  - repeated recitations of material
  - flashcards – ‘hard copy / paper based’ or app / web based
  - recall everything you can based on a keyword
  - place incorrect recalls in one pile and correctly recalled ones in another

## 2.3 To check learning

- identify what has and has not been learned. This type of study requires a way to self-test method – for the material you think you have learned:
  - look at the main point only and recite / write everything you know
  - check for accuracy
  - if you recall accurately and completely 1st time you could consider this material learned
  - if you recall incorrectly or incompletely you know the material has not been learned fully

## 2.4 To refresh

- prevents you from forgetting and requires regular review and reciting method:
  - prevent ‘fading’ of knowledge through regular material review
  - you could do this independently or as part of a study group
  - if you are an auditory learner, re-listen to your material 2–3 times per week

## 2.5 To improve learning skills

- this is the most underdeveloped learning skill students possess method:
  - critically reflect on each test / exam to evaluate your study technique
  - identify which study methods (e.g. diagrams, flashcards, recital, mnemonics, visual techniques) result in the correct recall of information and vice versa
  - modify study skills that result in low scores / grades

## 2.6 Main ways to improve learning skills

There are 4 main ways in which you can improve your learning skills.

- You should apply critical reflective learning to measure and assess how effective a given method of studying is for you. Your grades and how you feel all combine to provide you with an individualised study aid tool kit.
- break down the effectiveness of your learning skills by identifying:
  - answers that were answered completely – ask yourself ‘what learning skills were used here?’
  - answers that were incorrect or where you lost points – ask yourself ‘what learning skills were used here?’
- Modify / replace learning skills that resulted in lost points
- Use all the available resources you have access to, for example:
  - study groups
  - app / web based systems
  - lecturers
  - audio options
  - the tools and techniques in this book

# 3 How do we learn?

Neil Fleming (1987) suggested that people learn through a mixture of:

- visual – seeing
- auditory – hearing
- kinaesthetic – doing

The theory behind this model is that most people will have a dominant or preferred learning style. It is worthwhile noting however that some people will have a blend of all three.

If you want to test your own style there are many free versions available online, or you can complete the one I have put in section 3.4.



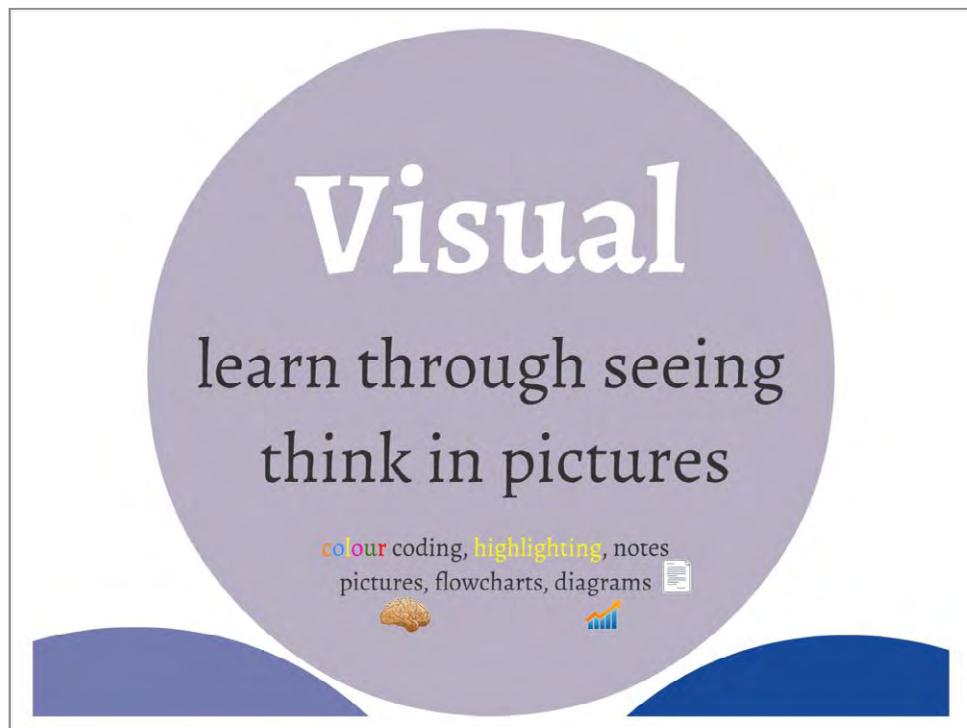
## 3.1 Visual

Visual learners...

element	description
learn by...	seeing
think in...	pictures. Vivid images help visual learner to retain information
they are good at...	puzzles, writing, charts, graphs, pictures, visual metaphors etc.

Study skill options for visual leaners include:

- note taking using – charts and diagrams
- highlighting information
- colour coding and organisation of information and notes
- converting words into pictures
- visual ‘pathways’ e.g. Method of Loci / Peg System (see section 11)



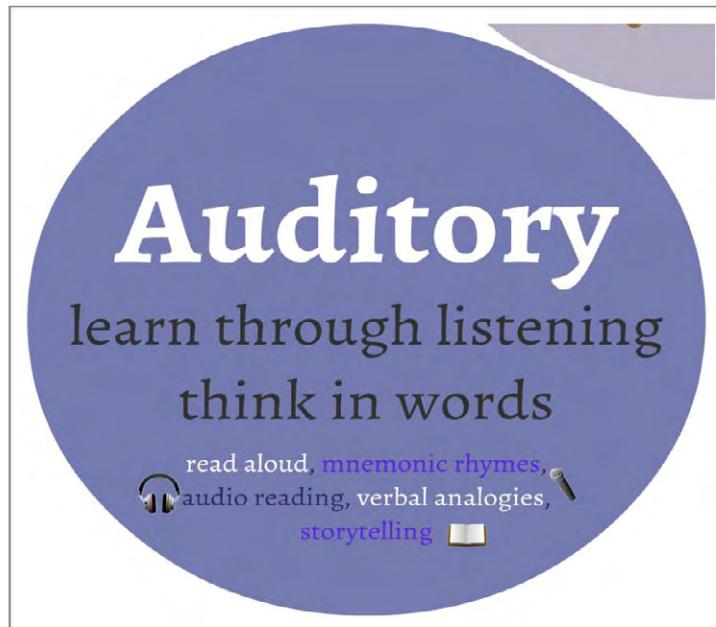
### 3.2 Auditory

Auditory learners...

element	description
learn by...	listening
think in...	words
they are good at...	remembering the written word, speaking, listening, storytelling, teaching, writing

Study skill options for auditory learners include:

- recording & replaying notes
- reciting information out loud
- using analogies – verbal
- taking part in group study discussions



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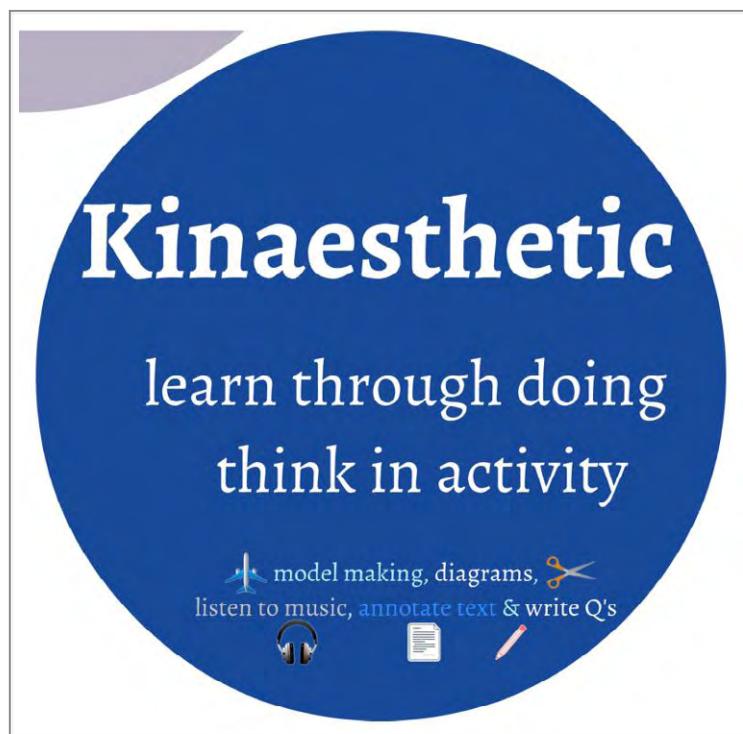
### 3.3 Kinaesthetic

Kinaesthetic learners...

element	description
learn by...	doing, touch & movement
think in...	activity
they are good at...	hands on elements, physical activity (including coordination), acting, building, crafts

Study skill options for kinaesthetic learners include:

- making models
- using diagrams and visual condensing methods
- reciting whilst counting on fingers
- remembering or recalling whilst moving around e.g. whilst walking or running
- some kinaesthetic learners prefer to study with music



NB Kinaesthetic learners may find it hard to sit still for long periods of time and may get distracted.

### 3.4 VAK questionnaire

In order to get an idea of your learning style(s), please complete the questionnaire and scoring system below. You may have a dominant style, or a combination of all three.

Answer:

- all the questions
- each with a 'yes' or 'no'
- as honestly as possible



number	question	yes	no
1	When you are describing a party/holiday to a friend, do you describe the music, sounds and noise you experienced?		
2	Do you use your hands when you speak?		
3	To keep up with the news/sport, do you prefer the radio or TV rather than reading a newspaper?		
4	When you use a computer, do you find the visual prompts useful, e.g. the icons/pictures in the tool bars, highlights and underlines, etc.?		
5	When you have to take down information, do you prefer drawing diagrams and pictures to writing notes?		
6	When you play noughts and crosses or draughts, can you picture the 'o' and 'x' or counters in different positions?		
7	Do you like to take objects apart and repair things, e.g. your bike, engines, etc.?		
8	When you are trying to remember the spelling of a word, do you tend to jot it down a few times in different ways until you find the one which looks right?		
9	When you are learning something new, do you like spoken instructions, talks and/or lectures?		
10	Do you like making things?		
11	When using a computer, do you find the bleeps and sounds useful to tell you that you have done something wrong or to show when you have finished something?		
12	When you revise/study or are learning something new, do you like to use diagrams and/or pictures?		
13	Are you quick and efficient at copying information down?		
14	If something is said to you, do you usually remember it, without it being repeated?		
15	In your spare time do you like doing something physically active e.g. sport, walking, gardening, etc.?		
16	When you have spare time, do you like to listen to music?		
17	When you are looking at a shop display, do you prefer to look around peacefully on your own?		
18	Do you find it easier to remember people's names than their faces?		
19	When you spell, do you usually have to write the word down?		
20	Do you like to be able to move around when you are working?		
21	Do you learn to spell by saying the words out loud?		
22	When you are describing a party/holiday to a friend, do you describe what people looked like, what they were wearing and the colours?		
23	When starting a new task, do you like to get on and do something straight away?		
24	Do you learn well by watching someone demonstrate a particular skill?		
25	Does saying things out loud help you to learn?		
26	Do you like showing people how to do something as opposed to writing a series of instructions?		
27	Do you like role play and acting things out?		

28	Do you prefer to go out and about to find information rather than sitting in the library or at your PC?		
29	When you visit a shop, do you enjoy talking about the items on display, and listening to the comments of others?		
30	Do you find it easy to follow a map?		
31	Do you feel that one of the best ways to appreciate goods in a shop is to be able to reach out and touch them?		
32	When you read a story or an article in a magazine do you picture the scene in your mind?		
33	Do you tend to hum, or talk to yourself, when completing tasks?		
34	Do you look at the pictures in magazines before deciding what to read?		
35	When you are planning a new journey, do you like to talk to someone to find out where to go?		
36	Have you always found it difficult to stay still for long and prefer generally to be active?		

Please see the next page for scoring.

Remember, many people have a dominant style, but you will probably use a combination of all three when learning and studying.

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**Circle the questions you said YES to...**

4	1	2
6	3	5
8	9	7
12	11	10
13	14	15
17	16	19
22	18	20
24	21	23
26	25	27
30	29	28
32	33	31
34	35	36
total circled (out of 12)	total circled (out of 12)	total circled (out of 12)
VISUAL SCORE	AUDITORY SCORE	KINAESTHETIC SCORE

# 4 Acrostics, acronyms, analogies & mnemonics

These 4 methods are often confused, but I don't actually think this is an issue as long as the method is right for you. But for the purposes of this book we will go through the differences and specifics of each.

All four of these methods condense information into something that is memorable, which could be; letters, poems, text or images (in the case of visual analogies). The key is to ensure the condensing method you use is one that can be easily recalled. Therefore, try a variety of methods and see which one(s) work best for you. You could also look online as many people post ones that work for them.

## 4.1 Acrostics

An acrostic is an invented sequence of letters that helps you remember a poem or other text. The first letter gives you the clue to the information you need to remember or recall.

The best way to explain this is to show you some examples.

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Example 1 – to memorise the planets:

## PLANETS

**M**y **V**ery **E**xcellent **M**other **J**ust **S**erved **U**s **N**othing

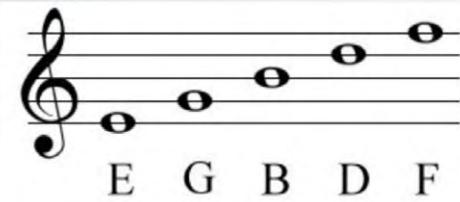
- M**ercury
- V**enus
- E**arth
- M**ars
- J**upiter
- S**aturn
- ...



Example 2 – G-clef notes on a music sheet

## G - CLEF NOTES

**E**very **G**ood **B**oy **D**eserves **F**un



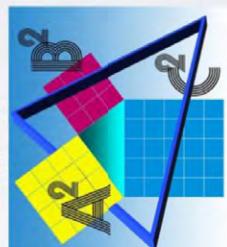
Example 3

I have included this example as it was one that my maths teacher taught me when I was 12 and that was an awfully long time ago! But I still remember it to this day and have passed it onto my children. And this is the point with all of these techniques, they must be memorable and easy to recall in both a short and long term situation.

# TRIGONOMETRY

**Sausages Only Half Cooked Are Harmful To Our Appetites**

**sin** = opposite / hypotenuse  
**cos** = adjacent / hypotenuse  
**tan** = opposite / adjacent



## 4.2 Acronyms

An acronym is an invented combination of letters, which is pronounced as single word. Each letter is a cue or suggestion to the item you need to remember.

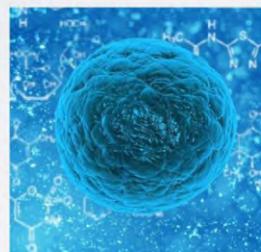
As we did earlier I will explain acrostics further using some examples.

The first example is **IPMAT**, the stages of cell-division. The invented word is IPMAT and as you can see each letter of this word gives you the first letter of the 5 stages of cell development

### IPMAT

the stages of cell division

**I**nterphase  
**P**rophase  
**M**etaphase  
**A**naphase  
**T**eephase

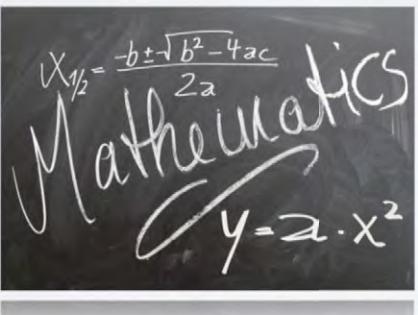


Our next example is **BEDMAS**, which gives you the right order of maths (or math) operations.

# BEDMAS

right order of math(s) operations

**B**rackets  
**E**xponents  
**D**ivision  
**M**multiplication  
**A**ddition  
**S**ubtraction



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Our final example is one to remember the Great lakes of the USA.



Acronyms can often be confused with initialism in which words are shortened to their starting letters – for example DVD or FBI. But as I said before it doesn't really matter what you call it as long as it works for you!

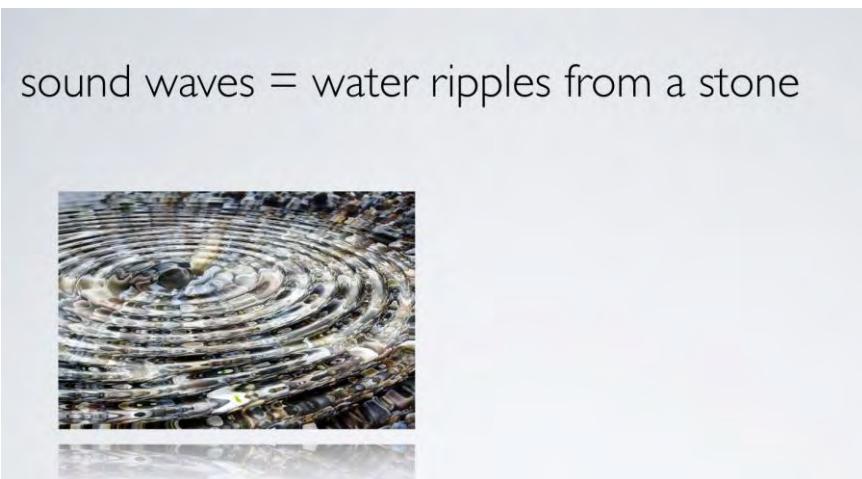
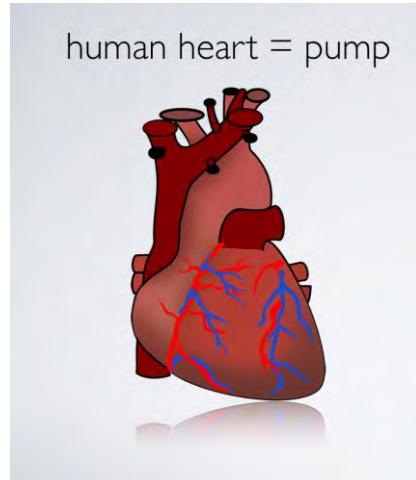
### 4.3 Analogies

Analogies are comparisons between unlike things that have some particular things in common.

Examples would include:

- the human eye is like a camera
- a heart is like a pump
- sound waves are like the circular ripples that spread from a stone dropped in water

A visual way of representing these three would be...



Analogy often begins with such phrases as:

*“It’s just like...”*

*“It’s the same as...”*

*“Think of it as...”*

Analogy enhance and enliven descriptions, express thoughts and ideas more clearly and precisely and help connect new concepts to things that are already familiar.

#### 4.4 Mnemonics

Mnemonics are techniques for remembering information that is otherwise quite difficult to recall. A very simple example is the ‘30 days hath September’ rhyme for remembering the number of days in each calendar month.

A lot of the information we need to remember and recall is in the form of printed or written words. This can often be difficult to encode and remember when compared to other stimuli such as; images, colours, sounds, touch, emotions and language.

The three fundamental principles that underly mnemonics are:

- imagination
- association
- location

If you can use and apply a combination of these three principles you can create a powerful study system. So, lets have a look at each of these three elements in greater detail.

#### 4.4.1 Imagination

This is what you use to create and strengthen the associations needed to create effective mnemonics that are potent for you. The more strongly you imagine and visualise a situation, the more effectively it will stick in your mind for later recall. The imagery you use in your mnemonics can be as vivid as you like, as long as it helps you to remember.

#### 4.4.2 Association

This is the method by which you link a thing to be remembered to a way of remembering it. You can create associations by:

- Placing things on top of each other.
- Crashing things together.
- Merging images together.
- Wrapping them around each other.
- Rotating them around each other or having them dancing together.
- Linking them using the same colour, smell, shape, or feeling.

#### 4.4.3 Location

This gives you two things; a coherent context into which you can place information so that it hangs together, as well as a way of separating one mnemonic from another. For example setting one mnemonic in a particular town can separate it from a similar mnemonic set in a city. You can build the atmosphere of these places into your mnemonics to strengthen the feeling and clarity of each location.

# 5 Reading skills

To be a really effective reader you need to be able to vary your style depending on your material and it is likely that you already do this instinctively to some extent.

Ask yourself how you would read:

- a blockbuster novel
- a newspaper
- a poem
- an instruction manual

When reading for pleasure you may read quickly, with few breaks and without worrying about having to recall details later. On the other hand, when consulting an instruction manual you may read only one or two paragraphs, but you read them very carefully, making sure you understand all the details.

When reading complex material, since your objective is to understand it as well as possible, you will need to adapt your reading style to this purpose.

The advertisement features a photograph of a hand holding a petri dish with red agar, and another petri dish labeled "E. coli 14/15-B" is visible in the background. The text "LIFE SCIENCE IN UMEÅ, SWEDEN – YOUR CHOICE!" is prominently displayed. Below this, a bulleted list highlights: "• 32 000 students • world class research • top class teachers", "• modern campus • ranked nr 1 in Sweden by international students", and "• study in English". A separate list below includes "- Bachelor's programme in Life Science", "- Master's programme in Chemistry", and "- Master's programme in Molecular Biology". A circular button on the left says "APPLY NOW!". The Umeå University logo is at the bottom left, and the text "UMEÅ UNIVERSITY" and "FACULTY OF SCIENCE & TECHNOLOGY" is at the bottom right.

To become a flexible reader, you need to know how to select and use a reading style that is consistent with your purpose for reading. There are three important reading styles you should learn to use and each one has its own purpose – speed reading, skim reading and scanning. Knowing when and how to use these three reading styles will make you a flexible reader.

### 5.1 Reading materials when studying

When studying there will be many different types of material that you will need to assimilate, which could include:

- course materials
- books
- images
- audio ‘files’ / clips
- virtual learning materials
- DVD / videos
- journals
- online resources
- your own notes

The above sources of study material are usually found in 5 main themes; core, texts, suggested reading, course materials and finally other sources which may include your additional research and assignment bibliographies / references.

### 5.2 Speed reading

If you find it difficult to concentrate and your mind wanders when you’re studying, you could consider reading faster! If you read too slowly your thoughts can wander off on a tangent. You can easily train yourself to read more quickly, although it takes practise.

To improve your reading speed you should practice:

- not reading every word
- not reading ‘aloud’ in your head
- reading in ‘fixation’ blocks

### 5.2.1 The speed reading method:

- relax
- focus
- use a ruler or index card to guide your eyes down the page of text, line by line, or, just run the end of a pen under each line
- move the pen, ruler or card smoothly across/down the page, and force your eyes to keep up
- ensure you don't fixate on each and every word

You will be surprised how much you take in using this approach!

## 5.3 Skim Reading

A skimming style is most useful when you have to read a large amount of material in a short amount of time. When using the skimming style, you should identify the main ideas in each paragraph and ignore the supportive details. Because you are looking only for the main idea in each paragraph you read, a lower level of comprehension is to be expected than if you were using a more in-depth strategy.

The aim of skim reading is to get the general idea, gist or overview of a texts content. The aim of this method is not to have a detailed understanding of the text. This approach is highlighted by the famous Woody Allen quote...

*“I read War and Peace...it’s about Russia!”*

### 5.3.1 The Skimming method

- get an overview of the text through the contents page
- read the first and least sentence of each chapter, section or paragraph to see where the text is going and what it's covering.

## 5.4 Scanning

Scanning is what you do when you read very quickly for a specific piece information within a larger amount of material. Since you know exactly what you are looking for, move your eyes quickly over the reading material until you locate the specific piece of information you need to find. An example would be when looking up a number in a phone book.

You can use headings and titles and formatting clues – for example bold or indented text to help you hone in on what you're looking for.

So in summary before you begin your next reading assignment, identify your purpose for reading. Decide if you are reading for a high level of comprehension, trying to get a general idea about what you are reading, or looking for specific information. Then use the reading style that is most appropriate for your reading purpose.

Remember, if you are an auditory leaner you may wish to read out aloud or record your notes.

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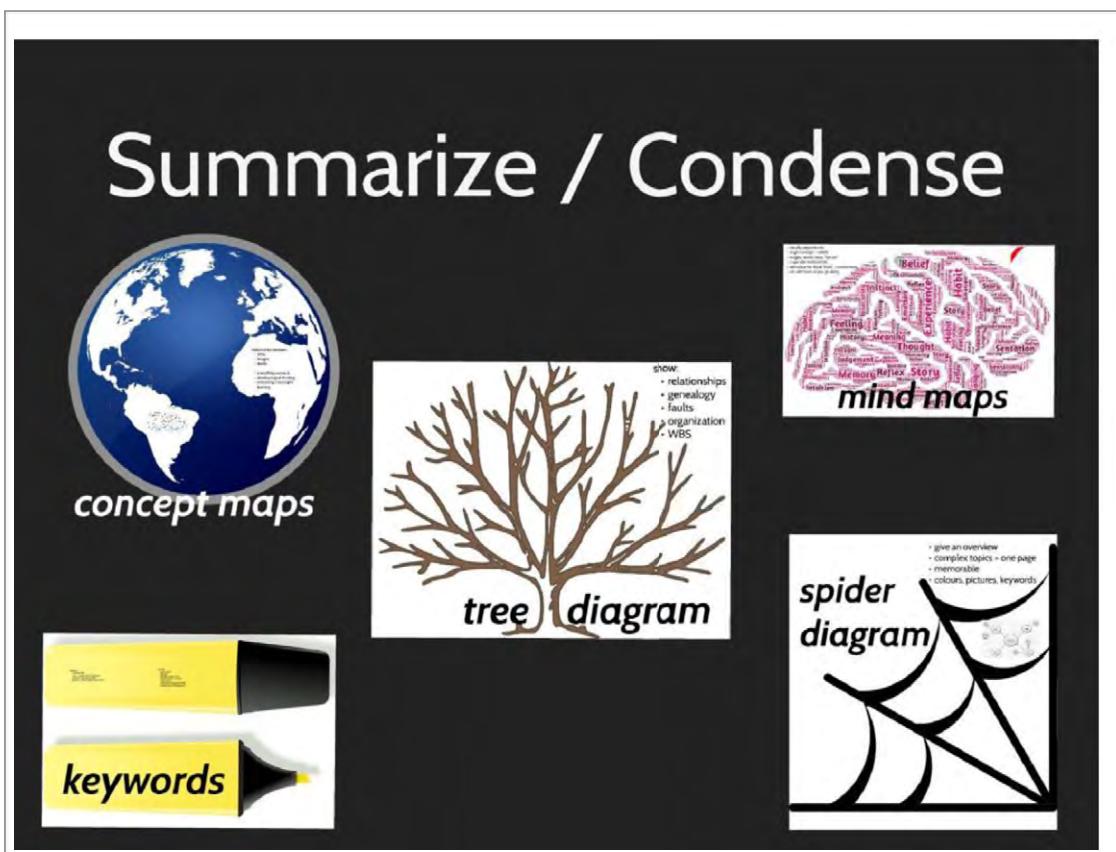
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# 6 Condensing & summarising

Condensing and summary methods vary depending on the topic, but all involve reducing a large amount of information down into something shorter, for example; notes, images or diagrams.

These methods give you a visual summary of a topic that preserves its logical structure and any linkages or inter-dependencies.



The 5 main methods that we will be looking at in this section are:

- keywords
- tree structure
- spider diagrams
- mind maps
- concept maps

## 6.1 Keywords

Keywords help with memory recall by condensing large amounts of information into a single word or short phrase that is easy to remember. The key to success is to pick a word that unlocks a large amount of information.



Don't be tempted to highlight too much text. We have all seen, or will have done it ourselves where nearly all the page has been highlighted and we believe *everything* is important!

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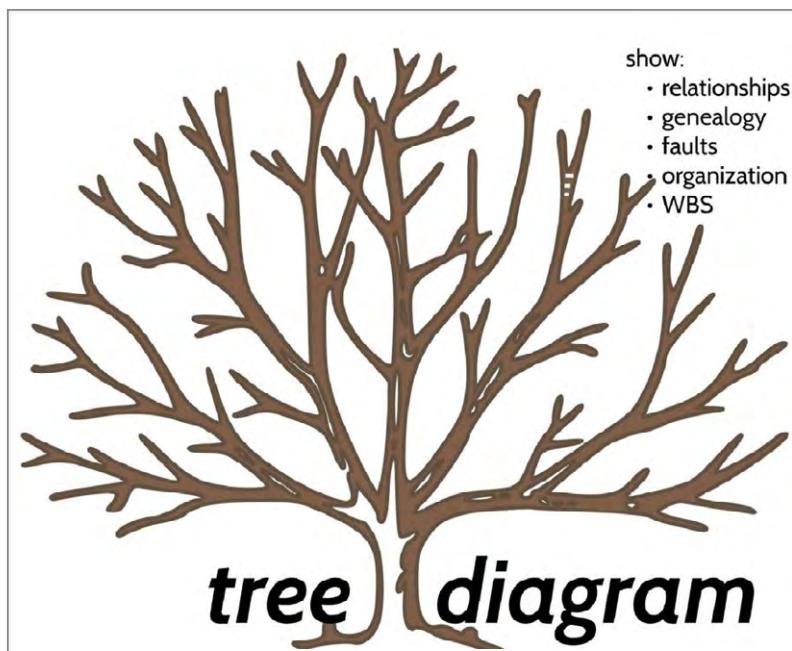
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### 6.1.1 Keywords methods

- read a sentence
- ask yourself “does it have a key word”?
- if no read the next sentence, if yes, highlight it or write it down
- repeat this process for the entire page / notes
- cover up your full notes and use your keywords only to write down what you can remember – this will show you how effective your keywords are
- check for effectiveness; immediately, after a few days and after a week to really test your method

### 6.2 Tree structure

Tree structures or diagrams allow us to see all the possible outcomes of an event and calculate their probability. Each branch in a tree diagram represents a possible outcome

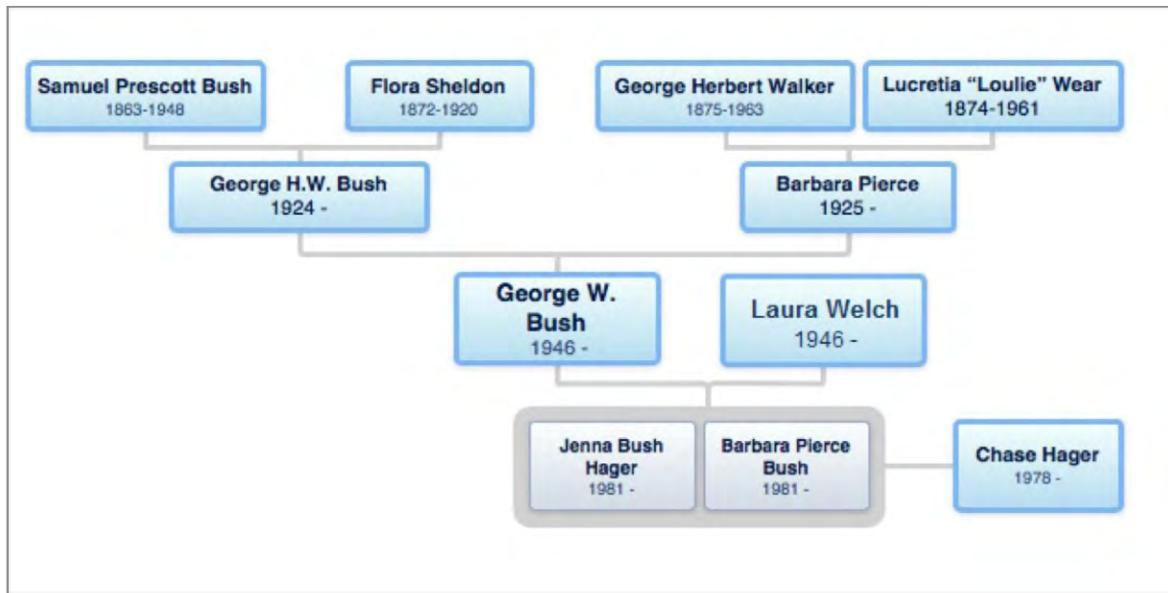


Types of tree diagram include:

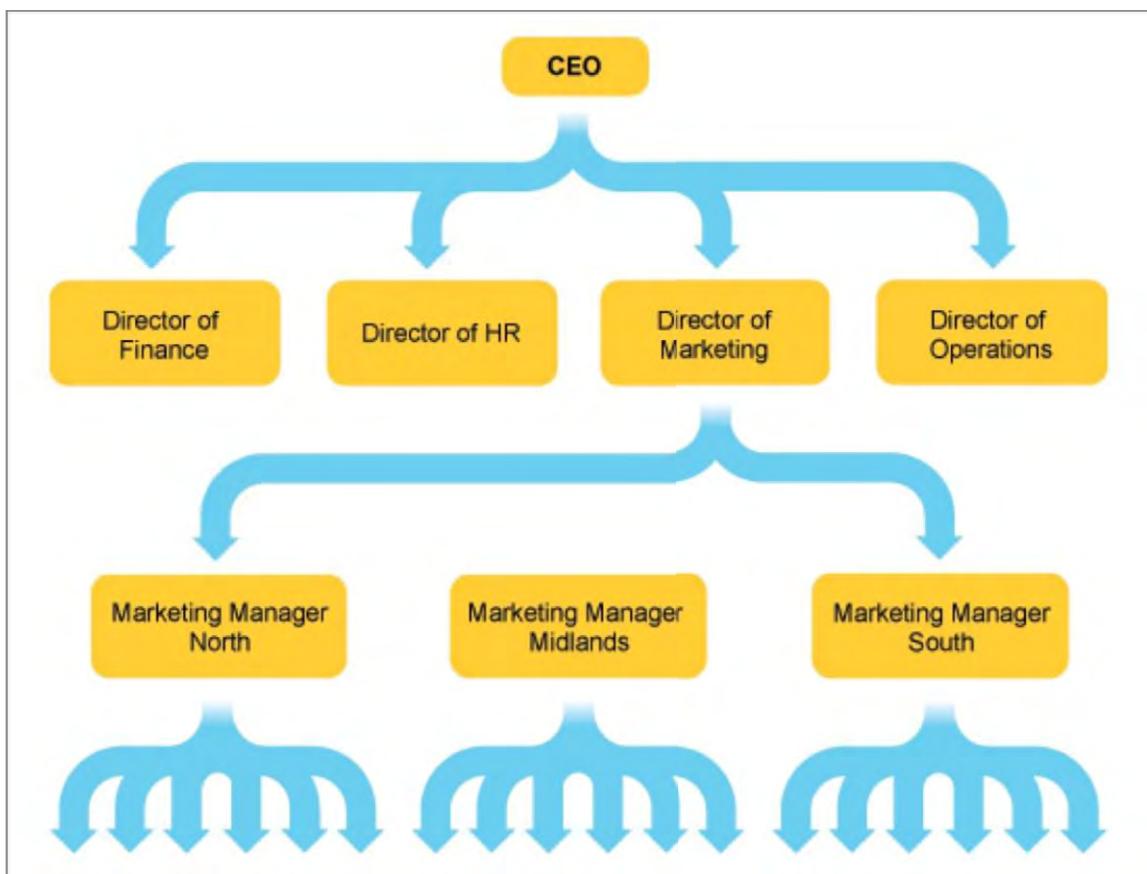
- relationships
- family / history tree
- fault tree
- organisational chart
- work breakdown structure – for example with that seen in project management

Here are some visual images of tree diagrams...

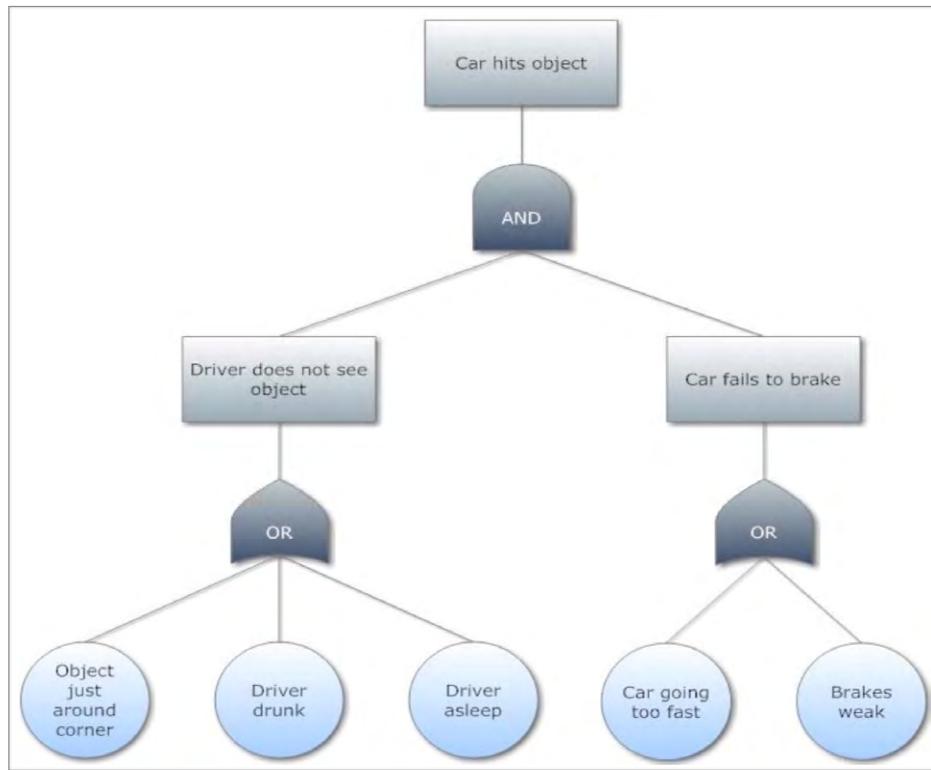
## Family tree



## Organisational chart



## A fault / cause &amp; effect tree

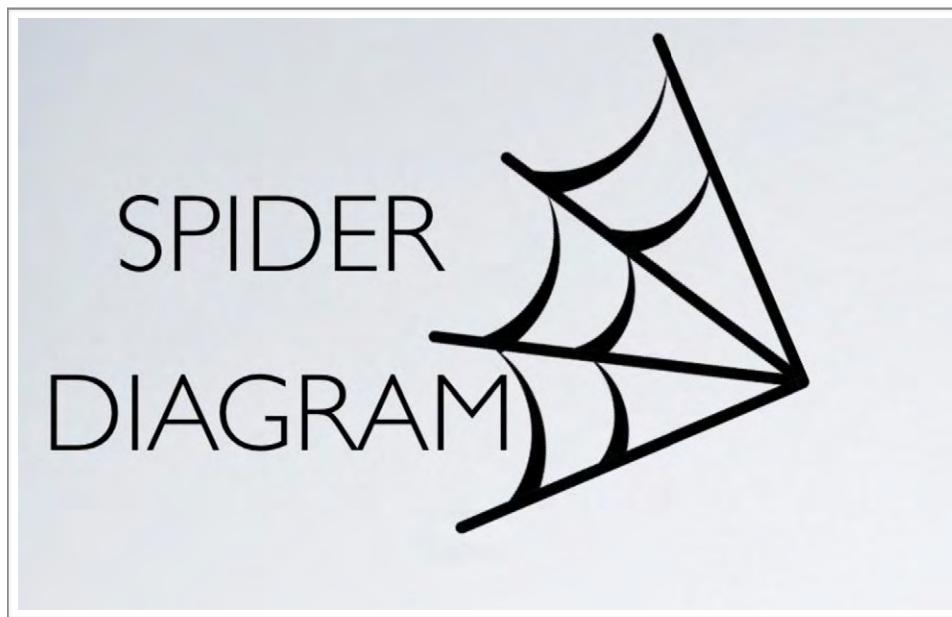


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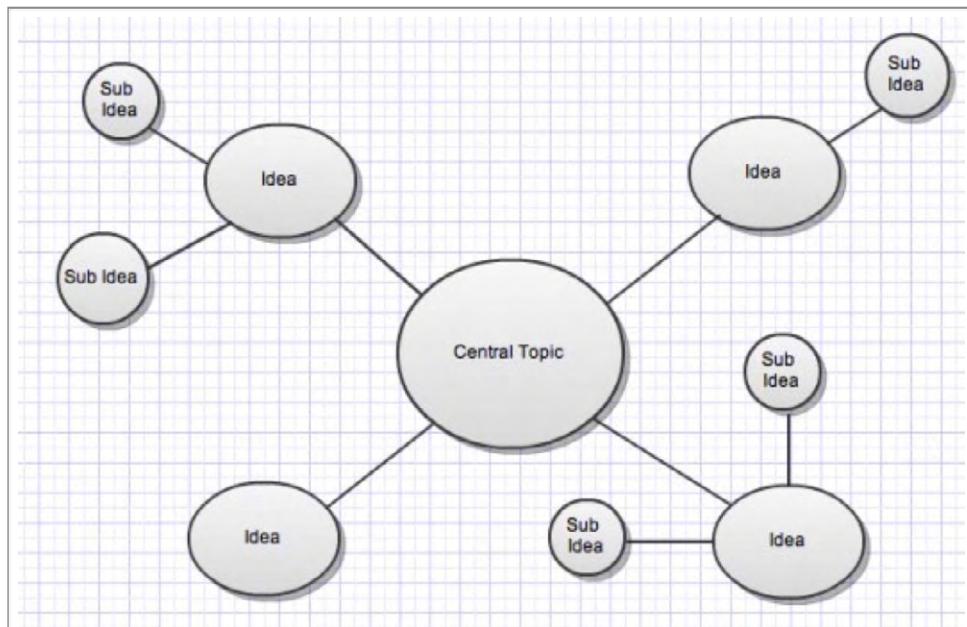
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### 6.3 Spider diagrams

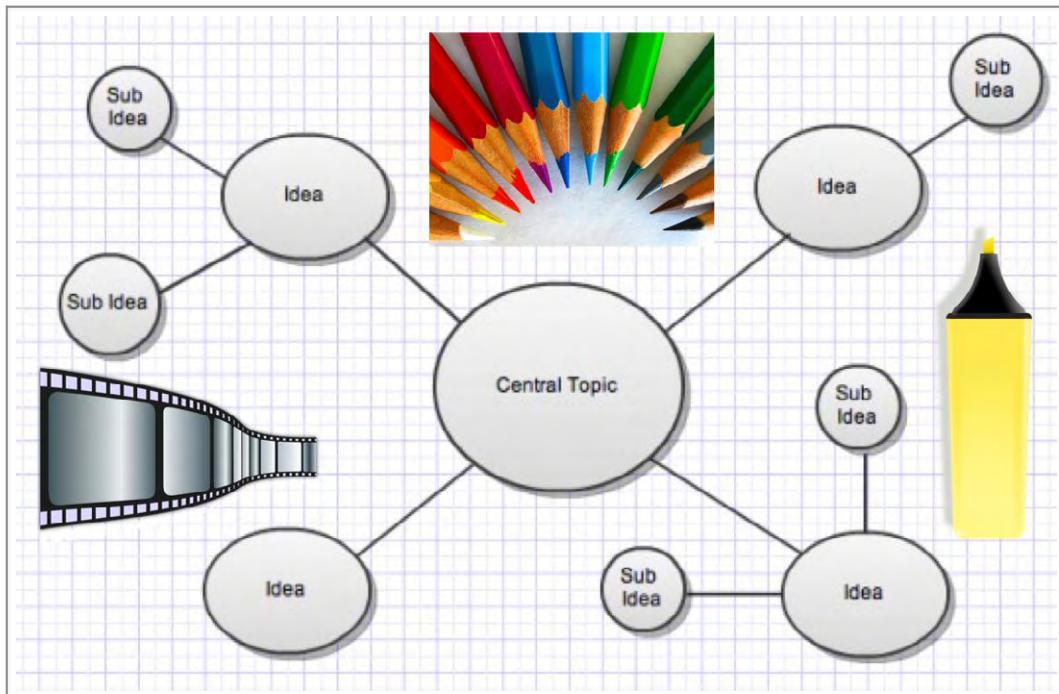


For essay writing in particular, there is a huge benefit in having a bird's-eye view of your subject matter. This allows you to look over all that could be said and pick out the most relevant parts, while leaving plenty of mental space for the crafting of a comprehensive and well considered argument.

Spider diagrams are an excellent tool for creating an overview and remembering it crisply. They help distil complex topics onto a single memorable page by using a branching spatial organisation, colour and images.



The two primary reasons that spider diagrams are such a powerful tool are; that they are memorable and that the addition of colours, pictures, and simple keywords creates a spatial structure and image that is easy for your memory to explore.



(add colours, pictures and images to make it more memorable)

#### 6.4 Mind maps



Mind maps help you to generate ideas and make associations. They are a powerful memory aid in an examination because they are visual in nature and show the relationships between component topics within an overall subject area.

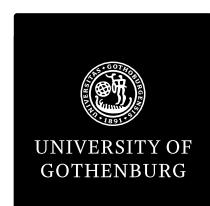
To create a mind map, start in the centre of a page with an idea or heading representing your main idea or central theme. You then create branches out from the central idea, each branch representing a sub-theme. Each sub-theme can then be subdivided, as appropriate.



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This technique has a number of advantages:

- it enables you to see a large amount of information / thought processing on one page
- your central idea is clearly stated in the middle of the page
- you can show connections between key concepts
- additional information can be added easily
- the open ended nature of the pattern means that you may be able to make new connections

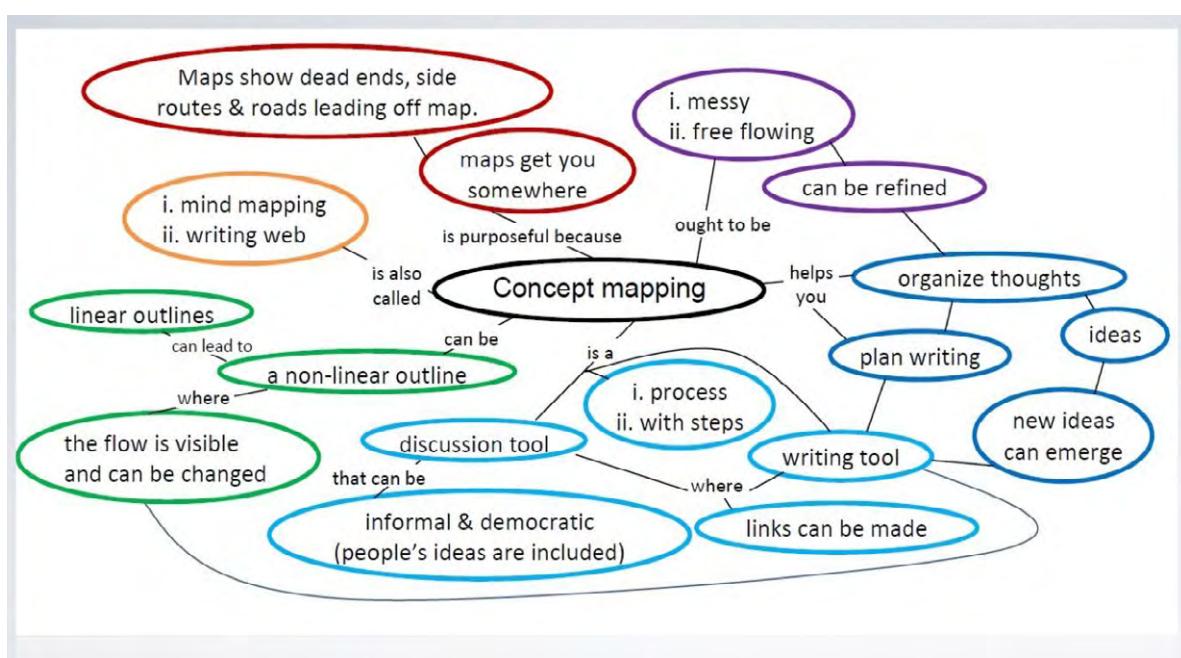
## 6.5 Concept maps

Our final condensing or summarising method is the concept map. This is a way of representing relationships between ideas images or words in the same way that a road map represents the locations of highways and towns, or a circuit diagram would show the workings of an electrical appliance.

In a concept map, each word or phrase connects to another, and links back to the original idea, word, or phrase. As such they are a way to develop logical thinking and study skills by revealing connections and helping you see how individual ideas form a larger picture.

Concept maps were developed to enhance meaningful learning in the sciences. A well-made concept map forms from a clearly defined “focus question”.

Research has shown that because concept maps are constructed to reflect organisation of the declarative memory system, they facilitate meaningful learning for those who create and use them.



In Summary then the five main methods of summarising or condensing information are:

- keywords
- tree diagrams
- spider diagrams
- mind and concept maps

It's going to be down to personal preference as well as what kind of information you are trying to condense as to which method you use. But, you may well find yourself using a combination of 2 or more methods – for example highlighting key words on a mind map.

I mentioned earlier turning keywords into flash or cue cards and this is what we will look at in the next section.

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# 7 Cue methods

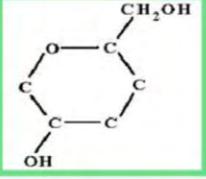
The most widely used cue method is the flashcard. Nowadays these can be electronic in nature and there are many apps or sites where these can be created or downloaded (see section 15), although of course the ‘traditional’ index card style approach is just as beneficial.

Which ever method you use the principle is the same:

- they are a two sided (or virtual two-sided) aid
- one side contains a cue, question, concept or even image
- the other side the ‘answer’ or expansion

One of the primary reasons for their success is they require active recall and each time this is practiced you force your brain to remember or recall information.

Below are 2 examples of cue cards showing carbohydrates and Pythagoras Theory – the blue side being side one and green being side two.

<b>CARBOHYDRATE</b>	<p>classified as plants starches, sugars &amp; fibre simple (sugar) complex (starches &amp; fibre) supply energy</p> 
<b>PYTHAGORAS THEORY</b>	$a^2 + b^2 = c^2$ c = longest side of the triangle a and b are = other two sides  In a right angled triangle: the square of the hypotenuse = the sum of the squares of the other two sides

Remember to see section 15 for app based systems.

# 8 Note taking

Lecturers will often place great emphasis on the information they provide in class when they design tests. The result is that your class notes are a vital resource when studying for a test. Therefore, it is important that your notes are complete and accurate.

The best way to be certain that your class notes are complete and accurate is to review them later that day while the information is still fresh in your mind. As you rewrite them you should correct any errors, fill in any gaps and add any additional or supporting information as required. A ‘side’ benefit from rewriting your class notes is that it reinforces the information helping you to remember and recall it more effectively.

## 8.1 Rewriting your notes method

- re-read your class notes two or three times before beginning to rewrite them, so that you have the ‘big picture’ in your mind
- re-write your class notes in format that shows the connections and relationships between topics, concepts and key terms
- ensure what you have written makes sense and you understand it
- ascertain that the information you wrote in your class notes is consistent with any corresponding information in supporting textbooks
- look for additional sources of information that will give you greater insight
- consider changing any abbreviations and symbols into complete words and statements
- highlight the most important words and concepts
- make a note of any questions you think you may need to ask your lecturer in order to clarify or expand your thinking

This is all very well, but, what you really need is a way of taking really effective notes at the time rather than having to re-write them. The two main ways you can do this are by using the Skeleton Prose and Cornell Note Taking Methods.

## 8.2 Skeleton prose

This is the most common form of note taking. Notes are structured as a sequence of numbered points and paragraphs, with headings and indentations which resembles an essay plan. It is a useful technique for books or articles where arguments are static and built up slowly and sequentially.

The negatives of a skeleton prose are that they:

- are difficult to add to or amend
- do not indicate the relationship or connection between different parts of the argument
- easy to fall into the trap of coping text verbatim

### 8.3 The Cornell note taking system

This method of note taking was devised for students at Cornell University in the USA and has been publicised through Walter Pauk's books on study skills for University education.

It provides you with a structured, common-sense way of making sure that you take clear notes, engage with them actively and have accurate material from which you can study or revise. It prevents you from having to laboriously recopy your notes when revising or studying – a so called 'do it right first time' method.

#### 8.3.1 The advantages

The advantages and benefits of this note taking method can be summarised as:

- it provides a clear set of condensed key ideas
- it can be used in lectures
- you are able to engage with the material which helps recall that information at a later date
- your notes provide an invaluable resource when preparing for and revising for exams or further study

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### 8.3.2 The method

Prior to the lecture:

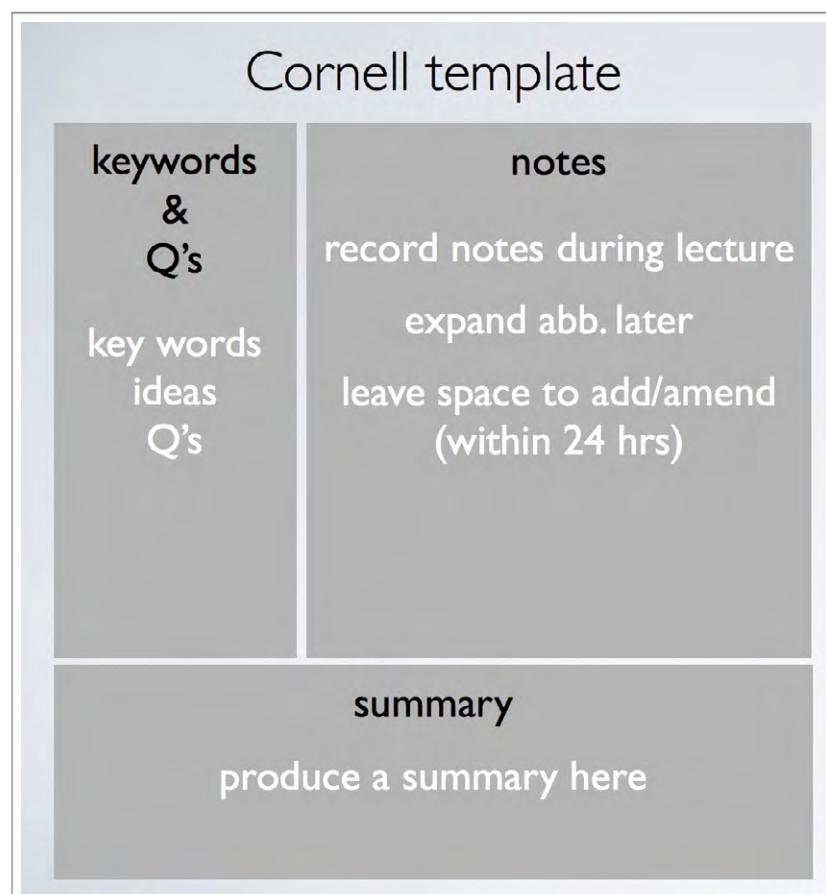
- on a A4 sheet of paper create a summary space along the bottom
- draw a vertical line through the remaining sheet so you have 2 sections – the left hand side being a third of the space of the right
- label the left section keywords & questions
- label the right section notes

Consider having these sheets pre-printed as a blank template so can always have with you, or as an electronic document, for example word or pages.

Additionally you can do any pre-reading around the topic under consideration / discussion.

During the lecture

- record your notes in the right hand column – you are not aiming to write everything, but rather arguments, general ideas, facts etc.
- if you use abbreviations ensure you can recall these after the event
- leave spaces so you can add to your notes or amend them afterwards



After the lecture and preferably within 24 hours:

- read through your notes and add or amend anything
- produce a summary in the space you created along the bottom of the page
- write down key words and ideas in the left hand column and turn these into a set of questions
- cover up your right hand column notes and test yourself as to how well you can answer the questions you composed

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# 9 Studying from books

There are two main ways you can study from books, namely the PQRST & SQ3R methods. Both of these methods of studying focus on the key information in books. Its unique approach is that it prioritises information using a method that directly relates to how you will be asked to use that information in an exam.

## 9.1 PQRST

PQRST stands for:

- Preview
- Question
- Read
- Summary
- Test

### **P is for Preview**

Look at the topic you need to learn by skimming over the main headings and points.

### **Q is for Question**

Formulate questions that could be asked.

### **R is for Read**

Re-read all the material, concentrating on the information that best relates to the questions you formulated in the previous step (Q is for Question).

### **S for the Summary**

Summarise your topic in your own words. You could use any of the condensing and summarising methods we have already covered.

### **T is for Test**

Using the questions you developed earlier answer each one in turn. Ensure you pick a whole range of questions and not just the ones that you find easy to answer!

### 9.1.1 The benefits of PQRST

The PQRST method ensures:

- information is studied in a way that directly relates to questions that may be asked
- the method can be adapted to any subject
- allows you to practice how to time your answers
- you can potentially preempt the questions you will be asked

## 9.2 SQ3R

A second method you can use when studying from books is the SQ3R. This 5 step technique stands for:

- Survey
- Question
- Read
- Recall
- Review

### S is for Survey

Start big and then go small – survey the whole book, then the chapters and finally the paragraphs. Also look at the titles, headings, and subheadings, picture captions, charts, graphs or maps, introductory and concluding paragraphs and any summaries. The aim of this is to get the general ‘gist’ of the material.

### Q is for Question

By questioning the text you turn it from an passive activity to an active one.

Ask yourself:

- why are you reading this and what is its purpose?
- what do you already know?
- what do you want to know?
- what is new or interesting about this material?
- does this support / supplement / contradict what I already know?

Try converting the title, headings, and/or subheadings into questions.

Examples of questions you could ask include:

- *What do I already know about this subject?*
- *How does this chapter relate to the assignment question?*
- *How can I relate what I read to my own experiences?*

## R is for Read

After questioning you will be ready for the main activity of reading. This involves careful consideration of what the author is trying to convey and involves being critical as well as active.

- firstly skim read concentrating on the main ideas and general text structure
- secondly read again to make notes on the key points
- look for answers to the questions you raised in 'Q is for Questions'
- make sure you re-read any parts which are not clear

## R is for Recall

It doesn't matter how interesting (or not!) the text is, you must make a concerted effort to recall what you read. Failure to do so will result in information being forgotten. Recalling also provides you with the opportunity to think about and assimilate what you have just read keeping the process active.

Ask yourself "*can I recall all the key facts without re-reading the text?*"

Try and answer questions about what you have read and/or try and summarise what you have read. This summary should be in your own words and you should consider highlighting key words and points.

Also consider using a variety of senses in order to recite and recall. Seeing, hearing and saying is known as triple strength learning, whereas quadruple strength consists of; seeing, hearing, saying and writing.



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## R is for Review

The final step in the SQ3R method is to review the material that you have recalled in your notes.

Ask yourself:

- did you understand the main principles of the argument?
- did you identify all the main points?
- are there any gaps?

Double check you haven't missed anything of importance. There is sometimes a temptation to 'miss out' pieces of information and associated questions that cover areas we do not enjoy or we find hard!

### 9.2.1 SQ3R plan

Below is a sample 7 day plan for using the SQ3R method that you might like to use. Remember it can be and indeed should be adapted for your own individual needs.

#### day 1

- read the text
- formulate potential questions

#### day 2

- review the important points you have highlighted
- answer the questions you formulated on day 1
- make cue / flash cards – you could do this for all the questions, or just those you find difficult
- condense / summarise any other information using one of the methods described in the previous sections

#### days three, four and five

Alternate between your condensing method and notes and test yourself (orally or in writing) on the questions you formulated. Add additional condensed material if required

#### days six & seven

- list the topics and subtopics each chapter / 'chunk' of information contains
- create a 'map' for each element

You will now have a summary of the whole book / lecture note.

# 10 Prioritisation

When studying a common pitfall people fall into is setting out to learn everything in the order in which it was presented or delivered. However, for a variety of reasons which could include time constraints, fatigue or sheer volume of material this may not be possible, or as you will see, even desirable. So, we need a method of separating what is essential you know, i.e. what is likely to make up the majority of your exam marks, from what would be great to know if you had unlimited time and energy. One such method is the traffic light approach.

## 10.1 The Traffic light Approach

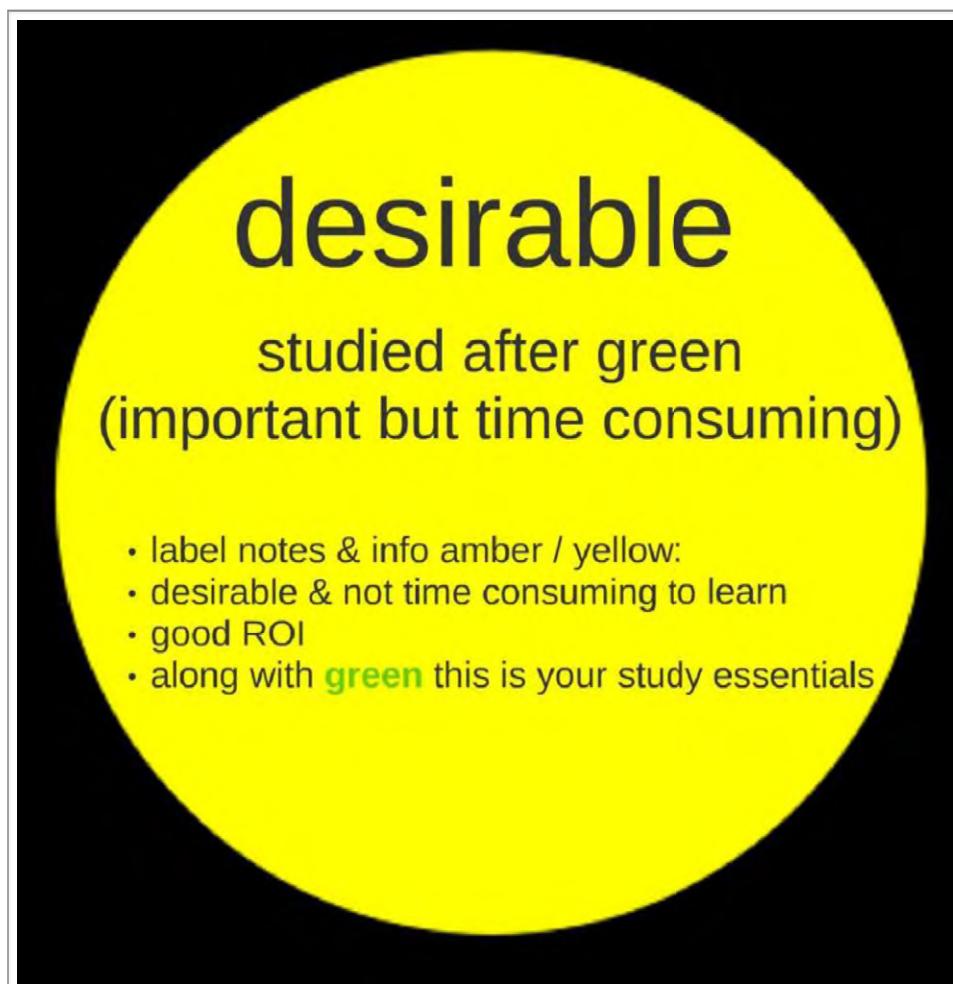
### Green:

Take a green pen and mark everything that is essential to know for your exam. These topics should be studied first and will allow you to progress to the less number of amber and red topics. These green areas are often found first on a syllabus and may be the easiest concepts to learn but also the easiest to underestimate.



**Amber:**

Take an orange, gold, or even yellow pen and label everything that is either essential to know or is not too time consuming to learn. These items will form the mainstay of your learning and range from topics leading from the green to the red range of topics.



**Red:**

Take a red pen and label everything you would want to know if you had unlimited time and energy. Red topics should never be studied at the expense of the essential green and desired amber topics.

Red topics would include overly complicated ideas and subjects that may add one or two marks but will cost you a great deal of time and focus. By focusing on green and amber topics those that seemed red at the start may become more amber as time goes on.

This colour system visually reminds you to get moving and motivated on green topics and discourages wasting time on red ones. Additionally it provides a progressive learning system that is logical and less likely to become 'bogged' down in the minutiae.



# 11 Visual methods

Visual study methods allow you to not only condense large amounts of info but the potential colours and images you can use provide a different sensory experience to text alone. We have seen this in previous sections for example in the case of spidergrams, mind maps, trees and concepts.

In this section we will look at two other visual ways of studying and remembering information using familiar places and the neural building of a pathway and story.

The first is The Method of Loci and for those of you who have watched Benedict Cumberbach in Sherlock Holmes, this is the method he uses in his 'mind place'. It can also be seen in Elementary and Hannibal.

The second method is that of The Peg or Hook System.

## 11.1 Method of Loci

The loci strategy was developed by the ancient Greeks and the word loci comes from the plural of locus, which means place. The principle of this strategy is that it is based on a familiar place, such as your home and helps you remember lists of items through organization, visualization, and association. It is particularly beneficial if you are good at picturing things in your mind.



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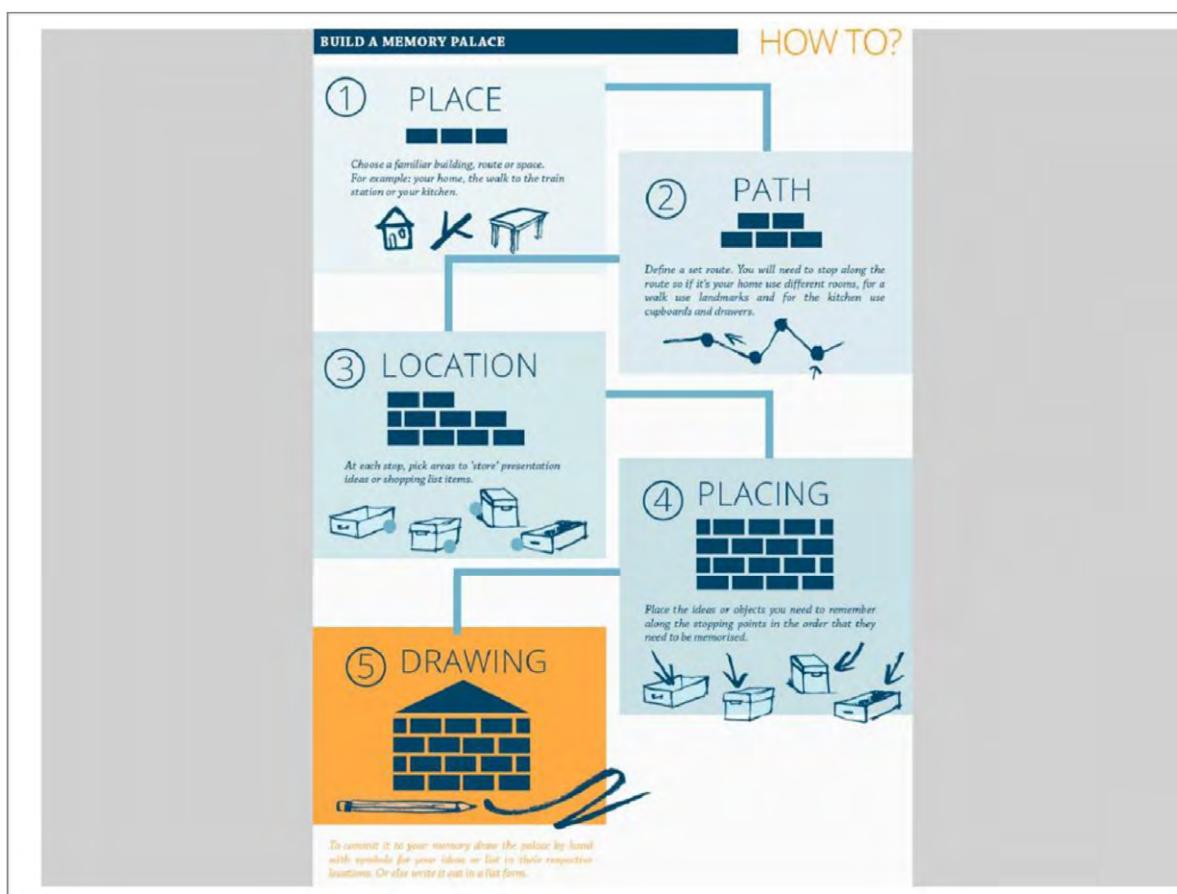
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A circular graphic on the right side of the advertisement features three red dots connected by lines, forming a triangle. Below this graphic are three overlapping circular images: one showing two people smiling, another showing a building, and a third showing a person's face in profile.

### 11.1.2 The Method of Loci steps:

- identify a place you are familiar
- visualise that place and all of its features
- associate each item that you need to remember with a particular feature of your place. It is worthwhile noting that the more unusual the association you make the more likely you are to remember it
- practice mentally ‘walking around’ your place and test how good your associations are and how well you can recall the information required



The best way to explain this in greater detail is by showing you a couple of examples. One a random list and another that is connected.

### 11.1.3 Examples of the Method of Loci

Example 1 – remembering 5 random items; **pigeon, clown, lemon, ants, puddle.**

In this example the familiar place will be the kitchen. So, my pathway could be as follows:

1. I walk into my kitchen
2. a **pigeon** lands on the table
3. sat at the table is a **clown** drinking **lemonade**
4. in front of him is a piece of bread covered in **ants** and behind him the sink is overflowing creating a **puddle** on the floor



In this second example we will see how you can use this method to remember connected and not random information.

This example uses one we looked at earlier in acrostics and it is the order of planets.

So, as with the first example you would need to set this somewhere that is familiar to you – and your pathway might be...you see a **Mercury** thermometer in the mouth of **Venus**, who is balancing a football shaped **Earth** on her head. On the floor is a **Mars** bar wrapper that has been dropped by **Phil Jupitus** (**Jupiter**), he is wearing a hat made of **Saturn**'s rings. You then turn round to see a chair in the shape of the **Uranus** symbol which **Neptune** sits.

order of planets

**my very excellent mother just served us nothing**

**Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune**



#### 11.1.4 Top tips

The Method of Loci is particularly powerful when relating pieces of information that are not easily connected. It does however, require an initial intensive period to practice the method and establish what kinds of visuals work for you.

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So, I have compiled a list of top tips below to help should you choose to give this method a go:

- give yourself time to practice – it's not going to come straight away, especially if visual learning isn't 'your thing'
- really focus on the place you are using. Immerse yourself in everything about it – this is a highly active not passive journey
- you may find it easier to use familiar items and connections to start with and then progress to more obscure connections later
- a boring image is not going to work, it needs to be as emotionally and visually stimulating as possible
- consider using things other than images. By utilising all of your senses you are more likely to create something memorable and repeatable. So, consider smells and noises as well

If you take my full online course you will see the Method of Loci step by step as a 'talking head' video – <https://www.udemy.com/essential-study-skills-strategies-for-ultimate-success/?couponCode=bookboon>

## 11.2 The Peg / Hook System

This method works by associating the numbers 1 to 10 with words that rhyme. You can then associate these words with the information you need to remember.

So, lets explain this in a little more detail. Here you can see examples of words that rhyme with numbers 1–10. Remember the words you choose will be different depending on your accent.

## PEG OR HOOK SYSTEM

associate no. 1-10 with words that rhyme  
associate words with info to remember

<b>1</b> – bun	<b>6</b> – sticks
<b>2</b> – shoe	<b>7</b> – heaven
<b>3</b> – tree	alter for your accent
<b>4</b> – door	<b>8</b> – gate
<b>5</b> – hive	<b>9</b> – vine
	<b>10</b> – hen

### 11.2.1 Example of The Peg System

As with the Method of Loci above, let's have a look at an example so I can show you the peg system in operation.

If you wanted to remember that the Earth is the Third planet, you could visualise a image of Earth with a tree on top. Tree rhymes with 3 therefore this visual image helps you to recall that the Earth is the third planet.



Now we have looked at visual methods of studying, lets move on to auditory ones.

# 12 Auditory methods

We saw earlier in section 3 that people learn through a mixture of:

- visual – seeing
- auditory – hearing
- kinaesthetic – doing



## Trust and responsibility

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Inés Aréizaga Esteva (Spain), 25 years old  
Education: Chemical Engineer

– You have to be proactive and open-minded as a newcomer and make it clear to your colleagues what you are able to cope. The pharmaceutical field is new to me. But busy as they are, most of my colleagues find the time to teach me, and they also trust me. Even though it was a bit hard at first, I can feel over time that I am beginning to be taken seriously and that my contribution is appreciated.

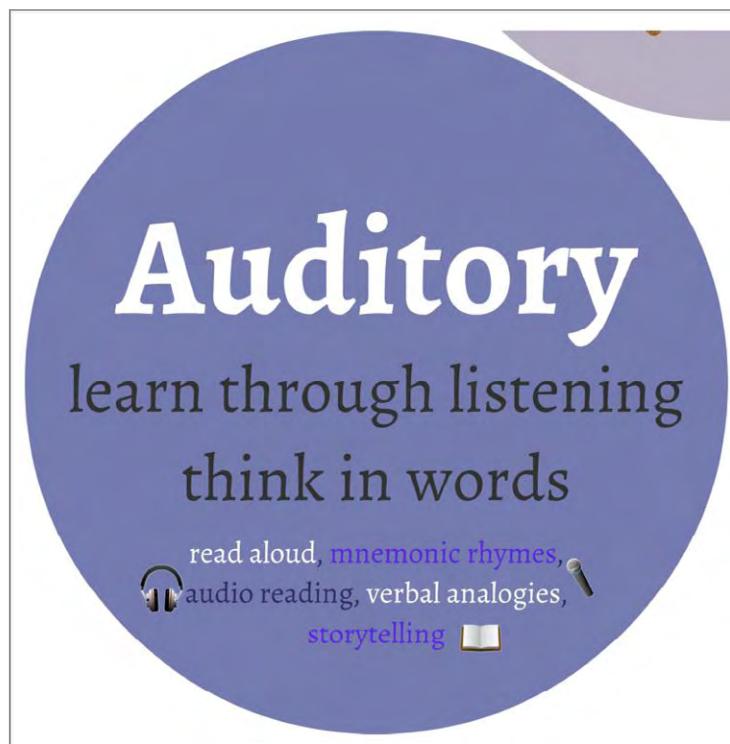
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In this section we will look at auditory methods in greater detail.



You could learn from listening to:

- module summaries
- revision key points of notes
- language – if studying vocabulary
- another student
- your tutor
- audio books
- podcasts
- ‘spoken’ PDF files – there are various app available for this purpose

You could also record your own notes on:

- heldheld devises – dictaphone, phone
- your computer
- plug-in microphones / headsets
- apps – text-to-speech, speech
- webreaderHD etc.

Once your audio recording has been made you can listen to it in a variety of places that includes:

- at home
- whilst travelling
- when exercising

## 12.1 Pre-recording checklist

Before recording you should consider:

- checking your recording equipment – do a short test before recording a large volume of material
- ask yourself what the objective of your recording is for – for example, remembering key ‘trigger’ words or concepts in depth
- are these notes for your own use, or do you intent to share them. This will effect the quality and format you convert your recording into
- how do you want to record your information – in small ‘bite sized’ sections or a large block

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# 13 Don't Miss Anything Out

You would think it would go without saying that you shouldn't miss anything out when studying and answering questions. However, we have already seen that when revising you need to ensure the maximum ROI (return on investment) – see section 10 The Traffic Light Method. As a quick recap we discussed labelling fundamental information as green, essential as amber and unlimited time – low return information as red.

The next two methods we will examine ensure that once you have been asked a question you consider and answer every aspect. When you combine this with the study method of predicting questions you may be asked, you will develop a robust and comprehensive study system. The methods we will be looking at are the Black Red Green and PEE.

## 13.1 The Black-Red-Green Method

The Black-Red-Green method was developed through the Royal Literary Fund. This method helps you to ensure that every aspect of the question that has been asked has been considered

### 13.1.1 The Black-Red-Green Method Stages

Read the question given and underline relevant parts of the question using:

- **BLA**ck is for **BLAtant** instructions – something that must be done (an obvious instruction or directive)
- **REd** is for **REference** point, or **REquired** input. This is usually to do with definitions, terms, theories, authors etc.
- **GREen** is for **GREmlins**, or **GREen** lights – these are subtle signs that you could easily miss, or hints on how you should proceed or place your emphasis

## 13.2 PEE

Another popular method to break down and answer a question is the PEE approach:

- Point
- Evidence
- Explain

This method builds an argument around a series of logical, coherent, linked paragraphs.

### 13.2.1 The PEE Method Stages

Build an effective paragraph using:

P = Paragraph that makes one point in the right depth

E = Explanation, Evidence and Examples

E = Evaluation

You may also want to consider leaving some lines in between each paragraph in order that:

- you can add further explanation or evaluation if exam time permits
- you signal you have moved from one point onto the next
- it is easier for the marker to read

### 13.2.2 PEE Expansion

So, lets expand on explanation, evidence and examples and evaluation – the 'E' 'E'.

#### **Explanation, evidence and examples**

These form the bulk of your paragraph and provides you with the opportunity to demonstrate your knowledge and understanding of the topic being questioned. You should construct well written, robust analysis which is written in logical, flowing sentences. One of the ways you can do this to great effect is the Seven Point Scale for Perfect Paragraphs (see 13.3).

#### **Evaluation**

You should include evaluation in each of your paragraphs and not just the concluding one. You should ask yourself:

- how important is the point or argument you have made?
- what does your argument depend upon?
- do your sentences build on each other?
- to what extent is your argument based on facts, opinion or unreliable data?

### 13.3 The Seven Point Scale for Perfect Paragraphs

step	explanation
1	open using words from the question to give focus
2	use relevant theory to explain and analyse the point
3	follow a logical path of analysis (use connectives)
4	use 'hooks' and 'cues' from the question to support and form your points
5	use real examples and evidence to support your point
6	come back to the question for focus
7	conclude with an evaluative statement

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# 14 A General Study Strategy

Throughout this book we have looked at a wide variety of study skills. In this section we will conclude with a general strategy / approach for any kind of study, which is easy to remember and execute. This is the ASPIRE Strategy.

## 14.1 ASPIRE Study Strategy method

### A: Approach / attitude / arrange

- Approach your study with a positive attitude
- Arrange your schedule in order to eliminate distractions. Although, remember that auditory learners may like and indeed benefit from playing music whilst studying

### S: Select / survey / scan

- Select a block of material to need to study
- Survey the headings, titles, graphics and questions to get an overview
- Scan the text for keywords and vocabulary and make a note of what you don't understand

### P: Piece together the parts:

- Put your books and notes down
- Piece together what you've studied
- Summarise what you understand

### I: Investigate / inquire / inspect:

- Investigate alternative sources of information you could use – other text books, websites, experts, tutors, students, etc.
- Consider consulting other support professionals (academic support, and other resources for assistance)
- Inspect what you did not understand – be honest don't just avoid that which is difficult or 'not interesting'!

**R: Re-examine / reflect / relay:**

- Re-examine the content, reflect on the material, relay understanding
- Re-examine – what questions are there yet to ask? Is there something I am missing?
- Reflect – how can I apply this knowledge & how can I use it?
- Relay – ask yourself if you could explain this to your fellow students? Will they understand it better if I do? Will it help me understand the information better?

**E: Evaluate / examine / explore:**

- Evaluate your grades on tests and tasks – are there any patterns?
- Examine your progress
- Explore options with others – for example teachers, support professionals, tutors, or parents

# 15 Apps / web based study aids

Below is a comprehensive guide to app or web based study aids. Some are general study aids and others subject specific.

## 15.1 General study

### **Examtime**

A web based resource that is optimised for all touch devices. Builds; mind maps, flashcard, quizzes and notes. You can share as well as create and track your learning progress.

### **Exam countdown**

A test will never sneak up on you again! Exam Countdown allows you to track your exams by storing key dates in one place. You can add a 'to-do' list of items that must be completed prior to the exam and read and share test taking tips from other students. All you need to remember is to download this app.

### **iStudiez pro**

The iStudiez Pro app is an easy-to-use study app which works for the Mac, iPad, iPhone, and iPod Touch. It allows you to colour code your work schedules and store various snippets of information. You can create reminders and push notifications for looming due dates. It's one of the best free apps to improve study methods around, especially for the more disorganised amongst us.

### **Khan Academy**

Offering access to more than 4,200 educational videos, [Khan Academy](#) for iOS is a free app that helps you learn about anything in the world, ranging from Math(s) and Science to the Humanities. The iPad app adds more functionality, allowing users to track their progress, download videos for offline viewing and subtitle support for easier comprehension.

### **Studious**

Scatterbrains will love [Studious](#). It reminds you when homework and tests are due and even silences **your phone** for you during lectures and classes. Just enter your class information such as date, time, location and professor name and Studious takes care of the rest. You can also save notes and photos and the app's colorful, easy-to-use interface sweetens the deal.

## BenchPrep

BenchPrep is an interactive course library with all the graduate and professional exam study material you can handle. It includes hundreds of practice questions, flashcards, in-app purchases and almost 600 study lessons.

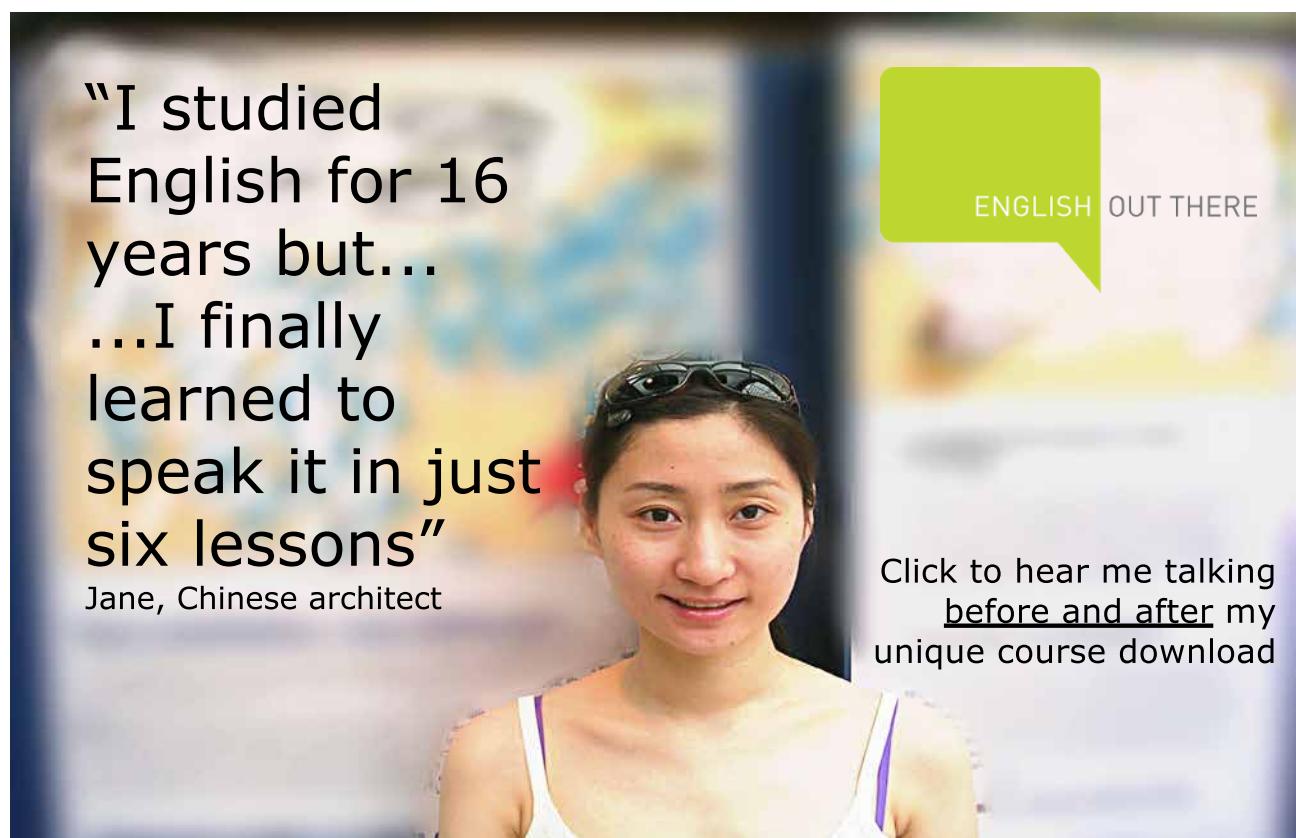
## 15.2 Flashcards

### Flashcard+

Bringing an ancient learning method bang into the 21st century. You can create your own flashcard decks consisting of as many cards as you want, free of charge. There are also a number of default decks which test you on things like state capitals and maths facts. If you're in a study group, you can share these decks with your peers.

### Chegg Flashcards

Allows you to easily create flashcards for any subject using your mobile device. You can even add pictures or diagrams to your cards. The app also provides access to pre-made sets of flashcards powered by Quizlet. These are available for a variety of subjects including Math, History, Chemistry, English, Science, Accounting and more.



Chegg Flashcards also allows you to track your results as you quiz yourself. Just swipe up across a card you get right and down across a card you get wrong. You can then go back and review the material you answered incorrectly. Your answer speed is tracked on the app's results page. Chegg Flashcards also allows lets you skip a card by shaking your device and navigate the deck with the swipe of a finger.

### **StudyBlue**

Allows you to make digital flashcards and flip through them while getting feedback on what you know. Using the app's study filters you can filter out concepts you've mastered and review questions you answered incorrectly. Each flashcard can contain text and pictures and you have the option of creating your own or using a classmate's. StudyBlue also allows you to set reminders for tests that are coming up so you remember to start reviewing class material. If your friends or classmates have the app, you can message them questions or collaborate virtually.

### **Encore study platform**

Encore takes online flashcard study sets and generates portable quizzes. Five flashcard sets come with the free app including SAT vocabulary, organic chemistry terms, multiplication practice, Spanish expressions and literary terms. The apps also allows you to search and download content from Quizlet, which offers 9 million sets of flashcards and FlashcardExchange, which offers 42 million flashcard sets. Encore keeps track of your answer statistics and provides the ability for you to edit and create quizzes on the go Mindmaps.

### **Cram**

Cram has over 106 million flashcards and there is a free app as well. You can browse by subject and share your cards with others.

## **15.3 Scanning / photographic**

**Droid Scan** turns your mobile device into a portable document scanner. You can scan anything from the page of a book to notes on a whiteboard and turn that into a PDF you can take with you. The app uses perspective correction to create a perfectly shaped, professional looking document. Its ultra-high resolution scan preserves most of the pixels in the original photos even after you convert it. Images can be stored in Dropbox or Google Drive, or emailed to yourself, etc. for easy access before an exam.

**Share Your Board** allows you to take a picture of the whiteboard at the front of the classroom and save those notes for later. The app adjusts the white balance so the picture is easy to see. Now you don't have to rush to scribble down notes that will later be illegible. Simply snap a picture and copy the info after class or keep the picture to reference before a quiz.

## 15.4 Notes

**Evernote Peek** is a fun way to study for an upcoming quiz using your iPad. You can either use an iPad 2 Smart Cover or a virtual cover option to begin testing yourself on a series of questions using a clue. Simply lift the corner of the tablet cover and a clue appears on your screen. To reveal the answer lift the cover a little higher. Then close the cover and repeat. Evernote Peek requires a free Evernote account to begin creating the “notebooks” from which test questions will appear. The title on the note appears as your clue and the text in the body appears as your answer.

**Evernote** is one of the must-have free apps for students due to its usability in lectures. In lectures you can use it to take notes and write down any important material. You can sync it to your computer if you need quick access to the notes. It also combines features from some other apps, such as the voice memo function. The Evernote clipboard lets [#students](#) save any valuable articles and web pages for later. Now you can study on the go!

### Notability

A great little app which allows you to write, record, sketch, record lectures, annotate PDFs and provide audio feedback. It also syncs with the cloud so your notes are always up-to-date.

### Post-it plus

You can use the app to capture a photo of up to 50 square Post-it Notes at one time. These are then identified with little checkmarks on top of each note. Before creating your digital board, you can uncheck the notes you don't want to save.

After the image is captured, you have a viral Post-it board where you can arrange, refine and re-organize the notes just by tapping and dragging them around with your finger.

### Vesper

This note taking app allows you to quickly enter text and then tag it. You can then sort your information using these tags and you can sync between iPhones and MACS.

## 15.5 Spidergram / mind maps / thought maps

### iThoughtsHD (mindmapping)

This is available for both the iPhone and iPad and allows you to create and share mind maps. You can export in a whole range of file options and there is built in support for both Dropbox and [box.net](#). Icons, colours and shape options means you can customise your maps.

### PerfectMind

Ideas, tasks, words, etc. are visualised around a central word, idea or concept. Colours and zooms can be used to customise an map that can be exported as PDF, PNG etc.

### SimpleMind

Rather than just writing down your thoughts, you can spread them out in the form of a spider diagram. You can also colour your spider diagram to make things stand out. It makes things easier to read and, hopefully, easier to remember. Combine with some of the other SimpleMind packages for the best results.

### Think Tree

This falls under the 'cute' end of the mind mapping spectrum rather than the 'serious' one. Cartoon pictures and cloud shaped pop outs create an image that can be shared as picture only.

## 15.6 Reading

### AceReader Pro

This award winning app definitely isn't cheap at £25.99 (at the time of writing this book), but it will train you to read faster. It has 13 different levels of training complexity and covers; timed reading comprehension tests, eye pace drills and eye exercise games. Its 'auto-adjusting' feature means you are always pushed to the next level.

The advertisement features a large image of a ship's wake on the ocean. Overlaid text reads "The Wake" and "the only emission we want to leave behind". Below the image, a dark blue footer bar contains links to "Low-speed Engines", "Medium-speed Engines", "Turbochargers", "Propellers", "Propulsion Packages", and "PrimeServ". A paragraph of text discusses the design of eco-friendly marine power and propulsion solutions, mentioning MAN Diesel & Turbo's power competencies and engine programme. It includes a link to their website: [www.mandieselturbo.com](http://www.mandieselturbo.com). The bottom of the ad features the slogan "Engineering the Future – since 1758." and the "MAN Diesel & Turbo" logo.



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### Speed reading trainer

As a student, you will read thousands of words each day. Learn to speed read effectively and you can cut down on the amount of time spent reading. Speed Reading Trainer offers a selection of text-based time trials to improve your skills and test your comprehension rate. This is one of the best free apps for students because it gives you a skill which lasts for life.

## 15.7 Text to speech

### iSpeech

Type in text and listen with the iSpeech App. iSpeech converts text to speech with the best sounding voices anywhere. Simply enter any text and iSpeech will instantly read the words.

### Speak It

Copy emails, documents, web pages, PDF files, and more; paste them into Speak it!, and have the text spoken back to you with the highest quality text to speech engine available anywhere. You can even create the same quality audio files of the text to speech which can then be emailed to anyone you like!

### Speech Magnet

Copy any text then launch Speech Magnet. Very quickly, your copied text is being spoken. Speech Magnet can automatically speak the clipboard contents on launch.

### Text2Speech (pro)

This app allows you to choose from multiple voices and supports non-English language in OS X Lion. You can even customise the; speed speaking rate, pause, stop or start.

The pro version can export sound to AIFF, MP3 files and add to iTunes.

## 15.8 Individual subjects

### 15.8.1 Maths

#### Wolfram Alpha

Maths can get overwhelming, and [Wolfram Alpha](#) is here to help. Instead of carrying formula sheets and unintelligible notes around, this app offers solutions to your math or number-related problems all in your pocket. Wolfram Alpha is a great learning tool because you get formula details, graphic representations and step-by-step explanations of methods for solving. The app is available for [iOS](#), [Android](#), Nook and Kindle Fire.

## MathRef

MathRef is a solid [app](#) for quickly finding formulas across multiple disciplines. This app does not cover as many disciplines as WolframAlpha, but that is perhaps a strength as it is more focused on traditional math fields such as Algebra, Geometry and Calculus. MathRef also has an excellent user interface, allowing users to add notes to equations, save favourite equations and copy text from within the app to e-mails or text editor.

## Graphing calculator (Mathlab)

Graphing calculators used to be expensive and complex. However, those studying advanced mathematics can download an app like Graphing Calculator by Mathlab. This free app provides its users with advanced operators, functions, an intuitive user interface and beautifully laid out graphs featuring slopes, roots and intersections, to name a few.

## Math Alarm Clock

After a long night cram session, the temptation to hit that snooze button on the alarm clock is appealing. But what if you didn't have a snooze button? What if you were required to use your brain to stop your alarm? Math Alarm Clock will require you to do just that. When your alarm goes off, it will continue beeping until you finish a certain number of math problems that you set. If you get one wrong, it adds to the number of problems you have to complete.

### 15.8.2 Literature

#### Cliffsnotes

These have been helping students since 1958. With this [iOS app](#), you can now study for those literature tests on your phone. Access character and theme analyses, plot summaries and interactive quizzes with in-app purchases. Study in Cram or Full Plan modes depending on how much time there is left before your test. The audio plot summary function is great for listening during those longer walks around campus or during your workout.

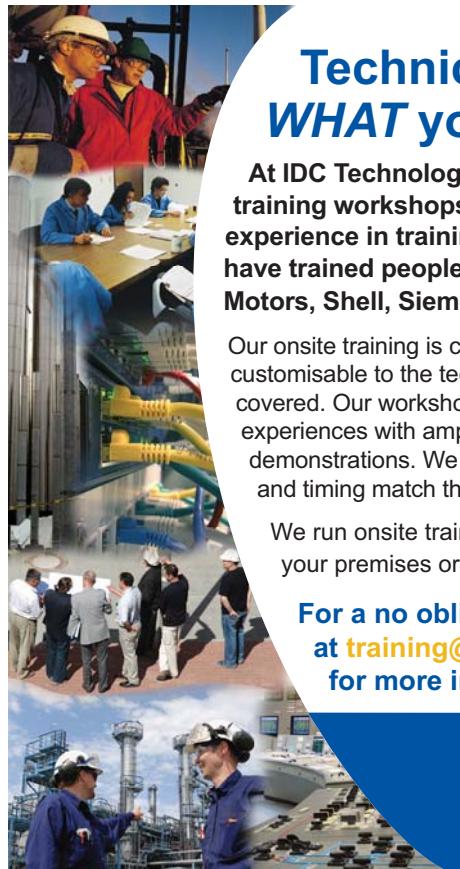
#### SparkNotes

For each book, play, short story, or poem, the SparkNotes iOS app's content is neatly and concisely presented for easy navigation. The top menu bar lets you add it to your favourites and share, as well as download for offline use with a touch. Typically, there is a table of contents section where you can learn more about the context, plot overview, and character list. Each chapter or logically created section for plays and poems contains a summary and analysis. You use agile, precise gesture controls to scroll through well-crafted content.

# 16 Critical Reflective Learning Questions

In section 1.1 of this book we looked at a series of baseline, or benchmark questions about how you currently learn and study. You can now see how far you have come and how this book will change how you approach future learning and studying by undertaking the following questions.

1. As a result of this book do you feel more able to use a wider variety of learning and study skills?
  
  
  
  
  
  
2. Can you now recognise a greater number of approaches and styles?



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3. Prioritisation is one of the key skills we examined. Do you feel confident to apply this system in order to focus on essential information that has the highest ROI – Return on Investment?
  
  
  
  
  
  
4. Can you now trial a note taking system, such as The Cornell Approach in order to take study ready class notes first time?
  
  
  
  
  
  
5. Has this course enabled you to look at learning and study methods you have not encountered before?
  
  
  
  
  
  
6. As a result of this course do you feel more prepared for study success?

# 17 Stop, Start, Continue

Please use the following; **stop, start, continue** format to summarise what you will now do as a result of this book. This will give you a ‘birds eye view’ of how you can implement what we have covered.

**STOP** – list what you will STOP doing as a result of this book in terms of; note taking, reading, using books, learning and studying

**START** – list what you will START doing as a result of this book in terms of; note taking, reading, using books, learning and studying

**CONTINUE** – list anything you will CONTINUE doing as a result of this book in terms of; note taking, reading, using books, learning and studying. e.g. is there anything that you currently do which you have confirmed is a good approach for you to adopt

# 18 Summary

We started this book by looking at the 5 main reasons that people study as well as their preferred method. The bulk of what followed was a description and examples where appropriate of methods, techniques and practices you can use to study effectively and efficiently.

I'm sure it is more than obvious to you by now that the method you use should be tailored to you, your subject matter and the environment you are studying in. Therefore, it is almost impossible to give any hard and fast rules regarding how you as an individual should approach your study.

But, if I had any advise to give you it would be as follows:

- Use the Cornell note taking system in classes and lectures (see section 8)
- Use the PQRST or SQ3R when studying from books
- Apply the Traffic Light Prioritisation Method to get the highest return on investment (ROI)
- Use a combination of methods – to add interest and neural pathways
- Examine ‘electronic and technical’ aids to study, many of which will be ‘ready to go’
- Constantly and methodically test what method of study works for you. Ask yourself what method gets what grades / results and feed this information into your next exam

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**Month 16**

I was a construction supervisor in the North Sea advising and helping foremen solve problems

Real work  
International opportunities  
Three work placements





# Appendix 1

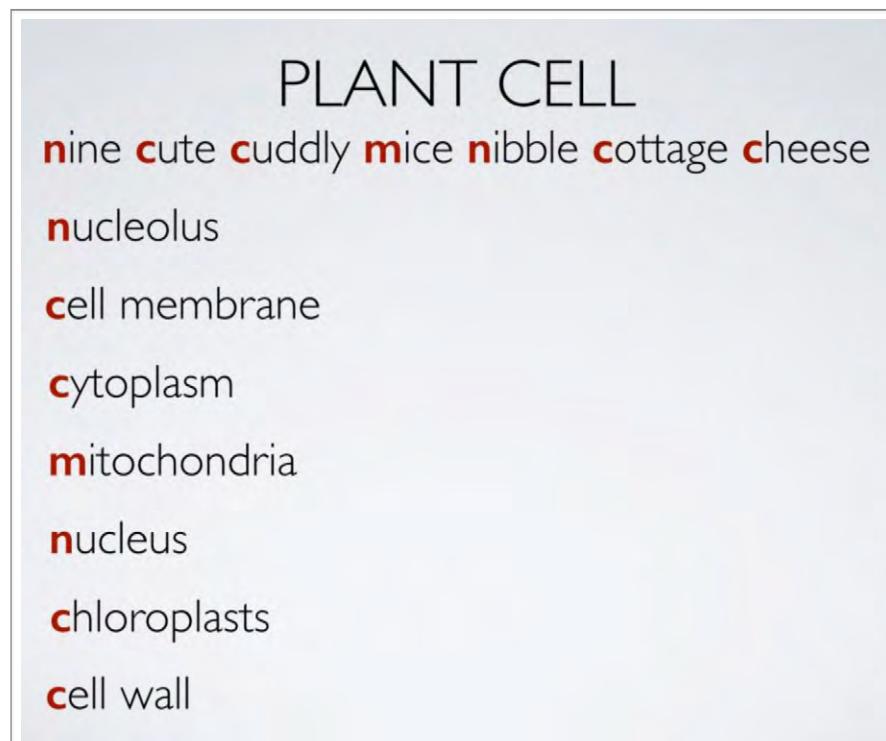
In the main summary I suggested combining study methods and in this appendix I wanted to give you an example of how this could work in ‘real life’.

The example I’m going to use is that of a plant cell.

The parts that I would need to learn for recall are: the cell wall, cell membrane, cytoplasm, chloroplasts, mitochondria, nucleus and nucleolus.

So how could I condense and summarise this?

Well, I could make up a series of words or a sentence. I made up this... Nine, Cute Cuddly Mice Nibble Cottage Cheese.



Another way could be through the use of analogies...I could say a plant cell is like...School!

The cell wall is like the protective walls of the school

The cell membrane is like the school doors – letting things in and out

The cytoplasm is like the air within the school because everything else sits in it

The chloroplasts are like the canteen because this is where the food is made

The mitochondria are like the football field – because this is where food is converted into energy

The nucleus is like the headmasters, or principles office – the control centre

The nucleolus is the copy machine sat on the principles desk because it where the nucleic acid gets copied in a cell

### a plant cell is like..... a school!

#### **cell wall**

- protective school walls

#### **cell membrane**

- school doors, letting things in & out

#### **cytoplasm**

- air; surrounding everything

#### **chloroplasts**

- canteen, where food is made

#### **mitochondria**

- football field, food converted into energy

#### **nucleus**

- headmasters office, control centre

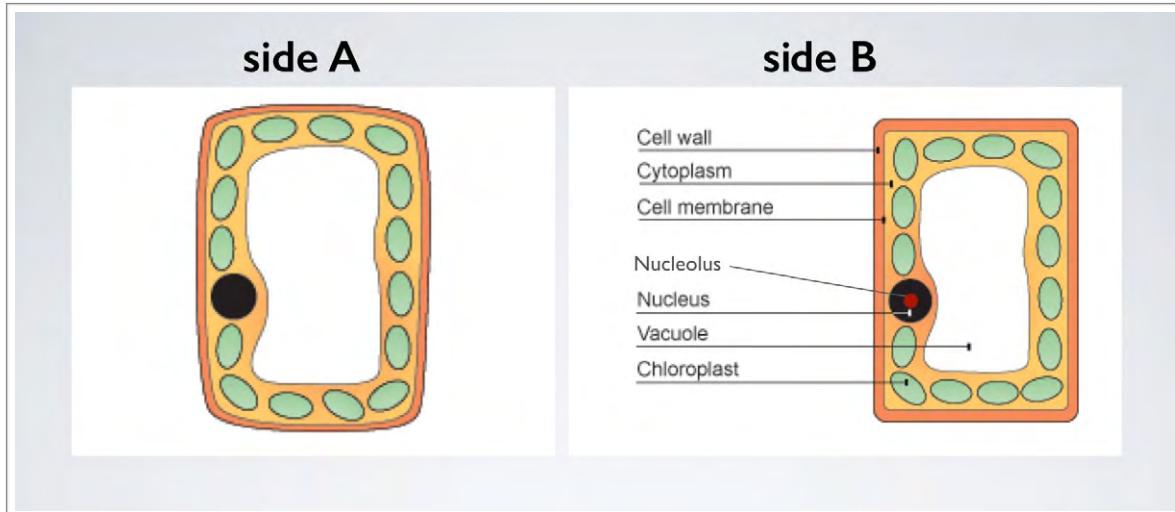
#### **nucleolus**

- copy machine (fax) where <sup>R</sup>DNA is copied

In my online study skills course I also show you a video, or prezi I made to show this written information in a more dynamic, visual way which zoom into each element.

(<https://www.udemy.com/essential-study-skills-strategies-for-ultimate-success/?couponCode=bookboon>)

We could also produce flash cards. In this case I would design 8 different cards. 7 for each of the cell parts and one with a cell diagram. The cell diagram one would look like this on side A and this on side B. Using this system I could put learned cards in one pile and others on the 'still to learn' pile.



Next, let's look at some condensing and summarising methods.

If we start with **keywords** you can see from this table that I have put the part of the cell down the left and the description down the right. What we need to do is work out which of the words on the right are 'key' – i.e. which ones 'unlock' information.

<b>part</b>	<b>description</b>
cell wall	provide the cell shape and support. made of tough cellulose
cell membrane	controls what can come into and out of the cell
cytoplasm	the jelly like substance inside the cell, where chemical reactions happen
chloroplasts	where photosynthesis happens. Use sunlight energy to make food. Contain green substance called chlorophyll
mitochondria	produces energy
nucleus	control what happens inside the cell
nucleolus	The site of synthesis. Where ribosomal RNA is produced

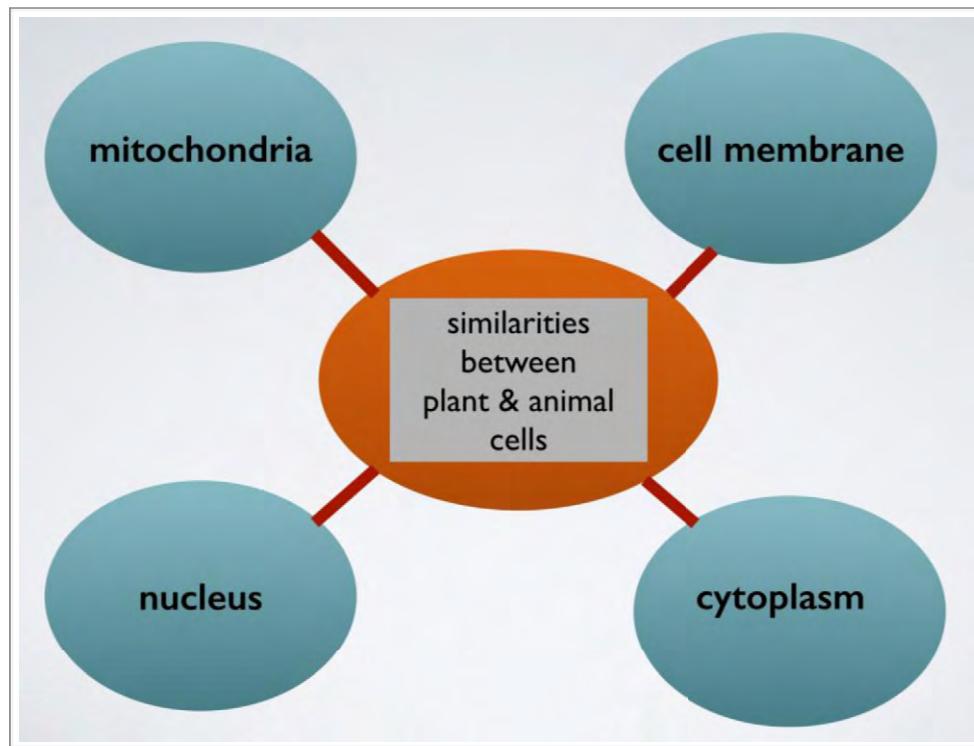
After highlighting the words you think are key it is then important to check that these words do indeed 'unlock' information. I would cover up the information and see what I could recall immediately and then again after say 24 hours and a week. If these key words don't allow active recall you need to choose other words and test again.

highlighting	
part	description
cell wall	Provides the cell shape and support. Made of tough cellulose
cell membrane	Controls what can come into and out of the cell
cytoplasm	The jelly like substance inside the cell, where chemical reactions happen
chloroplasts	Where photosynthesis happens. Use sunlight energy to make food. Contains green substance called chlorophyll
mitochondria	Produces energy
nucleus	Controls what happens inside the cell
nucleolus	The site of synthesis. Where ribosomal RNA is produced

www.job.oticon.dk

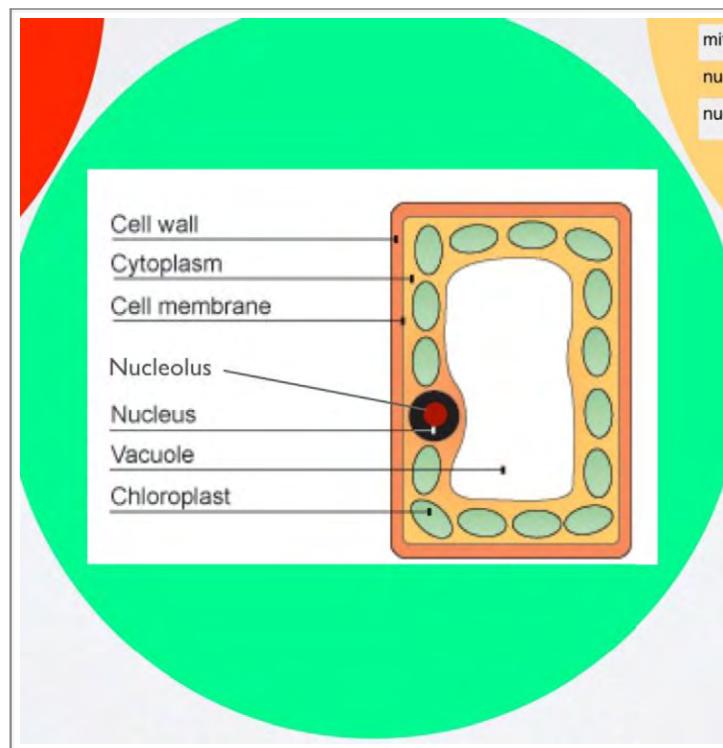
oticon  
PEOPLE FIRST



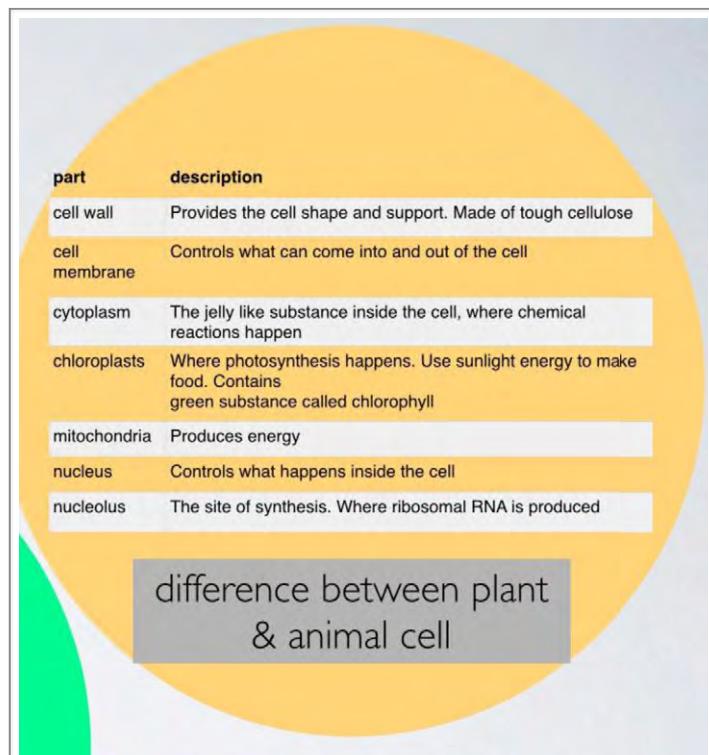


Here's a condensing diagram, showing the similarities between a plant and animal cell.

What about prioritising the information? The method we looked at in section 10 was the traffic light system.



Green information which is essential to know would include labelling a cell



# WHY WAIT FOR PROGRESS?

**DARE TO DISCOVER**

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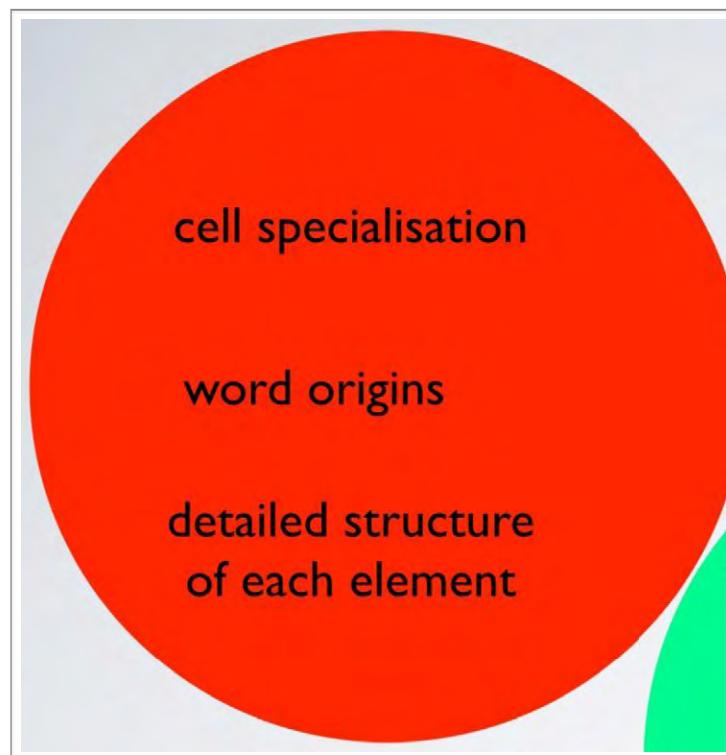
Discovery means many different things at Schlumberger. But it's the spirit that unites every single one of us. It doesn't matter whether they join our business, engineering or technology teams, our trainees push boundaries, break new ground and deliver the exceptional. If that excites you, then we want to hear from you.

**Dare to discover.**  
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Amber information includes what each part does and how it differs from an animal cell.

Finally red information which provides very little return on investment includes; cell specialisation, the origin of the words and detailed structures of each of the 7 parts of the cell.



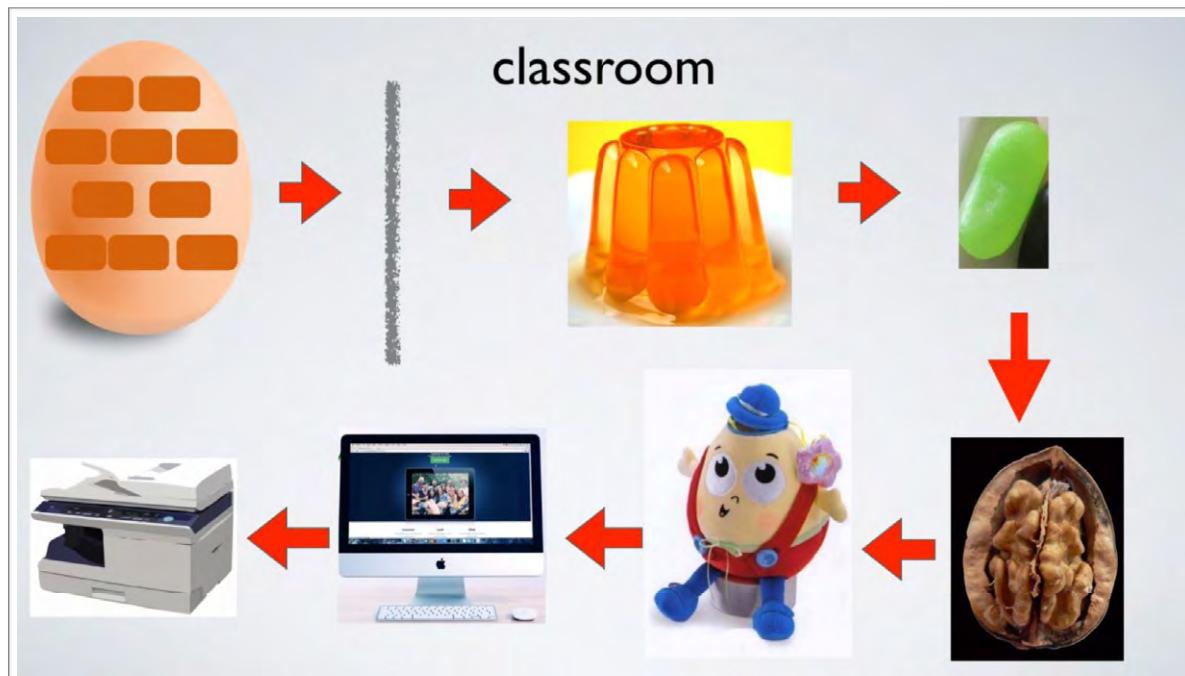
Obviously, what you put into each of these three colour categories would be different depending on the level at which you are working and studying.

Next let's have a look at the Method of Loci – and this is where to could all get a bit strange, so bear with me! Remember this visual method is very much unique to you, but I have included it for completeness as it often the study method that initially takes the longest to become competent at.

I have a very clear memory of decorating eggs for a school project when I was small. I did a humpty dumpty egg and I drew his face on one side and the wall on the other. So, this will be my starting point and my old classroom will be my location. I can even remember the way it smelt and this all adds to the neural pathways I am trying to build.

So this is my Loci Journey...

- 1) I walk into the class room and come face to face with a giant egg.
- 2) on it is painted a wall – the **cell wall**
- 3) I punch through this and theres the thin membrane – **cell membrane**
- 4) once I break through this I'm surrounded by lovely orange jelly (another school memory) – the jelly represents the **cytoplasm** which is jelly like
- 5) a green jelly bean then floats by – the **chloroplast**
- 6) followed by a walnut – I don't know why but I think **mitochondria** look like a walnut!
- 7) I swim through the jelly and reach humpty dumpty who is sitting at a computer – the computer represents the **nucleus** that controls everything
- 8) next to him is a fax machine that is copying pictures of RNA – the **nucleolus**



What you have to recognise here is that the Method of Loci is unique to you. So you want find examples on the internet. And even if you did you probably shouldn't use them as they wont be unique to you and therefore memorable.

Cornell note taking

Here you can see I have put my class notes on the right. Remember to re-look at any abbreviations.

On the left are the Questions that you formulate from the class notes and finally your summary can be written along the bottom.

keywords & Q's	notes
<p>what are the 7 cell parts?</p> <p>similarities / differences between animal &amp; plant cells?</p> <p>label a plant structure</p> <p>what does each part of a cell do?</p>	<p><b>structure</b></p> <p>parts; wall, membrane, cytoplasm, chloroplast, mitochondria, nucleus, nucleolus</p> <p><b>difference between animal &amp; plant cell</b></p> <p>plant cells usually regular in shape</p> <p>special features; large surface area, lots of chloroplasts</p> <p><b>abbreviations eg RNA</b></p>
<p><b>summary</b></p> <p>diagram plant diagram plant vs animal cell visual 'walkthrough' e.g. Loci Method</p>	<p>The diagram illustrates a plant cell with the following labeled parts: Cell wall (outermost boundary), Cytoplasm (the fluid inside the cell), Cell membrane (a thin layer just inside the cell wall), Nucleus (a dark, oval-shaped organelle), Vacuole (a large, central organelle filled with fluid), and Chloroplast (small, green, oval-shaped organelles). Arrows point from the labels to their respective parts in the cell diagram.</p>

I really hope you have enjoyed this book and I'm sure it will prove invaluable in your future studies.

If you would like to take / download my online study skills course please click

<https://www.udemy.com/essential-study-skills-strategies-for-ultimate-success/?couponCode=bookboon>