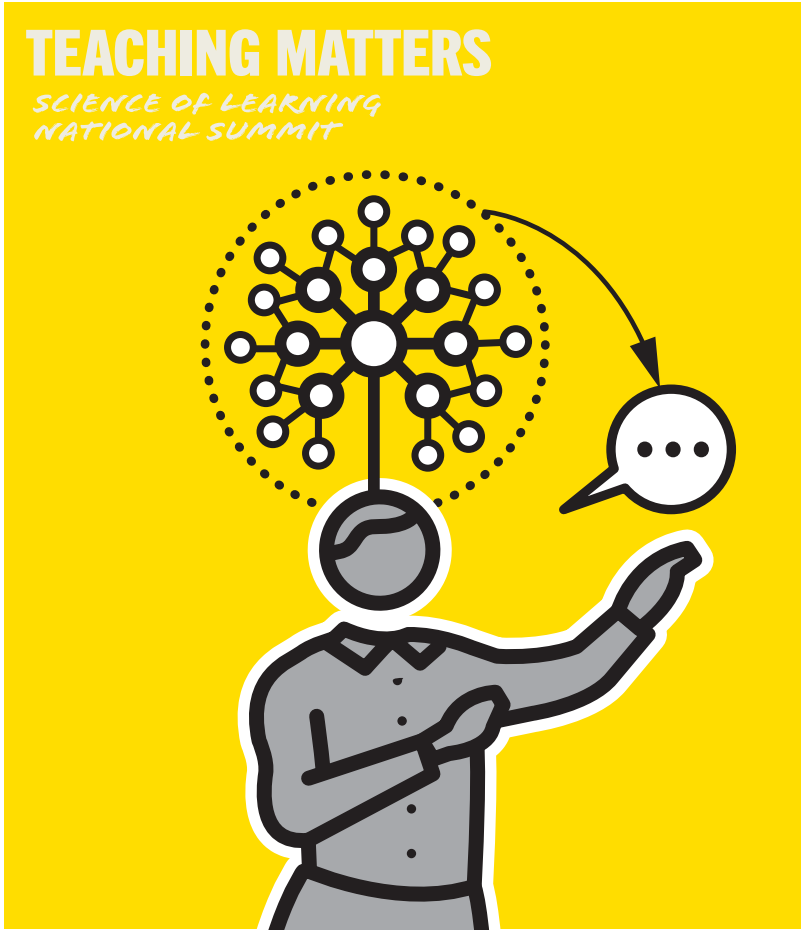
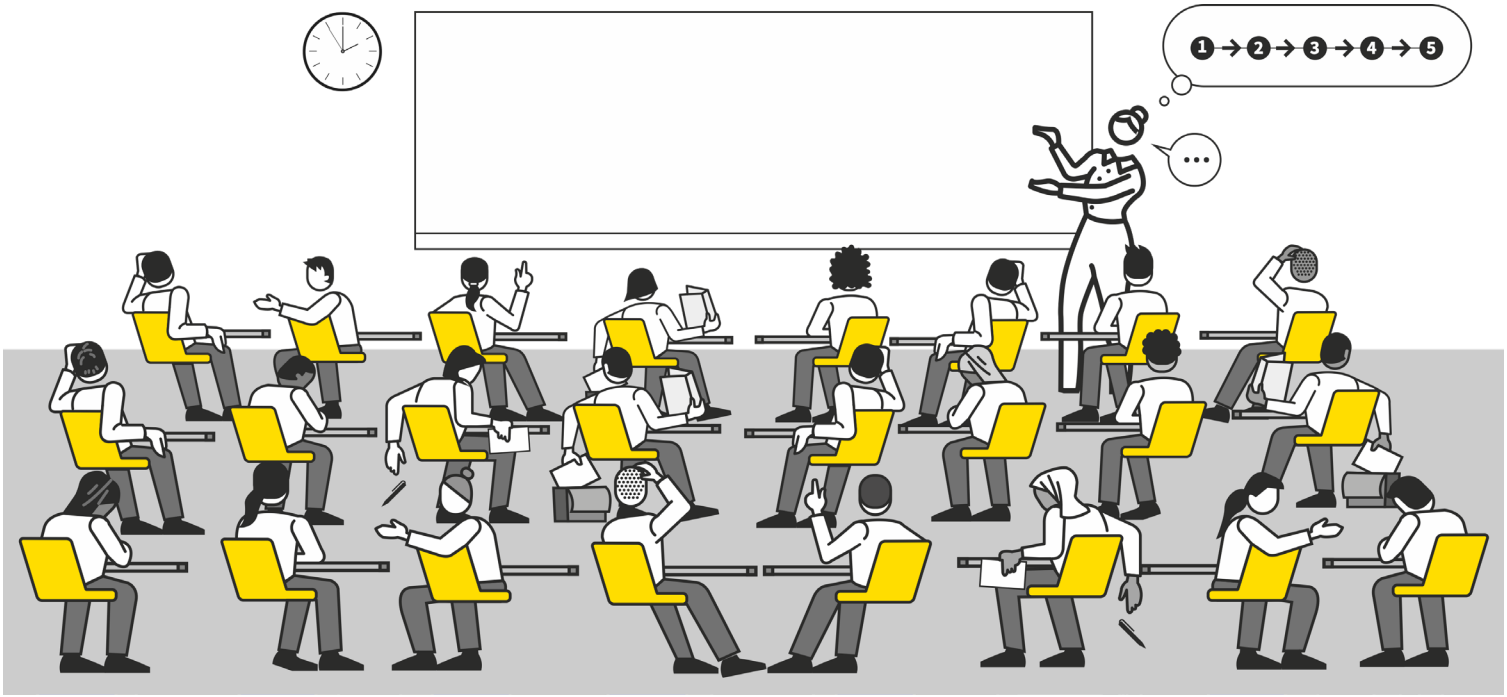
Catholic Education Tasmania | Student Focused Christ Centred Learning for Life

# The following resource has been created for attendees of the Teaching Matters Summit.

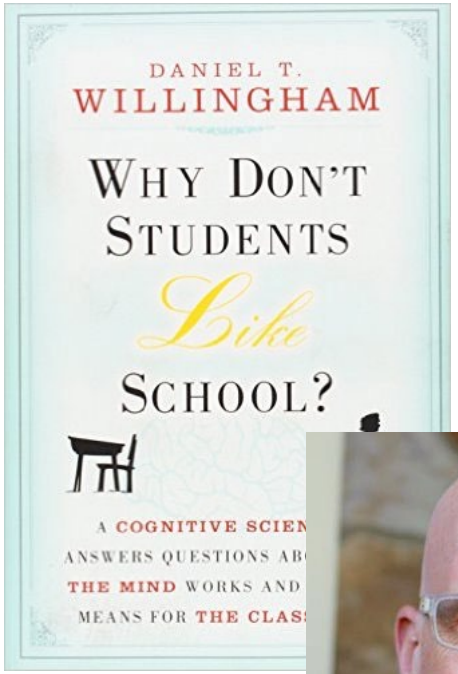


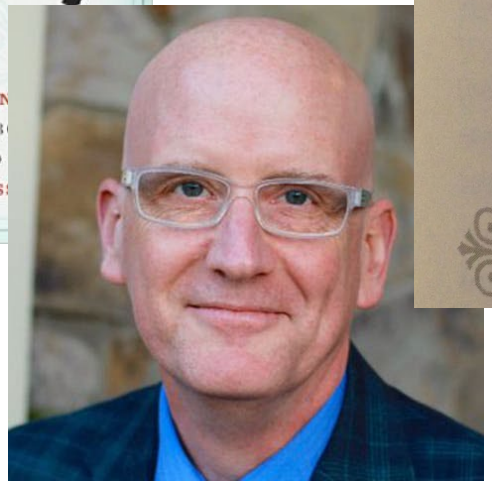

# The power of a simplified learning model

Tom Sherrington
@teacherhead




# The classroom | **complex environment**



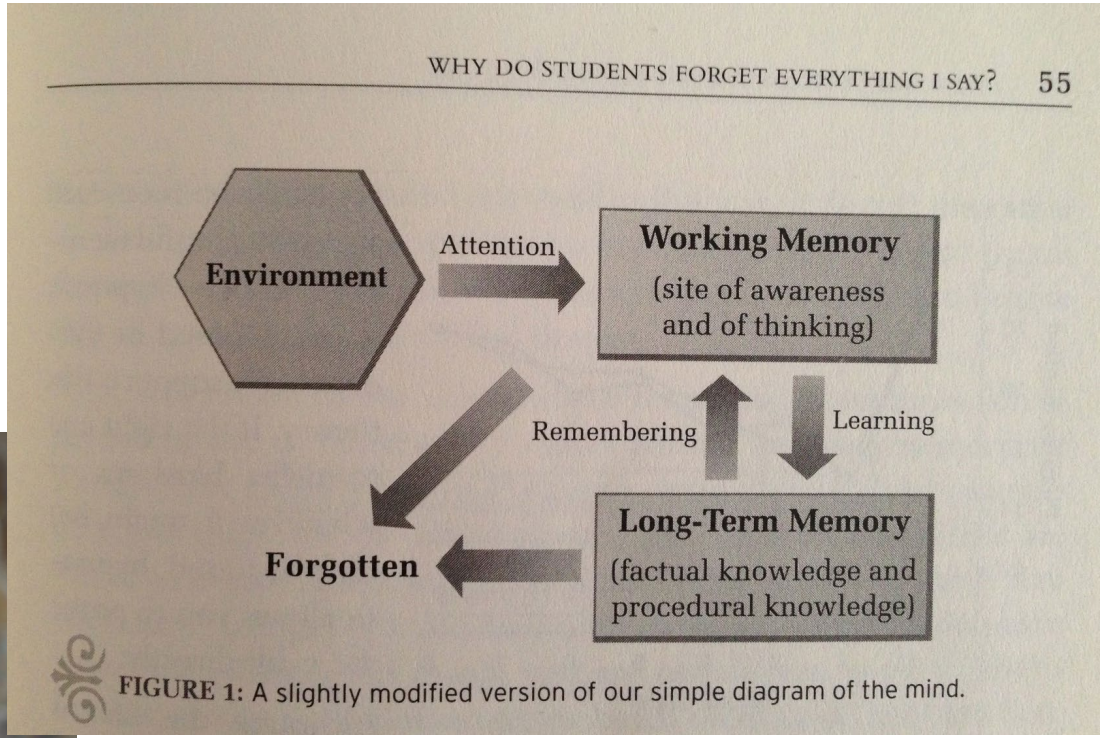


FIGURE 1: A slightly modified version of our simple diagram of the mind.

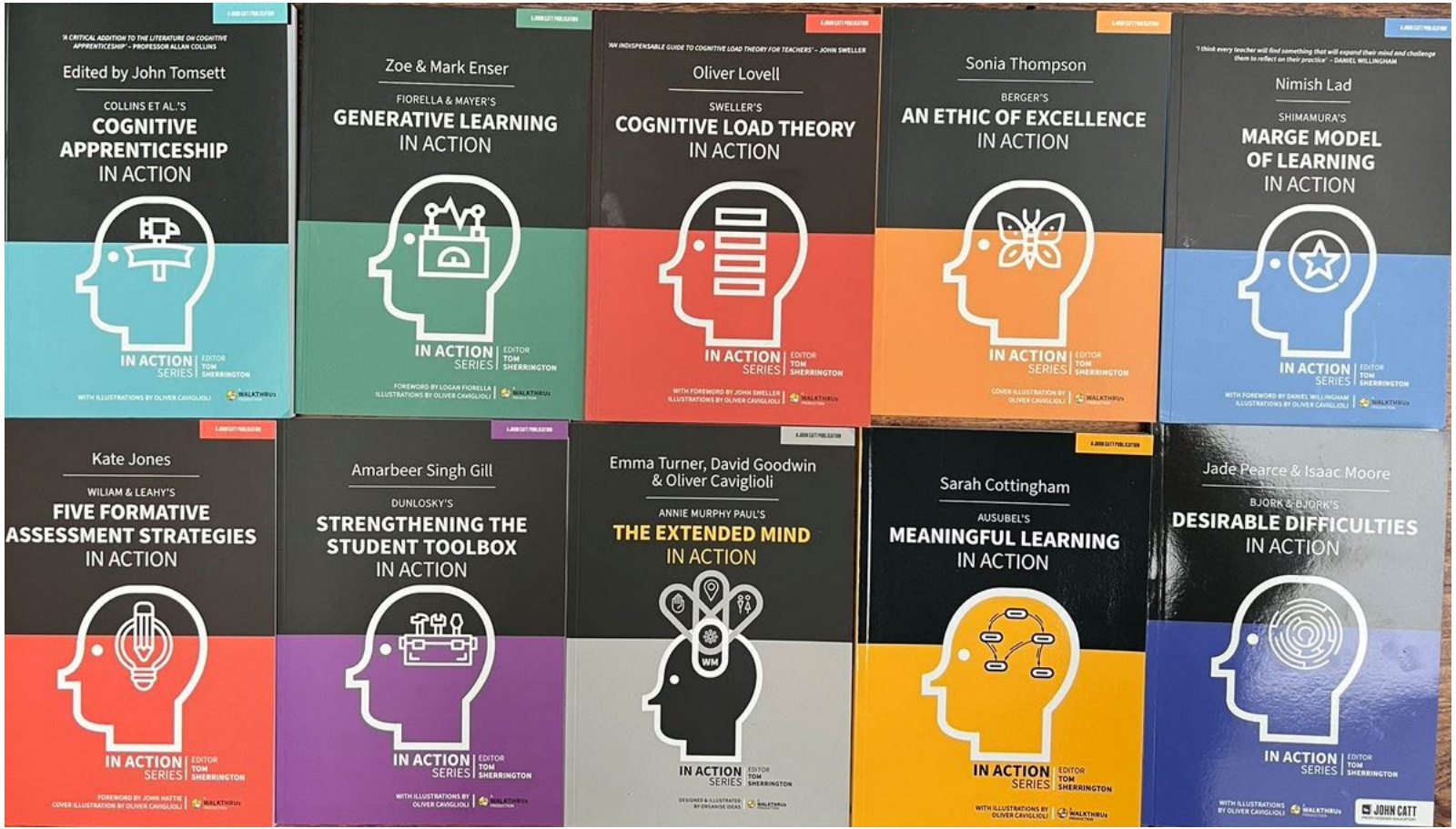
# Daniel Willingham:

Memory is the residue of thought

Understanding: remembering in disguise; capacity to explain.

Drills for fluency

Power of stories


Edited by John Tomsett
COLLINS ET AL.'S
COGNITIVE APPRENTICESHIP
IN ACTION
Zoe & Mark Enser
FIORELLA & MAYER'S
GENERATIVE LEARNING
IN ACTION
Oliver Lovell
SWELLER'S
COGNITIVE LOAD THEORY
IN ACTION
Sonia Thompson
BERGER'S
AN ETHIC OF EXCELLENCE
IN ACTION
Nimish Lad
SHIMAMURA'S
MARGE MODEL
OF LEARNING
IN ACTION
Kate Jones
WILIAM & LEAHY'S
FIVE FORMATIVE
ASSESSMENT STRATEGIES
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DUNLOSKY'S
STRENGTHENING THE
STUDENT TOOLBOX
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Emma Turner, David Goodwin
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ANNIE MURPHY PAUL'S
THE EXTENDED MIND
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MEANINGFUL LEARNING
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Jade Pearce & Isaac Moore
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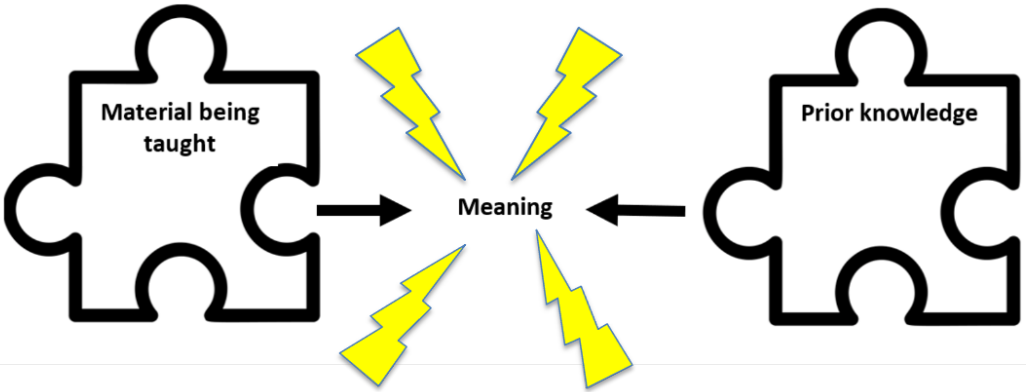
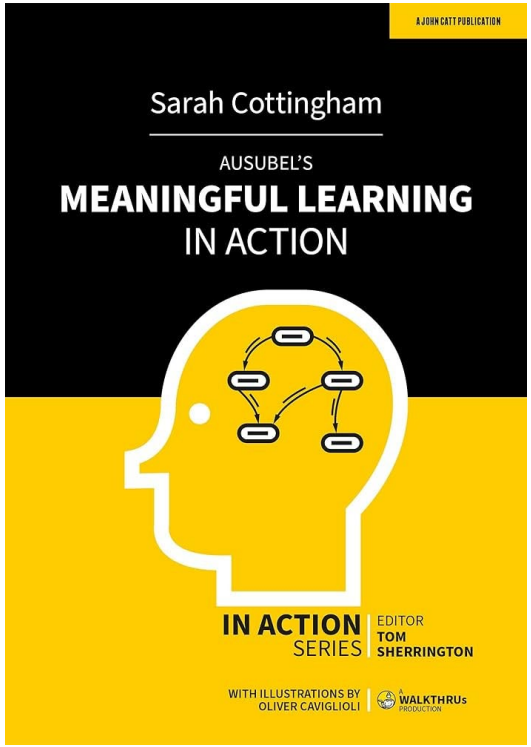
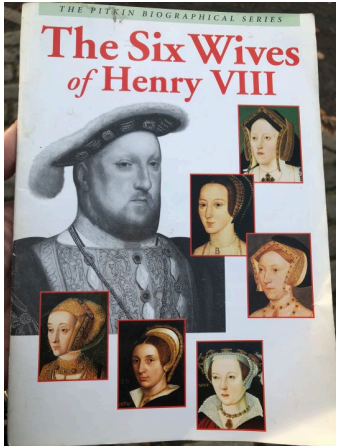
DESIRABLE DIFFICULTIES
IN ACTION
IN ACTION SERIES
EDITOR TOM SHERRINGTON
JOHN CATT

When relevant aspects of new material you are teaching meet related ideas in pupils' minds, meaning emerges (Ausubel, 2000).




Sarah Cottinghatt: overpractised.wordpress.com

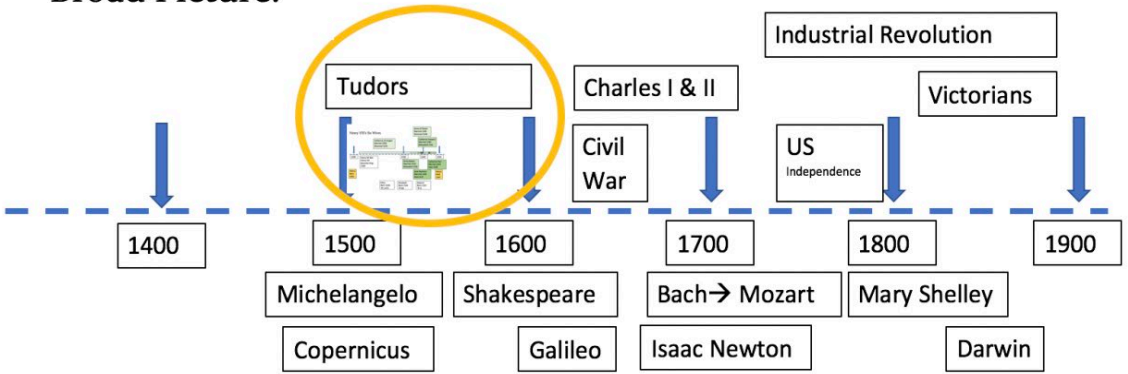





# Why did Henry VIII break from Rome?

Love?
Power?
Faith?
Money?

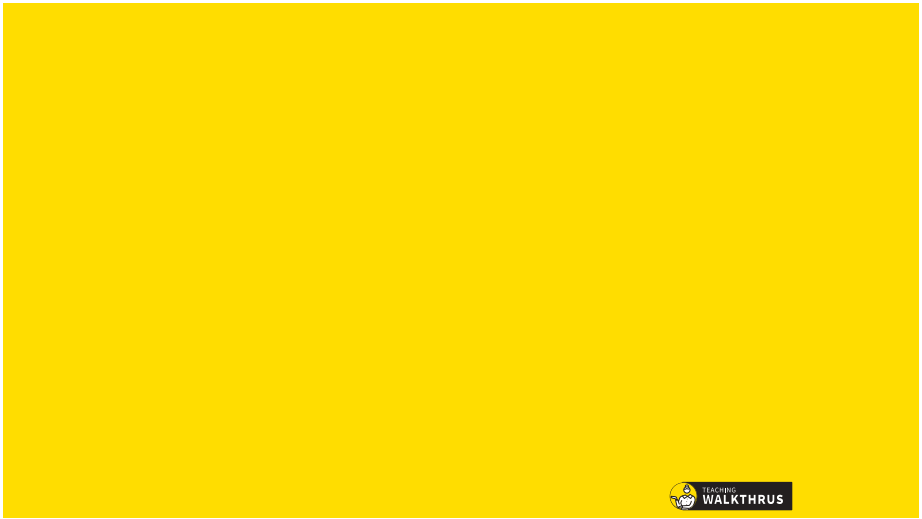
## Broad Picture.



*Lack of prior knowledge*

*Attention deficits*

*Poor fluency of recall*

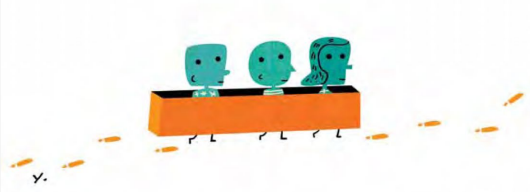



*Memory overload (transience)*

*Task completion poor proxy for learning*

# Principles of Instruction

## Research-Based Strategies That All Teachers Should Know



By Barak Rosenshine

This article presents 10 research-based principles of instruction, along with suggestions for classroom practice. These principles come from three sources: (a) research in cognitive science, (b) research on master teachers, and (c) research on cognitive supports. Each is briefly explained below.

*A: Research in cognitive science*: This research focuses on how our brains acquire and use information. This cognitive research also provides suggestions on how we might overcome the limitations of our working memory (i.e., the mental "space" in which thinking occurs) when learning new material.

*B: Research on the classroom practices of master teachers*: Master teachers are those teachers whose classrooms made the highest gains on achievement tests. In a series of studies, a wide range of teachers were observed as they taught, and the investigators coded how they presented new material, how and whether they checked for student understanding, the types of support they provided to their students, and a number of other instructional activities. By also gathering student achievement data, researchers were able to identify the ways in which the more and less effective teachers differed.

*C: Research on cognitive supports to help students learn complex tasks*: Effective instructional procedures—such as thinking aloud, providing students with scaffolds, and providing students with models—come from this research.

*Barak Rosenshine is an emeritus professor of educational psychology in the College of Education at the University of Illinois at Urbana-Champaign. A distinguished researcher, he has spent much of the past four decades identifying the hallmarks of effective teaching. He began his career as a high school history teacher in the Chicago public schools. This article is adapted with permission from* Principles of Instruction *by Barak Rosenshine. Published by the International Academy of Education in 2010, the original report is available at www.ibe.unesco.org/fileadmin/user_upload/Publications/Educational_Practices/EdPractices_21.pdf.*

ILLUSTRATION BY JAMES YANG

Even though these are three very different bodies of research, there is *no conflict at all* between the instructional suggestions that come from each of these three sources. In other words, these three sources supplement and complement each other. The fact that the instructional ideas from three different sources supplement and complement each other gives us faith in the validity of these findings.

Education involves helping a novice develop strong, readily accessible background knowledge. It's important that background knowledge be readily accessible, and this occurs when knowledge is well rehearsed and tied to other knowledge. The most effective teachers ensured that their students efficiently acquired, rehearsed, and connected background knowledge by providing a good deal of instructional support. They provided this support by teaching new material in manageable amounts, modeling, guiding student practice, helping students when they made errors, and providing for sufficient practice and review. Many of these teachers also went on to experiential, hands-on activities, but they always did the experiential activities *after*, not before, the basic material was learned.

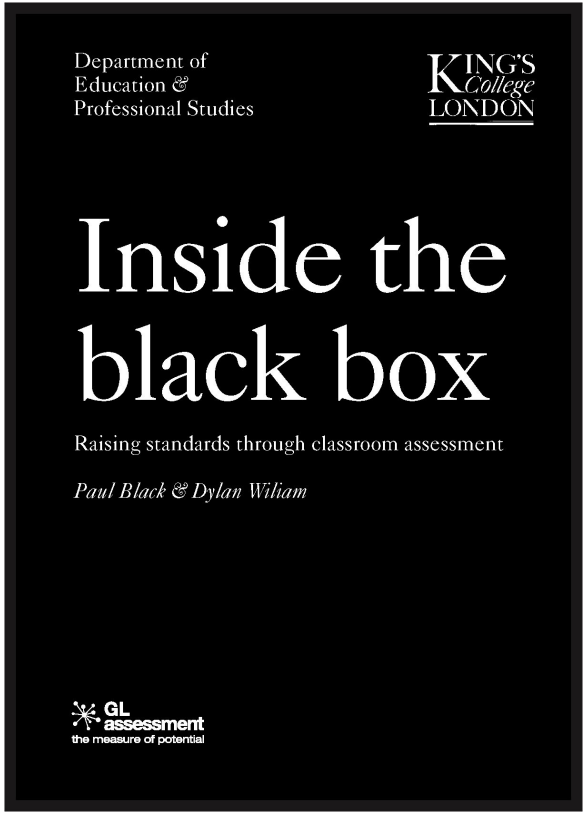
The following is a list of some of the instructional principles that have come from these three sources. These ideas will be described and discussed in this article:

- Begin a lesson with a short review of previous learning.[1]
- Present new material in small steps with student practice after each step.[2]
- Ask a large number of questions and check the responses of all students.[3]
- Provide models.[4]
- Guide student practice.[5]
- Check for student understanding.[6]
- Obtain a high success rate.[7]
- Provide scaffolds for difficult tasks.[8]
- Require and monitor independent practice.[9]
- Engage students in weekly and monthly review.[10]



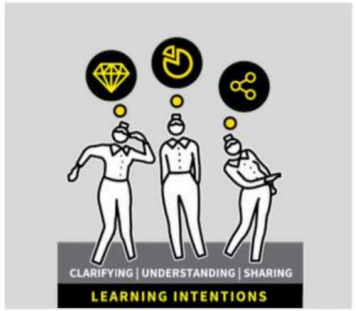
It's hard to imagine teaching without:

- **Reviewing material**
- **Questioning and checking for understanding**
- **Sequencing concepts; modelling; scaffolding**
- **Guided and independent practice**

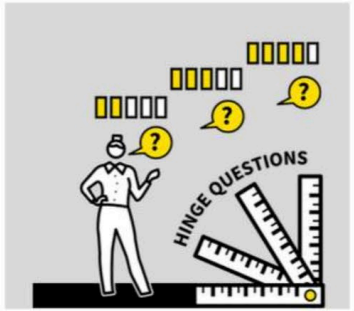



"The teacher, by lowering the level of questions and by accepting answers from a few, can keep the lesson going but is ***out of touch with the understanding of most of the class***.."

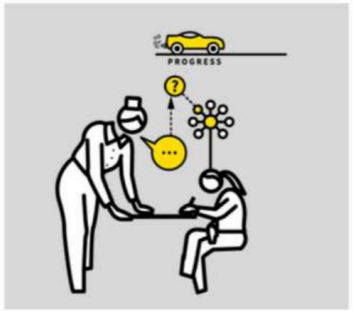
# WILIAM et al's FORMATIVE ASSESSMENT STRATEGIES



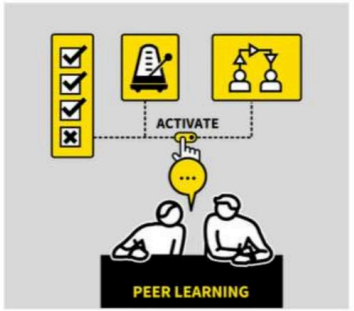

CLARIFY LEARNING INTENTIONS




ELICIT EVIDENCE OF LEARNING




FEEDBACK THAT MOVES LEARNERS FORWARD




STUDENTS AS LEARNING RESOURCES


STUDENTS AS OWNERS OF THEIR LEARNING

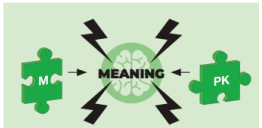

Is EVERYONE..
Thinking?
Making Meaning?
Practising?
1 → 2 → 3 → 4 → 5
...

# *Teaching is creative; creativity builds on technique*

TOM SHERRINGTON

# TEACHING SOME VS TEACHING ALL

## THIS IS WHERE THE ACTION FOR IMPROVEMENT LIES




**M** Material being taught
**PK** Prior knowledge

Without attention, without thinking – there is no learning. So it's fundamental that we consider and check that everyone is thinking. For learning to happen, several things to be fired up:

- they need to be thinking, focusing their attention to achieve the learning goals.
- they need to build new learning on prior knowledge in order to make meaning.
- they need to engage in practice and receive feedback that moves them forward.

Here are six things to think about when trying to reach **ALL** not just some; for **ALL** students to make meaning successfully, not just a few.

### SECURE ATTENTION

**Securing students' attention is critical for thinking**

Securing mental attention is paramount. Students will mind-wander naturally and inevitably unless they have tasks or questions that occupy their minds. Set up routine tasks and questions that **ALL** students must do. Accountability techniques like Cold Call are essential for achieving this.

### CHECK PRIOR KNOWLEDGE

**Checking prior knowledge helps to make connections**

It's vital , to check your assumptions about prior knowledge – going back as far you need to allow **ALL** students to connect to things they already know. Take students from where they actually are by using numerous checking processes including quizzing, pair talk and general assessment over time.

### ENGAGE IN QUESTIONING

**Good questioning reveals students' thinking**

An inclusive classroom involves **ALL** students in questioning flows. If you combine whiteboards, think pair share and cold calling, you have three tools that work in combination. You flex the questioning method to ensure every student can practise, can think and can reveal their thinking to you.

### PRACTICE & REHEARSAL

**Practising talking and writing helps to make meaning**

To make meaning with words and phrases, students need to connect them to concrete knowledge they have. For this to happen, **ALL** students need to practise using all the words. Good lessons where everyone is learning involve all students consolidating by practising, both in writing and through talk.

### RESPOND TO KNOWLEDGE GAPS

**Feedback loops let teachers address learning issues**

We must adapt our teaching inputs in response to how well **ALL** students are learning. Our routines should be about finding out where they struggle and then reteaching those areas. We rebuild through: more examples, more practice, more concrete reference points, visual aids. Whatever it takes.

### DESIGN EFFECTIVE SCAFFOLDS

**Scaffolds enable all to participate in making meaning**

Scaffolds allow **ALL** students to participate and make meaning within a lesson flow or a task, without needing to rely solely on their prior knowledge. The skill of a teacher lies in working out which scaffolds to use and when to reduce the level of scaffolding so that students ultimately no longer need them.

**DESIGNED** BY JAMIE CLARK | @XPATEDUCATOR

**REFERENCE** BLOG: 'TEACHING SOME VS TEACHING ALL' TOM SHERRINGTON / DIAGRAM: SARAH COTTINGHAM

# TEACHING ALL

## SECURE ATTENTION

Securing students' attention is critical for thinking

## CHECK PRIOR KNOWLEDGE

Checking prior knowledge helps to make connections

## ENGAGE IN QUESTIONING

Good questioning reveals students' thinking

## PRACTICE & REHEARSAL

Practising talking and writing helps to make meaning

## RESPOND TO KNOWLEDGE GAPS

Feedback loops let teachers address learning issues

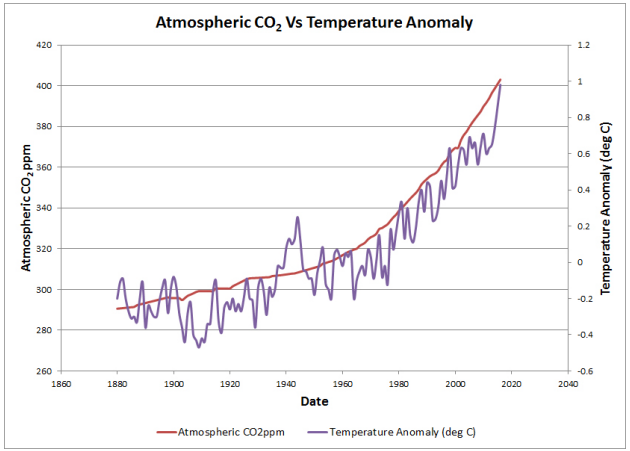
## DESIGN EFFECTIVE SCAFFOLDS

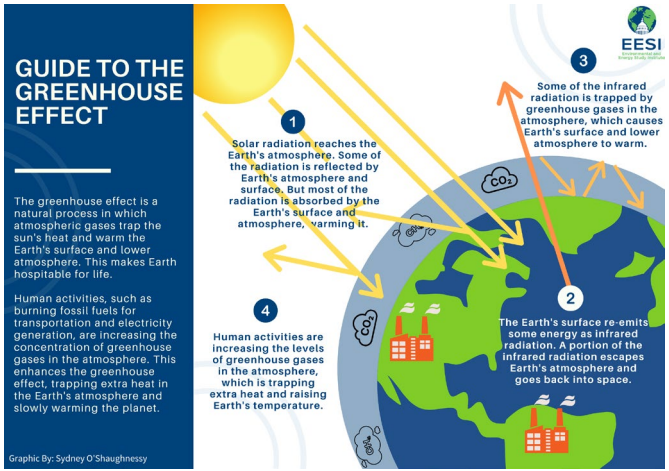
Scaffolds enable all to participate in making meaning

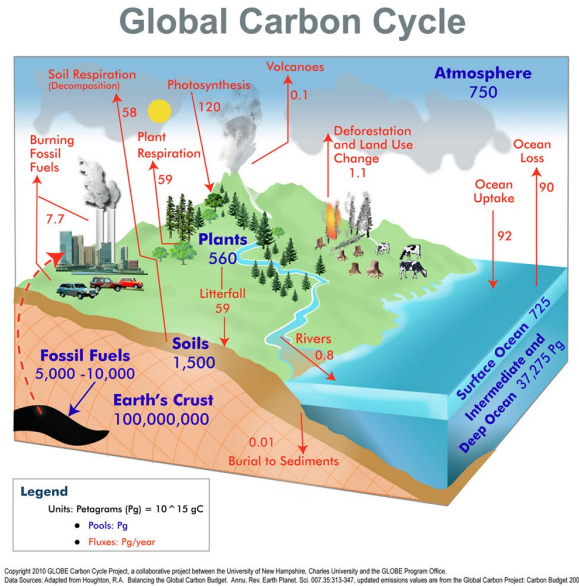
# Why do we need wind farms?

# Why do we need wind farms?

# Why do we need wind farms?



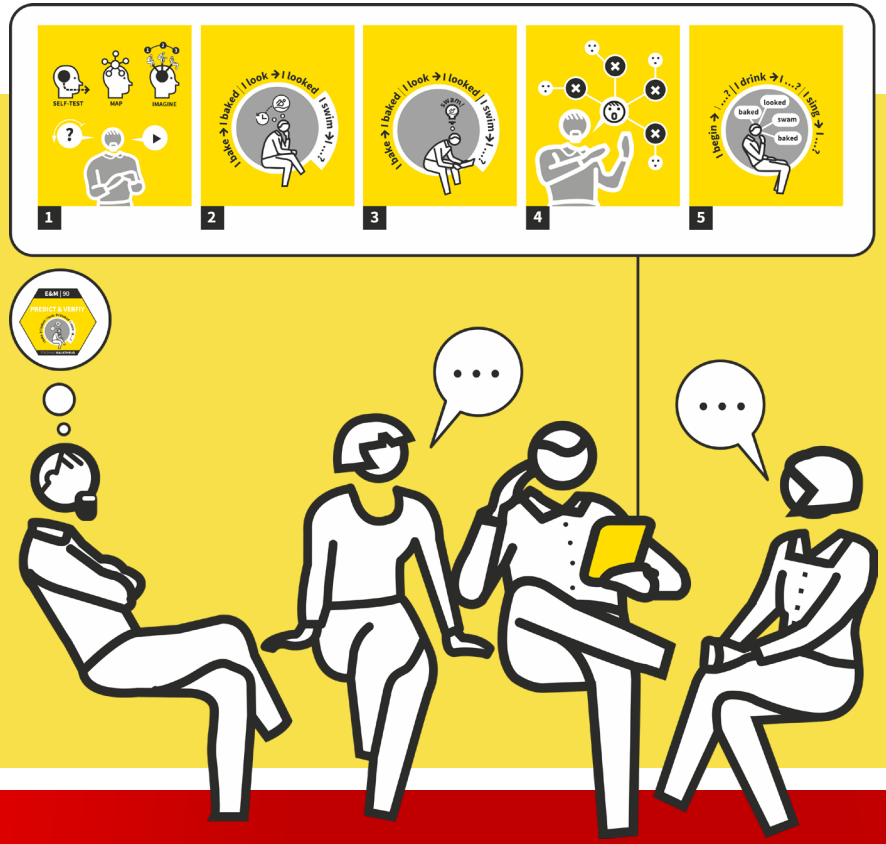



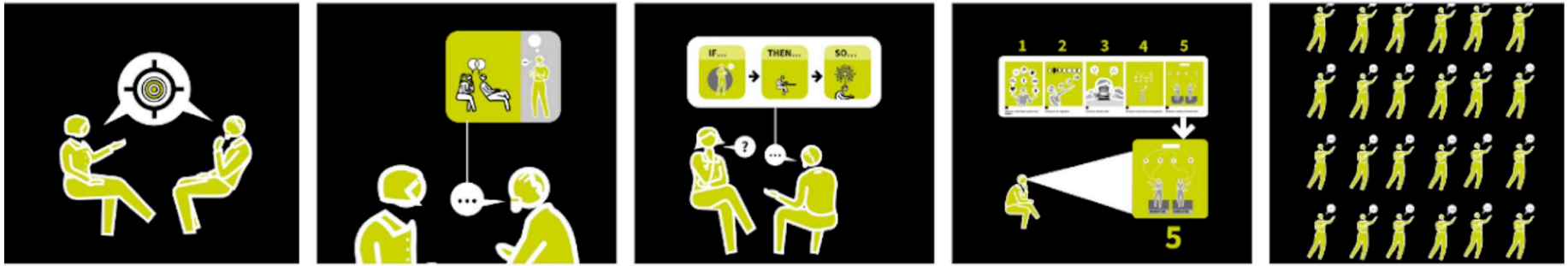
| Advantages | Disadvantages |
|---|---|
| Reduces consumption of fossil fuels for electricity production | Wind generators are only feasible in certain areas |
| Reduces production of greenhouse gases | Each wind turbine kills about one bird per year |
| Reduces production of pollution | Wind generators make a humming sound that can be heard nearby |
| Can provide extra income for farmers | Wind generators are tall and can block the views of nearby scenery |
| Wind is a renewable energy resource | |


Is EVERYONE..
Thinking?
Making Meaning?
Practising?
1 → 2 → 3 → 4 → 5
...

# Communication | **Shared understanding**



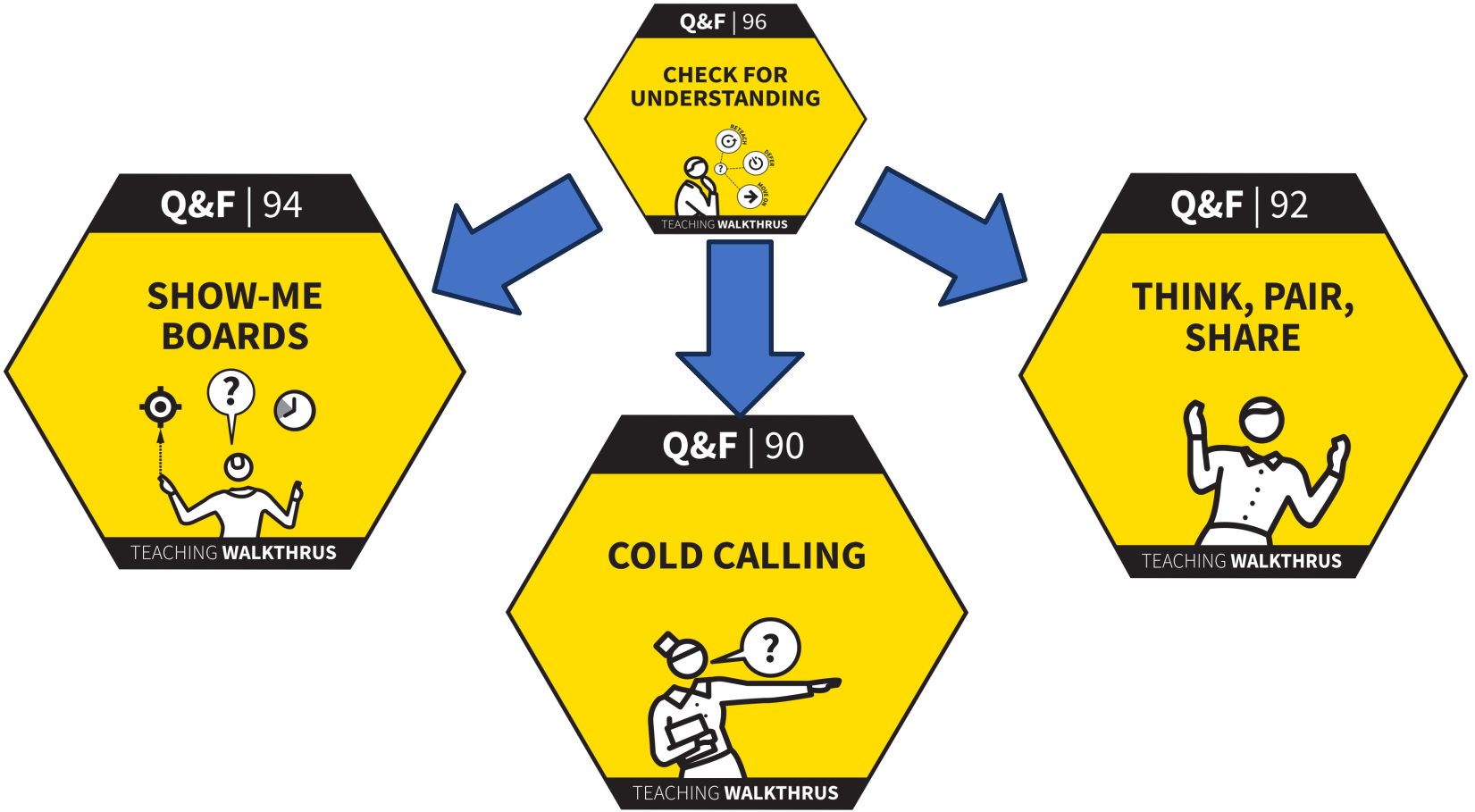
# RESPONSIVE COACHING




SETTING GOALS | BUILDING SITUATION ASSESSMENT | DEVELOPING INSIGHTS | ESTABLISHING STEPS | BUILDING HABITS

Responsive Coaching Walkthru | Josh Goodrich

# Questioning



# COLD CALLING

1 2 3 4 5

ASK THE CLASS THE QUESTION

GIVE THINKING TIME

SELECT SOMEONE TO RESPOND

RESPOND TO THE ANSWERS

SELECT ANOTHER STUDENT AND RESPOND AGAIN

TEACHING WALKTHRUS

SERIES QUESTIONING & FEEDBACK

A|D|A|P|T

# THINK, PAIR, SHARE

1 2 3 4 5

ESTABLISH TALK PARTNERS FOR EVERY STUDENT

SET THE QUESTION WITH A GOAL AND A TIMEFRAME

BUILD IN THINKING TIME

CIRCULATE TO LISTEN AS PAIRS ARE TALKING

USE COLD CALL TO SAMPLE PAIRS' RESPONSES

TEACHING WALKTHRUS
SERIES
QUESTIONING & FEEDBACK
A|D|A|P|T

Think about the character of Scrooge.  What three adjectives might you use to describe him?

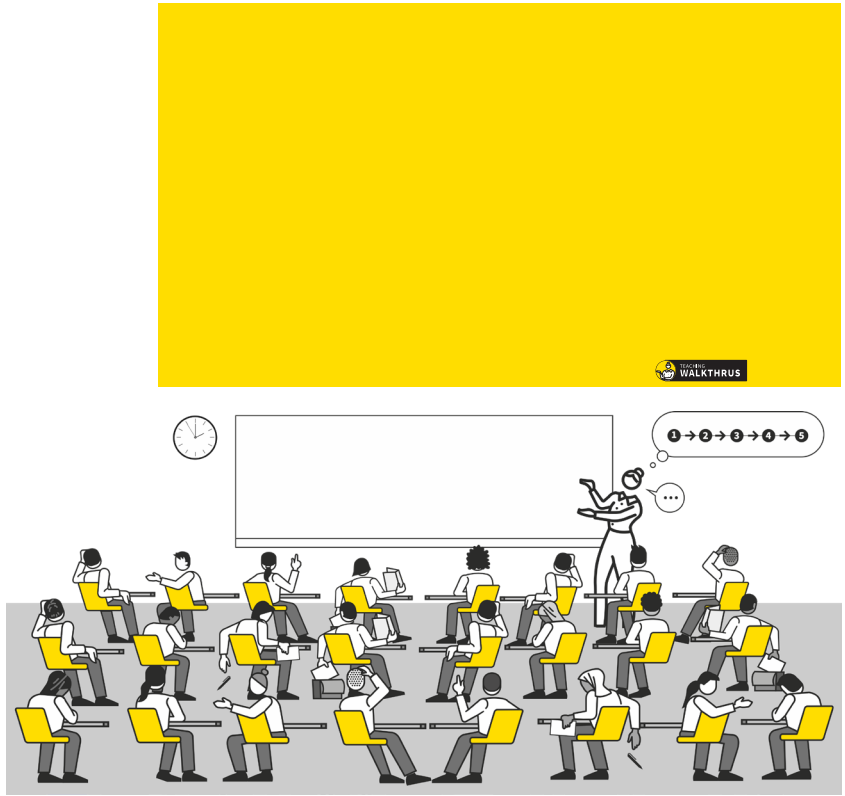
Why did you choose them?

**Answer Stem:**

I think Scrooge is ….., ……. and …..

because ……

# The classroom | Principles → Mental model → Habits

# Thank You!

Tom Sherrington
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