The power of disciplinary oracy in mathematics at Corpus Christi

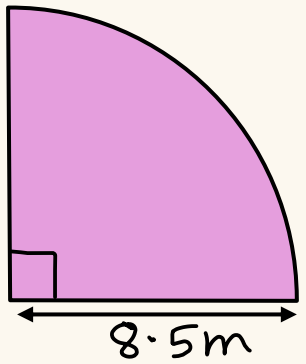
Why discussion matters in mathematics

- Ensures all pupils are thinking and ‘wrestling in’.
- Pupils are always prepared to answer the question.
- Addresses poor literacy and supports pupils with EAL.
- Increases confidence and reduces anxiety.
- Dramatically improves retention of knowledge.
- Misconceptions are addressed highly effectively.

Where to start?

Purposeful mistakes to address misconceptions

Calculate the area



$$\text{Area} = \frac{1}{4} \times \pi \times 4.25^2$$
$$= 14.2\,m^2$$

Solve $3x - 5 = 8x - 15$

$-3x \quad -3x$

$5 = 5x - 15$

$+15 \quad +15$

$20 = 5x$

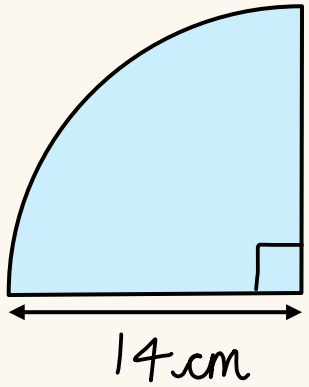
$\div 5 \quad \div 5$

$4 = x$

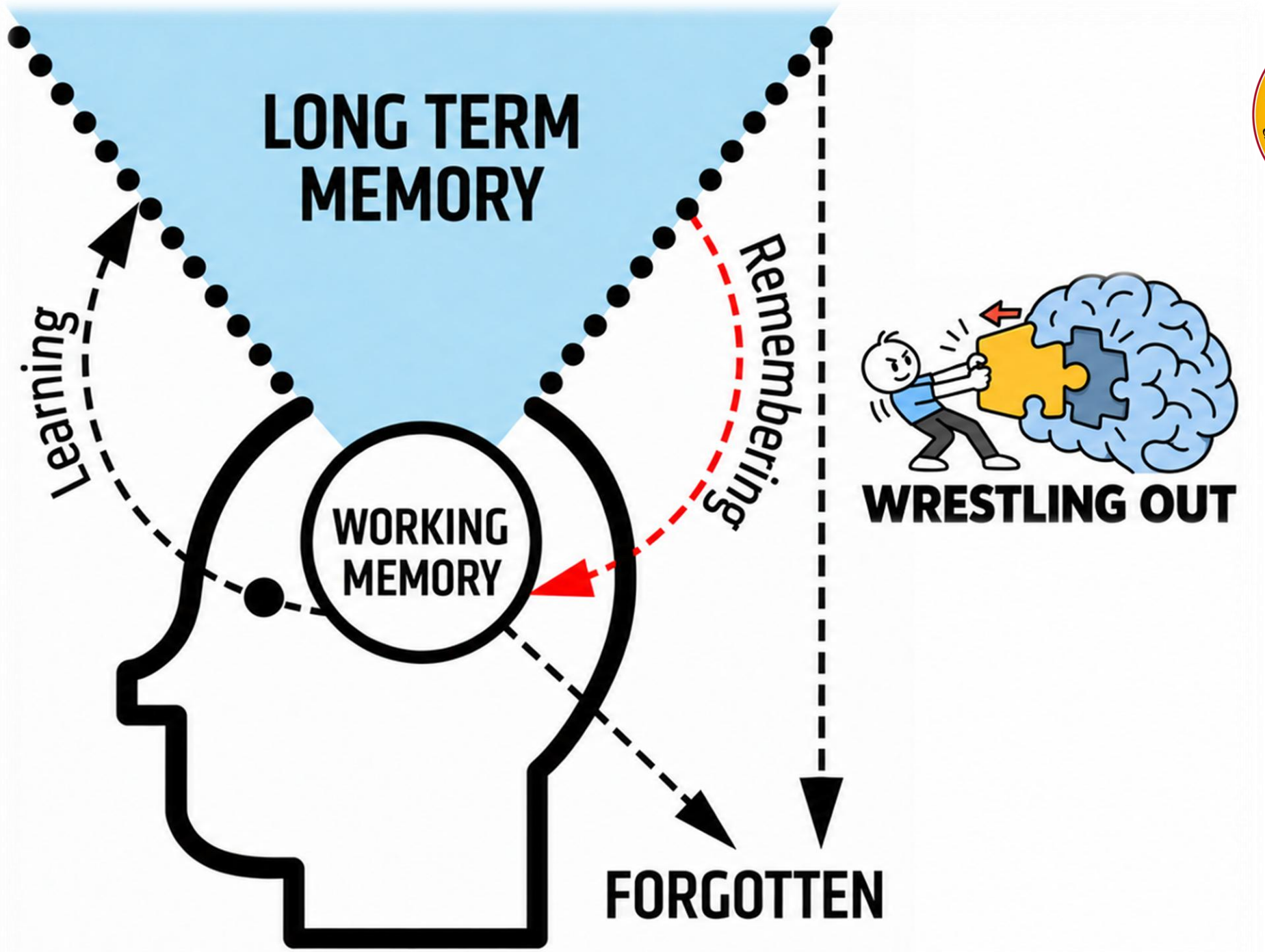


Whiteboards

1) Calculate the area



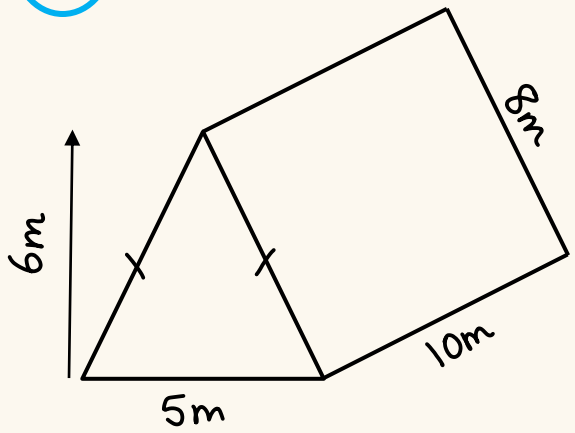
2) Solve $2q - 9 = 6q - 13$



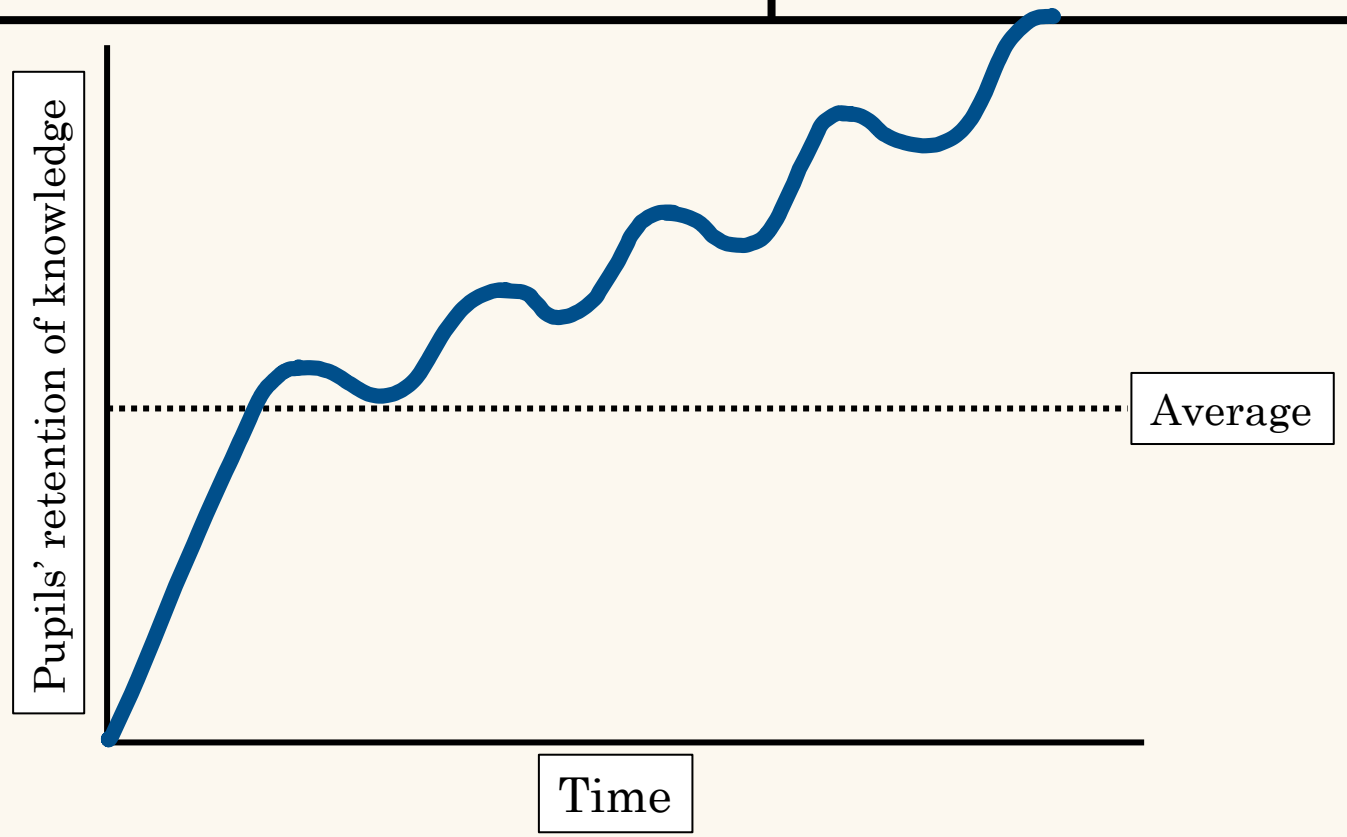
WRESTLING OUT

Paired discussion for recapping

A Calculate the ~~surface~~ area

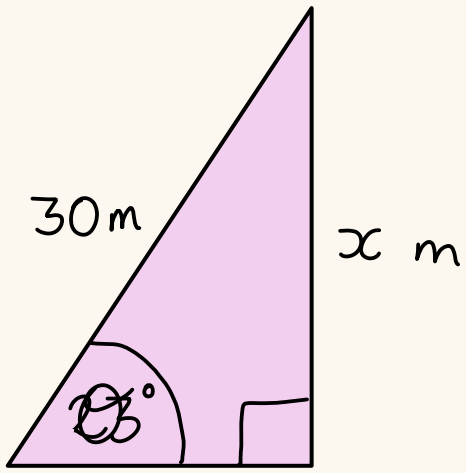


B Solve $\frac{x-2}{3} = 5$



- Opportunity for recap.
- Paired discussion / Seating plan.
- Each pupil has a responsibility – increased urgency.
- Difficulty of questions for each partner considered.
- Address misconceptions.
- Boards are wiped clean.

A Find the value of Ø



B Solve

$$2y + 4 = 5y - 8$$

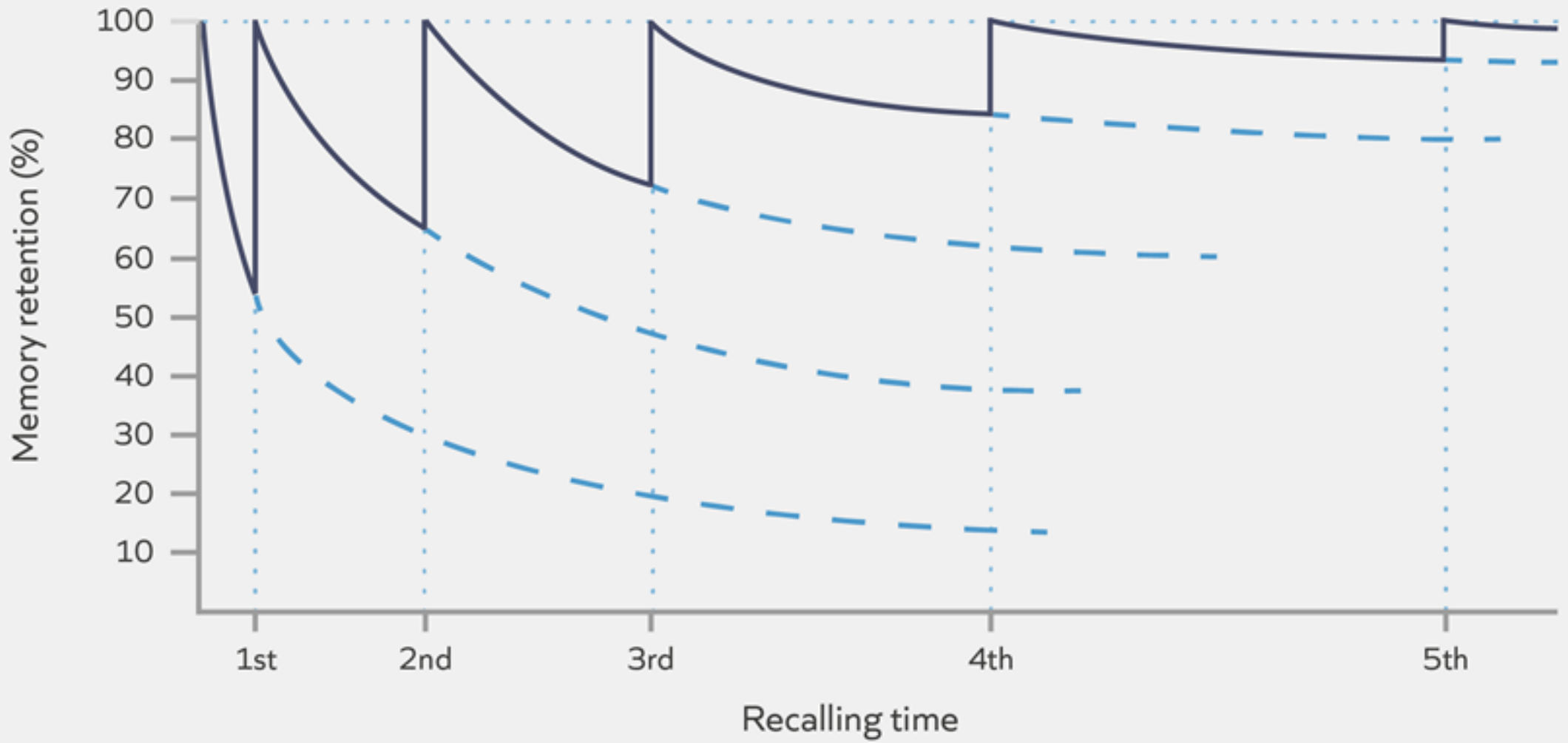
A Simplify

$$3a^{4} \times 3a^{-9}$$

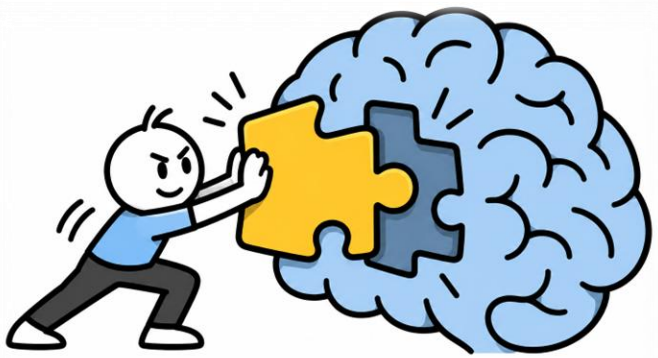
B Calculate the value of x.



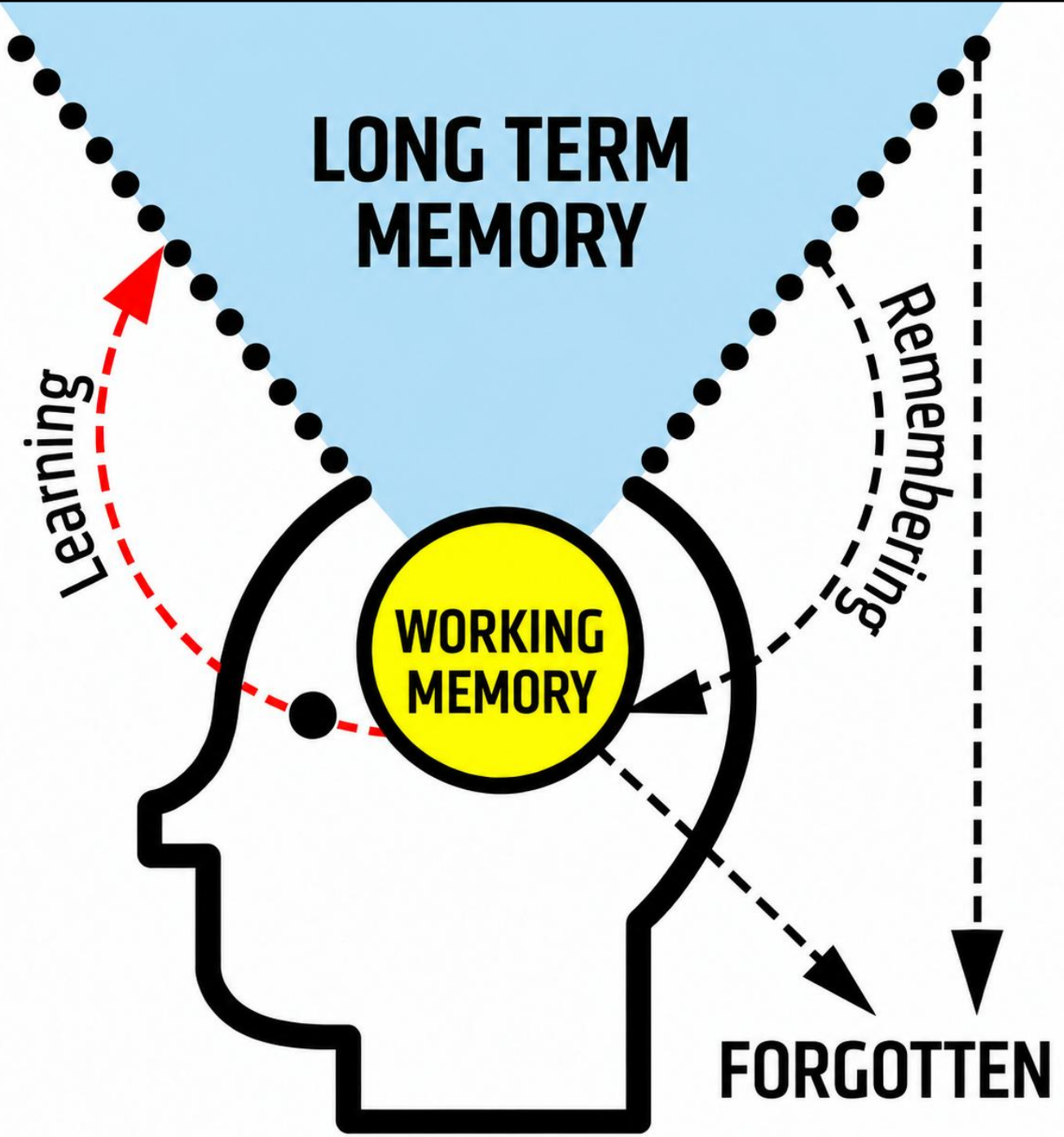
- Is the seating plan optimal?
- Are there any passive pupils during the process?
- Does it link to the new learning?
- Are you satisfied that the prior knowledge is secure before moving on?



Adapted from Ebbinghaus, 1885



WRESTLING IN



Compliance ≠ Engagement

Using discussion during modelling

- To learn, you must think. *‘Memory is a residue of a thought’.*
- Discussion ensures pupils are in deep thought throughout modelling.
- Naturally breaks modelling into chunks to aid learning.
- Teachers can easily gauge pupils’ retention of prior knowledge.
- Pupils are accountable for their concentration throughout.