

Effective Study Skills

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Objectives of Workshop

- Learn active, deep processing strategies
- Explore the different purposes for study tasks
- Learn about active reading and note making strategies
- Practise using learning strategies

School

vs

College

School

College



You can't cover everything

Plan in advance – have a strategy

I'm just going to the library for 4 hours....
(I'll work out what I'll study when I get there)

What's the problem
with this statement?



School



Dependent on teacher
Homework

College



Up to you to make college:
-interesting
- active

Active studying means

1. Working with the material to try to build understanding
2. Find a way process the information in a deep and meaningful way

How?

Have a framework

- Think about the purpose of the study task
- Consider the best way to approach it
- Reflect and review

PSR

- **P**urpose – why?
- **S**trategy – how?
- **R**evision – check!

Active Learning



Hands-on Learning

Set up a Study Group

See your subject everywhere

Engage in Seminars

Get to Know Staff

Active Note-taking

Discussion (5 mins)

1. How do you study (reading/notes) ?
2. How do you read?
3. How do you take notes?

Reading





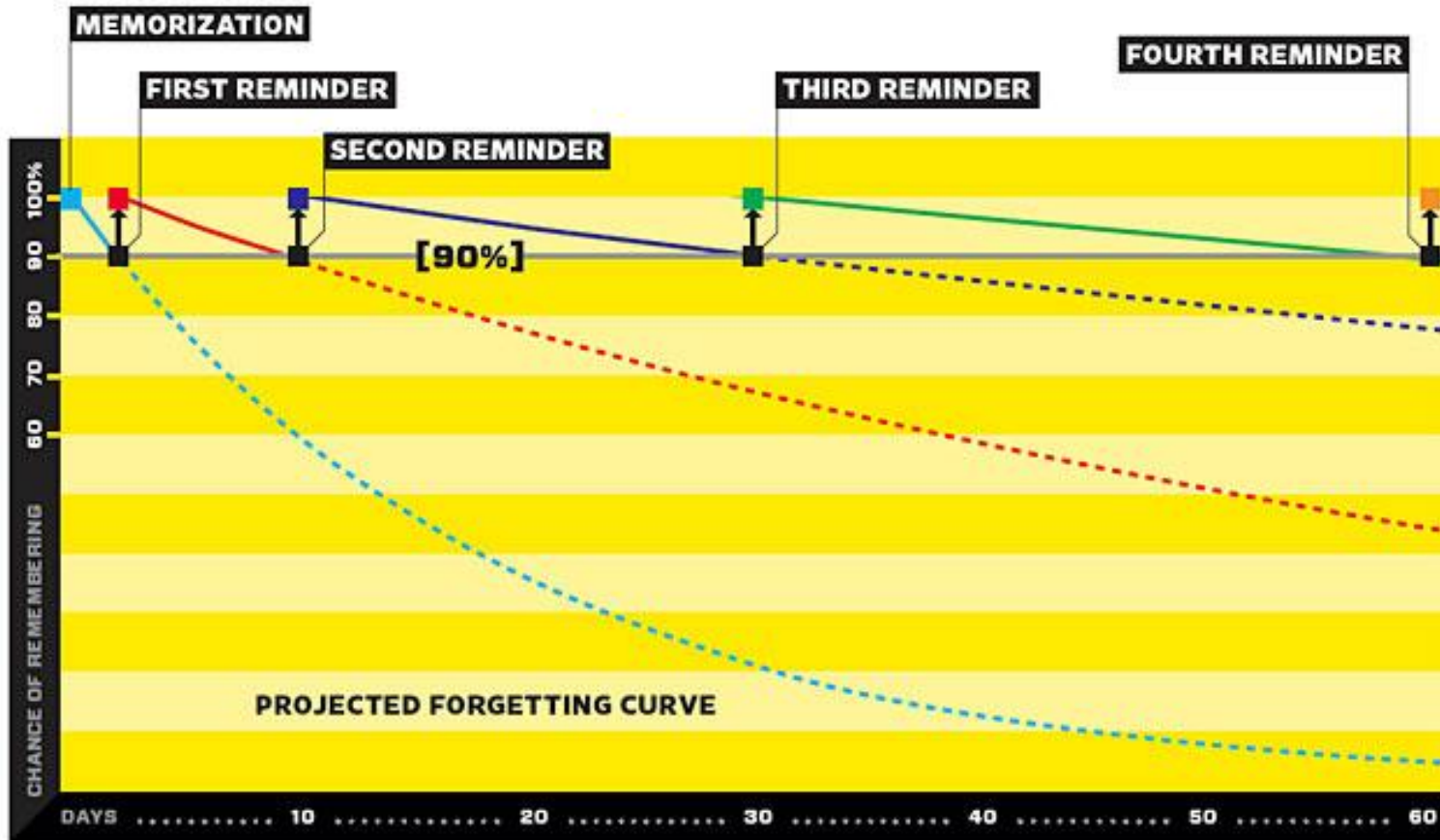
Good Reading is like Interrogation

Get reading – actively!

Purpose

- Strategies to suit:
 - Scanning
 - SQ3R
 - Note making
- Review

Ebbinghaus Forgetting Curve



Schedule Time for Reviews

Get Thinking - Reading

1. Asking questions
2. What is the point of view of author?
3. Evaluate evidence
4. Forming opinions

Being Selective

- Ask lectures/tutors what is most relevant
- Be alert for hints and clues
- Ask fellow students
- Ask students in years ahead
- Share reading
- Preview or skim before in-depth reading

2

Reading List:

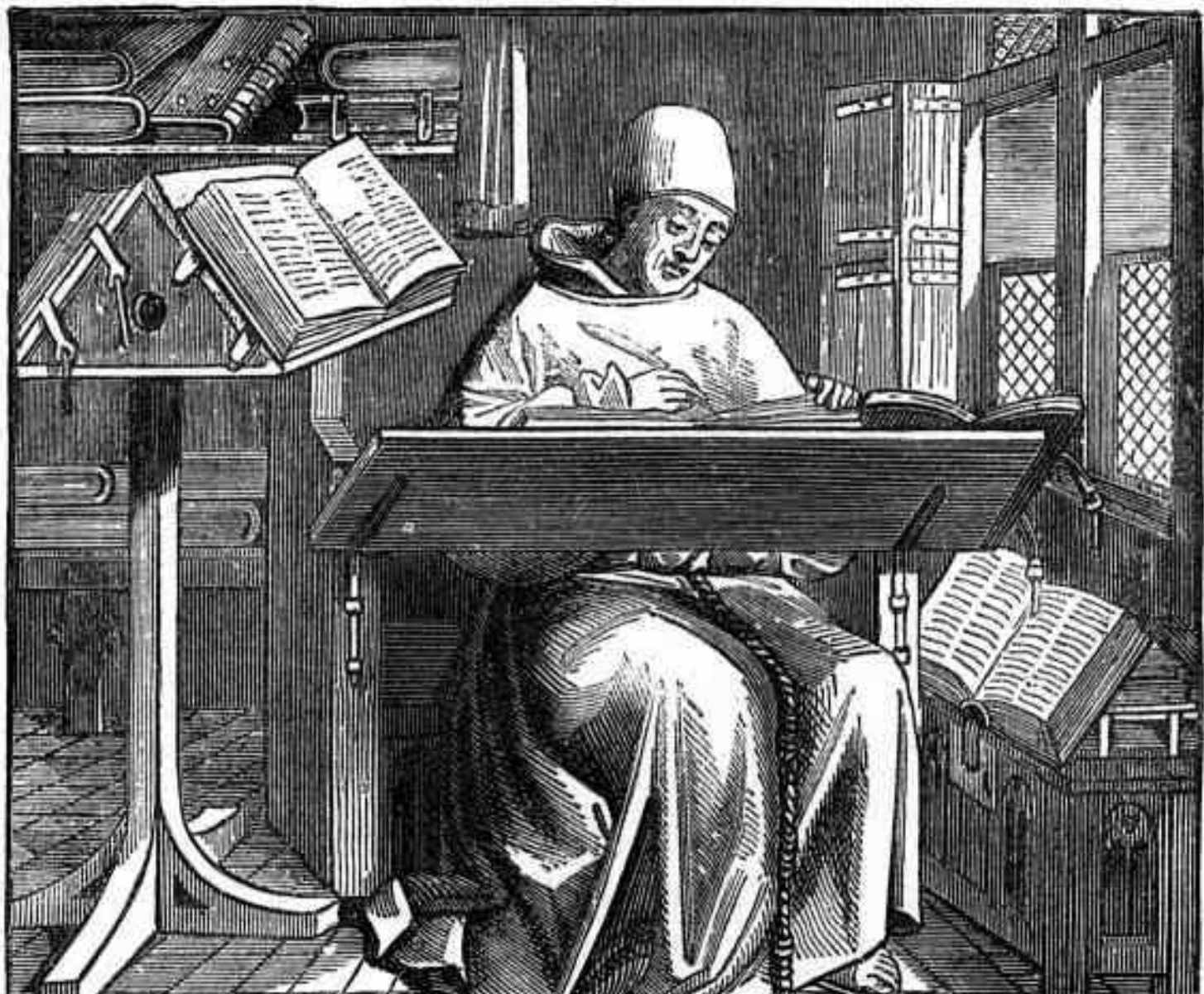
- Judd, C., Smith, E. and Kidder, L. 1991 *
Research Methods in Social Relations. 6th ed. London.
300.Jud (1 copy)
- Moser, C. A. and Kalton, G. 1971
Survey Methods in Social Investigation. London.
300.723 Mos (10 copies)
- Oppenheim, A. N. 1966, 1973
Questionnaire Design and Attitude Measurement. London.*
011.422 Opp (3 copies)
- Hoinville, G. Jowell, R. and associates. 1978
Survey Research Practice. London.
300.723 Hoi (1 copy)
- Rose, G. 1982
Deciphering Sociological Research. London.
301.072 Ros (4 copies)
- Kurtz, N. R. 1983
Introduction to social statistics. London etc.*
300.72 Kur (4 copies)
- Blalock, H. M. 1960
Social Statistics. London.*
301.072 Bla (2 copies)
- ESRI Reports : Read at least one of these research reports based on a social survey.



Taking Notes

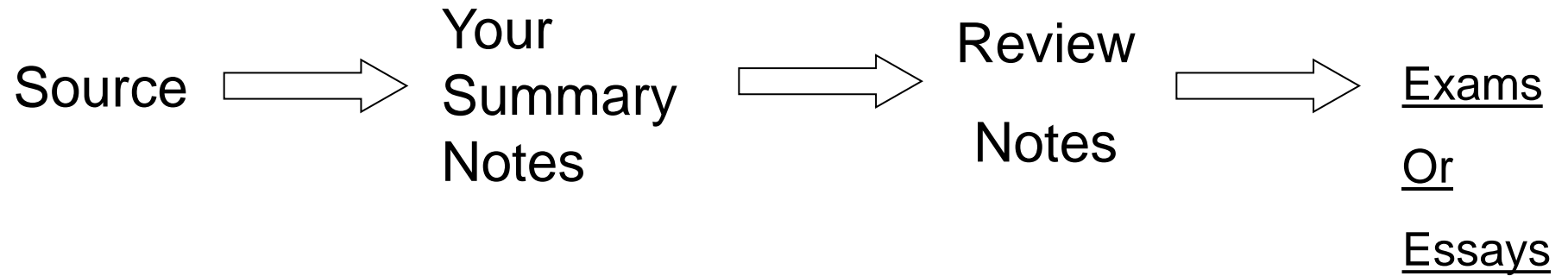


Ok, I'm finding it hard to concentrate, I'll make a good effort to make precise notes.



Perfect Copy

Notes



Types of Notes

1. Prose or summary
2. Outline or skeleton
3. Mind or concept maps
4. Cornell or 2 Column

How do you take notes?

Be careful with \tan^{-1}

Because \tan^{-1} returns values between $-\frac{\pi}{2}$ and $\frac{\pi}{2}$, the formula $\arg(x+iy) = \tan^{-1}(y/x)$ only works if $x > 0$. This can cause problems in e.g. Qs 2vi and 10 of Complex Methods sheet 1.

2vi Where is $u = \tan^{-1}\left(\frac{2xy}{x^2-y^2}\right)$ harmonic and find an analytic function whose real part is u .

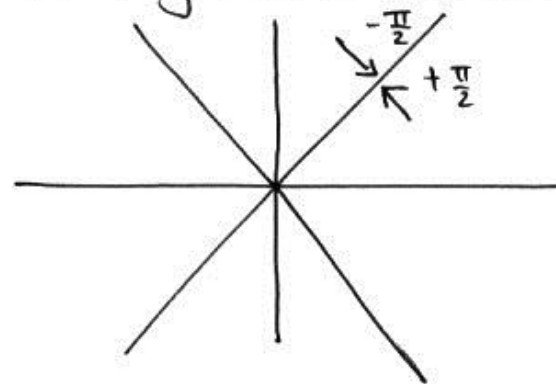
First we determine where it is definitely not harmonic. Consider the lines $y = \pm x$.

As (x,y) approaches the line $y=x$ from below ($x,y > 0$) (see picture), we have

$$\frac{2xy}{x^2-y^2} \rightarrow \infty, \text{ so } u \rightarrow +\frac{\pi}{2}.$$

If we approach from above, $u \rightarrow -\frac{\pi}{2}$, so u is discontinuous. Similarly in the other quadrants.

So we assume $x^2 \neq y^2$. If $x = r \cos \theta$, $y = r \sin \theta$ then $u = \tan^{-1} \tan 2\theta$, which equals 2θ provided $-\frac{\pi}{4} < \theta < \frac{\pi}{4}$. In this case, we can



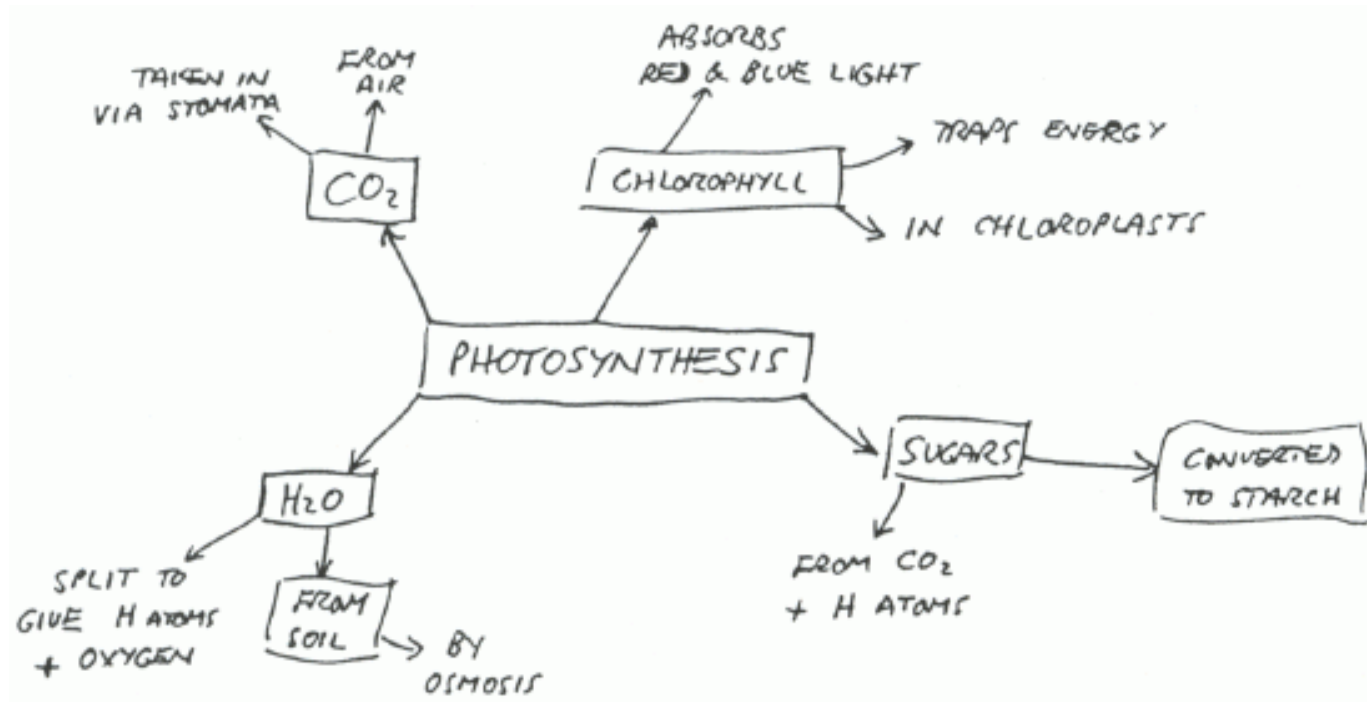
Summary

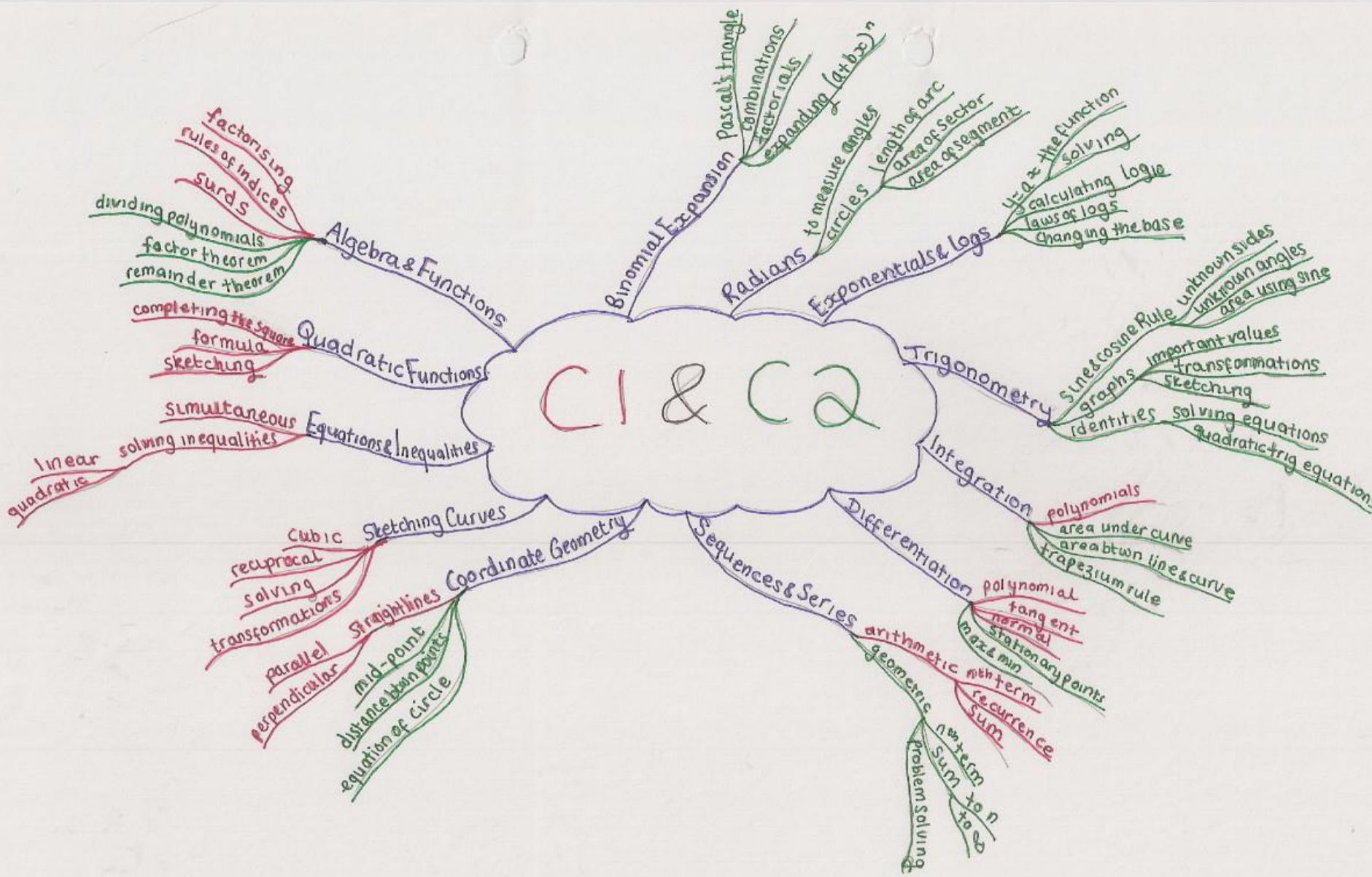
Outline

The Art of Reading Actively

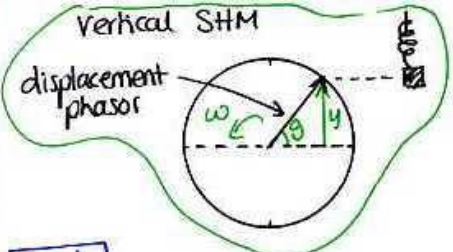
- A. Active = purposeful, critical, questioning.
- B. Look for Main Ideas
 - 1. Survey (SQ3R) for general ones (Ch 5)
 - 2. Read paragraphs for more specific ones
 - a) Each para usually has one main idea.
 - b) Usually in topic sentence (1st or last?)
- C. Look for Important Details
 - 1. e.g. proof, example, support for main idea
 - 2. Usually at least one per main idea
 - 3. Which do I consider important?
- D. In hunt for main idea and important details:
 - 1. Watch for signposts
 - a) Visual (layout, etc)
 - b) Verbal (cue words)
 - 2. Study diagrams, etc.
 - 3. Don't ignore difficulties
- E. Evaluate the text
 - 1. Be sceptical (Expect the author to prove)
 - 2. Compare with my own experience
 - 3. What do I get from it?
 - 4. Discuss with other students
- F. Make Notes:
 - 1. If I need them (for my purposes)
 - 2. At Recall stage (of SQ3R)
 - 3. Compare with other students'.
- G. Concentrate:
 - 1. By seeking understanding (not memorisation)
 - 2. and see Chapter 4 hints.
- H. Vary reading speed:
 - 1. according to purpose
 - 2. but not at expense of understanding.

Concept Maps

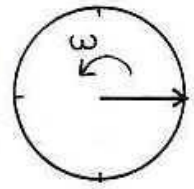




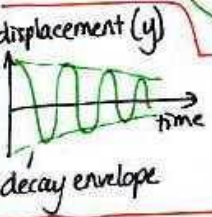
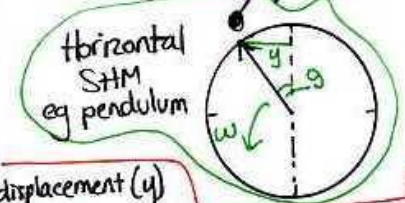
Mind Maps



$f = \frac{1}{T}$
 $\omega = 2\pi f$
 $\omega = \frac{\Delta\theta}{\Delta t}$

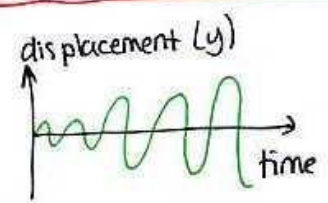


$\omega = \text{angular frequency}$

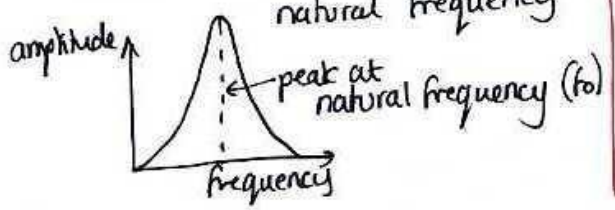


Damping
Due to energy being converted to heat, because of friction & air resistance.

Resonance



Energy is added by applying a force. Gives large amplitude if it is in time with natural frequency



Maximums

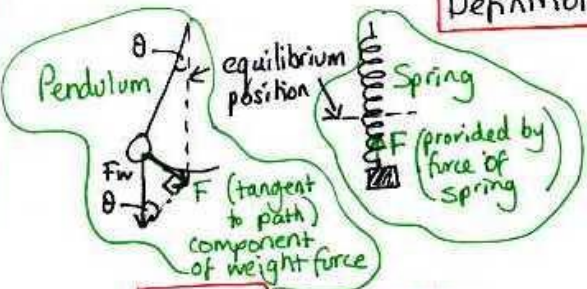
from equations
max when $\cos\omega t$ or $\sin\omega t = 1$

$y = A$
 $v = A\omega$
 $a = -A\omega^2$

SHM

Reference Circle

Vectors
For F, v, a, y opposite direction to y
for pendulums and springs



Definitions

Motion repeats
force is proportional to displacement, and in the opposite direction (as $F=ma$ this is also true for acceleration)

$a = -\omega^2 y$ and as $F=ma$
also $F = -\omega^2 y \times m$

NOT SHM if the force is not changing
eg only force acting is gravity

These can be proved by using the reference circle.

Equations

Starting at the equilibrium position, y increasing

$y = A \sin \omega t$ $v = A \omega \cos \omega t$ $a = -A \omega^2 \sin \omega t$

Starting at maximum displacement

$y = A \cos \omega t$ $v = -A \omega \sin \omega t$ $a = -A \omega^2 \cos \omega t$

Period

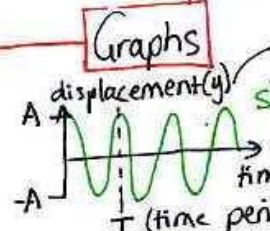
= time for one oscillation
(left to right and back again OR
up, down and back up)

$T = 2\pi \sqrt{\frac{L}{g}}$
pendulum

$T = 2\pi \sqrt{\frac{m}{k}}$
spring

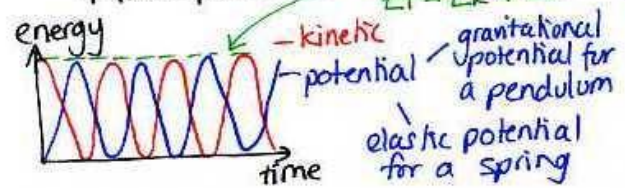
Know what affects the period of each eg. pendulum T not affected by mass

Graphs

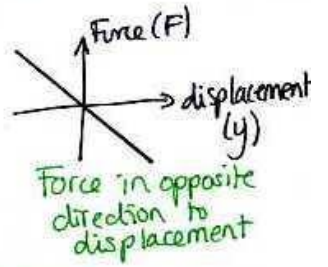


$E_p = \frac{1}{2}ky^2$ $E_k(\text{kin}) = \frac{1}{2}mv^2$
 $\Delta E_p = mg \Delta h$

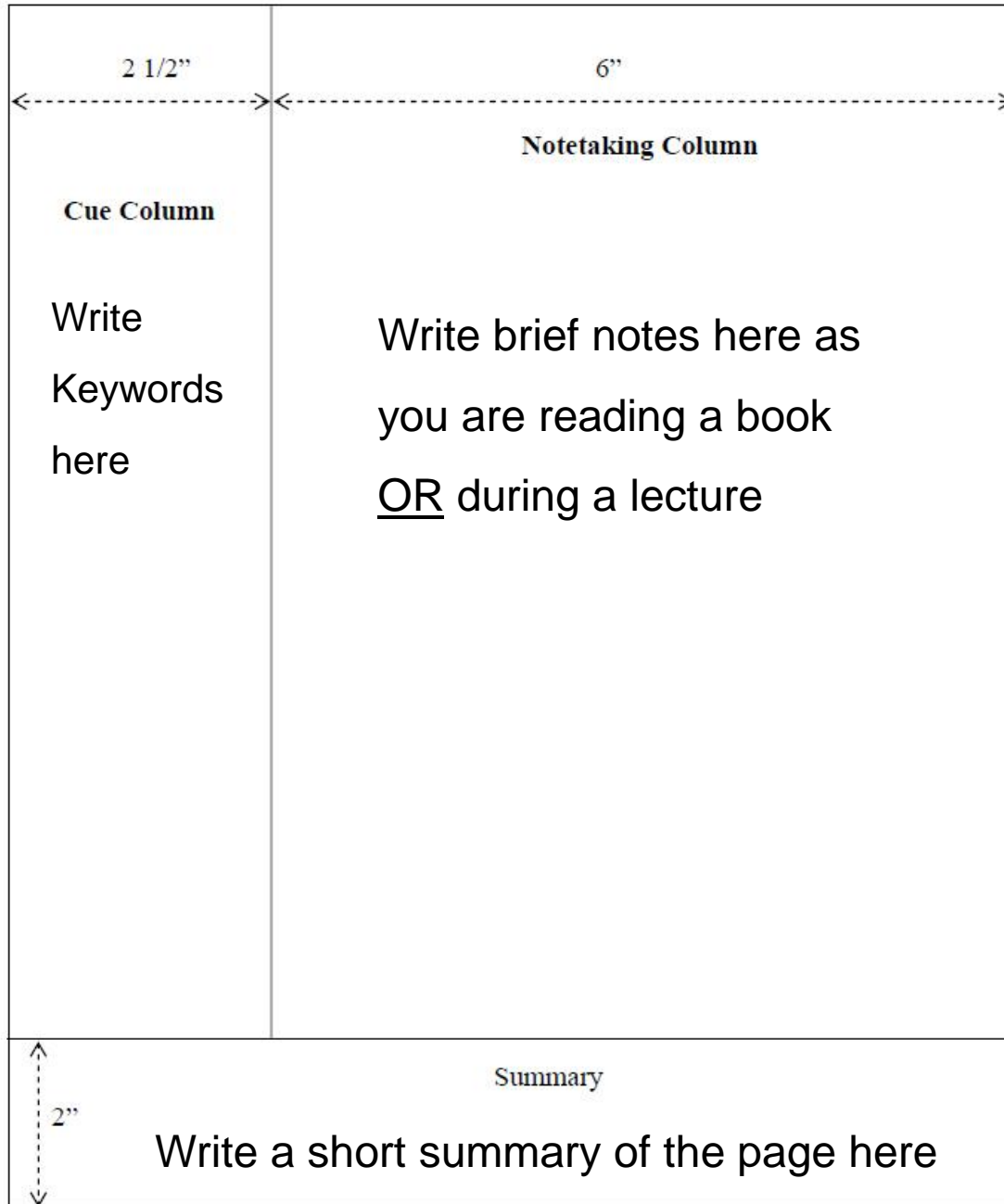
Total energy is constant
 $E_T = E_k + E_p$



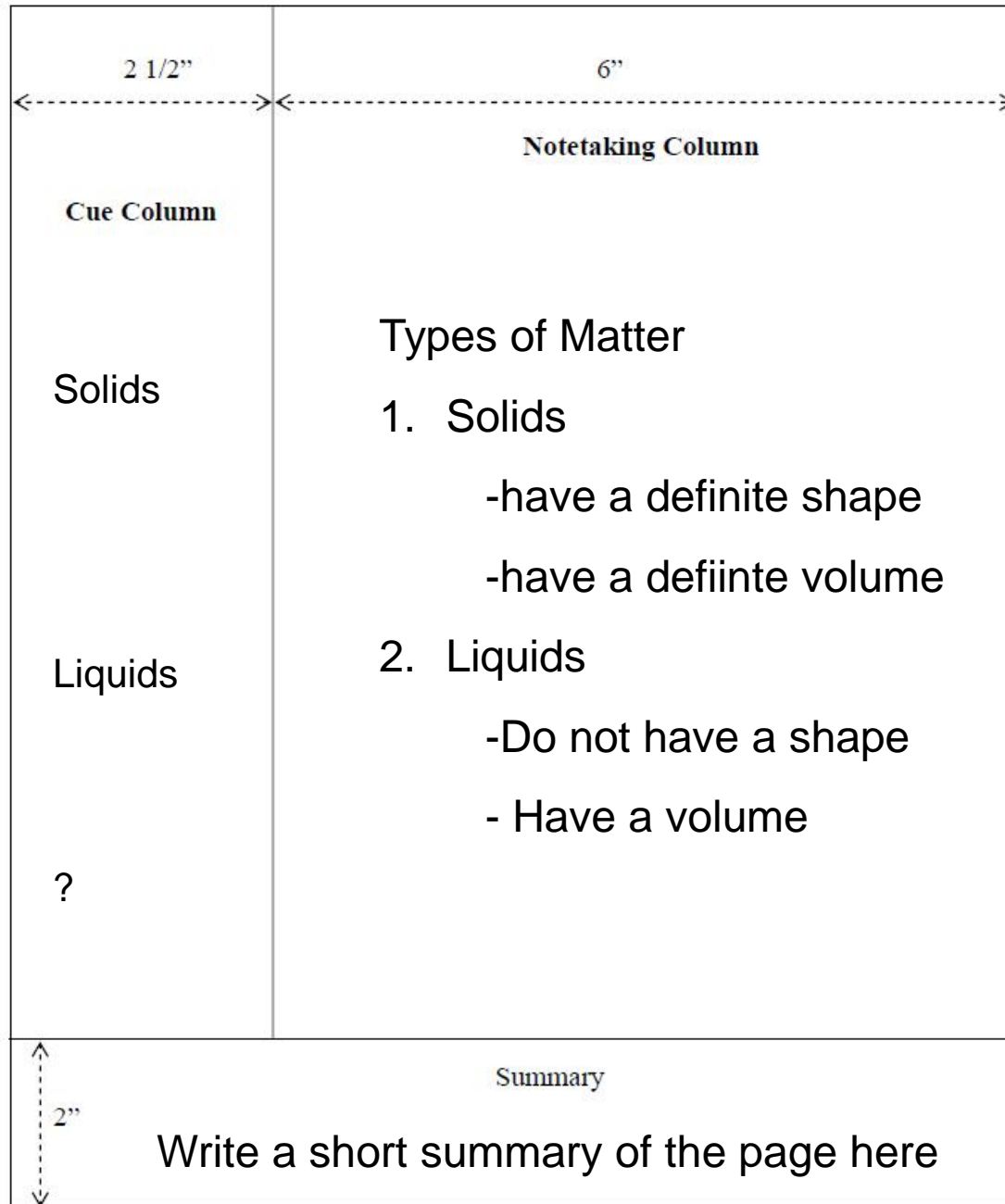
Total energy = max kinetic energy = max potential energy



The Cornell Note-taking System



The Cornell Note-taking System



More information

Cottrell, S. (2003). The study skills handbook,
2nd ed. Basingstoke: Palgrave Macmillan.

Fairburn, G.J. & Fairburn, S.A. (2001).
Reading at university: a guide for students.
Maidenhead: Open University Press.



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12 What's on

Notes

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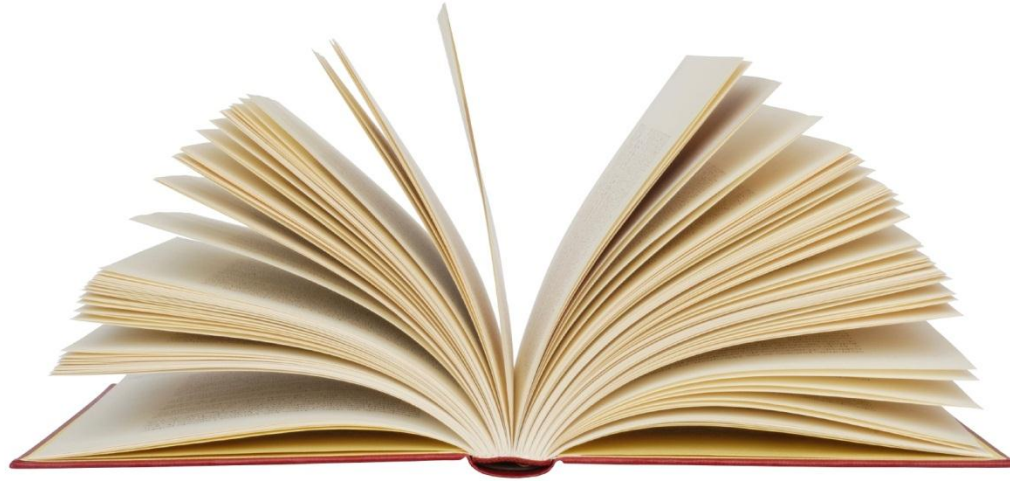
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Exam Guide

Time in 5 minutes

Have a Question?

Thank you for your time



Any Questions?