

Adaptive teaching



E-Coli metaphor

What the restaurant needs to do of course is sort out the hygiene in its whole operation. It doesn't need to change what it does for the key groups. *It needs to change what it is doing at its core.*

High quality inclusive practice is at the core of meeting the needs of all learners - not just those with ALN



Differentiation: a good idea gone wrong

**Ceiling on
achievement**

Workload



Adaptive teaching instead of differentiation

Providing additional support in order to access the same ambitious curriculum.

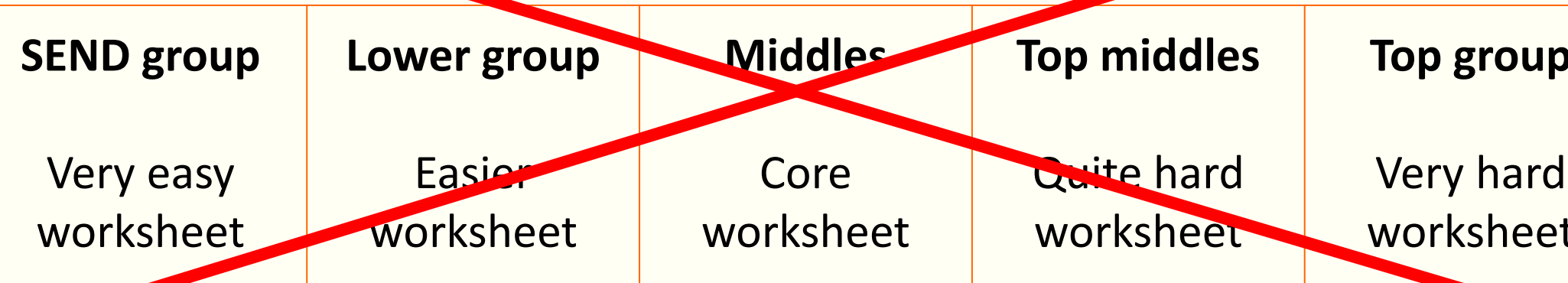


Traditional differentiation

SEND group	Lower group	Middles	Top middles	Top group
Very easy worksheet	Easier worksheet	Core worksheet	Quite hard worksheet	Very hard worksheet

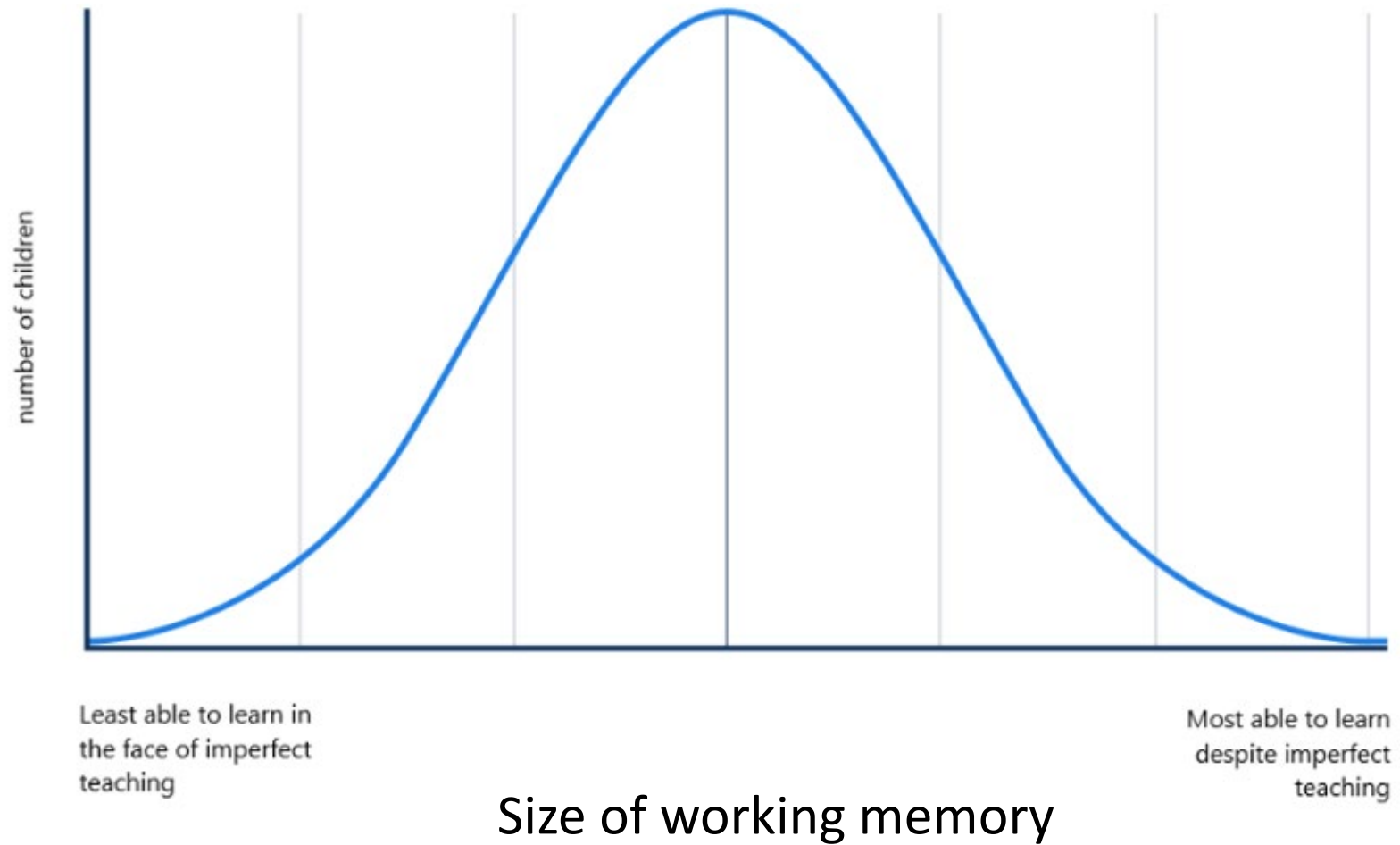


Traditional differentiation



SEND group	Lower group	Middles	Top middles	Top group
Very easy worksheet	Easier worksheet	Core worksheet	Quite hard worksheet	Very hard worksheet

Vulnerability to Imperfect Teaching



The importance of smaller steps





Most vulnerable
to imperfect teaching

Least vulnerable
to imperfect teaching



Need smaller steps
to access learning

Can manage with larger
steps/cope with gaps



It is important to note that the 'more able' do not need the larger gaps, it is simply that they can manage despite them.

Most vulnerable
to imperfect teaching

Least vulnerable
to imperfect teaching

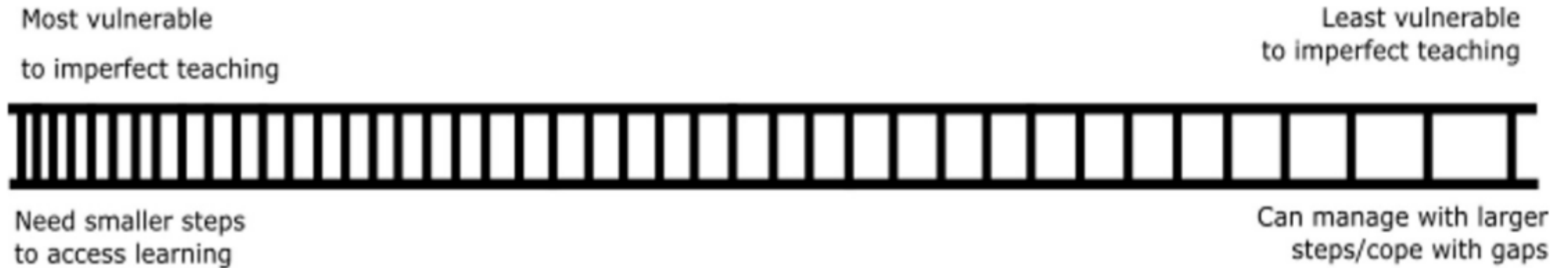


Need smaller steps
to access learning

Can manage with larger
steps/cope with gaps



It is important to note that the 'more able' do not need the larger gaps, it is simply that they can manage despite them.



In the same way that fit and healthy people in their twenties can manage with poor food hygiene.

Adaptive teaching

- **Considering working memory demands**
- **Strengthening long term memory**

Adaptive teaching

- **Considering working memory demands**
- **Strengthening long term memory**



Adaptive teaching instead of differentiation

Providing additional support *to memory* in order to access the same ambitious curriculum.

Challenge involves 4 variables

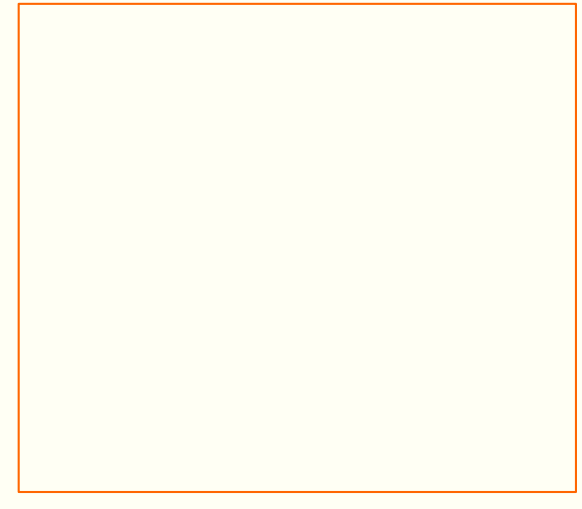
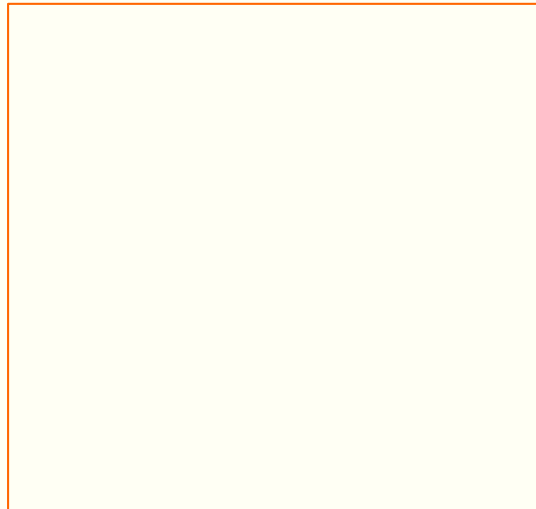
Implications for adaptive teaching?

Having to think about more things

The intrinsic demands of the content

How much external support for memory is provided

How much the student knows



Challenge involves 4 variables

**Having to
think about
more things**

Adapt the number of things students have to think about

**The intrinsic
demands of
the content**

Plan a curriculum that reinforces & builds on previous content & prepares for & improves access to future learning

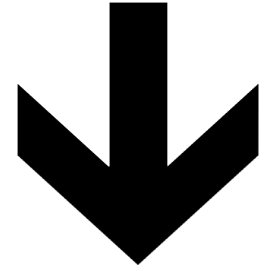
**How much
external
support for
memory is
provided**

Provide external support for memory: scaffolding

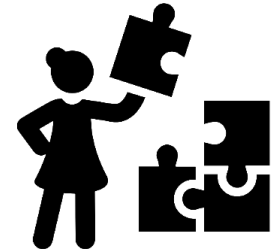
**How much
the student
knows**

Ensure students know enough to access lessons & have robust culture of retrieval so knowledge is remembered

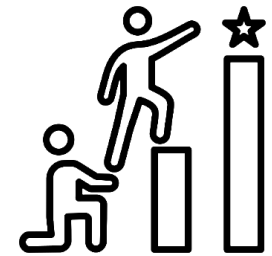
Reduce memory demands



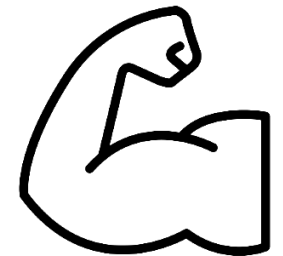
Anticipate memory demands



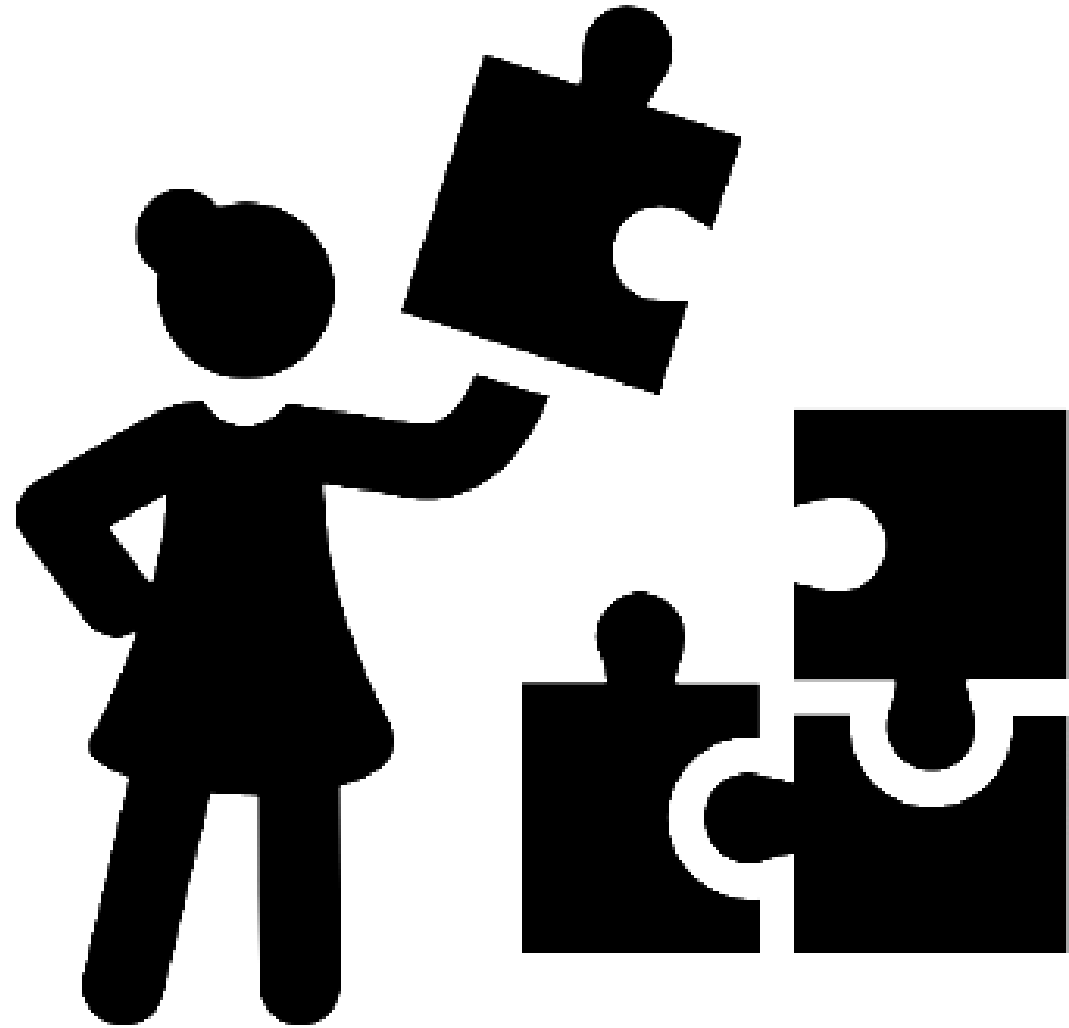
Support memory demands



Strengthen memory



**Anticipating
memory
demands**





Teachers focused on adapting the immediate task so that pupils could complete it, instead of building their knowledge and skills and addressing gaps so that they could access the curriculum in the longer term.

**Addressing
gaps**

**Building
knowledge and
skills**



Addressing gaps

In your year 7 topic this half term in your subject, what's essential?
What is nice to have?
What makes it essential?
What is essential longer term but can be built over time?



Addressing gaps

For essential
knowledge and
skills, how *are*
gaps addressed
In the moment?
In the longer
term?

Coverage mindset

- “Does anyone know”?
- “Can anyone do it?”
- “Well done to those getting it right”
- Dominant emphasis on seeking affirmation in correctness
- Worry about not finishing the course

Diagnostic mindset

- “Does everyone know?”
- “Can everyone do it?”
- “Let’s find out who still can’t get this right and help them out”.
- Familiar routines around seeking out residual errors and difficulties.

Worry about leaving some behind



Spend time & energy on diagnostic assessment

Forensic
flushing out of
difficulties,
errors and gaps

Deliberate
attention on
every
individual

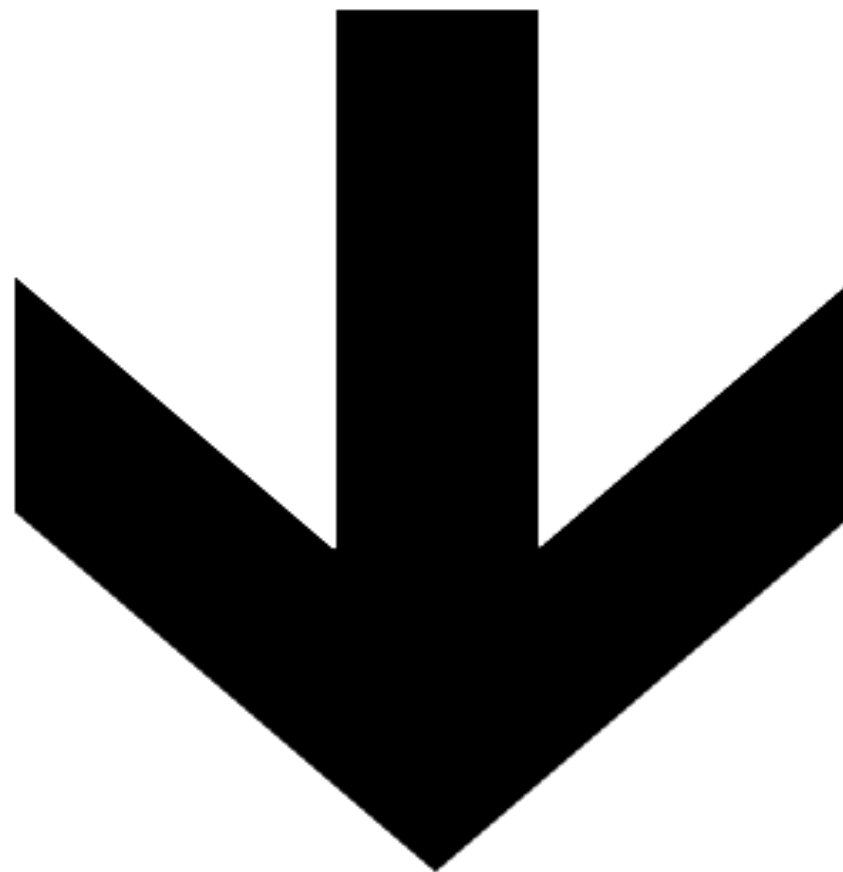
ALL children
learn ALL the
material

**Building
knowledge and
skills**

Think of two things
that many children find
particularly challenging
in your subject.

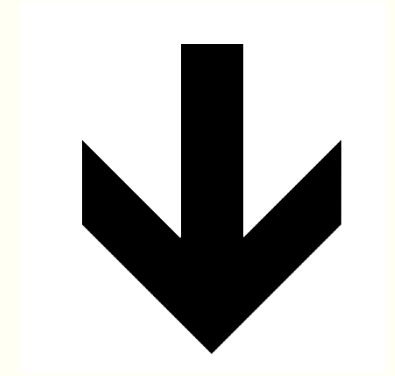
How could the
curriculum anticipate
these difficulties?

**Reduce
memory
demands**





Reduce memory demands



I do

Explaining learning not activity

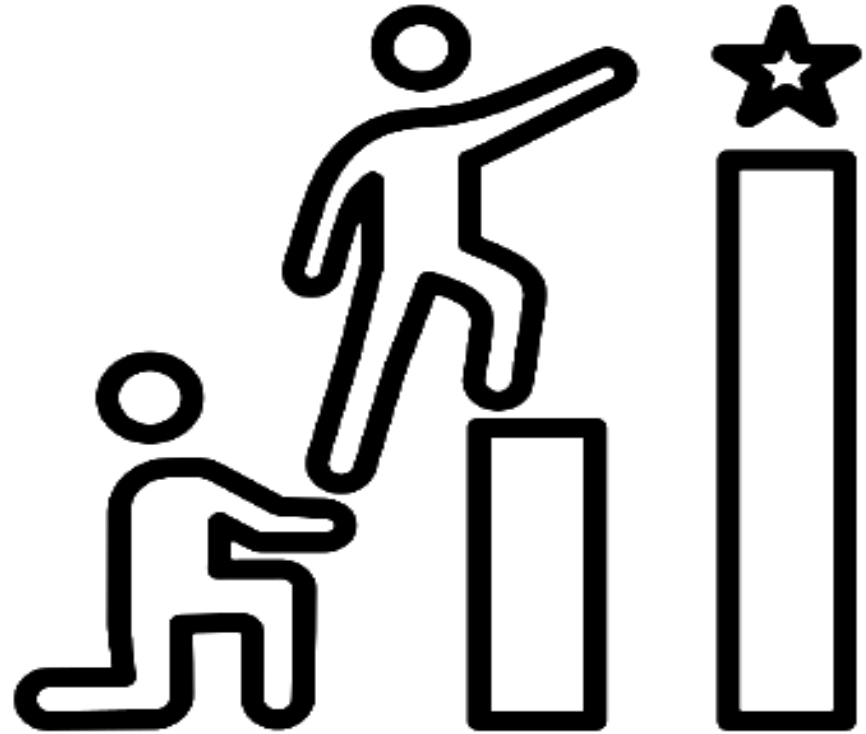
Break learning into small steps

Be explicit - don't assume children already know it

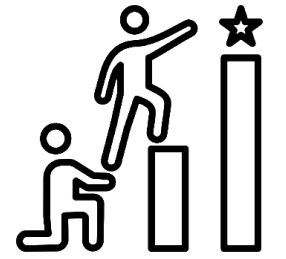
Make sure information in slides is clear and uncluttered

Be aware of transient information effect

Support
memory
demands



Supporting memory demands through scaffolding: some techniques



Matching

Matching

Learners only have to think about the links
- not remember the things themselves.

SEND: Scaffold Writing

Main Clause	to	Subordinate Clause
The USA operated a policy of containment	to	extend their zones of influence across the world.
The USSR operated a policy of expansionism		prevent the expansion of communism.

“Targeted support should be provided to students who struggle to write fluently, as this may affect writing quality.”

EEF, 2021

SEND: Scaffold Writing

Fronted adverbial	Subject	Verb	Object	to	Subordinate Clause
During the Cold War,	the USA the USSR	operated	a policy of expansionism a policy of containment	to	extend their zones of influence across the world. prevent the expansion of communism.

“Targeted support should be provided to students who struggle to write fluently, as this may affect writing quality.”

People build settlements near rivers	because	rivers provide a steady supply of drinking water and make land fertile for growing crops.
		this provides access to fresh water important for drinking, sanitation and farming.
		rivers provide easy transport routes for boats to move people and goods from place to place.
		goods and people can be easily transported by boat.
		ease of transport facilitated trade.
	so	nearly every large city in the world is built near a river, lake or ocean.
		there are very few cities that are not close to a river.
		water shortages are less likely to be problematic
	but	there are some settlements that obtain their water from wadis or groundwater rather than rivers.
		Mayan civilisation survived by storing rainwater in reservoirs.
some settlements (such as Las Vegas) rely on water piped from rivers that are not close by.		

Scaffold Writing

Front Position	Middle Position	End position
The Battle of Hastings was fought in October of 1066	, a seminal moment in the Norman Conquest,	resulting in the critical death of the English King, Harold Godwinson.
In the blood-soaked fields of East Sussex	, during October of 1066,	the iconic Battle of Hastings was won by the Norman army.
The Saxon and Norman armies fought for nearly a full day in October 1066	(a brutal rarity in medieval wars)	in the blood-soaked fields of East Sussex.
In October of 1066	, the Saxon and Norman armies fought for nearly a full day,	in the blood-soaked fields of East Sussex.

“To help struggling novices we can chunk down these complex sentences into their component parts... We can take a simple kernel sentence... and add to it to allow pupils to exhibit their understanding.”

Alex Quigley, 2022

Sorting

Learners only have to think about the properties - not remember the things themselves.

- Examples and non-examples
- Sort by category
- Sequence by time

Is less than 0.5	Is equal to 0.5	Is more than 0.5

$4/5$

0.50

$3/6$

0.05

$2/3$

0.125

$5/10$

$1/5$

0.20

$5/5$

0.25

$1/2$

Mammals	Not Mammals

Tiger

Snail

Seagull

Cat

Elephant

Worm

Mouse

Goldfish

Human

Whale

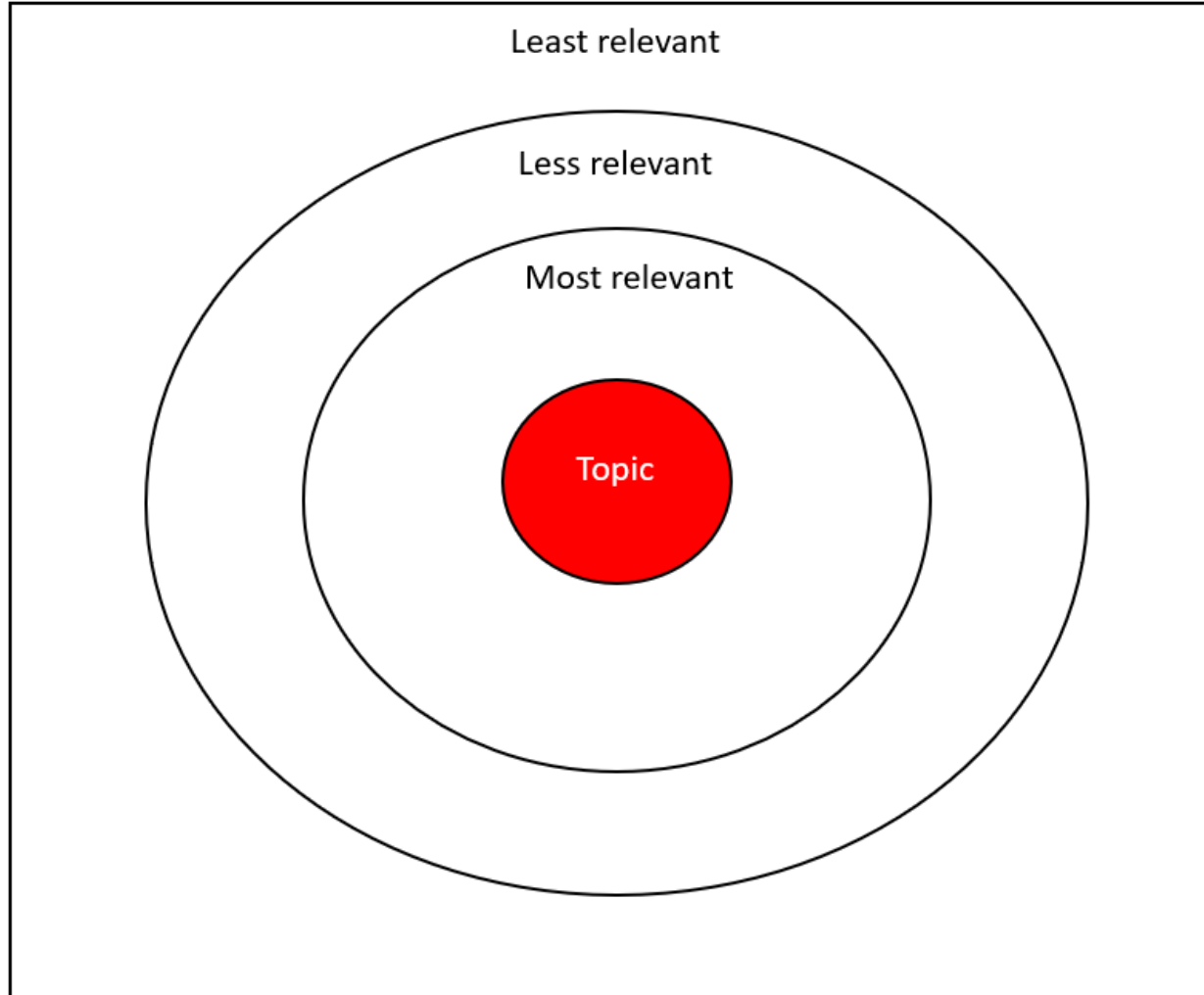
Crab

Graphic Organisers

- support memory by holding the categories into which information is sorted for the learner
- so they only need to think about where the information goes and not how to categorise it as well

Graphic Organisers

Not relevant



Which information tells us about the causes that led to the Great Fire of Gateshead and Newcastle spreading so quickly

19. 4. 23

Not a cause

Crowds of people came to watch the fire from the bridges.



further causes that led to the fire spreading quickly

Newcastle and Gateshead was a busy shipping port in 1854.



main cause/s of fire spreading quickly

Betram's warehouse was full of chemicals, like sulphur, which caused a huge explosion at 3am.



The weather was very windy.



Wilson and Son's warehouse was a tall building made of wood.



The telegraph wires were damaged.



The fire started just before midnight.



The fire fighting equipment was still poor in 1854.



The houses on the quayside were very close together and the streets were cramped and narrow.



There were two bridges across the River Tyne in 1854.



	mammal	amphibian	reptile
skin			
breathing			
reproduction			
heat			

Has fur or hair or blubber

Breathes through skin

Makes own heat

Has wet skin

Gets heat from surroundings

Breathes through lungs

Lays eggs with a shell

Lays jelly eggs

Gives birth to live young



Purpose of assessment:



Talk/turn to your partner

Would matching, sorting or graphic organisers help scaffold learning in your subject?

Is this something you could develop further?

Word bank

What characteristics do mammals have?

Fur or hair or blubber

breathes with lungs

Gives birth to live young

Makes its own heat

Sentence starters

Heat from the Sun causes water to

Evaporation occurs when liquid water

Warm water vapor rises up through

As the water vapor rises higher and higher, the cool air of the atmosphere

This process is called

When a cloud becomes full of liquid water, it

Rain and snow then fall

The process then

Sentence starters

Heat from the Sun

Evaporation

Warm water vapor

As the water vapor rises

When a cloud

Rain and snow

The process



Purpose of assessment:



Talk/turn to your partner

How do word banks and sentence starters support working memory?

Are these techniques that would be useful in your subject?

Is this something you could develop further?

Fix the error

The Great Fire of London many days.

One reason was that houses was very flammable.

Another reason was that the weather hot dry.

The strong wind blew the flames from house to house.

Fix the error

$$6=2+3$$

$$5=3+4$$

$$6=2+4$$

etc. - include some correct ones

Fix the error

	mammal	amphibian	reptile
skin	Has hair or fur or blubber	Has scales	Has wet skin
breathing	Breath through skin	Breathes through lungs	Breathes through skin
reproduction	Gives birth to live young	Lays eggs with shell	Lays jelly eggs
heat	Gets heat from surrounding	Gets heat from surrounding	Makes own heat

Sentence jumbles

days of The London burnt many Great for Fire

have Reptiles skin scaly snakes as such

Complete the fragment

burnt for many days

were very flammable

was hot and dry

The wind cause the flames to

Sentence combining

The Fire of London burnt for many days. The weather had been hot and dry for a very time.

The Fire of London burnt for many days. Many people lost their houses and became homeless.

The Fire of London burnt for many days. Once fire breaks had been made it could not spread any further

**Beginning to bring it together
through chunking**

**What was daily life was like in the Bronze Age ?
How is it different to life today?**

How do we get food today? 	What are houses like today? 	What tools do we use today?
↓	↓	↓
How did Bronze Age people get their food? 	What were Bronze Age homes like? 	What tools did Bronze Age people use?
↓	↓	↓
What is the difference? 	What is the difference? 	What is the difference?

When we think about how we live today, which do you think is the biggest change when compared to the Bronze Age?

OLD KINGDOM

WHO WAS SIGNIFICANT?

Pharaoh Djoser

WHY?

He was the first pharaoh to want to be buried in a pyramid. He influenced other pharaohs to build pyramids.

LIST 3 ACHIEVEMENTS OF THIS PERIOD

They built pyramids

They developed a government

They had good construction systems

MIDDLE KINGDOM

WHO WAS SIGNIFICANT?

Queen Sobekneferu

WHY?

Queen Sobekneferu was the first female pharaoh / first female ruler. It was significant because the civilization had never been ruled by a female.

LIST 3 ACHIEVEMENTS OF THIS PERIOD

Writing and art

They conquered Nubia

North land South unified

NEW KINGDOM

WHO WAS SIGNIFICANT?

Tutankhamun

WHY?

He had the most intact tomb and he was a pharaoh from a young age. The tomb helped us learn about them.

LIST 3 ACHIEVEMENTS OF THIS PERIOD

Tombs were cut into cliffs


They traded with other kingdoms

They expanded


OF ALL THESE ACHIEVEMENTS WHICH IS THE MOST SIGNIFICANT? WHY?

I will think that the most significant achievement is they developed a government because it was the first in its order and made sure



Ben Nevis 



Mon Blanc 

Similarities

Both mountains are in Europe. Ben Nevis and Mon Blanc have a quite big range on animals and plants. Scotland, France and Italy are all in the European Union so Ben Nevis and Mon Blanc are in the European Union. ✓

Difference

Ben Nevis is a volcanic mountain. It is only in Scotland, it doesn't stretch over any more countries. The mountain is 1,345m high and 4413ft. Its age is 350 million years. ✓

Difference

Mon Blanc is a gold mountain. It stretches over France and Italy. The mountain is 4,800m and 15,771ft. Its age is 15 million years. ✓

Describe two features of the domestic problems faced by Elizabeth I in 1558. [4 marks]

Introduction
Describe the two domestic challenges faced by Elizabeth I that you are going to use in your answer.

- Keep it relevant to the question.
- Keep it short.

Feature one
Define the first feature in the first sentence.

Describe the feature using details from your own knowledge.

Write two sentences of details from your own knowledge.

Remember to use connectives such as This meant that ...

Feature two
Define the second feature in the first sentence.

Describe the feature using details from your own knowledge.

Write two sentences of details from your own knowledge.

Remember to use connectives such as This meant that ...

You have got 4 as you have identified 2 key features and explained them in detail.

Elizabeth I was being constantly challenged, especially at home. Two challenges she faced were the question of her legitimacy and also her marriage and successor.

relevant ✓
use words from question X

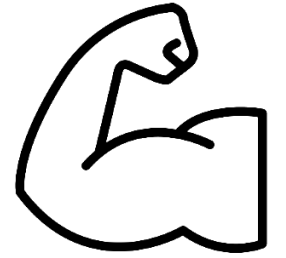
The first challenge referred to the case of her legitimacy. Many Catholics thought her father's marriage to her mother was illegitimate because the Pope did not grant Henry VIII's divorce. There was also a time where Henry himself called Elizabeth an illegitimate bastard, despite her being fully legitimate with Royal blood and in her adult life being admitted legitimate by her father.

relevant ✓
use words from question X

The second challenge she faced was the constant pressure to take a husband and name a successor. Elizabeth I's closest relative was Mary Queen of Scots, a French, Scottish Catholic. The people wanted stability in England and swapping to a Catholic queen from a Protestant would create more issues. By taking a husband, she created an heir or children to pass the throne to. Subsequently, she had to be subjected to her husband, which would appease the patriarchal society, as women were deemed too weak for rule. However she didn't name a successor till

Remember scaffolding
needs to be removed
over time!

Strengthen memory



Robust culture of retrieval practice

How we typically think of learning:

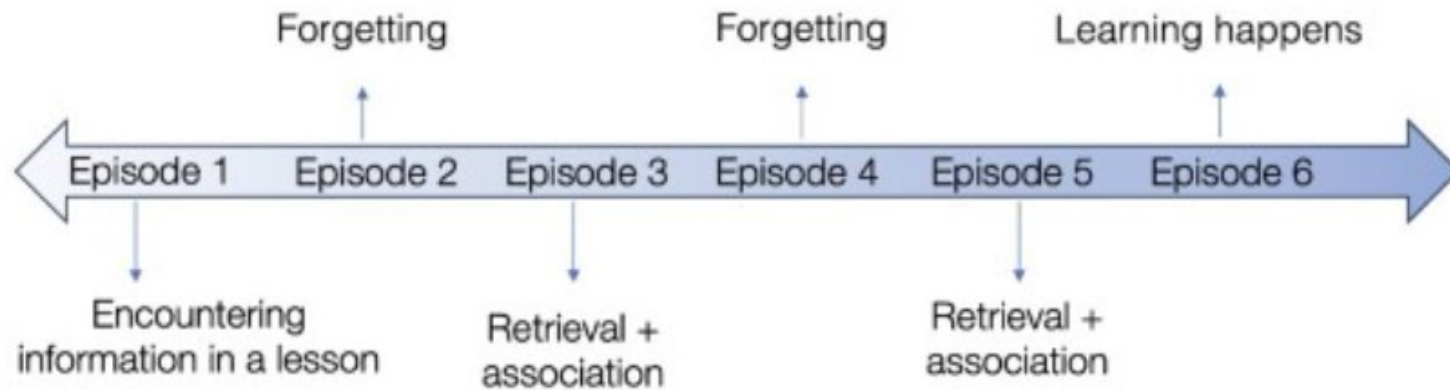


(Hendrick, C. 2024)

How we typically think of learning:



How learning actually happens:



(Hendrick, C. 2024)

But, because, so

Scaffolding supports memory...

Differentiation can lower expectations...

Elaborative interrogation

- What's the same and what's different about adaptive teaching and differentiation?
- What is the main idea of adaptive teaching?
- In what way is cognitive load related to additional learning need?
- What are some possible solutions for the problem of smaller working memory?

We need to prioritise...

- Building a diagnostic mindset
- Designing curriculum to anticipate likely difficulties
- Presenting visual information more clearly
- Developing scaffolding techniques