





“Learning is deeper and more durable  
when it’s effortful.”

“learning... mean[s] acquiring knowledge and skills and having them readily available from memory so you can make sense of future problems and opportunities.”

“People generally are going about learning in the wrong ways.”

*Make it stick. The Science of Successful Learning (Brown, Roediger and McDaniel)*

“Learning is an acquired skill.”

“The most effective learning strategies  
are not intuitive.”

Environment  
(class, study  
at home)



Environment  
(class, study  
at home)

Attention



Working Memory -  
Short-term Memory  
(awareness and thinking)



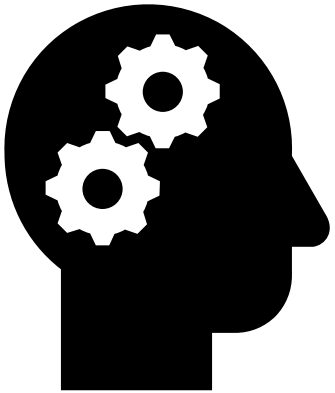
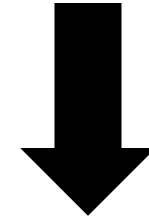
Environment  
(class, study  
at home)

Attention



Working Memory -  
Short-term Memory  
(awareness and thinking)

Learning  
?



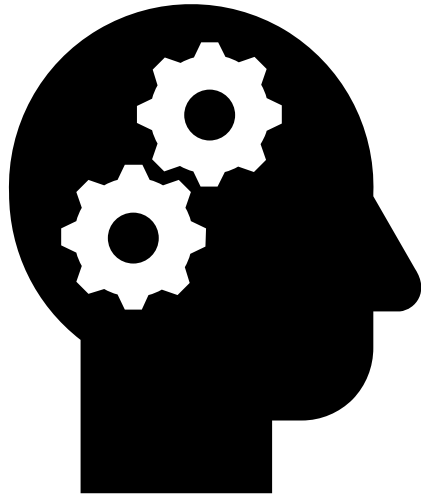
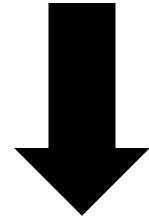
Environment  
(class, study  
at home)

Attention



Working Memory -  
Short-term Memory  
(awareness and thinking)

Learning



Long-term Memory  
(knowledge)

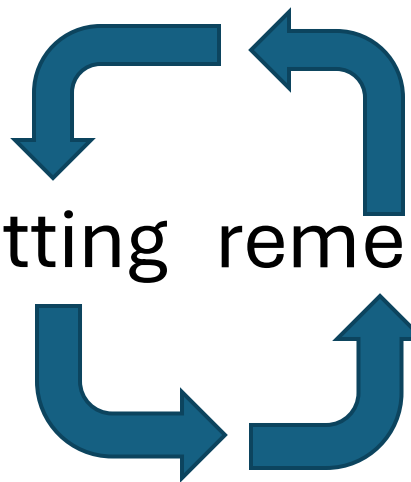
Environment  
(class, study  
at home)

Attention

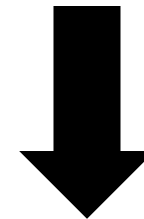


Working Memory -  
Short-term Memory  
(awareness and thinking)

forgetting remembering



Learning



Long-term Memory  
(knowledge)

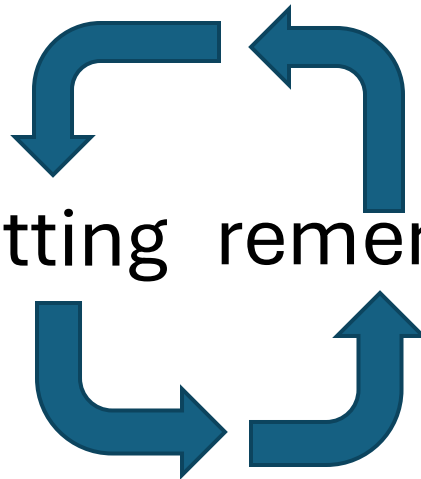
Environment  
(class, study  
at home)

Attention

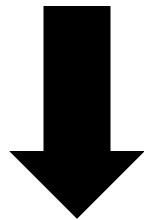


Working Memory -  
Short-term Memory  
(awareness and thinking)

forgetting remembering



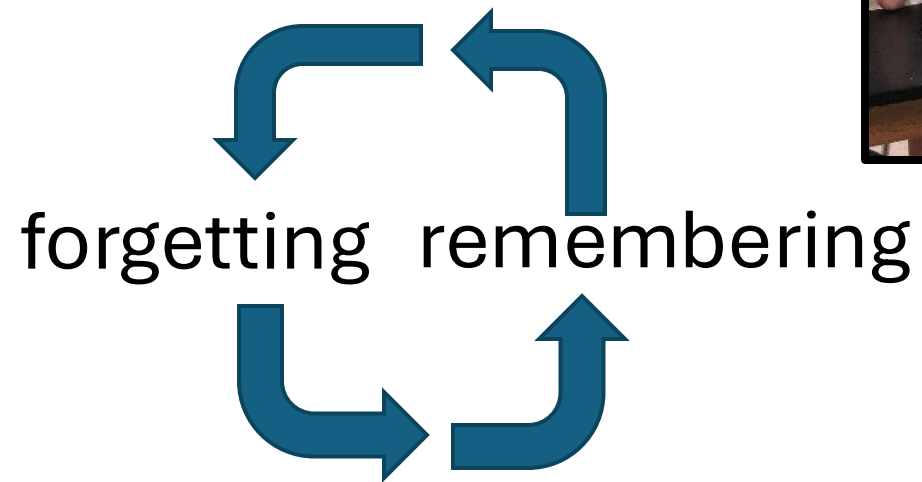
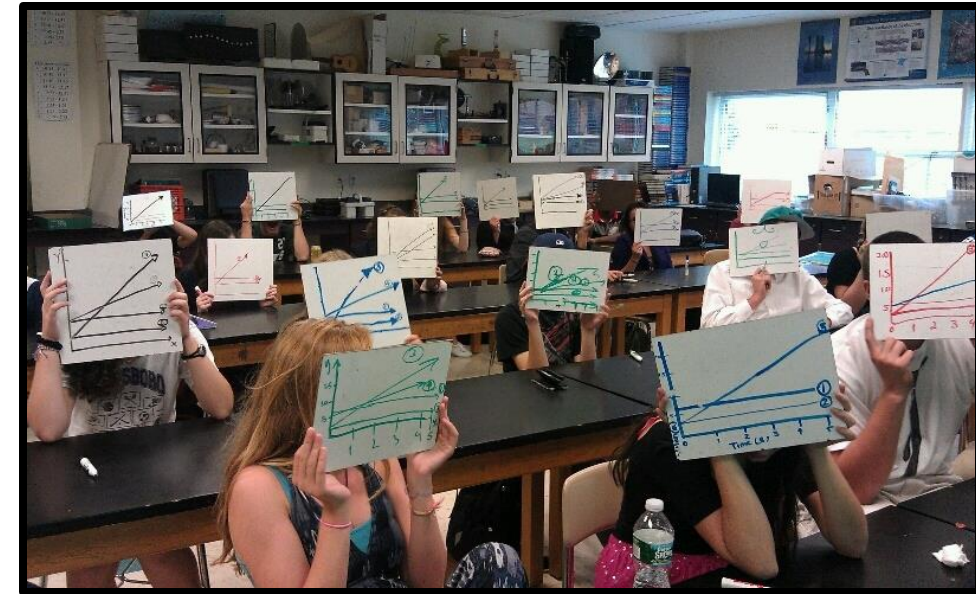
Learning



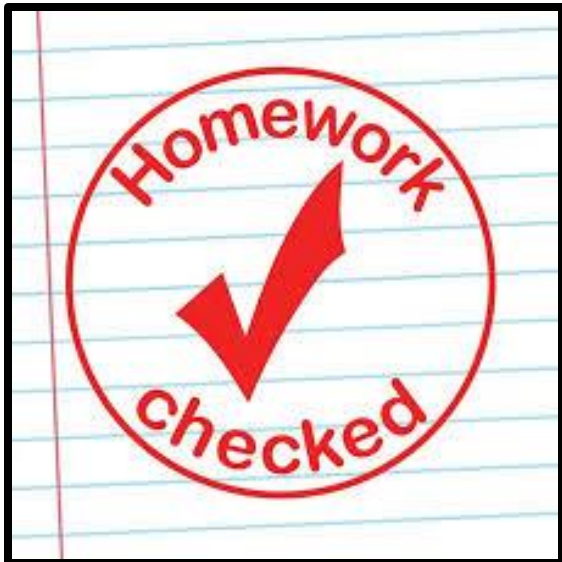
Long-term Memory  
(knowledge)

*Each time we forget  
and re-remember  
we remember better!*

# Starter Question



forgetting remembering



<https://www.youtube.com/watch?v=UpAq9EZpL5A>

The forgetting curve (2 min 47s)





# Active Learning Techniques

<https://www.learningscientists.org/>

## Earlston students on flashcards

- ✓ Make flashcards before each test. Do a few at a time
- ✓ Use the flashcards and don't spend too long making them
- ✓ Focus on the mistakes you have made in homework and tests. Make flashcards for this work.

[Leitner System for Flashcards \(youtube.com\)](#) 2 min

50 s

## Earlston students on brain dumps

- ✓ Brain dumps (look at a page for a short time then try to write down as much as you can from memory. Go back and add in stuff you missed in a different colour. Repeat as often as you like!)
- ✓ Brain dumps help because you are writing stuff down but not just copying it

# Earlston students on making notes

- ✓ Make a summary of a topic and the key information in it
- ✓ Repetition is useful (retrieval and spaced practise and interleaving)
- ✓ Use pictures as well as notes (dual coding)
- ✓ Make outline notes and key information (mind map)

# Learning

## Strategy

- Dual coding
  - brief
- Retrieval
  - often
- Interleaving
  - harder work
- Spaced Learning
  - change timescale
- Concrete examples
  - notes, past papers

## METACOGNITION

Effective?

## Planning



- Flexible
- Everything
- Simple
- Hard topics

## Rewards

Encouragement

- friends
- family

Improvement

- honesty
- test
- patient

## Activity

- quizzing
  - frequent
- past papers
  - understanding
- mind map
  - summary
- flash cards
  - use often
- brain dump
  - what's missing or wrong

## Reason

- reduce stress
- reduce cognitive load
- learn from others
- time to learn well

## Routine

- how often
  - daily
- how long
  - 20 minutes
  - gradually increase
- when
  - planning

focus, quiet, no distractions where

## Activity

quizzing

frequent

past papers

understanding

mind map

summary

flash cards

use often

brain dump

what's missing or wrong

**THE SHOE  
WORKS IF  
YOU DO.**





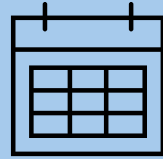
+

each day!

Cognitive  
Scientists

Earlston  
pupils

When should I  
start revising?



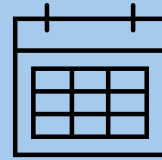
Pupils in  
other  
schools

NHS

Cognitive  
Scientists

Earlston  
pupils

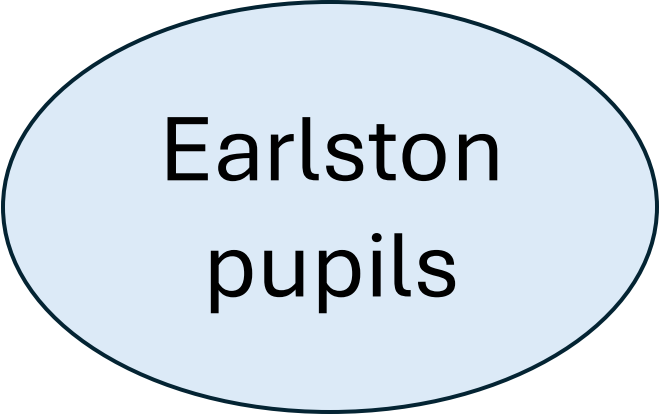
When should I  
start revising?



Pupils in  
other  
schools

NHS

*“Start earlier (after  
October holidays)”*



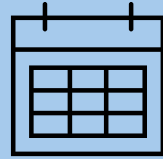
Earlston  
pupils

*“Exams come quicker  
than you think”*

Cognitive  
Scientists

Earlston  
pupils

When should I  
start revising?



Pupils in  
other  
schools

NHS

*“Start as early as  
you can and then  
gradually build it up”*

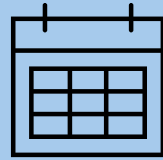
<https://www.bbc.co.uk/bitesize/articles/z9py97h#zs47m39>

Pupils in  
other  
schools

Cognitive  
Scientists

Earlston  
pupils

When should I  
start revising?

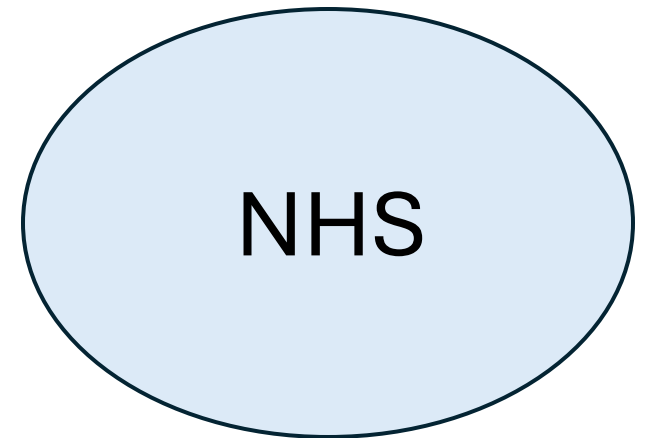


Pupils in  
other  
schools

NHS

*“Being well prepared for your exams is the best way to overcome stress and anxiety”*

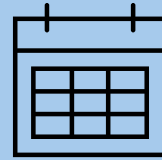
<https://www.nhs.uk/mental-health/children-and-young-adults/help-for-teenagers-young-adults-and-students/tips-on-preparing-for-exams/>



Cognitive  
Scientists

Earlston  
pupils

When should I  
start revising?



Pupils in  
other  
schools

NHS

Cognitive  
Scientists

*“Start planning early  
for exams and set  
aside a little bit of  
time every day.”*

<https://www.learningscientists.org/spaced-practice>

# JUST GET STARTED!

