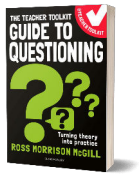
3 Reasons To Pause

Systematically checking for understanding



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Classroom Ideas, Teacher Training & School Resources

Scan QR for resources

مسح QR للموارد

1. You need a pen + mobile phone
2. تحتاج إلى قلم + هاتف محمول

The WHY ...

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Research suggests teachers pose up to XX number of questions in a typical school day.

How many do you think?

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300 to 400!

1. What TYPES of questions are asked?
2. Are all questions effective?

Teachers' Perceptions + Practice

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Teachers use questions to CHECK:

1. Whether students understand
2. What is being taught,
3. Whether instruction is effective.

(Levin and Long, 1981)

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1. Priming / Set Conditions
2. Question / Pause
3. Seek 100% Response!

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Take 60+ seconds to read over the chapter summaries ...

Why do we pose questions?

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1. to clarify
2. to challenge assumption
3. for retrieval; to gather viewpoints
4. to predict what we need to re-teach.

Guide To Questioning

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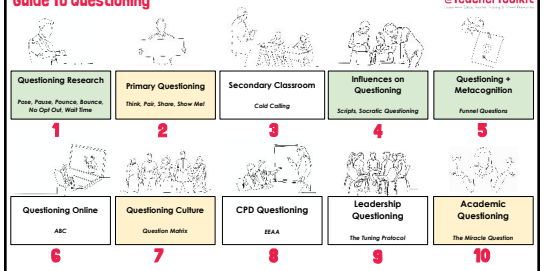

Teacher Behaviours

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19 million people / إمليون شخص 19
2,500+ blogs / 2+ million words أكثر من 2500 مدونة / أكثر من 2 مليون كلمة
Average reading time? 72 seconds متوسط وقت القراءة؟ 72 ثانية

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Totals
2012 3.6K 13.2K 18.5K 22.4K 57,800
2013 43.6K 30.0K 33.9K 41.6K 42.1K 53.4K 38.4K 44.2K 93.0K 92.5K 90.4K 72.8K 675,820
2014 100.9K 101.7K 111.1K 102.2K 87.6K 96.3K 91.3K 107.3K 113.9K 135.4K 136.8K 106.5K 1,291,131
2015 134.9K 117.7K 140.4K 117.5K 203.3K 159.9K 121.6K 125.9K 135.1K 143.1K 150.5K 129.8K 1,674,750
2016 140.0K 134.7K 136.8K 120.0K 99.4K 105.0K 112.4K 100.3K 123.8K 136.5K 125.1K 96.8K 1,430,508
2017 112.7K 137.2K 184.8K 124.5K 154.3K 115.3K 141.3K 104.7K 134.0K 145.0K 170.5K 120.9K 1,645,426
2018 177.3K 157.2K 196.1K 163.8K 163.8K 156.2K 125.5K 118.9K 148.0K 186.9K 182.5K 125.9K 1,891,141
2019 208.0K 185.4K 194.3K 163.7K 186.2K 190.1K 149.9K 133.0K 225.4K 227.0K 231.0K 190.7K 2,284,827
2020 253.5K 256.8K 273.0K 291.7K 260.8K 250.9K 174.5K 139.5K 232.3K 233.2K 253.6K 166.6K 2,786,130
2021 273.3K 236.9K 271.2K 215.2K 237.2K 192.8K 135.6K 115.4K 196.5K 169.9K 169.9K 98.2K 2,313,161
2022 166.9K 143.9K 165.0K 111.6K 138.7K 135.1K 106.2K 84.6K 137.8K 139.0K 140.1K 100.1K 1,569,048
2023 148.9K 113.4K 124.2K 83.0K 97.0K 82.5K 68.4K 58.6K 88.2K 97.8K 77.7K 48.9K 1,088,687
2024 4.5K 4,487

(Teacher) Data Science
(مدرس) علوم البيانات

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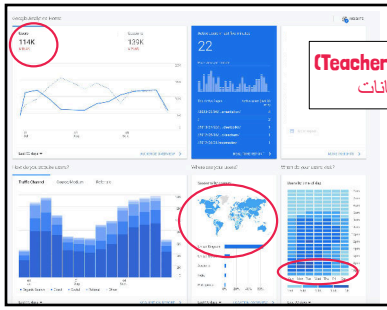

1. 50K every month
2. 69% UK
3. Sundays-Thursdays
4. Key topics?
5. Marking
6. Planning
7. Culture/Research

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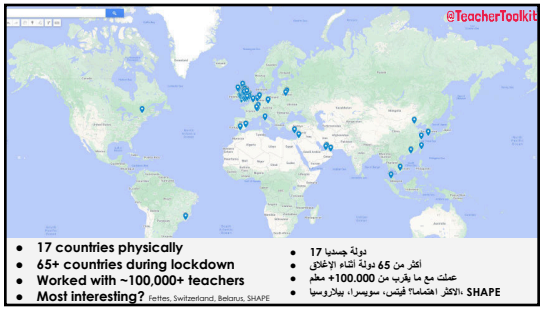

- 17 countries physically
- 65+ countries during lockdown
- Worked with ~100,000+ teachers
- Most interesting? Fettes, Switzerland, Belarus, SHAPE

- 17 دولة جسديا
- أكثر من 65 دولة أثناء الإغلاق
- عملت مع ما يقرب من 100.000+ معلم
- الأكثر اهتماما؟ فيتس، سويسرا، بيلاروسيا، SHAPE

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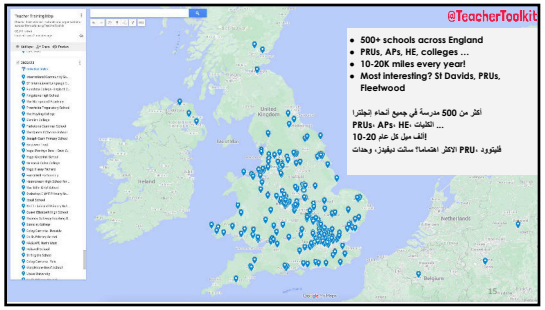

- 500+ schools across England
- PRUs, APs, HE, colleges ...
- 10-20K miles every year!
- Most interesting? St Davids, PRUs, Fleetwood

أكثر من 500 مدرسة في جميع أنحاء إنجلترا
PRUs، APs، HE، الكليات ...
10-20 ألف ميل كل عام
الأكثر اهتماما؟ سانت ديفيدز، وحدات PRU، فليتوود

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Scan QR for surveys

مسح QR للاستطلاعات..

1. Retrieval Practice is ...

2. Retrieval Practice research dates back to ...

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Retrieval Practice

Storage strength = entrenched
Retrieval strength = activation

ممارسة الاسترجاع

قوة التخزين = راسخة
قوة الاسترجاع = التنشيط

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1. Grab a pen
2. Blank piece of paper.

الاستيلاء على قلم
قطعة ورق فارغة.

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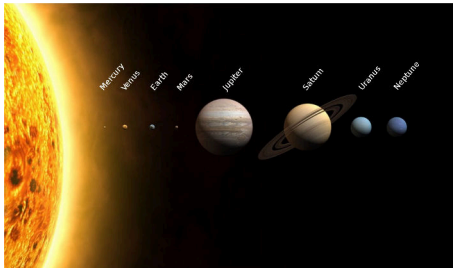

3. Effective study suggests teachers should ...

a) reteach material 0%
b) retest material 0%
c) reteach and retest material 0%
d) reinforce key material 0%

4. Interleaving practice is ...

a) Teaching using one topic at a time 0%
b) Teaching using disconnected topics 0%
c) Teaching using similar topics 0%

6. A person's learning style determines ...

a) Which part of the brain is used during a learning task 0%
b) How well students learn in different modalities (visual, auditory, kinesthetic) 0%
c) Nothing about a student's performance on learning tasks. 0%

5. Which of these are the best times to test students' understanding?

a) Never: testing creates anxiety ... 0%
b) Before they have learnt it: find out what they already know ... 0%
c) Shortly after teaching it: force students to retrieve the learning ... 0%
d) A few weeks after teaching it: build in a delay to allow forgetting. 0%

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A short break helps retention ...

استراحة قصيرة تساعد على الاحتفاظ...

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1. Take a turn ...

Wait Time as an Instructional Tool

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1. Research at University of Florida 1972
2. Analysed 300 tape recordings; 5 years!
3. Typical teacher waits (mean) <1 second after a question
4. Short time = less richer response
5. Increase to >3 seconds = improved logic / language
6. From 300-700% response improvement!

Professor Mary Budd Rowe

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Pose, Pause, Pounce, Bounce

Pose, Pause, Pounce, Bounce

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1. Pose
2. Pause
3. Pounce
4. Bounce

5 Reasons Why Wait Time Is Important

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1. Students need uninterrupted periods of time
2. Students are still learning to communicate
3. They need additional time to understand what is said
4. They need to learn when to 'take a turn'
5. Motor / verbal skills are developing …

The wait for a second interval is usually shorter!

Wait Time Research

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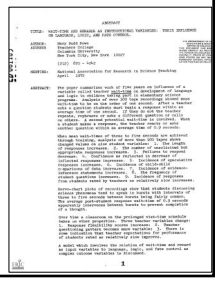

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Discuss: What will you do to PAUSE BETTER?

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Funnel Questions

Funnel Questions: How does it work?

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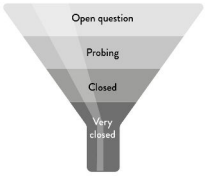
1. Increasingly specific
2. Requires higher level of detail



Funnel Template

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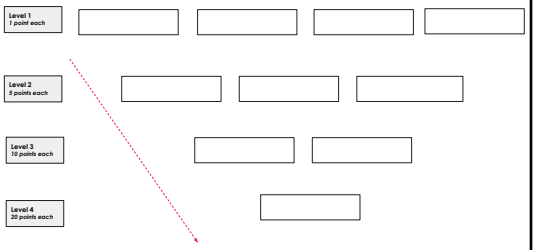

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1. Grab a pen / paper
2. Get ready to think, share, show me!

Funnel Example – Starting Vague

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1. Name an invention that has significantly impacted daily human life?
2. Which invention has played a pivotal role in communication?
3. Which invention is used to record information in a physical format?
4. This object is often found in college and school classrooms …
5. It is used by both children and adults; it can easily fit in a pocket …
6. Can you think of an object that is commonly used for drawing?
7. Can you identify an object that employs a rolling mechanism?
8. Ballpoint pen!

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Discuss: How do you funnel questions from open to closed?

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Pyramid Questions

Pyramid Questions

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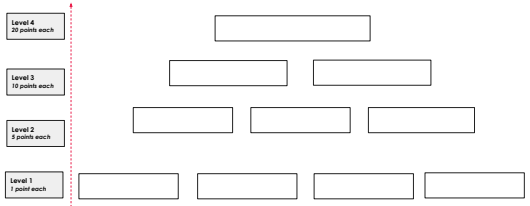

5 Benefits of Question Pyramids

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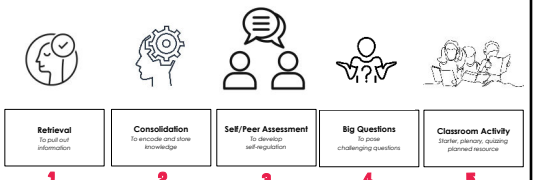
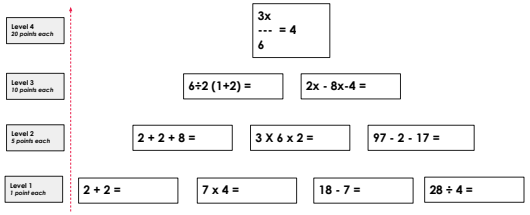


Maths

@TeacherToolkit



English

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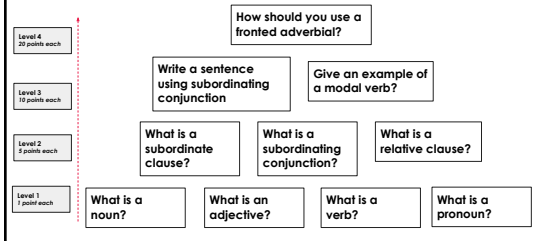

Science

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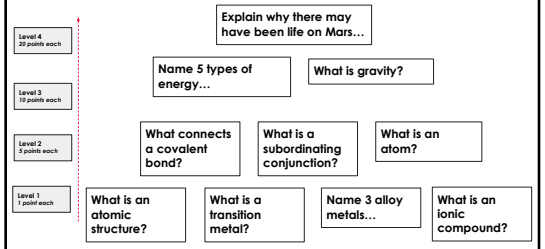


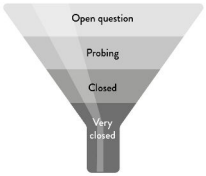
@TeacherToolkit

Discuss: How could you use pyramid questions in your classroom?

Funnel Questions: How does it work?

@TeacherToolkit

1. Increasingly specific
2. Requires higher level of detail



Funnel Questions Template

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Moving from broad to specific

Level 1
1 point each
Very broad topic

Level 2
5 points each

Level 3
10 points each

Level 4
20 points each
Very specific/hard

@TeacherToolkit

1. Grab a pen / paper
2. Get ready to think, share, show me!

Funnel Example – Starting Vague

@TeacherToolkit

1. Name an invention that has significantly impacted daily human life?
2. Which invention has played a pivotal role in communication?
3. Which invention is used to record information in a physical format?
4. This object is often found in college and school classrooms …
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6. Can you think of an object that is commonly used for drawing?
7. Can you identify an object that employs a rolling mechanism?
8. Ballpoint pen!

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Tantalising Questions

5 Ways to Des

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What If?
To query the norm

1

Would You Rather?
To make choices

5

Inspired by John Dabell

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Activity: Use the templates to design 5 of your own tantalising questions …

5 Tantalising Questioning Methods

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	Type	Purpose	Example question	Your question?
1.	What If?	*To query the norm*	What if there was no Moon?	
2.	Alternative uses	*To consider differences*	How many uses can you think of using this question?	
3.	Surreal questions	*To pose abstract ideas*	Did the tin opener or the can come first?	
4.	Big questions	*To pose philosophical thought*	If some people cannot feel pain, how do they feel emotions?	
5.	Would you rather	*To help engage and make choices*	Would you rather be a teacher or a student?	

What if...

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1.	What if there was only one religion?
2.	What if you could only communicate in the style of a musical?
3.	What if everyone had the same surname?
4.	What if there was no colour blue?
5.	What if all countries were islands?
6.	What if schools had no playgrounds?
7.	What if you could never turn left?

Inspired by John Dabell

Alternative Uses

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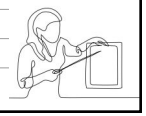
1.	How many uses can you think of for a paperclip?
2.	How many uses can you think of for a spoon?
3.	How many uses can you think of for a car tyre?
4.	How many uses can you think of for a brick?
5.	How many uses can you think of for a slipper?
6.	How many uses can you think of for a button?
7.	How many uses can you think of for a matchbox?



Inspired by John Dabell

Surreal Questions

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1.	What would an infinity elephant say to a Russian nesting doll?
2.	What would the floor say to the ceiling if they could speak?
3.	How would you wash an angry emotion?
4.	Is giraffe a good name for a giraffe?
5.	What would a hawk say to a drone?
6.	Can a dream dream?
7.	Is a grain of sand more useful than a grapefruit seed?

Inspired by John Dabell

Big Questions

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1.	Why isn't the Earth called Water if it is ⅔ water and ⅓ land?
2.	Why don't birds fly upside down?
3.	Is it possible for a fish to drown?
4.	Can a shadow feel any pain?
5.	Does a caterpillar have a brain and if so what does it look like?
6.	How much water does it take to make a book?
7.	Can a volcano ever spurt ice?

Inspired by John Dabell

Would You Rather... ?

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1.	Would you rather be a fly or a butterfly?
2.	Would you rather have three eyes and two hearts or three ears and two brains?
3.	Would you rather be an adjective or a noun?
4.	Would you rather be able to speak 12 languages or play 12 instruments?
5.	Would you rather have hands for feet or feet for hands?
6.	Would you rather be covered in hair or have no hair at all?
7.	Would you rather be fire or water?

Inspired by John Dabell

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Learn to take a turn ...

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A short break helps retention ...

استراحة قصيرة تساعد على الاحتفاظ...

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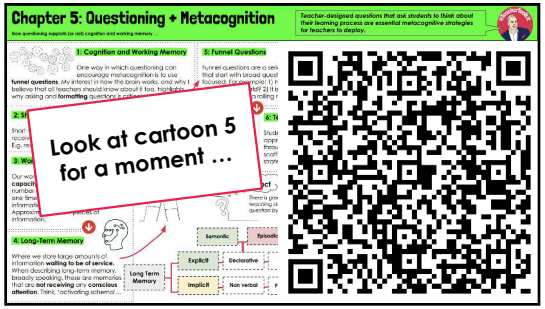
2. Processing information

Chapter 5: Questioning + Metacognition

Teacher-designed questions that ask students to think about their learning process are essential metacognitive strategies for teachers to deploy.



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1. Can you see learning happen?
2. How does learning happen?

1. هل يمكنك رؤية حدوث التعلم؟
2. كيف يحدث التعلم؟

Curriculum 'Learning' Loop

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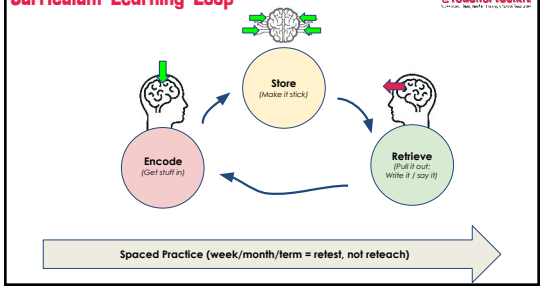

حلقة المنهج

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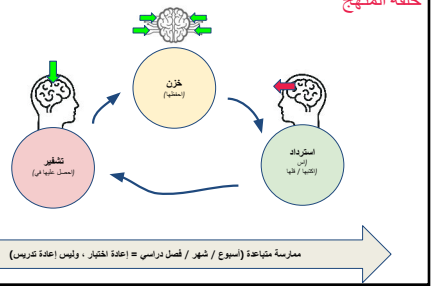

Schema Construction

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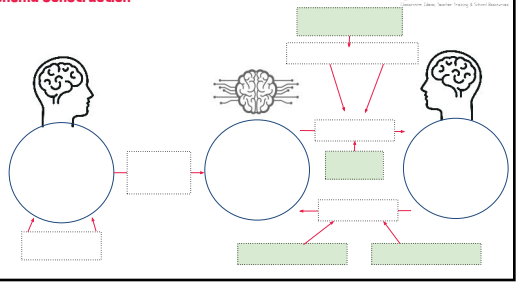
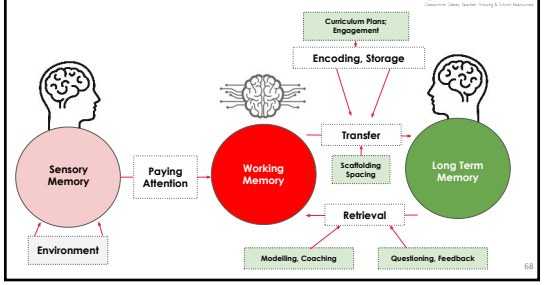


Schema Construction

@TeacherToolkit



نموذج بناء المخطط

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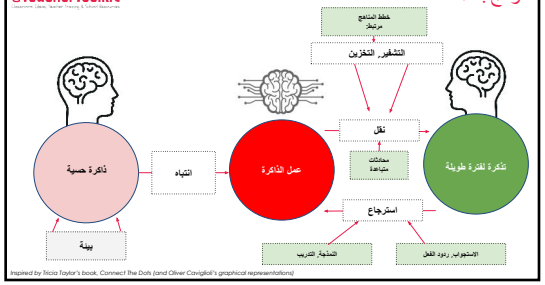

9 Effective Learning Techniques

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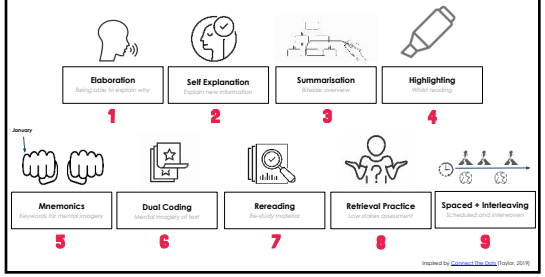

9 تقنيات التعلم الفعال

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9 Effective Learning Techniques

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	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

Inspired by (Table 1: Learning Techniques) 10.1177/1529100612453266 (Dunlosky et al (2013)

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9 تقنيات التعلم الفعال

	التقنيات	الفعالية/ الأثر	ماهذا؟
1	ممارسة التذكر	عالي	اختبار الرهانات المنخفضة ؛ مواجهة الصعوبات
2	متباعد/ تداخل	عالي	تقديم محتوى مجدول ومختلط بمرور الوقت
3	التفصيل	متوسط	الشرح والقدرة على تفسير السبب
4	التفسير الذاتي	قليل	شرح المعلومات الجديدة
5	تلخيص	قليل	نظرة عامة و تلخيص النص لحجم أصغر
6	وضع علامات	قليل	وضع علامة على المعلومات التي يحتمل أن تكون مهمة أثناء القراءة
7	تذكر الكلمات الرئيسية	قليل	الكلمات المفتاحية للنماذج الذهنية / الصور
8	صور للنص	قليل	الصور الذهنية للنص (الترميز المزدوج) ؛ إقران النص بالصور
9	إعادة تدريس المواد	قليل	إعادة تدريس المواد

Inspired by (Table 1: Learning Techniques) 10.1177/1529100612453266 (Dunlosky et al (2013)

4 Power Tools Required

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Retrieval Practice	Spacing	Interleaving	Feedback-Driven
Pull information out	*Spread lesson content*	*Mixing topics*	*What I know/don't know*
1	2	3	4

Agarwal and Bain (2019). Powerful Teaching: Unleash the Science of Learning

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4 خطوات مطلوبة

ممارسة التذكر	تباعد	التداخل	ردود الفعل منفوعة
إعادة المعلومات	انشر محتوى الدرس	مواضيع مختلفة	ما أعرفه / لا أعرفه
1	2	3	4

Agarwal and Bain (2019). Powerful Teaching: Unleash the Science of Learning

Spacing Resource

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Last Month	Last Week
Today	**Last Lesson**

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مورد التباعد

الشهر الماضي	الأسبوع الماضي
اليوم	الدرس الماضي

77

Spacing Example

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1. Last Month we ...
We learned that Mount Vesuvius erupted in XXX destroying the town of XXXXXXX. Today, the volcano is near the city of XXXXXX.

2. Last Week we ...
Common threads ...
The volcano last erupted in 1944; draw and label the key areas of a volcano

3. Last Lesson we ...
Key questions ...
Last lesson we discovered that there is an ice-cap which covers 40 square miles. What is the name in Icelandic for 'ice cap'?

4. Today you need...
Clarify misconceptions; quizzing ...
If the plume of ash rose to 21 miles high, estimate what area did the cloud cover?

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9 Effective Learning Techniques (Month by Month)

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Month	September	October	November	December	January	February	March	April	May	June
Technique	Highlighting and Underlining	Highlighting and Underlining	Highlighting and Underlining	Highlighting and Underlining	Highlighting and Underlining	Highlighting and Underlining	Highlighting and Underlining	Highlighting and Underlining	Highlighting and Underlining	Highlighting and Underlining
Introduce one new technique each month		Summarisation: A little bite sized review of what has been learnt	Summarisation: A little bite sized review of what has been learnt	Summarisation: A little bite sized review of what has been learnt	Summarisation: A little bite sized review of what has been learnt	Summarisation: A little bite sized review of what has been learnt	Summarisation: A little bite sized review of what has been learnt	Summarisation: A little bite sized review of what has been learnt	Summarisation: A little bite sized review of what has been learnt	Summarisation: A little bite sized review of what has been learnt
			Self Explanation: Relating new information	Self Explanation: Relating new information	Self Explanation: Relating new information	Self Explanation: Relating new information	Self Explanation: Relating new information	Self Explanation: Relating new information	Self Explanation: Relating new information	Self Explanation: Relating new information
				Elaboration: Generating and Relating ideas to support why	Elaboration: Generating and Relating ideas to support why	Elaboration: Generating and Relating ideas to support why	Elaboration: Generating and Relating ideas to support why	Elaboration: Generating and Relating ideas to support why	Elaboration: Generating and Relating ideas to support why	Elaboration: Generating and Relating ideas to support why
					Mnemonics: Applying Memorisation Techniques	Mnemonics: Applying Memorisation Techniques	Mnemonics: Applying Memorisation Techniques	Mnemonics: Applying Memorisation Techniques	Mnemonics: Applying Memorisation Techniques	Mnemonics: Applying Memorisation Techniques
						Imagery for Text: Using Imagery to Support Text Comprehension	Imagery for Text: Using Imagery to Support Text Comprehension	Imagery for Text: Using Imagery to Support Text Comprehension	Imagery for Text: Using Imagery to Support Text Comprehension	Imagery for Text: Using Imagery to Support Text Comprehension
							Rereading: Revisiting Text Effective for Helping Lesson Focus	Rereading: Revisiting Text Effective for Helping Lesson Focus	Rereading: Revisiting Text Effective for Helping Lesson Focus	Rereading: Revisiting Text Effective for Helping Lesson Focus
	Spacing / Interleaving: Spread Lesson Content and Mixed Material	Spacing / Interleaving: Spread Lesson Content and Mixed Material	Spacing / Interleaving: Spread Lesson Content and Mixed Material	Spacing / Interleaving: Spread Lesson Content and Mixed Material	Spacing / Interleaving: Spread Lesson Content and Mixed Material	Spacing / Interleaving: Spread Lesson Content and Mixed Material	Spacing / Interleaving: Spread Lesson Content and Mixed Material	Spacing / Interleaving: Spread Lesson Content and Mixed Material	Spacing / Interleaving: Spread Lesson Content and Mixed Material	Spacing / Interleaving: Spread Lesson Content and Mixed Material
	Retrieval Practice: Low stakes assessment which is repeating within a week	Retrieval Practice: Low stakes assessment which is repeating within a week	Retrieval Practice: Low stakes assessment which is repeating within a week	Retrieval Practice: Low stakes assessment which is repeating within a week	Retrieval Practice: Low stakes assessment which is repeating within a week	Retrieval Practice: Low stakes assessment which is repeating within a week	Retrieval Practice: Low stakes assessment which is repeating within a week	Retrieval Practice: Low stakes assessment which is repeating within a week	Retrieval Practice: Low stakes assessment which is repeating within a week	Retrieval Practice: Low stakes assessment which is repeating within a week

Designed to be used as a guide for teachers, parents and students to be introduced to each technique month by month to support retention, study skills and toward end of year assessment. Each technique should be be positioned according to the timeline being used.

Inspired by (Table 1: Learning Techniques) 10.1177/1529100612453266 (Dunlosky et al (2013)

Guide To Questioning

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Questioning Research	Primary Classroom Questioning	Secondary Classroom Questioning	Influences on Questioning	Questioning + Metacognition
Pose, Pause, Pounce, Bounce, No Opt Out, Wait Time	*Think, Pair, Share, Show Me! Mini Whiteboards*	*Cold Calling*	*Scripts, Socratic Questioning*	*Funnel Questions*
1	2	3	4	5

Questioning in an Online Context	Building a Questioning Culture	CPD (Development) Questioning	Leadership Questioning	Academic Questioning
ABC	*Question Matrix*	*EEAA*	*The Tuning Protocol*	*The Miracle Question*
6	7	8	9	10

Guide To Questioning (McGill, 2023)

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We need time to process ...

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A short break helps retention …

استراحة قصيرة تساعد على الاحتفاظ…

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3. Uninterrupted time

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Snowball Literacy – Questioning

Supporting Working Memory

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You need:

1. A pen
2. A loose piece of scrap, A4 paper
3. Listen to the rules …

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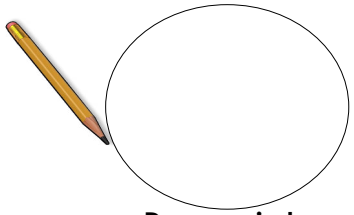

Draw a circle
Add name to corner of page

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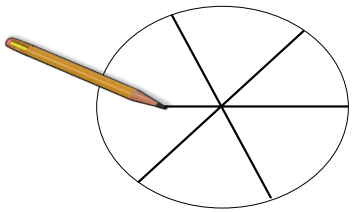

Divide into 6 pizza slices

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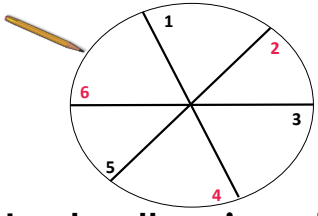

Number the pizza slices

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Check for Understanding

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1. Question
2. Questioning
3. Questionnaire
4. Query
5. Quiz
6. Quizzical
7. Quandary
8. Quibble
9. Inquire
10. Inquisition

Photo credit: www.kottenily.com

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Working Memory

Cold Call and Working Memory

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MEMORY

Short Term Memory
(Static: conscious attention in the moment)

Long Term Memory
(Stored, waiting to be of service; developing)

to know...

Working Memory
(Limited processing – forms connections or not)

to know how ...

Concepts | **Rules** | **Facts**

Just sits waiting to be of service

Goal directed = produces action

Declarative Knowledge

Procedural Knowledge (Skills)

فهم الذاكرة

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1
التذكر لفترة طويلة
التذكر لفترة قصيرة

2
ضمني (اللاوعي - لمعرفة كيف)
اصنع ذاكرة
صريح (واع - لمعرفة)

الهدف الموجه = ينتج عنه عمل
فقط يجلس في انتظار الخدمة

3
مفاهيم
قواعد
حقائق

4
مفهوم الحقائق
تجربة شخصية
فعل شيء ما
التحضير

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We need uninterrupted time ...

Structuring Feedback

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Praise	Probe	Identify	Plan	Lock
Clarify what good performance is	Facilitate self assessment	Deliver high quality feedback information	Encourage teacher and peer dialogue	Encourage positive motivation and self-esteem
1	2	3	4	5

PPIPL

Leverage Leadership (Bambrick-Santoyo, 2012)

هيكلة الملاحظات

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مدح	تحقق	عرف	خطط	قفل
وضح ما هو الأداء الجيد	تسهيل التقييم الذاتي	تقديم معلومات و ملاحظات عالية الجودة	شجع الحلم والحوار بين الآخر	شجع الدافع الإيجابي واحترام الذات
1	2	3	4	5

PPIPL

Leverage Leadership (Bambrick-Santoyo, 2012)

Structuring Feedback

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1. PRAISE	**Refer to any known** previous actions to validate teacher's previous effort.
2. PROBE	**Ask** some probing questions, then narrow the focus.
3. IDENTIFY	**State** the issue and make clear 2 or 3 actions, plus any required support.
4. PLAN	**Plan** ahead & set a timeline. What are the barriers/risks? What support is needed?
5. LOCK	**Lock** it in: Make sure they know exactly what to do next. How committed are they?

هيكلة الملاحظات

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1.مدح	قم بالإشارة إلى أي إجراءات سابقة معروفة للتحقق من صحة جهود المعلم السابقة.
2. تحقق	اطرح بعض الأسئلة الاستقصائية ، ثم قم بتضييق نطاق التركيز.
3. تعريف	حدد المشكلة وقم بتوضيح **2** أو **3** إجراءات ، بالإضافة إلى أي دعم مطلوب.
4. خطة	التخطيط المسبق وتحديد جدول زمني. ما هي العوائق / المخاطر؟ ما هو الدعم المطلوب؟
5. نظرة عامة	تحقق : تأكد من أنهم يعرفون بالضبط ما يجب فعله بعد ذلك. ما مدى التزامهم؟

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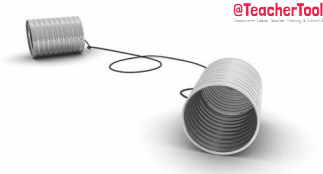
Pair up: Respond to the other person's research question with a 'miracle question.'

E.g. Imagine if ... describe to me

"I want to improve the quality of relationships with the boys in my new class."



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Ok. Let's imagine it's the end of term and relationships are improved in the ways that you want. Describe to me what is different now.

---

3 Feedback Tools

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Miracle Question	Exceptions	Scaling
Imagine it. Describe to me... Solution-focused!	Narrow the definitions Take away the problem What actions will you take?	Put the issues into context What's the one thing... Introduce at the start/end
1	2	3

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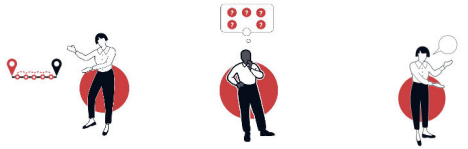
3 أدوات لتقديم الملاحظات



تدريج	التوقعات	سؤال تخيلي
ضع الثقة في مكانها ما هو الأمر الوحيد ابدأ في البداية أو النهاية	فريد من نوعه ما تخلص من المشكلة ماهي الأمور التي ستقدمها	تخيل أنو صف لي وفكر على الحل
3	2	1

Miracle + Exceptions

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"The boys never shut up!"

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Question Matrix

Question Matrix

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	Is? / Does? Present	Has? / Did? / Was? Past	Can? Possibility	Should? Opinion	Would? / Could? Probability	Will? Prediction	Might? Imagination
What? Event							
Where? Place							
When? Time							
Which? Choice							
Who? Person							
Why? Reason							
How? Meaning							

The general level of difficulty of question increases… A "What is?" question is normally easier to create and answer than a "How might?" question.

www.bit.ly/QuestionMatrixPDF

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مصفوفة الأسئلة

	هل؟ حدث	أين؟ مكان	متى؟ الوقت	أي؟ خيار	من؟ شخص	لماذا؟ سبب	كيف؟ المعنى
قد؟ تخيل							
سوف؟ تنبؤ							
كان؟ استطاع؟ احتمالية							
يجب؟ خيار							
يستطيع؟ يستطيع							
ينبغي؟ كان؟ ماضي							
يكون؟ يفعل؟ حاضر							

يزداد المستوى العام لصعوبة السؤال ... / "ما هو؟" عادةً ما يكون إنشاء السؤال والإجابة عليه أسهل من إنشاء سؤال "كيف يمكن؟" سؤال.

www.bit.ly/QuestionMatrixPDF

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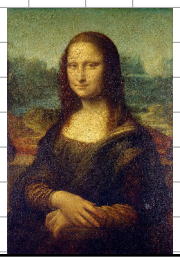
	Is? / Does? Present	Has? / Did? / Was? Past	Can? Possibility	Should? Opinion	Would? / Could? Probability	Will? Prediction	Might? Imagination
What? Event							
Where? Place							
When? Time							
Which? Choice							
Who? Person							
Why? Reason							
How? Meaning							



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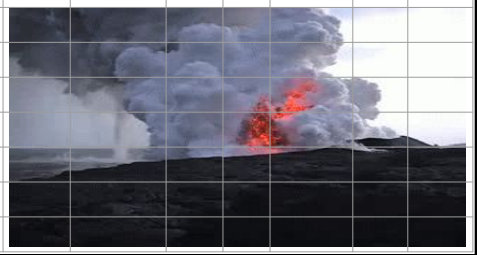
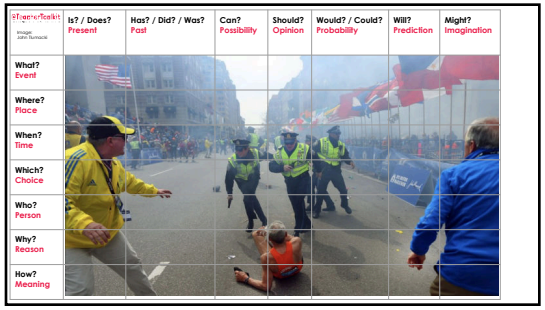
	Is? / Does? Present	Has? / Did? / Was? Past	Can? Possibility	Should? Opinion	Would? / Could? Probability	Will? Prediction	Might? Imagination
What? Event							
Where? Place							
When? Time							
Which? Choice							
Who? Person							
Why? Reason							
How? Meaning							

Image: John Rumacki





Question Matrix

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	Is? / Does? Present	Has? / Did? / Was? Past	Can? Possibility	Should? Opinion	Would? / Could? Probability	Will? Prediction	Might? Imagination
What? Event					Design a question here		
Where? Place	Design a question here						
When? Time							Design a question here
Which? Choice			Design a question here				
Who? Person				Design a question here			
Why? Reason		Design a question here					
How? Meaning						Design a question here	

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If The Answer Is

If The Answer Is

1. Answer = Summative and Formative
2. Question = Give me two forms of assessment?
3. Answer = Venus
4. Question = What is the 2nd planet in the solar system?
5. Answer = The Rub' al Khali
6. Question = What is the largest sand desert in the world?
7. Answer = Abu Dhabi
8. Question = What is the capital city of UAE?
9. Answer = Arabic
10. Question = What is the official language of UAE?

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Fermi Questions

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1. Grab a pen / paper
2. Get ready to think, share, show me!

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Fermi Example: How many balloons would it take to fill this room?

Fermi Examples

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1. How many teachers could you fit inside this entire room?
2. How many students would it take to surround your college if they held hands?
3. How many 16 year olds are there in [your town / city] ?
4. How many peas would you need to fill a bath?
5. How many exercise books could you stack on your kitchen table?
6. How many hours does a teacher sleep during the working week?
7. How many marshmallows would it take to cover your classroom floor?
8. How far does a bee fly each day?
9. How many people are airborne over the UK at any one moment?
10. If we all stood on top of each other's shoulders, how tall would the pile be?

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Conclusions...

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Discuss: How do select questioning techniques, and how do you use them methodically?

Developing Questioning Culture, Month by Month

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Month	September	October	April	May	June
Technique What it is for	Mini Whiteboards Allow all students to show their answers simultaneously	Think-Pair-Share Develop a secure overview	IRAA Ask, Answer, Appraise, Assign	Question Marks Develop a culture of questioning and deepen understanding	Sorting Postcard Develop a culture of questioning and deepen understanding
Designed to be used as a guide for teachers to introduce each technique month by month in the classroom to support the development of an inquiry culture in classrooms; retention, study skills and discussion. Each technique should be re-positioned according to the curriculum, skills being developed and the timeframe being used. Read more in **Guide To Questioning**			IRAA Ask, Answer, Appraise, Assign	Question Marks Develop a culture of questioning and deepen understanding	IRAA Ask, Answer, Appraise, Assign
			Socratic Questions Open questions to challenge thinking	Three Tower Pyramid Bounce Use a range of tools	Socratic Questions Open questions to challenge thinking
			Quizzing Software MCQs Use a range of tools to support recall	Three Tower Pyramid Bounce Use a range of tools	Quizzing Software MCQs Use a range of tools to support recall
			Cold Call No Opt Out Develop a culture of questioning and deepen understanding	Wait Time / Funnel Develop a culture of questioning and deepen understanding	Cold Call No Opt Out Develop a culture of questioning and deepen understanding
			Wait Time / Funnel Develop a culture of questioning and deepen understanding	Think Pair Share Develop a secure overview	Wait Time / Funnel Develop a culture of questioning and deepen understanding
			Whiteboards Allow all students to show their answers simultaneously	Mini Whiteboards Allow all students to show their answers simultaneously	Think Pair Share Develop a secure overview
	Retrieval Practice Low stakes assessment which is necessary	Retrieval Practice Low stakes assessment which is necessary			

The WHY ...

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1. **Priming / Set Conditions**
2. **Question / <u>Pause</u>**
3. **Seek 100% Response!**

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DEPARTMENTAL ACTIVITIES

10 Questioning Techniques

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Make a statement *Ask students their opinion*	Collective response *Encourage group discussion*	Scan the room *Develop a secure overview*	Paraphrase *Pose questions when walking*	Who can tell me? *Avoid opt-out questions*
1	2	3	4	5
Ask 'Why?' or 'How?' *Seek a deeper evaluation*	Multiple choice *Increase the difficulty*	Make mistakes *Pose incorrect statements*	Vary the thinking *Use the question matrix*	Select carefully *Too much or too little?*
6	7	8	9	10

Beech and McGill (2020), 60-Second CPD: 239 Ideas for Busy Classroom Teachers

@TeacherToolkit

10 تقنيات لطرح الأسئلة

من يستطيع أن يخبرني؟ تجنب أسئلة الانسحاب	شرح النص اطرح أسئلة عقد المقص	نظرة عامة تطوير نظرة عامة آمنة	الإجابات الجماعية شجع المناقشة الجماعية	قم بإثارة اسأل الطلاب عن آرائهم
5	4	3	2	1
اختر بعناية الكثير أو القليل جدا؟	تخلف في التفكير استخدام مصفوفة الأسئلة	ارتكاب الأخطاء اطرح عبارات غير صحيحة	متعدد الخيارات زيادة الصعوبة	"اسأل "لماذا"؟" أو "كيف؟" ابحث عن تقييم أعمق
10	9	8	7	6

Beech and McGill (2020), 60-Second CPD: 239 Ideas for Busy Classroom Teachers

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7 Ways To Design Questions

7 Ways to Design Questioning

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Inspired by 100 Ideas: Questioning for Primary Teachers (Worley, 2019)

7 Ways to Design Questioning

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Inspired by 100 Ideas: Questioning for Primary Teachers (Worley, 2019)

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Activity:

Design 7 different types of questions

7 Question Structures

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Type	Task	Thesis	Meta	Start, Set, Research	Empirical	Multiple Choice	Explicit or Implicit
Example	*Why does the Earth rotate through night and day?* *(task orientated)*	*Should Britain have left Europe?* *(closed essay)*	*Did the chicken or the egg come first?* *(philosophical discussion)*	*Why did President Donald Trump not attend Biden's inauguration? Build an argument ...*	*How many moons does Jupiter have?* *(check facts)*	*How far is the Moon from Earth?* *A. 10,000 miles* *B. 180 miles* *C. 238,855 miles* *D. 999,000 miles* *(retrieval)*	*What is a letter?* *or* *Is 'A' a letter?* *(Open or closed)*
My planned question							

Inspired by 100 Ideas: Questioning for Primary Teachers (Worley, 2019)

Task Questioning

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A question with a *task* designed to answer it...

1.	How many pockets are there on a snooker table?
2.	Why does the Earth rotate through night and day?
3.	What would happen if an empty coffee cup fell off from a table onto the floor?
4.	What happens to the water in a bathroom sink when you place your hand into it?
5.	Can you walk from London to Berlin?

Inspired by 100 Ideas: Questioning for Primary Teachers (Worley, 2019)

Thesis Questioning

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A closed form of question...

1.	Who did the Romans fight with?
2.	Should Britain have left Europe?
3.	Is 3.2 an odd or an even number?
4.	Is 'misinformation' a made up theory?
5.	What is gravity?

Inspired by 100 Ideas: Questioning for Primary Teachers (Worley, 2019)

Meta Questioning

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Philosophical concepts which lead to further questions...

1.	Is breathing clean air for free?
2.	Why is an Orange named by the colour orange, but a Banana not named yellow?
3.	Did the chicken or the egg come first?
4.	Did the tin or the tin opener come first?
5.	Does this question make sense?

Inspired by 100 Ideas: Questioning for Primary Teachers (Worley, 2019)

Start, Set, Research Questioning

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A question designed to begin or end lessons (and not necessarily the key focus)...

1.	To kickstart a debate...
2.	To help provoke students' thoughts as they leave the classroom.
3.	Posed to elicit enquiry during or after the lesson...
4.	Can be anecdotal.
5.	One example: What are reasons why President Donald Trump did not turn up to Biden's inauguration?

Inspired by 100 Ideas: Questioning for Primary Teachers (Worley, 2019)

Empirical Questioning

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A question for checking facts...

1.	How many biro pens are in this room? (Direct experience)
2.	How many moons does Jupiter have? (Descriptive)
3.	Is Pluto round? (Indirect experience)
4.	Is a Panda bear more black or white in colour? (Factual)
5.	Do Gremlins exist? (Open empirical)

Inspired by 100 Ideas: Questioning for Primary Teachers (Worley, 2019)

Multiple Choice Questioning

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A leading question designed to elicit retrieval from memory...

1.	Good for setting an agenda
2.	To suggest the things students may not ask themselves
3.	You can hide the options before revealing the choices
4.	Obvious (or silly) incorrect options reduce the difficulty
5.	Scope to include two possibilities for discussion

Inspired by 100 Ideas: Questioning for Primary Teachers (Worley, 2019)

Explicit/Implicit Questioning

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Implicit questions are open-ended, where as Explicit questions are closed...

1.	Implicit: What is a letter?
2.	Explicit: Is 'A' a letter?
3.	Implicit: What is Bhangra music?
4.	Explicit: Is this (insert sound) Bhangra music?
5.	Implicit: What is a teacher?
6.	Explicit: Is Ross McGill a teacher?

Inspired by 100 Ideas: Questioning for Primary Teachers (Worley, 2019)

مصفوفة الأسئلة

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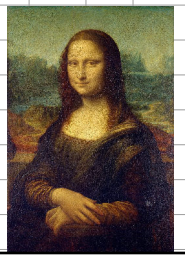
	يكون؟/ يفعل؟ حاضر	كان؟/ فعل؟/ قال؟ ماضي	يستطيع؟ تستطيع	يجب؟ خيار	كان؟/ استطاع؟ احتمالية	سوف؟ تنبؤ	قد؟ تخيل
ماذا؟ حدث							
أين؟ مكان							
متى؟ الوقت							
أي؟ خيار							
من؟ شخص							
لماذا؟ سبب							
كيف؟ المعنى							

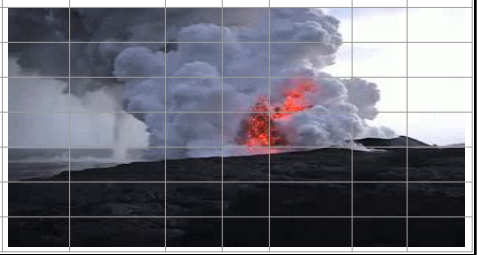
زيادة المستوى العام لصعوبة السؤال ... / "ما هو" عادة ما يكون إنشاء السؤال والإجابة عليه أسهل من إنشاء سؤال "كيف يمكن؟" سؤال.

www.bit.ly/QuestionMatrixPDF

	Is? / Does? Present	Has? / Did? / Was? Past	Can? Possibility	Should? Opinion	Would? / Could? Probability	Will? Prediction	Might? Imagination
What? Event							
Where? Place							
When? Time							
Which? Choice							
Who? Person							
Why? Reason							
How? Meaning							



	Is? / Does? Present	Has? / Did? / Was? Past	Can? Possibility	Should? Opinion	Would? / Could? Probability	Will? Prediction	Might? Imagination
What? Event							
Where? Place							
When? Time							
Which? Choice							
Who? Person							
Why? Reason							
How? Meaning							



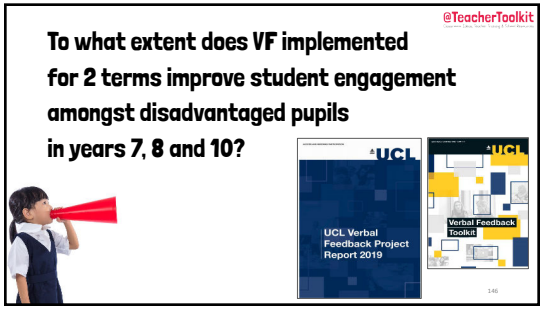
	Is? / Does? Present	Has? / Did? / Was? Past	Can? Possibility	Should? Opinion	Would? / Could? Probability	Will? Prediction	Might? Imagination
What? Event							
Where? Place							
When? Time							
Which? Choice							
Who? Person							
Why? Reason							
How? Meaning							

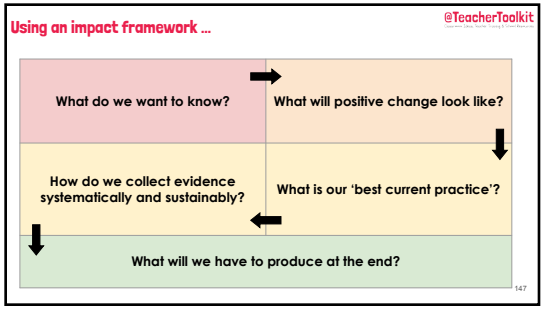
Question Matrix

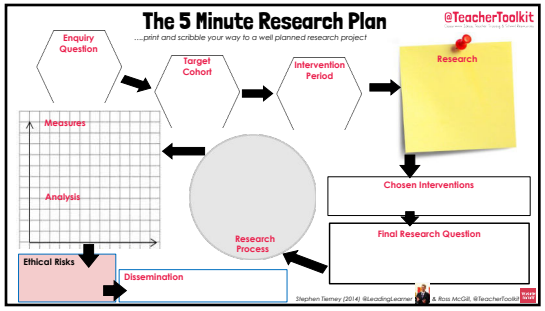
@TeacherToolkit

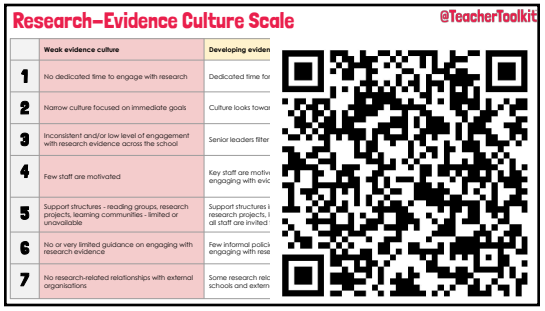
	Is? / Does? Present	Has? / Did? / Was? Past	Can? Possibility	Should? Opinion	Would? / Could? Probability	Will? Prediction	Might? Imagination
What? Event					Design a question here		
Where? Place	Design a question here						
When? Time							Design a question here
Which? Choice			Design a question here				
Who? Person				Design a question here			
Why? Reason		Design a question here					
How? Meaning						Design a question here	

Is? / Does?
Present
What?
Event
Where?
Place
When?
Time
Which?
Choice
Who?
Person
Why?
Reason
How?
Meaning
Might?
Imagination


@TeacherToolkit
To what extent does VF implemented for 2 terms improve student engagement amongst disadvantaged pupils in years 7, 8 and 10?
UCL Verbal Feedback Project Report 2019
Verbal Feedback Toolkit


Using an impact framework ...
@TeacherToolkit
What do we want to know?
What will positive change look like?
How do we collect evidence systematically and sustainably?
What is our 'best current practice'?
What will we have to produce at the end?


The 5 Minute Research Plan
@TeacherToolkit
Enquiry Question
Target Cohort
Intervention Period
Research
Measures
Analysis
Chosen Interventions
Final Research Question
Research Process
Ethical Risks
Dissemination


Research–Evidence Culture Scale
@TeacherToolkit
Weak evidence culture
Developing eviden
1 No dedicated time to engage with research
2 Narrow culture focused on immediate goals
3 Inconsistent and/or low level of engagement with research evidence across the school
4 Few staff are motivated
5 Support structures - reading groups, research projects, learning communities - limited or unavailable
6 No or very limited guidance on engaging with research evidence
7 No research-related relationships with external organisations

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Discuss: How do you currently source education research?

Easy-Access Research...
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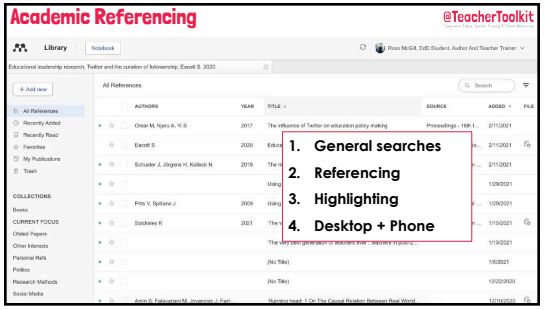
1. EEF
2. Visible Learning (MetaX)
3. Google Scholar


Academic Referencing
@TeacherToolkit
1. General searches
2. Referencing
3. Highlighting
4. Desktop + Phone