

9 Revision Strategies for Parents + Teachers



Supporting teachers, worldwide

@TeacherToolkit

Classroom Ideas, Teacher Training & School Resources

9 Revision Strategies



Elaboration

Being able to explain why

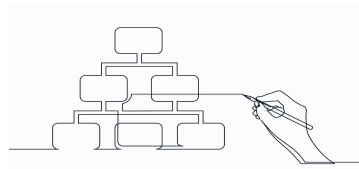
1



Self Explanation

Explain new information

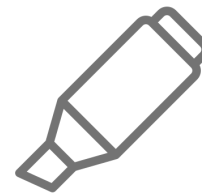
2



Summarisation

Bitesize overview

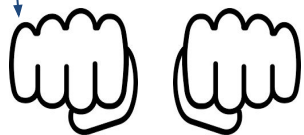
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Highlighting

Whilst reading

4



Mnemonics

Keywords for mental imagery

5



Dual Coding

Mental imagery of text

6



Rereading

Re-study material

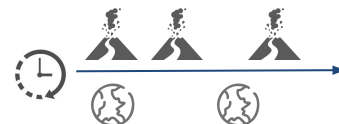
7



Retrieval Practice

Low stakes assessment

8



Spaced + Interleaving

Scheduled and interwoven

9

What, Why, How...

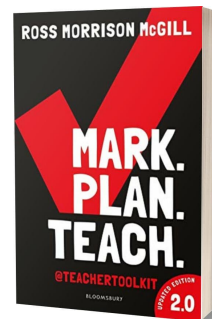
In my experience, revision techniques for students were often left to the latter years of school life rather than skills that were taught earlier on. Today, I firmly believe that equipping all teachers and students with a better understanding of how we learn (not just for exams) is a social responsibility.

What if schools explicitly taught students how to [choose one: remember, retrieve, practise, rehearse, regurgitate]? Use whatever term you want, in order to strengthen the synapses (connections) in our memory, we have to repeat to a point of automation so we can retrieve from long-term storage.

Using 9 research-informed strategies, I've shaped this resource to suit the rhythm of the academic calendar, with each idea introduced separately before building on from the previous concept. What I hope you are left with is a revision cycle of strategies to use on a monthly basis for the school year, and from a young age....



[Amzn.to/3npsBz6](https://www.amazon.co.uk/dp/B08BZ63NPS)



9 Revision Strategies

	Technique	Efficacy/Impact	What is it?
1	Retrieval Practice	High	Low stakes quizzing; desirable difficulty
2	Spaced + Interleaving	High	Presenting scheduled and mixed content over time
3	Elaboration	Medium	Generating and being able to explain why
4	Self-Explanation	Low	Explaining new information
5	Summarisation	Low	Bitesize overview
6	Highlighting	Low	Marking potentially important information whilst reading
7	Keyword mnemonics	Low	Keywords for mental models/imagery
8	Imagery for Text	Low	Mental imagery for text (dual coding); pair text with images
9	Rereading	Low	Restudying text material
	<i>All these strategies have an impact on learning. N.b. Spaced + Interleaving have been amalgamated for this resource; they are separate strategies and interleaving is sometimes known as 'distributed practice'.</i>		

9 Revision Strategies Month by Month

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Month	September	October	November	December	January	February	March	April	May	June
Technique What it's for	Highlighting Marking important text whilst reading	Highlighting Marking important text whilst reading	Highlighting Marking important text whilst reading	Highlighting Marking important text whilst reading	Highlighting Marking important text whilst reading	Highlighting Marking important text whilst reading	Highlighting Marking important text whilst reading	Highlighting Marking important text whilst reading	Highlighting Marking important text whilst reading	Highlighting Marking important text whilst reading
<p>Designed to be used as a guide for teachers, parents and tutors to be introduced to each technique month by month to support retention, study skills and toward end of year assessment. Each technique should be re-positioned according to the curriculum and timeframe being used..</p>		Summarisation A bite size overview of what has been learnt	Summarisation A bite size overview of what has been learnt	Summarisation A bite size overview of what has been learnt	Summarisation A bite size overview of what has been learnt	Summarisation A bite size overview of what has been learnt	Summarisation A bite size overview of what has been learnt	Summarisation A bite size overview of what has been learnt	Summarisation A bite size overview of what has been learnt	Summarisation A bite size overview of what has been learnt
			Self Explanation Explaining new information	Self Explanation Explaining new information	Self Explanation Explaining new information	Self Explanation Explaining new information	Self Explanation Explaining new information	Self Explanation Explaining new information	Self Explanation Explaining new information	Self Explanation Explaining new information
				Elaboration Generating and Being able to explain why	Elaboration Generating and Being able to explain why	Elaboration Generating and Being able to explain why	Elaboration Generating and Being able to explain why	Elaboration Generating and Being able to explain why	Elaboration Generating and Being able to explain why	Elaboration Generating and Being able to explain why
	<p>Introduce one new technique each month</p>				Mnemonics Using keywords to support mental models	Mnemonics Using keywords to support mental models	Mnemonics Using keywords to support mental models	Mnemonics Using keywords to support mental models	Mnemonics Using keywords to support mental models	Mnemonics Using keywords to support mental models
						Imagery for Text Pairing text with images for mental models	Imagery for Text Pairing text with images for mental models	Imagery for Text Pairing text with images for mental models	Imagery for Text Pairing text with images for mental models	Imagery for Text Pairing text with images for mental models
							Rereading Restudying text material, but being tested more	Rereading Restudying text material, but being tested more	Rereading Restudying text material, but being tested more	Rereading Restudying text material, but being tested more
	Space/ Interleaving Scheduling past content and mixed material	Space/ Interleaving Scheduling past content and mixed material	Space/ Interleaving Scheduling past content and mixed material	Space/ Interleaving Scheduling past content and mixed material	Space/ Interleaving Scheduling past content and mixed material	Space/ Interleaving Scheduling past content and mixed material	Space/ Interleaving Scheduling past content and mixed material	Space/ Interleaving Scheduling past content and mixed material	Space/ Interleaving Scheduling past content and mixed material	Space/ Interleaving Scheduling past content and mixed material
	Retrieval Practice Low stakes assessment which is desirably difficult	Retrieval Practice Low stakes assessment which is desirably difficult	Retrieval Practice Low stakes assessment which is desirably difficult	Retrieval Practice Low stakes assessment which is desirably difficult	Retrieval Practice Low stakes assessment which is desirably difficult	Retrieval Practice Low stakes assessment which is desirably difficult	Retrieval Practice Low stakes assessment which is desirably difficult	Retrieval Practice Low stakes assessment which is desirably difficult	Retrieval Practice Low stakes assessment which is desirably difficult	Retrieval Practice Low stakes assessment which is desirably difficult

1. **Elaboration Resource** (slide 10)
2. **Self-Explanation Resource** (slide 14)
3. **Summarisation Resource** (slide 18)
4. **Highlighting Resource** (n/a)
5. **Mnemonics Resource** (slide 28)
6. **Dual Coding Resource** (slide 33)
7. **Rereading Resource** (slide 38)
8. **Retrieval Practice Resource** (slide 43)
9. **Spaced + Interleaving Resource** (slides 47/48)



Idea 1

Elaboration

Being able to explain why



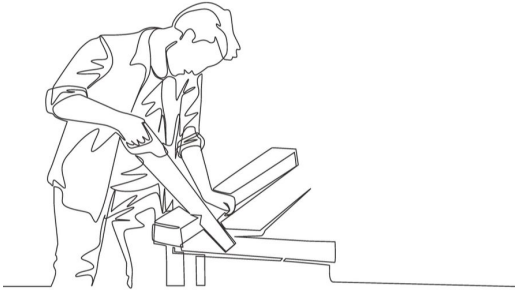
1. Elaboration

Elaboration is the process of **developing or presenting concepts, rules or facts in further detail**. Teachers will be familiar with developing prior knowledge, shaping schema or having a knowledge-rich approach curriculum. In essence, they are the same thing.

Techniques used in the classroom can be as simple as 'Say it again, but better', 'No opt out' or simple 'Why? Or 'How?' responses to students. The importance here for teachers or parents is to regularly check for understanding and accuracy. Useful ways teachers can encourage students to elaborate is to provide concrete examples rather than abstract concepts.

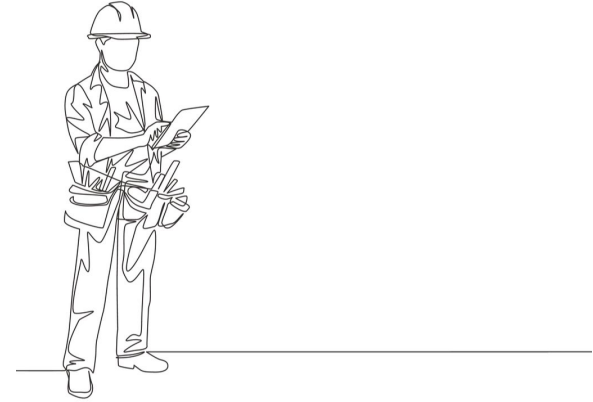


1. Elaboration Example



Abstract Example

‘To be good at making tables, you need to be careful with the saw.’



Concrete Example

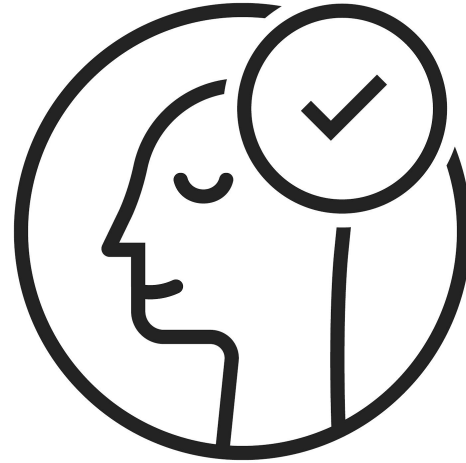
‘To be good at making tables, plan and develop models, you must measure accurately and use the correct tool.’

	Methodology	Classroom concept, rule or fact to be assessed...
1	Make a list	
2	Why do these ideas work?	
3	How do they work?	
4	Check against which classroom material?	
5	Check what you know without materials?	
6	Check what you don't know with materials?	
7	Verify that all your answers are correct?	
8	What connections can be made to prior learning?	
9	What connections can be made to future learning?	

Idea 2

Self-Explanation

Explaining new information



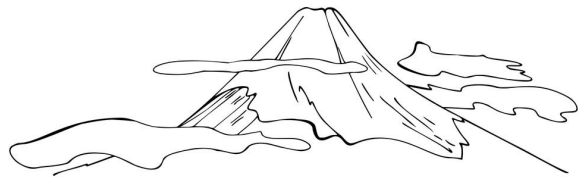
2. Self-Explanation

Put simply, self-explanation is when a student can **explain new information to someone else**. We know that we learn new information based upon some prior knowledge. Asking questions and offering prompts to help retrieve can also be beneficial to support this process.

There is a good base of research in this area and it has a medium impact on outcomes. My interpretation recommends that asking students questions and offering prompts two or three times is very useful for long-term retention.



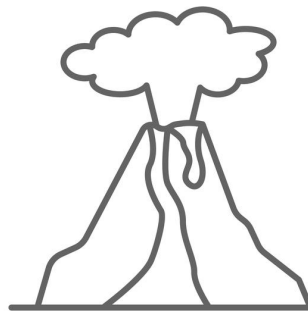
2. Self-Explanation Example



Prior knowledge

I know Mount Vesuvius is near Naples, Italy; it destroyed Pompeii.

Teacher Prompt: What year did it erupt?



New information

Mount Vesuvius erupted in 79AD; a cloud of smoke rose to 21 miles high!

Concrete example: Today it is the most densely populated volcanic region in the world.

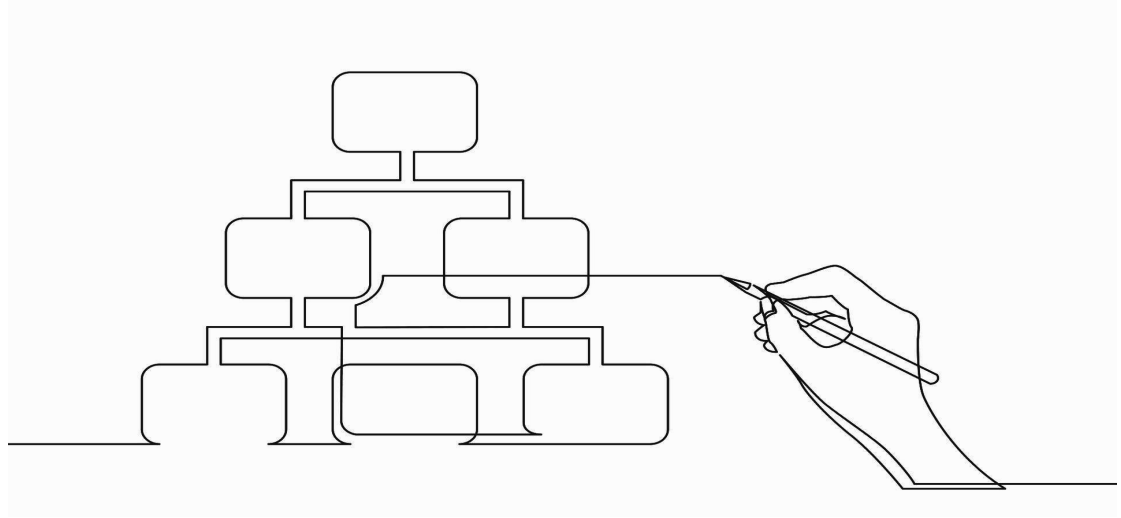
Self-Explanation Resource

	Methodology	Classroom concept, rule or fact to be assessed...
1	Explain the concept out loud...	
2	How does this relate to what you already know?	
3	What questions does it generate for you?	
4	Could you explain this concept in another way?	
5	What action should we take next?	

Idea 3

Summarisation

Bite size overview



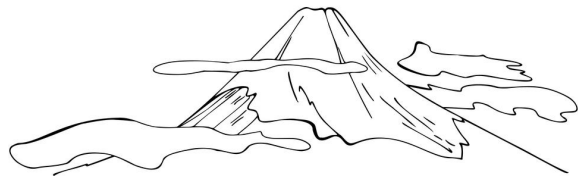
3. Summarisation

We have probably all been here at some point in our life, **writing new summaries** of lengthy pieces of work. For example, an assignment where we copied extensive notes. For the exam, we may have then re-shaped the content into bullet points.

We then translate everything we've learnt into a short summary to help us remember key points. This schema (the trigger to shape key concepts, rules and facts) should then unlock further knowledge that can be recalled and used. For example, what are the colours of the rainbow? How does refraction work?

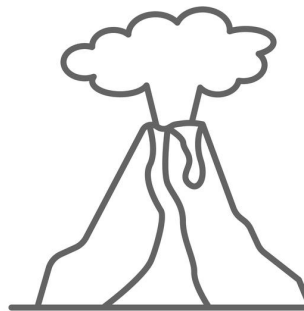


3. Summarisation Example



Studied knowledge

Icelandic volcano Eyjafjallajökull erupted in 14 April 2010 and caused 6 days of aviation disruption (Semantic). This ruined Ross's honeymoon in Naples, Italy (Episodic/Redundant). Almost 3,000 small earthquakes were detected near the volcano in March 2020. The plume of ash rose 21 miles high. In August 2010 it became dormant... Iceland Post issued 3 stamps made of volcanic ash to remember the event!



Summarisation

1. Eyjafjallajökull erupted in 14 April 2010
2. 6 days of aviation disruption
3. ~3,000 earthquakes were detected (March 2020)
4. Ash rose 21 miles high.
5. It is now dormant... (Aug 2020)

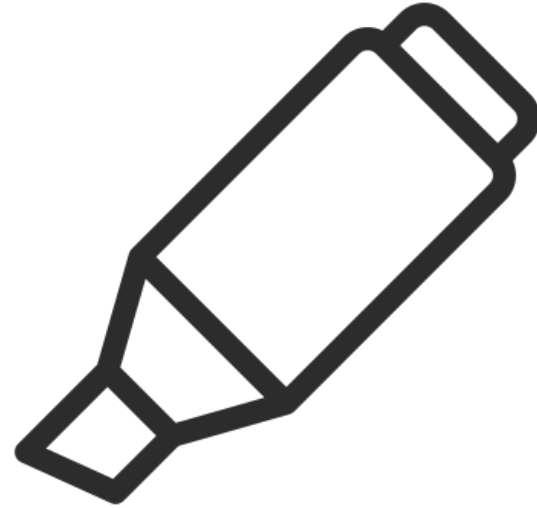
Summarisation Resource

Original piece of work	Now summarise the content in 5 bullet points...
Write a detailed summary here...	<ol style="list-style-type: none">1.2.3.4.5.
Highlight keywords above right then write them below	Now design a memorable mnemonic...

Idea 4

Highlighting

Whilst reading



4. Highlighting

This technique is easy to use and often used by many students. It simply involves marking out important text as it is being read. The challenge is teaching students how to identify key information and being able to ‘summarise’ (see idea 3) the content.

This technique has a low impact, but it can have an impact under certain conditions and should not be disregarded. There is an opportunity here to teach key terminology, verbs, pronouns etc.



4. Highlighting Example



Studied knowledge

Highlighting

Icelandic volcano **Eyjafjallajökull erupted in 14 April 2010** and caused **6 days of aviation disruption** (Semantic).

This ruined Ross's honeymoon in Naples, Italy (Episodic/Redundant) and took 8 days to get home by car.

Eyjafjallajökull consists of a volcano completely covered by an ice cap. The ice cap covers an area of about 100 square kilometres (40 square miles). It is elevation of **1,651 metres high** (or 5,417ft). Its name means "glacier of Eyjafjöll" (or more properly here "ice cap") and is made up of the words eyja (genitive plural of ey, meaning *eyot* or *island*). **Almost 3,000 small earthquakes were detected near the volcano** in March 2020 prior to the eruption.

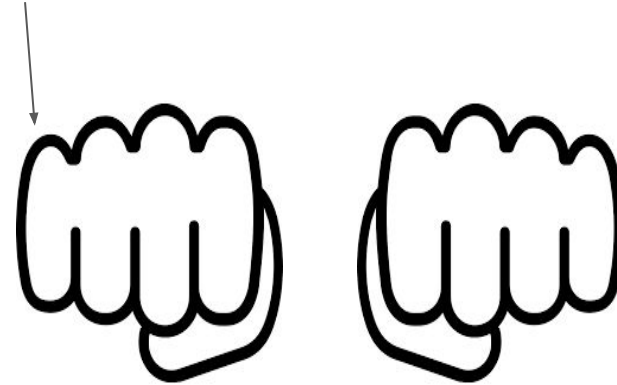
The plume of **ash rose 21 miles high.** Some damage was caused by a minor eruption in 1821, but nothing since. In **August 2010 it became dormant...** Iceland Post issued 3 stamps made of volcanic ash to remember the event!

Idea 5

Mnemonics

Keywords for mental imagery

January



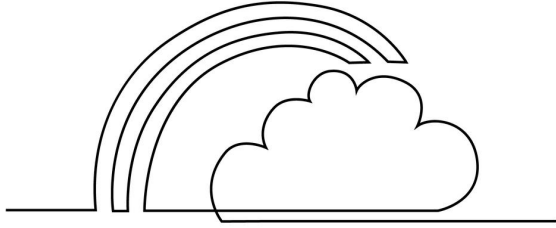
5. Mnemonics: "to remember"

Using mnemonics is a great shortcut technique for building memory. The learner turns the first letter of a list of items into a memorable word or sentence.

The evidence suggests (Dunlosky et al, 2013) that it has a low impact, yet can yield positive results under some conditions. It's important to remember the mnemonic and what the information is telling you, not just the story or a strange word or rhyme. Stories work well as does 'moving' which activates our neurons! Mnemonics offer a familiar framework for unfamiliar information.



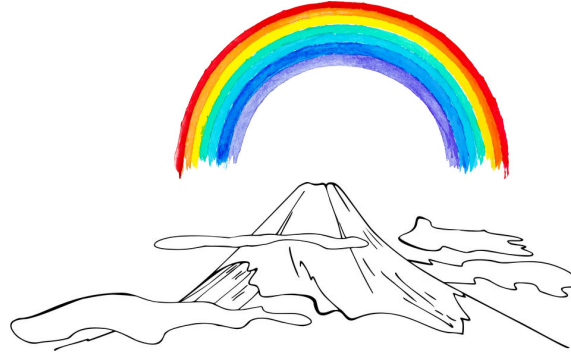
5. Mnemonics Example



Prior knowledge

The colours of the rainbow are:

Red, Orange, Yellow, Green, Blue,
Indigo, Violet

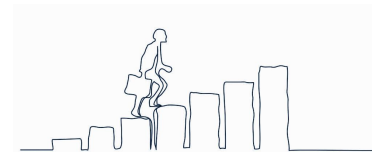
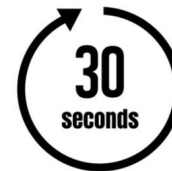
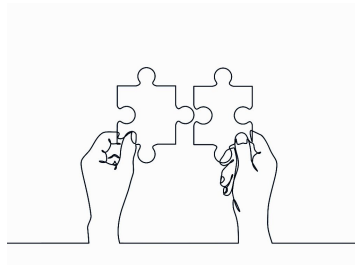


New information

Richard Of York Gave Battle In Vain

Respect Others You Grow By Including Variety

Is it possible for a rainbow to form over a volcano?



Surprise

Pose an interesting
question or statement

1

Structure

What you need to know
and this is how to do it...

2

Simplicity

Make content
accessible and engaging

3

Specificity

Dual code information; be
clear and precise

4

Subtext

Keep medium and
long-term goals in mind

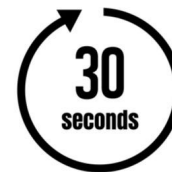
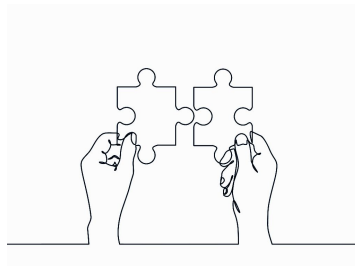
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5. Mnemonics

1. Helping people to remember requires a degree of **surprise!**
2. Organise your story into a **structure.**
3. Keep in mind that **simplicity** is key.
4. Be **specific**
5. Always keep the **subtext** (the big picture) in mind.
6. ...or as a mnemonic, Su-St-Si-Sp-Su (Sutipu)



Mnemonics Worked Example



Surprise

Did you know
that Jupiter
has 79 moons?

1

Structure

What is gravity and how
does it keep our feet on
the ground?

2

Simplicity

Watch this short video
Let's look at Jupiter through
this telescope

3

Specificity

Draw a picture of the
planets in our solar system
and label Jupiter...

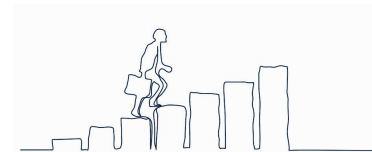
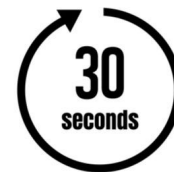
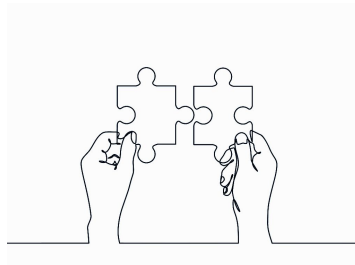
4

Subtext

Describe the movement of
the Earth, and other
planets, relative to the Sun

5

Design Your Own Mnemonics Story...



Surprise

XXXX

1

Structure

XXXX

2

Simplicity

XXXX

3

Specificity

XXX

4

Subtext

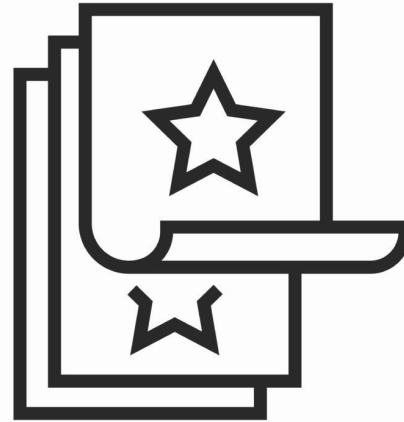
XXX

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Idea 6

Dual coding

Mental imagery for text



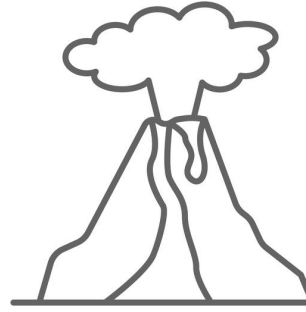
6. Dual Coding

First hypothesized by Allan Paivio in 1971, [Dual Coding Theory](#) – a theory of cognition and how we think – uses the idea that the formation of mental images aids in learning. Put simply, the use of verbal and visual information – not learning styles.

[Dual coding](#) and learning styles sound similar but are not quite the same thing. While dual coding has scientific evidence backing its use, learning styles has been repeatedly tested and shown not to improve learning” The Learning Scientists



6. Dual Coding Example



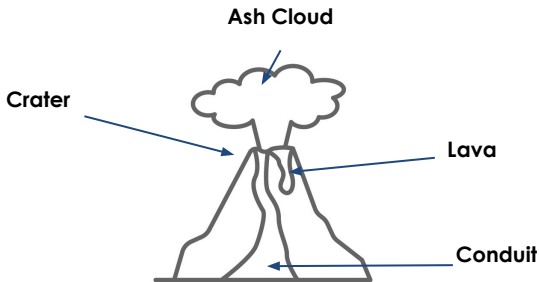
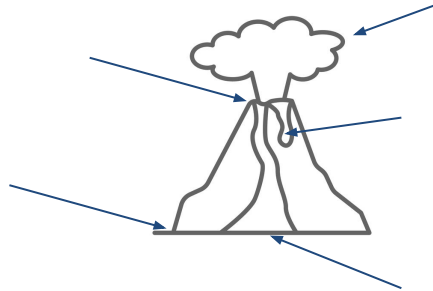
Without Dual Coding

Why are volcanoes dangerous?

With Dual Coding

Why are volcanoes dangerous (and could you describe what happens to the lava when it cools)?

Dual Coding Resource

		Task: Write a summary of a volcano	Teacher: Provide a volcano with parts labelled
Option 1 Text		
		Teacher: Offer a detailed summary below	Task: Label the parts of the volcano
Option 2 Visual	<p>Magma is the molten rock which sits beneath the Earth's surface. At the top of the volcano is a vent which allows material to escape. It is sometimes surrounded by a crater which is the mouth of the volcano. Lava is molten rock that erupts then solidifies as it cools. The lava travels up a conduit at great speed. When the volcano erupts fragments of lava rock smaller than 2mm, is it a piece of ash. As there is so much of it, it forms an ash cloud...</p>		

Dual Coding Resource

Option 1 Text	Task:	Teacher:
Option 2 Visual	Teacher:	Task:

Idea 7

Rereading

Re-study material



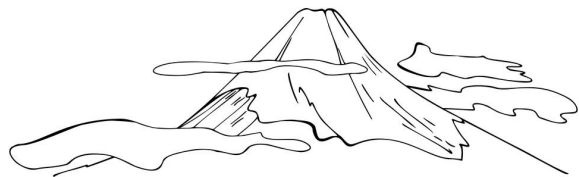
7. Rereading

We often think that we are learning simply by rereading. This is called the 'illusion of learning' which is when a student thinks they know more than they do because they put a lot of (ineffective) effort into studying. E.g. cramming.

The impact on rereading is low, but can yield positive results under certain conditions. A mixture of other techniques listed in this resource can help strengthen the rereading process. Let's try it...



7. Rereading Reminder



Studied knowledge

Icelandic volcano Eyjafjallajökull erupted in 14 April 2010 and caused 6 days of aviation disruption (Semantic).

This ruined Ross's honeymoon in Naples, Italy (Episodic/Redundant) and took 8 days to get home by car.

Eyjafjallajökull consists of a volcano completely covered by an ice cap. The ice cap covers an area of about 100 square kilometres (40 square miles). It is elevation of 1,651 metres high (or 5,417ft). Its name means "glacier of Eyjafjöll" (or more properly here "ice cap") and is made up of the words *eyja* (genitive plural of *ey*, meaning *eyot* or *island*). Almost 3,000 small earthquakes were detected near the volcano in March 2020 prior to the eruption. The plume of ash rose 21 miles high. Some damage was caused by a minor eruption in 1821, but nothing since. In August 2010 it became dormant... Iceland Post issued 3 stamps made of volcanic ash to remember the event!

Rereading Resource

Now you have reread the text, highlight volcanic keywords....	Design 2 questions to ask another student
<ol style="list-style-type: none">1.2.3.4.5.	<ol style="list-style-type: none">1.2.
Reread the text again. Wait 3 minutes and then re-write your own summary of the original text...	Retrieval: What is the section called where lava travels through?
	<ol style="list-style-type: none">1. Funnel2. Conduit3. Pipe4. Duct5. Passage

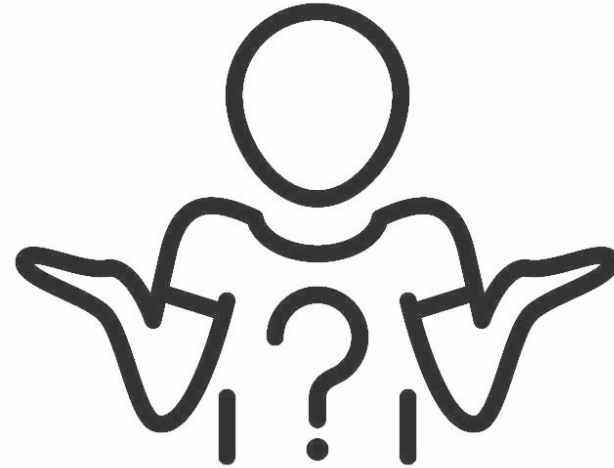
Rereading Resource

Now you have reread the text, highlight	Design 2 questions to ask another student
<div>1.</div> <div>2.</div> <div>3.</div> <div>4.</div> <div>5.</div>	<div>1.</div> <div>2.</div>
Reread the text again. Wait 3 minutes and then re-write your own summary of the original text...	Retrieval:

Idea 8

Retrieval Practice

Low-stakes assessment



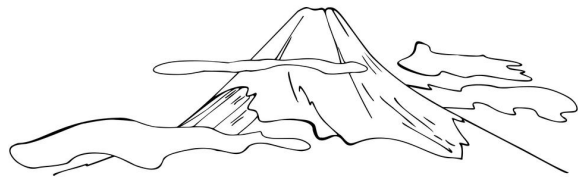
8. Retrieval Practice

Retrieval practice is a low-stakes quizzing method to help strengthen schema and is a valuable tool for teachers to use to decide where students are in the learning process and what to do next. All teachers must seek concrete feedback from their students and insist on a higher-response rate rather than just one person feedback.

It is important to vary the strategies to suit the learning and student needs.



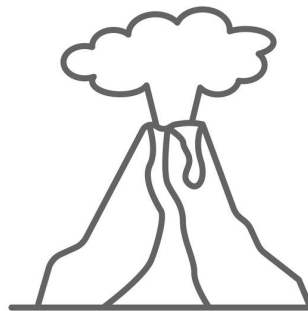
8. Retrieval Practice Example



Prior knowledge

From idea 2, you know Mount Vesuvius is near Naples, Italy; it destroyed Pompeii and

Teacher: What year did it erupt?



Developing schema

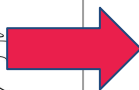
Task:

Write an assignment to describe...

Drap a map of Naples, Mount Vesuvius and the surrounding topology in X year...

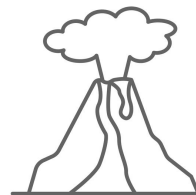
Last Month

We learned that Mount Vesuvius last erupted in 79AD. It is also near Naples and had 3,000 earthquakes prior to the April 2020 eruption.



Last Week

*Common threads ...
We know that the volcano last erupted in 1823;
draw and label the key areas of a volcano*

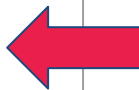


Today

*Clarify misconceptions; quizzing ...
If the plume of ash rose to 21 miles high,
estimate what area the cloud covered.*

Last Lesson

*Key questions ...
Last lesson we discovered that there is an
ice-cap which covers 40 square miles.*



Retrieval Practice Resource

Last Month

Last Week

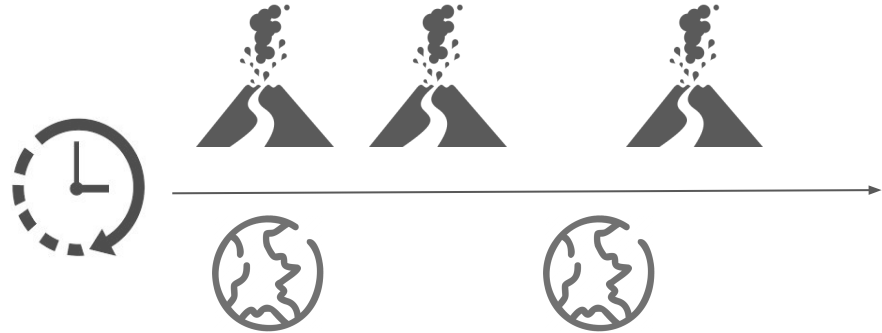
Today

Last Lesson

Idea 9

Spaced + Interleaving

Scheduled and interwoven



9. Spaced + Interleaving

The research on spaced practice suggests that retention is significantly improved when students are given a number of practice problems relating to a topic and distributed across a period of time.

Interleaving practice (think 'fruit salad' topics, without mixing in 'peas' or 'Baked beans' which are disconnected topics) is switching between topics and ideas to help strengthen schema. It will feel harder, but beneficial in the long term.



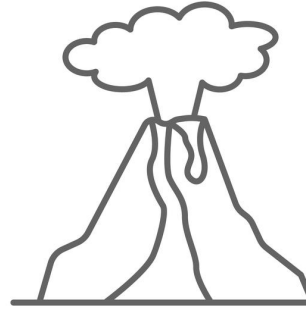
9. Spaced + Interleaving Example



Spaced Practice

Remind me again what year did
Mount Vesuvius erupt and destroy the
town of Pompeii?

Okay, now explain what lava is...



Interleaving Practice

Mount Vesuvius erupted in 79AD.

Concrete example: We have also learned that
Eyjafjallajökull erupted in 14 April 2010 and that
aviation disruption lasted 6 days. When did it
become dormant again?

Revision/Curriculum Calendar

[illegible]

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1. Cut out each of these revision strategies
2. Place in the blank calendar alongside each month where you would like to teach this explicit strategy

[illegible]

What next?

Teachers are in constant search for the illusive strategy which will unlock learning and reduce their workload. Whilst this is desirable, it is also unobtainable and is probably not helpful. It is important to use all of them as and when required.

I hope the ideas posed and how each one builds on the other can be used throughout the academic year - offering a happy medium. Use this resource wisely and do not disregard all the strategies. They will work somewhere according to content, age, stage and time of year. It's not what you do, it's the way that you do it!



Start a discussion in your school...

1. *When do you start teaching pupils how to learn?*
2. *How is this communicated to families?*
3. *Why is it important to reward effort in low-stakes assessment?*
4. *How far away is your school from removing formative grades?*
5. *How can these 9 techniques be used in classrooms?*
6. *How many types of retrieval techniques do you use? List them!*
7. *How can your curriculum be reshaped to include all techniques?*
8. *How can these techniques be regularly shared in assembly?*
9. *Can your students list a range of study techniques?*

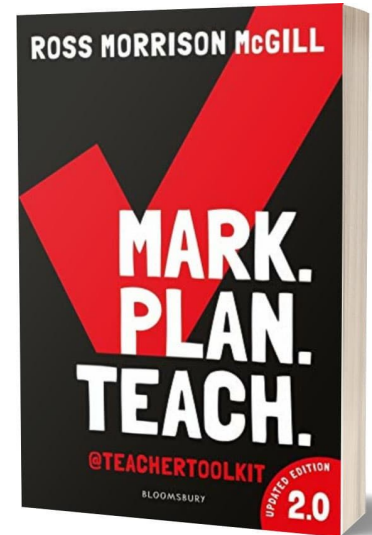


1. [Connect The Dots](#) (Taylor, 2019)
2. [Improving Students' Learning](#) (Dunlosky et al, 2013)
3. [Mark Plan Tech 2.0](#) (McGill, 2019)
4. [How Learning Happens](#) (Kirshner + Hendrick, 2020)
5. [Learning to Learn](#) (Barwood, 2012)

“Nobody does it better: in terms of providing practical, accessible, do-able, evidence-informed tips to improve teaching and learning, Teacher Toolkit is simply the best.”

**-Lee Elliot Major OBE,
Professor of Social Mobility, @LEM_Exeter**

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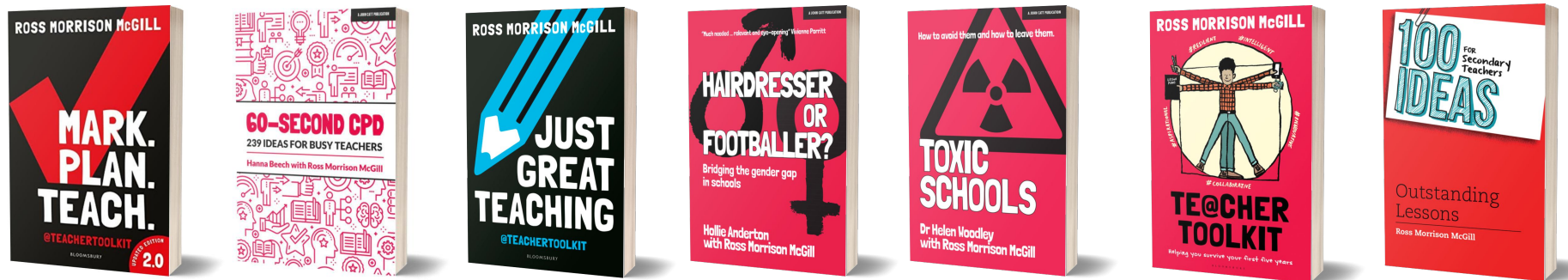
Ross McGill has worked with 30,000 teachers in over 250 schools, colleges and universities across the U.K., including Belarus, Brazil, Canada, Cyprus, China, Germany, Malaysia, Spain, South Korea, Switzerland, UAE and Vietnam



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