

As you come in complete the...

**MIND
THE GAP**

Teaching and Learning Revision Strategies

Recall and Retention

Jennifer Lamb and Stephanie Nelson



'Making It Stick'

The Science of Successful Learning

by Peter C. Brown, Henry L. Roediger III and Mark A. McDaniel

master
counter-productive
revision
retain
stick

retrieval
testing
evidence

This session will be based on the book, 'Making it Stick.' In a nutshell, 'Making it Stick' gives practical ways in which we can help students to _____ their subjects and _____ what they have learned. The book draws on a large body of _____ and research in education, which suggests that complex and durable learning is possible. However, this mastery of a subject does not always come from the most commonly used methods of _____ and often these turn out to be _____.

Instead, there are many suggested ways we can successfully make learning _____ which include _____, interleaving and _____. In this session these processes will be explained and demonstrated and teachers will come away with lots of ways of making learning stick in their classrooms.



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Instead, there are many suggested ways we can successfully make learning **stick** which include **testing**, interleaving and **retrieval**. In this session these processes will be explained and demonstrated and teachers will come away with lots of ways of making learning stick in their classrooms.



Aims

- To develop an understanding of how memory operates for students with a focus on:
 - the role of testing
 - interleaving and retrieval practice
- To trial and take away a range of strategies directly transferable to the classroom



Answering the Question Before Last

This clip highlights one of the central ideas of the book, 'Making It Stick', the importance of [returning to and retrieving prior knowledge](#).

With such breadth of content in our new exam specifications we need to keep asking students to return to what they have learnt previously in order that they retain and use this knowledge.







With your partner, discuss the key points you can remember from the 'Mind the Gap' task.

We lose approximately **70%** of what we've just read or heard. Does this feel true with of what you've just read?

What would help us to **understand** the information in the text?





Re-reading is the *preferred practice by students* but least productive...

3 strikes of re-reading:

- 1) it's time consuming
- 2) it doesn't result in durable memory
- 3) it leads to self-deception - the growing familiarity with a text feels like mastery of the content





'Make It Stick'

Effective learning is...

frustrating

precise

satisfying

difficult

fun

wrestling with
knowledge

easy

embracing
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uncomfortable

achievable

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Retrieval - retrieving previous learning

Interleaving - spaced practice

- These are not new concepts but there is increased focus on them. In 1885, the work of German psychologist Hermann Ebbinghaus showed how testing helps us to retrieve information from our memories and make it easier to recall in the future.
- Allowing students to recall previous lesson's knowledge and apply it to future problems is "**retrieval practice.**"
- We interrupt the process of forgetting with testing. **Retrieval 'ties the knot for memory'** to prevent us losing what we've learnt.
- **Interleaving** is the opposite of massed practice, which gives an illusionary sense of mastery. Instead we **interrupt learning with challenges** in areas that the students are having difficulty with.

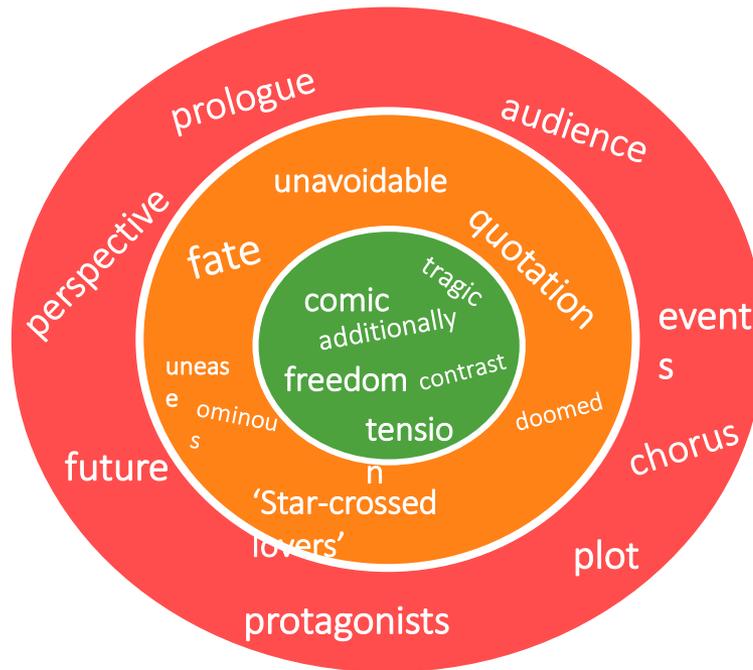


Points Make Prizes!

abbe's poem, Peter nes, is set where? Provide otation and explain the nection between setting poet.	What painter does Robbie share his name with and why has McEwan done this?	7. 1 quotation from each of Browning's poems – linked to a crime element.	10. What sort of child Brioney? Provide a q
ly Tallis suffers from it? What effect does this e on the other acters/the narrative?	5. Explain Peter Grimes crimes in the order they appear in the poem. What is his punishment for each crime?	8. In Brighton Rock what is Greene's main concern?	11. Explain the signifi the setting in one of Browning's poems? L Victorian Britain whe writes the poem.
'ilde's ballad is not a m about crime but rather cises _____ _____? Provide a tation.	6. Name 3 minor characters in Brighton Rock and explain their function in the novel.	9. In Browning's poems the focus is always on the criminal – agree/disagree and why?	12. Where and when of Atonement set?
rieval Practice	Green question – 1-2 weeks ago 2 points	Orange Question – 6 months ago 5 points	Red Question – 10 months ago 10 points



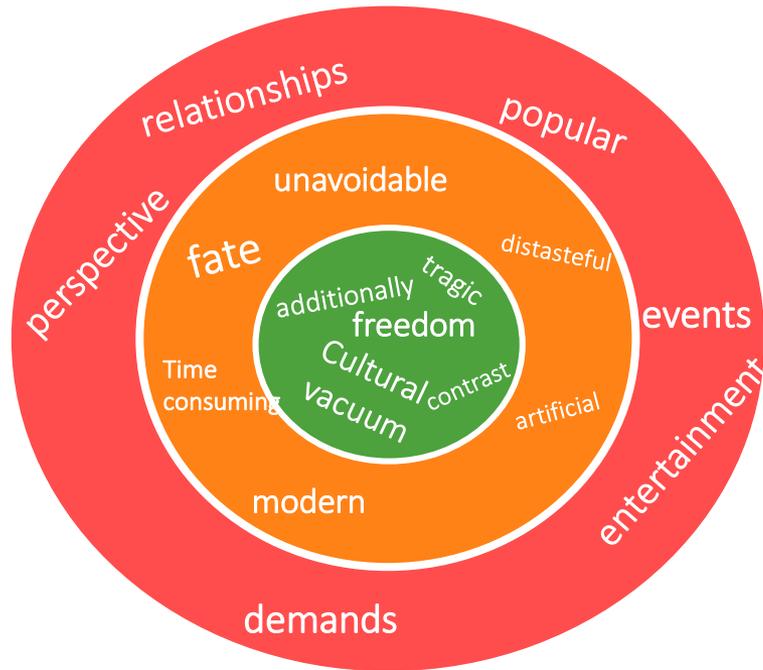
Why might Shakespeare use dramatic irony in *Romeo and Juliet*?



- 1 point for red**
- 3 points for amber**
- 5 points for green**



Is Love Island making us less intelligent?



1 point for red
3 points for amber
5 points for green



Mad Minute!

Who can get the highest score?

1 point – words from
last lesson



2 points – words
from last week

3 points – words from
last month

4 points – words
from last term



Connect Four



Make a connection between:

- Today's Session
- Where you live
- Retrieval
- The Angel of the North



Can we get better at learning?



Why
Test?

The brain is not a muscle that gets stronger with exercise *but*, with exercise, neural pathways that make-up the body of learning *do* get stronger.



Match the statements in green with a counter-argument in orange.

Discuss, which do you most agree with of find to be true? Why?

Testing reduces engagement and attention in a subject	If students know they will be tested at the end of class their attention in that class is increased
Constant testing is simply a route to rote learning and does not help students apply knowledge	In order to apply a concept in different settings students need a base of knowledge to draw on. If this is secure this prevents them wasting time going back and figuring out what this word means or what that concept was
Students might switch off and become disinterested by over testing	Research shows students at university level rated the classes where they were tested regularly more highly, despite generally disliking the idea of tests
Students may suffer from increased anxiety over testing	Frequent low stake tests in class reduce anxiety over larger, more formal, examinations
Teachers should concentrate on revising content and don't have time to keep testing	Testing v Rereading – retrieval creates greater retention than re-reading/re-capping
Students can re-read their notes in their own time to revise, rather than take up valuable lesson time with tests	Low stake in-class testing allows teachers to identify students' gaps in understanding and plan lessons to address them



Be Prepared – Test Coming Up!



Why Test?

What the book says (based on a wide body of evidence)...

- Testing v Rereading – retrieval creates greater retention than re-reading/re-capping
- In order to apply a concept in different settings students need a base of knowledge to draw on. If this is secure this prevents them wasting time going back and figuring out what this word means or what that concept was
- Research shows students at university level rated the classes where they were tested regularly more highly, despite generally disliking the idea of tests
- If students know they will be tested at the end of class their attention in that class is increased
- Frequent low stake tests in class reduce anxiety over larger, more formal, examinations
- Low stake in-class testing allows teachers to identify students gaps in understanding and plan lessons to address them



Types of Testing

BRAIN-DROP

- Working in pairs, write as many different forms of testing as you can think of in 1 minute.



TICK AND ADD/LAST SOLDIER STANDING

- One of each pair stand up. Now share one type of test from your list. We will keep circulating until you either repeat or run out of ideas. Your partner should tick or add as they hear the other ideas shared.





Quilting

This strategy helps prepare students for tests, can be used to give them a knowledge base to draw on in a longer essay style question, or for building up vocabulary/ knowledge to use towards a test.



Shade in the statements, each in a different colour. Colour in each box – matching the colour with the statement. Some boxes may link to more than one statement – in which case you could make them multi-coloured. Extension: Annotate around the edges with definitions of any words you don't know, or fill in the empty boxes with your own words.

Words that might describe a Jackson Pollock.



Words that might describe a Pablo Picasso.



Words that might describe a Van Gogh.



		concentric circles	splashes	impressionist	D dabs and dashes		Impasto (thick brushstrokes)
Spots			intense	Shattered glass		splatter	distorted
	angular		fluid	ethereal	expressionist	radiating	
flattened planes	splintered			Cobalt blue	turbulent skies	shards	indigo
abstract	Swirling patterns	Amber		polychromatic		multifaceted	
Flame-like	fluent			vibrant	cubist	Two-dimensional	gestures
crude			improvised	geometric		drip	Chromatic blue swirls

To what extent are we addicted to technology? Write an essay exploring this question.

Write an essay about the advances in technology since the first mobile phone was invented.

Write an essay about the damages and dangers of mobile phone use.



Shade in the three tasks above, each in a different colour. Now consider the information below and it's relevance to the three tasks above. Shade the information in according to which task you think it will help you with. You should end up with a patchwork of colours. You may like to colour some areas in different colours if they will help you with one or more tasks.

Mobile Phone Radiation can cause Insomnia, headaches and confusion.	Nomophobia is the fear of being without your mobile phone or losing your signal.	Scientists have developed a way of charging mobile phones using urine.	More people have died by taking selfies in 2015 than by shark attacks.
Over 250 million Nokia 1100 devices were sold, making it the bestselling electrical gadget in history.	In Japan, 90% of mobile phones are waterproof because youngsters use them even in the shower.	More people in the world have mobile phones than toilets.	Apple's iPhone has higher sales than everything Microsoft has to offer.
65% of smartphone users download zero apps per month.	The average person unlocks his or her smartphone 110 times each day.	Apple sold 340,000 iPhones per day in 2012.	In Malaysia, it's legal to divorce your partner via text message.
The world's most expensive iPhone 5 was worth US\$15 million. It was made of 135 grams of 24-carat gold and the chassis was inlaid with 600 white diamonds.	IBM sold a smartphone with a touchscreen display input that could send emails and run third party apps already in 1994.	It costs less than \$1 a year to keep your smartphone charged up.	



Reverse Quiz



If this was the answer what would be the question?	Question?
1. Pathetic fallacy	
2. Foreshadowing	
3. Metaphor/simile	What technique does Dickens use at the beginning of Stave 1 to describe the weather, which also reflects Scrooge's character?
4. Dialogue	
5. Characterisation	



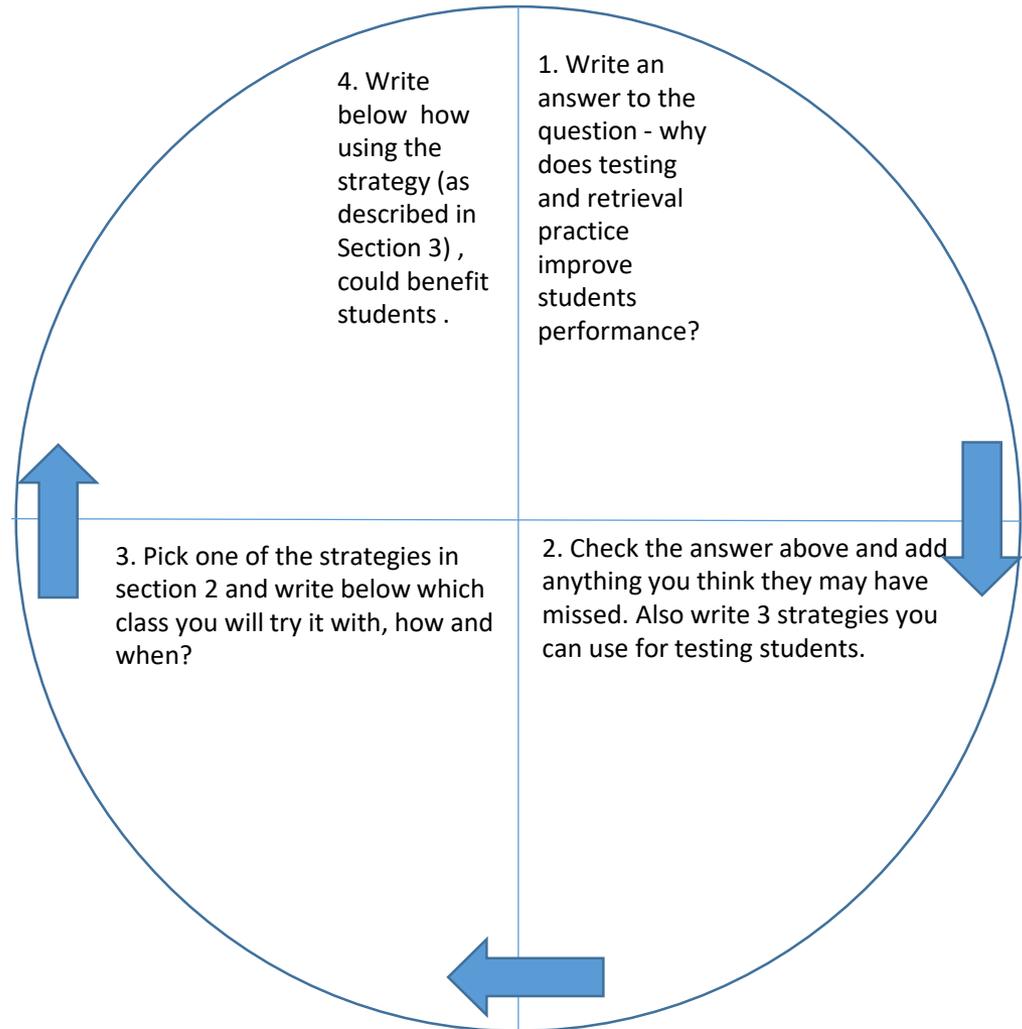
Reverse Quiz



If this was the answer what would be the question?	Question?
1. Love Island	
2. Spaced Practice	
3. Boris Johnson	
4. Retrieval	
5. St James Park	



Snowballs





What Strategies Have We Used This Session?

LSTSLDRSTNDG

SNWBLLS

CNNCTFR

RVRSQZ

MNDTHGP

QLTNG

BRNDRP

MDMNT

Bonus Mark if you
can say what
percentage of
information is
retained after
reading?



- **Put the strategies in the circles, a bigger circle for a strategy with greater significance (use, relevance, appeal) to you, your classes and your subject.**
- **Annotate with ideas about how you could use it.**
- **Make links between circles.**

