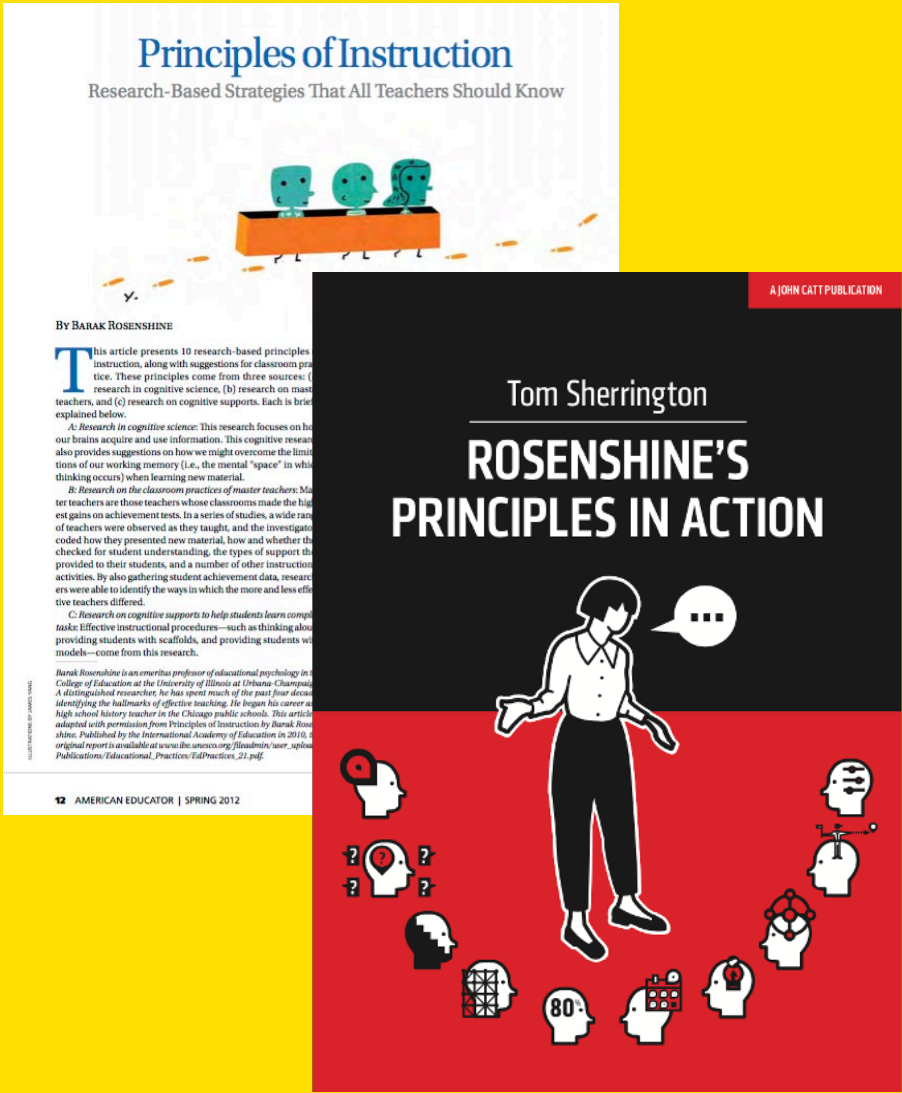


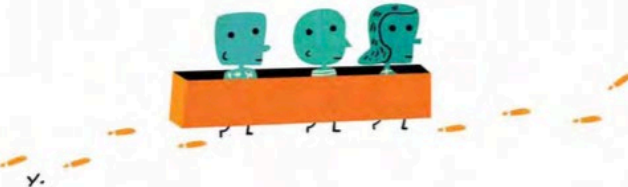
The Power and Popularity of Rosenshine' Principles of Instruction.





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.

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

Research Findings → In the Classroom

More Successful Successful Most Effective Effective.

vs Less Effective

More Effective | Less Effective





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Barak Rosenshine

Rosenshine's principles | three sources, no conflict



- Begin a lesson with a short review of previous learning.
- Present new material in small steps with student practice after each step.
- Limit the amount of material students receive at one time.
- Give clear and detailed instructions and explanations.
- Ask a large number of questions and check for understanding.



- Provide a high level of active practice for all students.
- Guide students as they begin to practice.
- Think aloud and model steps.
- Provide models of worked-out problems.
- Ask students to explain what they have learned.
- Check the responses of all students.

- Provide systematic feedback and corrections.
 - Use more time to provide explanations.
 - Provide many examples.
 - Reteach material when necessary.
 - Prepare students for independent practice.
 - Monitor students when they begin independent practice.
- B.R.

Does it apply to me?

It's just common sense!

It's nothing new!



Reviewing material

Questioning; Checking for understanding

Sequencing concepts; modelling; scaffolding

Stages of practice.

EYFS

- communication and language
- physical development
- personal, social and emotional
- literacy
- mathematics
- understanding the world
- expressive arts and design

SEND



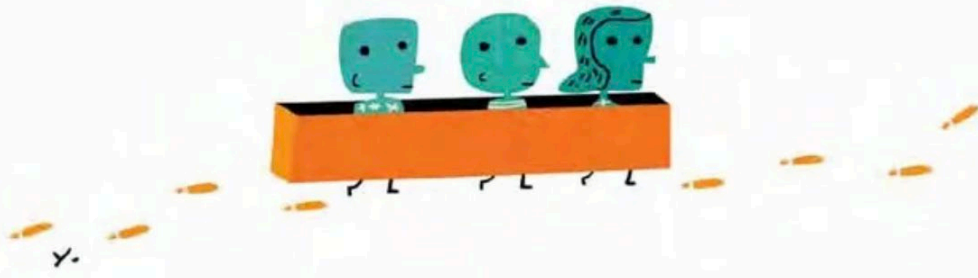
It's just 'teaching'!

There's more to teaching!



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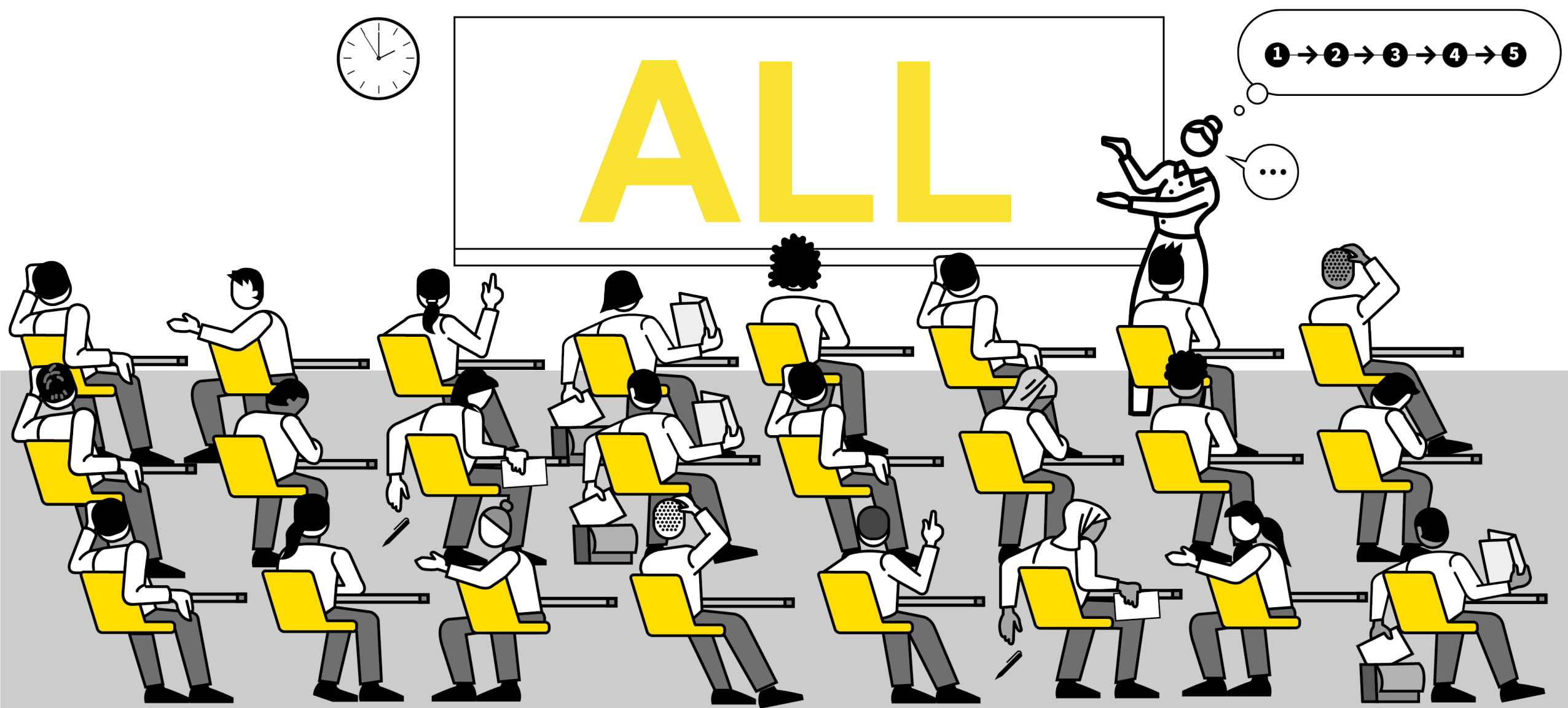
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- Present new material in small steps with student practice after each step.²
- Ask a large number of questions and check the responses of all

It’s hard to imagine teaching without:

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

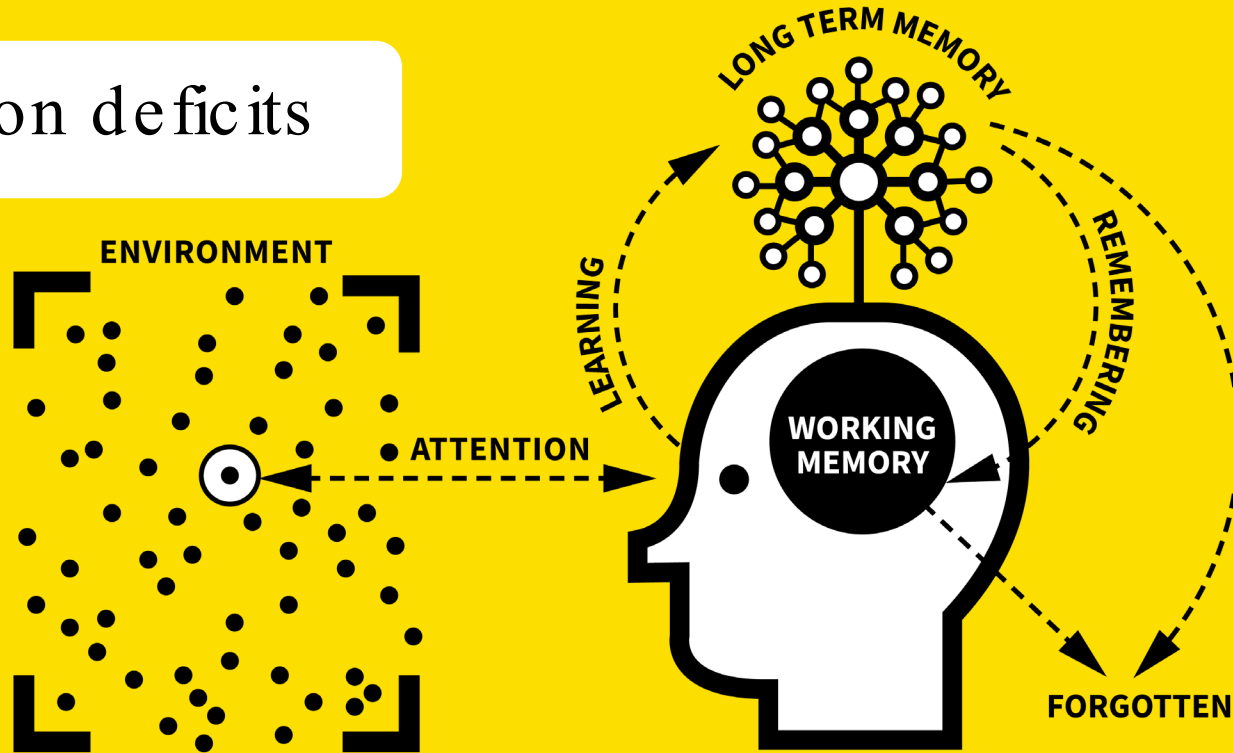
Barak Rosenshine





Lack of prior knowledge

Attention deficits



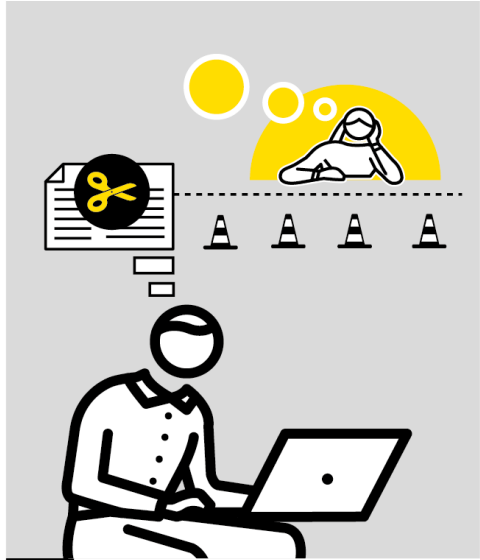
Insufficient fluency
of recall

Task completion:
poor proxy for
learning

Memory overload

The Memory Model | Key reasons why learning fails





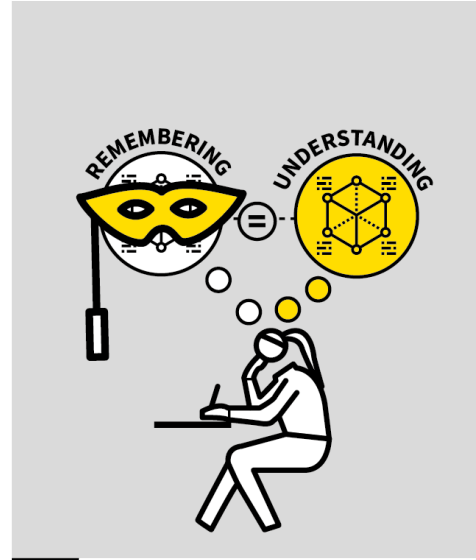
1

**MEMORY IS THE
RESIDUE OF
THOUGHT**



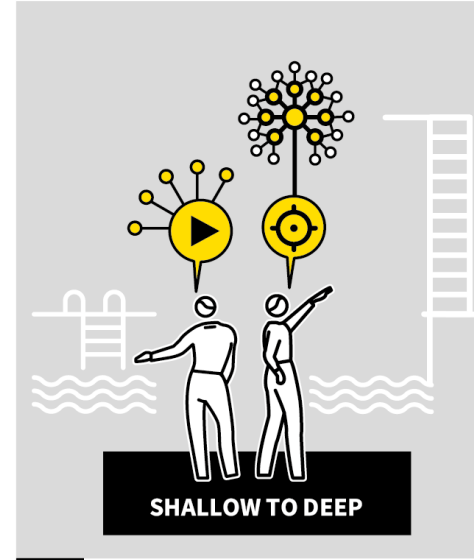
2

**THE POWER OF
STORIES**



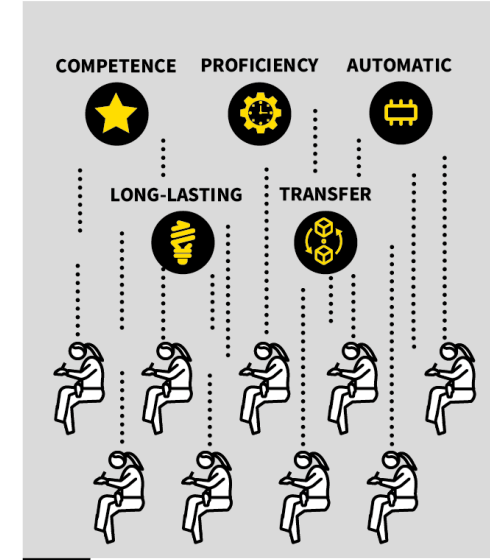
3

**UNDERSTANDING
IS REMEMBERING
IN DISGUISE**



4

**DEEP
KNOWLEDGE THE
GOAL; SHALLOW
KNOWLEDGE
COMES FIRST**



5

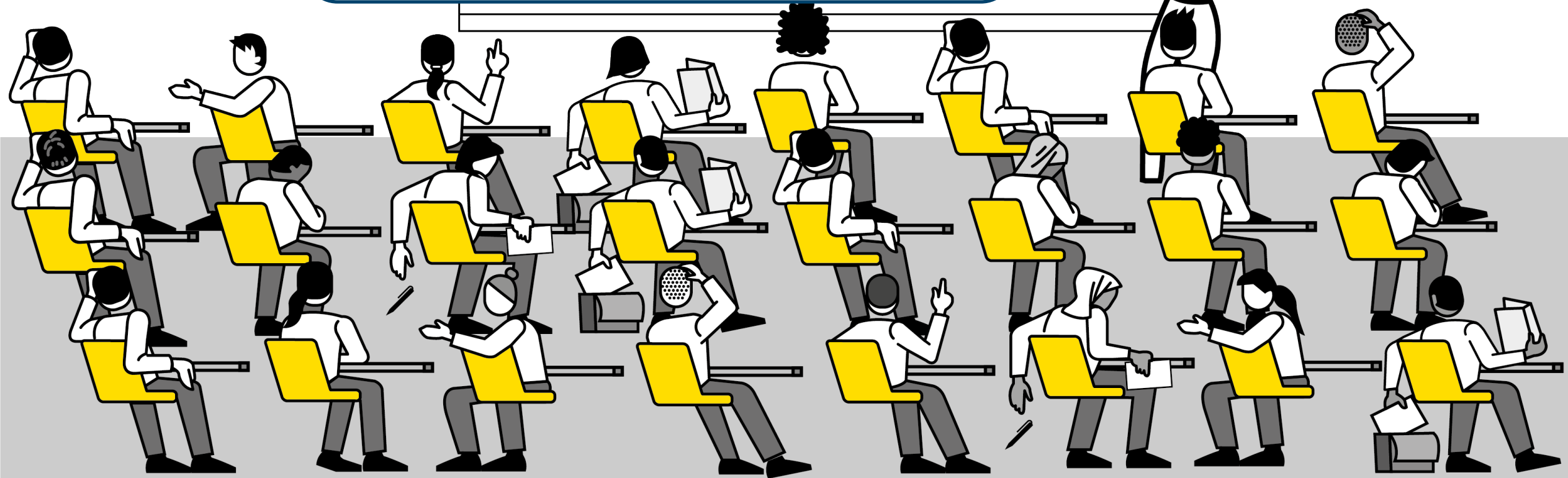
**IS DRILLING
WORTH IT?
THE POWER OF
PRACTICE**

Daniel Willingham | Why Don't Students Like School?



Is **everyone** thinking?
Making meaning?
Practising?

1 → 2 → 3 → 4 → 5



3. Ask questions

Questions help students practise new information and connect new material to their prior learning.

6. Check for student understanding

Checking for student understanding at each point can help students learn the material with fewer errors.



This checking has two purposes:

- (a) answering the questions might cause the students to elaborate upon the material they learned and augment connections to other learning in their long-term-memory; and
- (b) checking for understanding can also tell the teacher when parts of the material need to be re-taught.



In contrast, the less-effective teachers simply asked “Are there any questions?” and, if there were no questions, they assumed that the students had learned the material and proceeded to pass worksheets for students to do the work on their own.



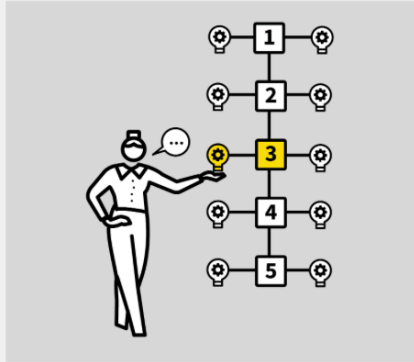
Check for understanding

Have you
understood?

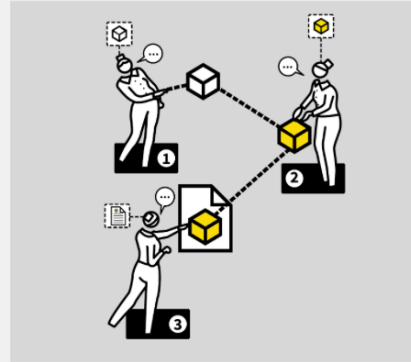


What have you
understood?

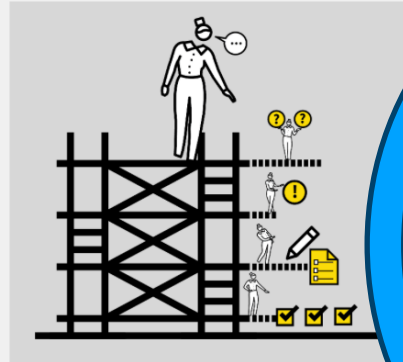




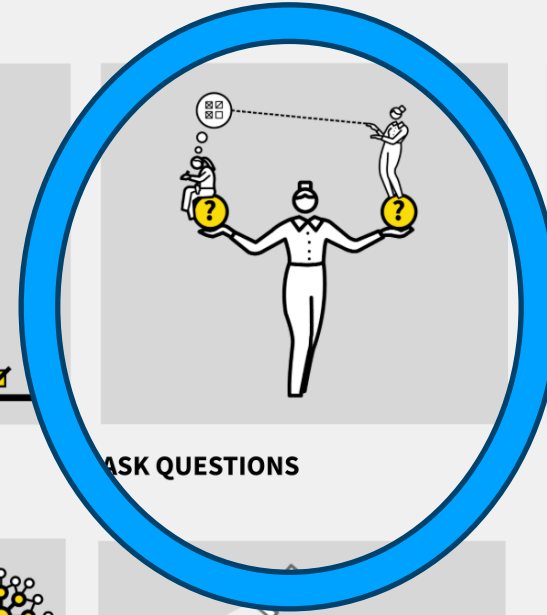
**PRESENT NEW MATERIAL
USING SMALL STEPS**



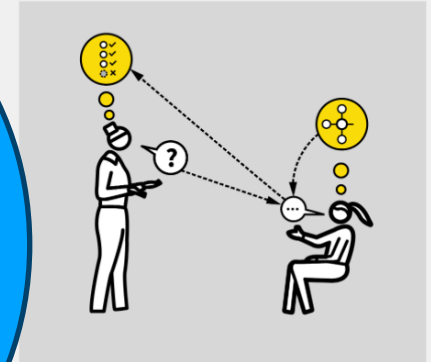
PROVIDE MODELS



**PROVIDE SCAFFOLDS FOR
DIFFICULT TASKS**



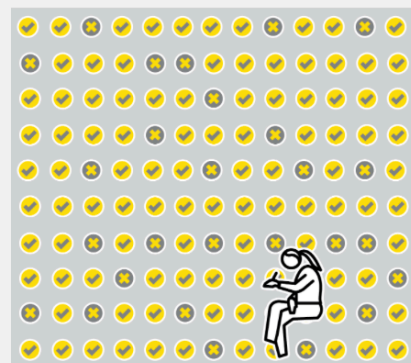
ASK QUESTIONS



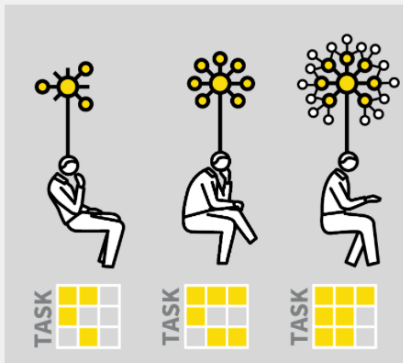
**CHECK FOR STUDENT
UNDERSTANDING**



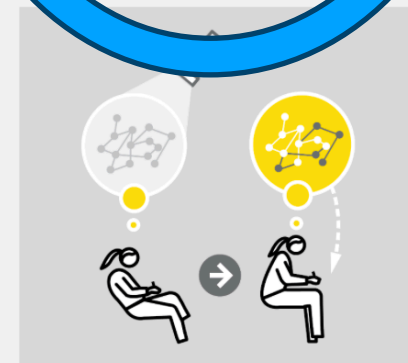
**GUIDE STUDENT
PRACTICE**



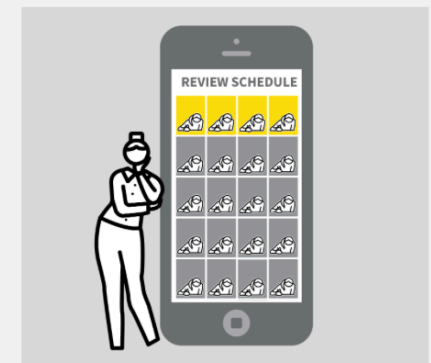
OBTAIN A HIGH SUCCESS RATE



INDEPENDENT PRACTICE

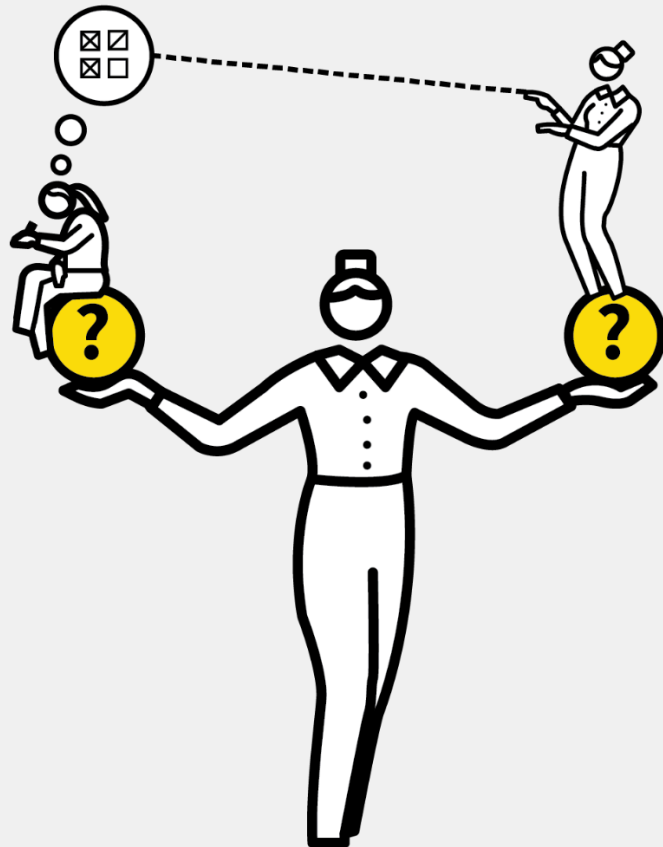


DAILY REVIEW



WEEKLY AND MONTHLY REVIEW



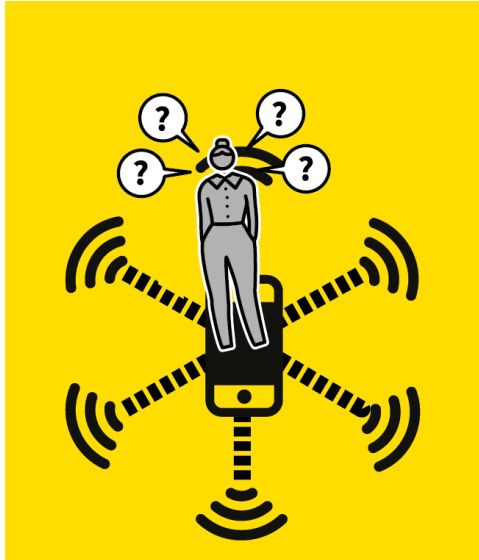


ASK QUESTIONS



Rosenshine's principles | Ask Questions Cluster





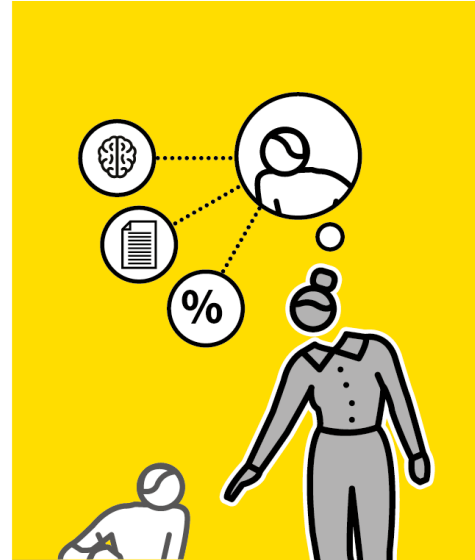
1

**ASK THE CLASS
THE QUESTION**



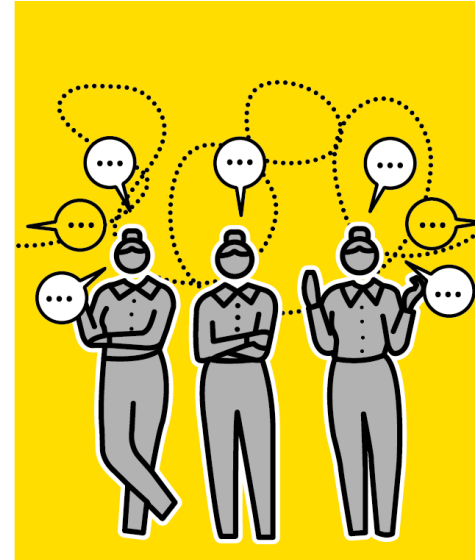
2

**GIVE THINKING
TIME**



3

**SELECT SOMEONE
TO RESPOND**



4

**RESPOND TO THE
ANSWERS**

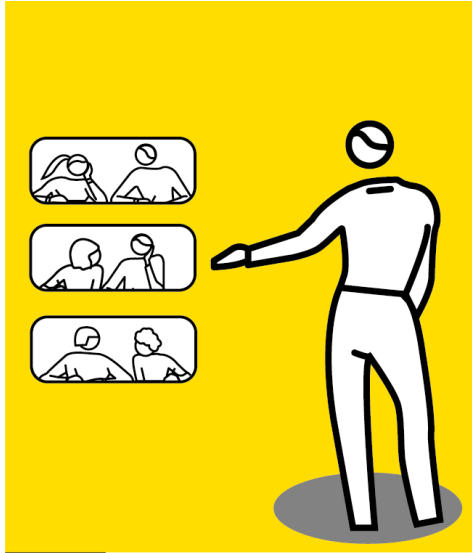


5

**SELECT ANOTHER
STUDENT &
RESPOND AGAIN**

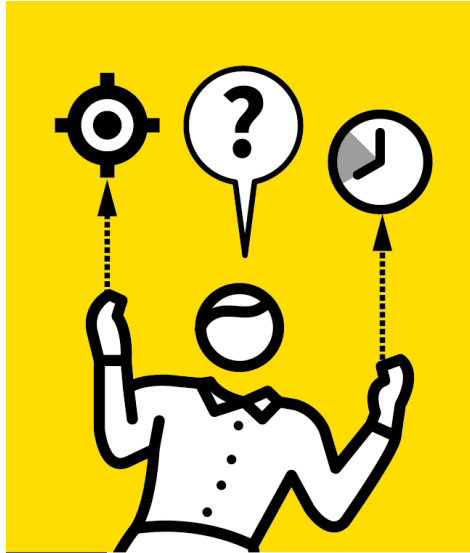
Core strategies | Cold Calling for accountability





1

**ESTABLISH TALK
PARTNERS FOR
EVERY STUDENT**



2

**SET THE
QUESTION WITH A
THINKING TIME
TIMEFRAME**



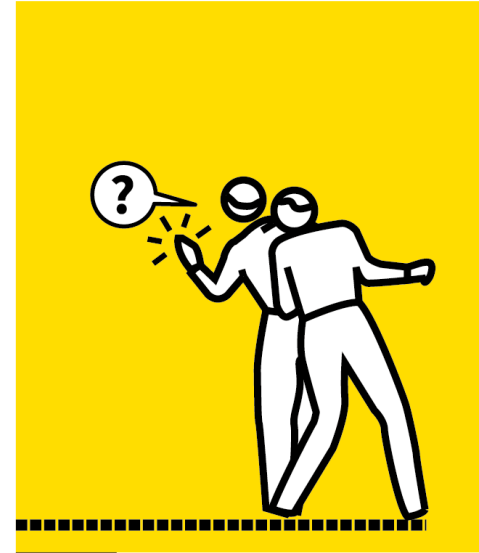
3

**BUILD IN
A THINKING TIME**



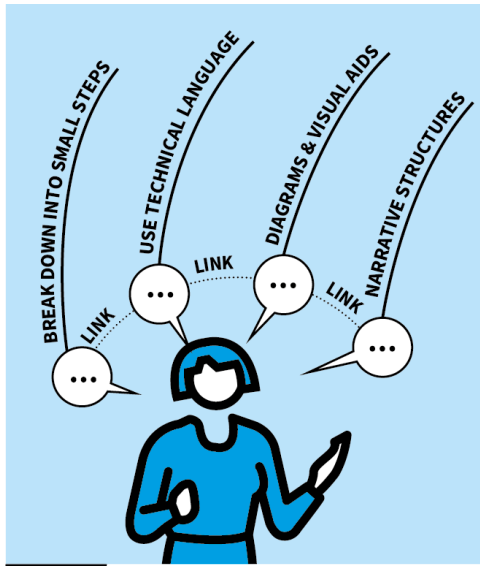
4

**CIRCULATE TO
LISTEN AS PAIRS
ARE TALKING**

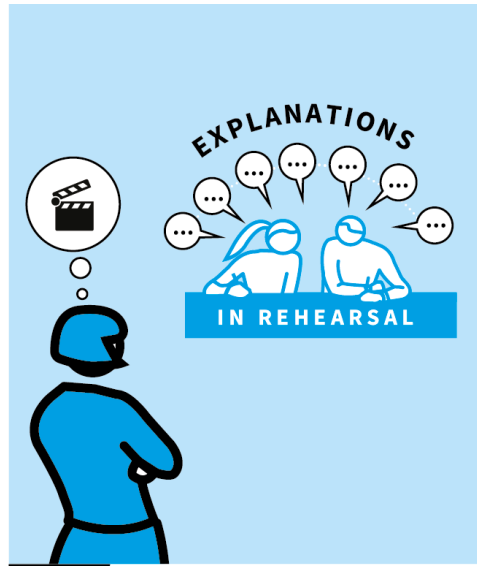


5

**USE COLD CALL
TO SAMPLE
PAIRS'
RESPONSES**



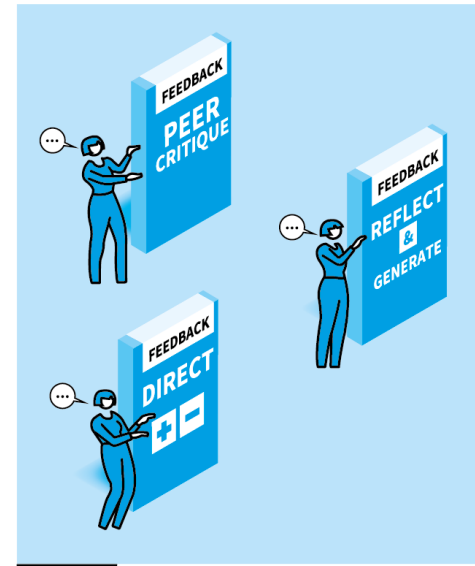
MODEL HIGH QUALITY EXPLANATIONS



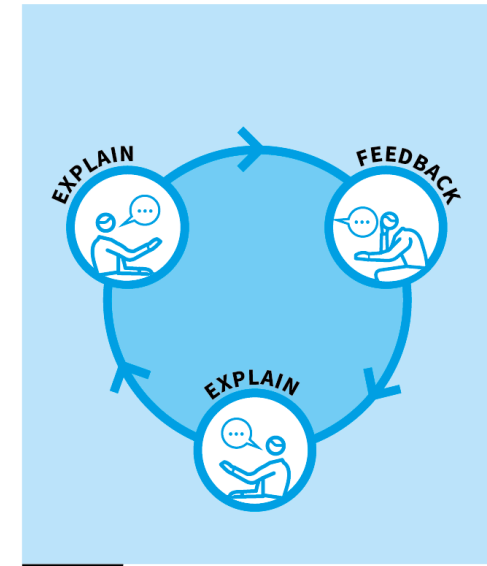
ENGAGE ALL STUDENTS IN EXPLAINING REHEARSAL



SAMPLE WITH COLD CALLING



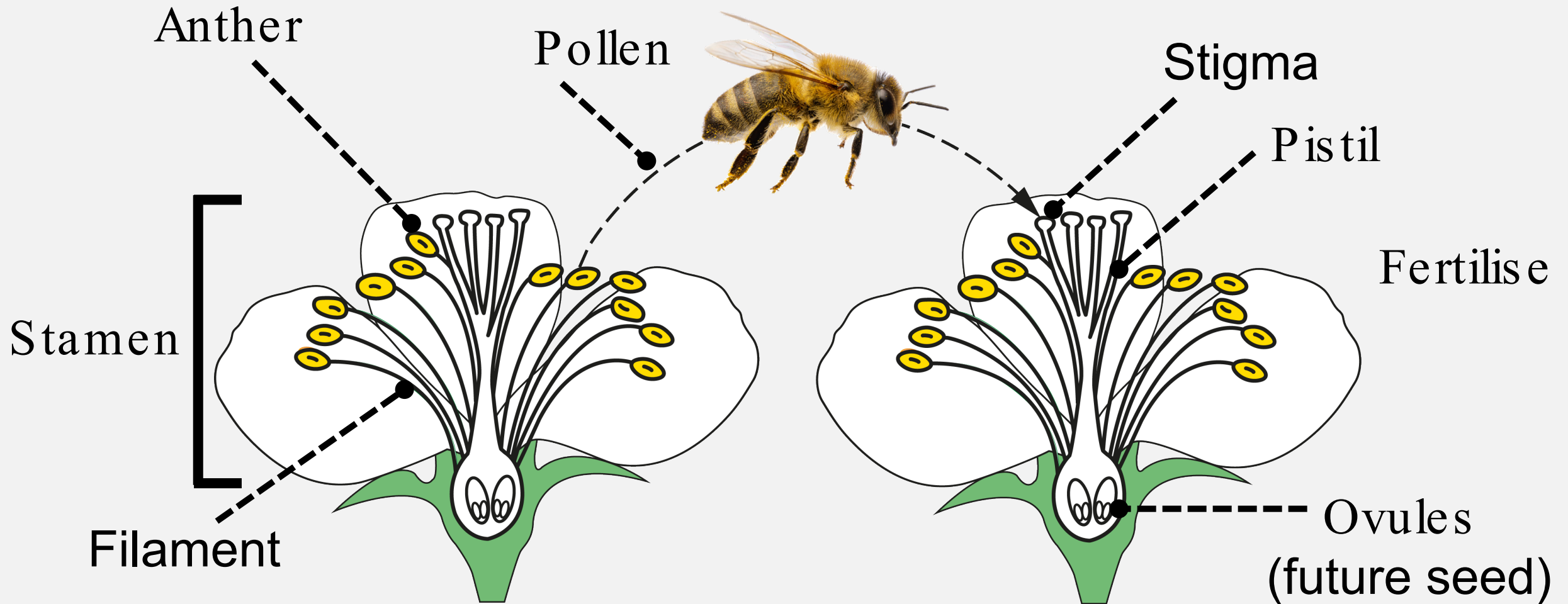
PROVIDE OR GENERATE FEEDBACK



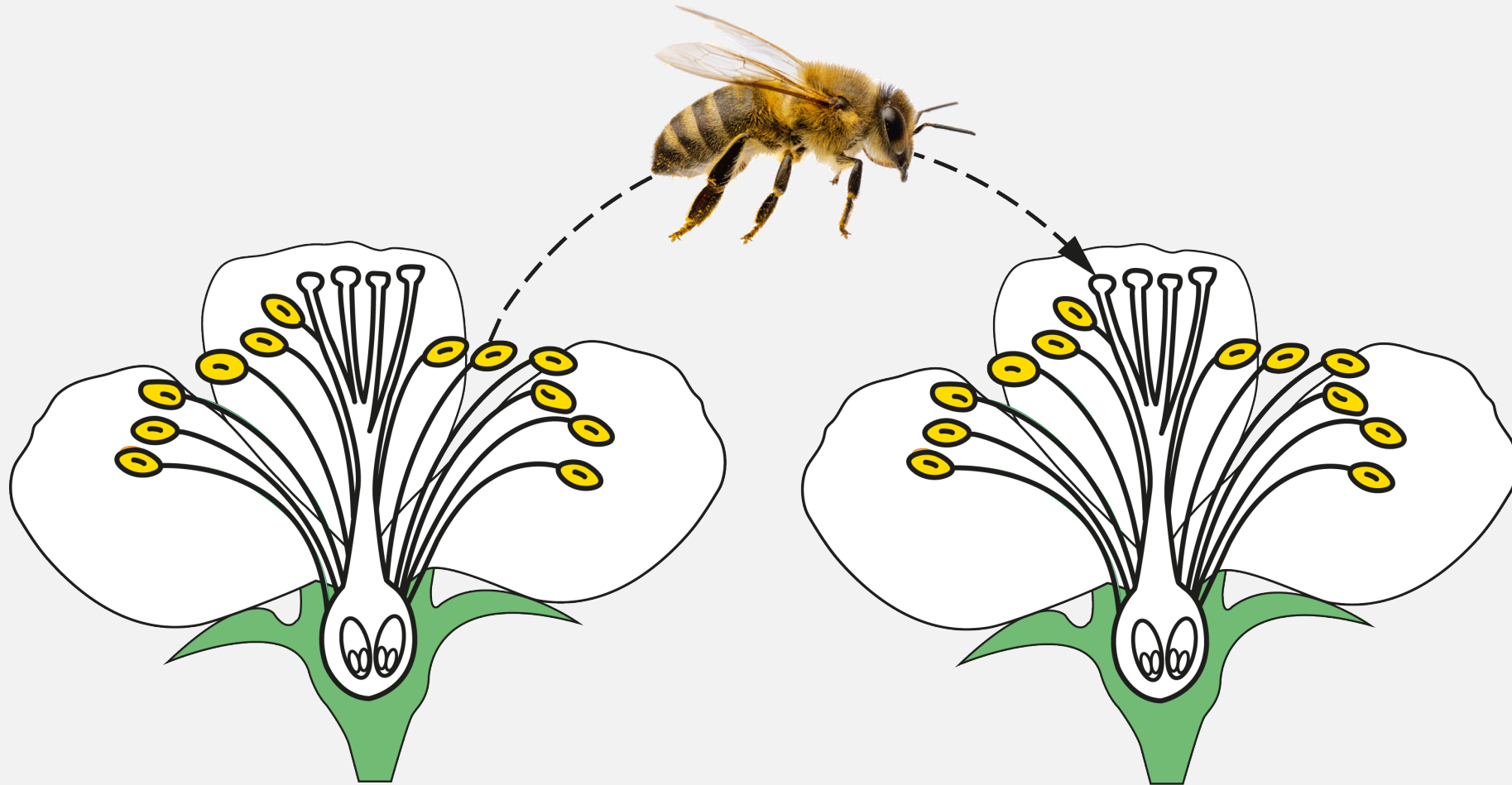
REPEAT FEEDBACK & IMPROVEMENT CYCLES

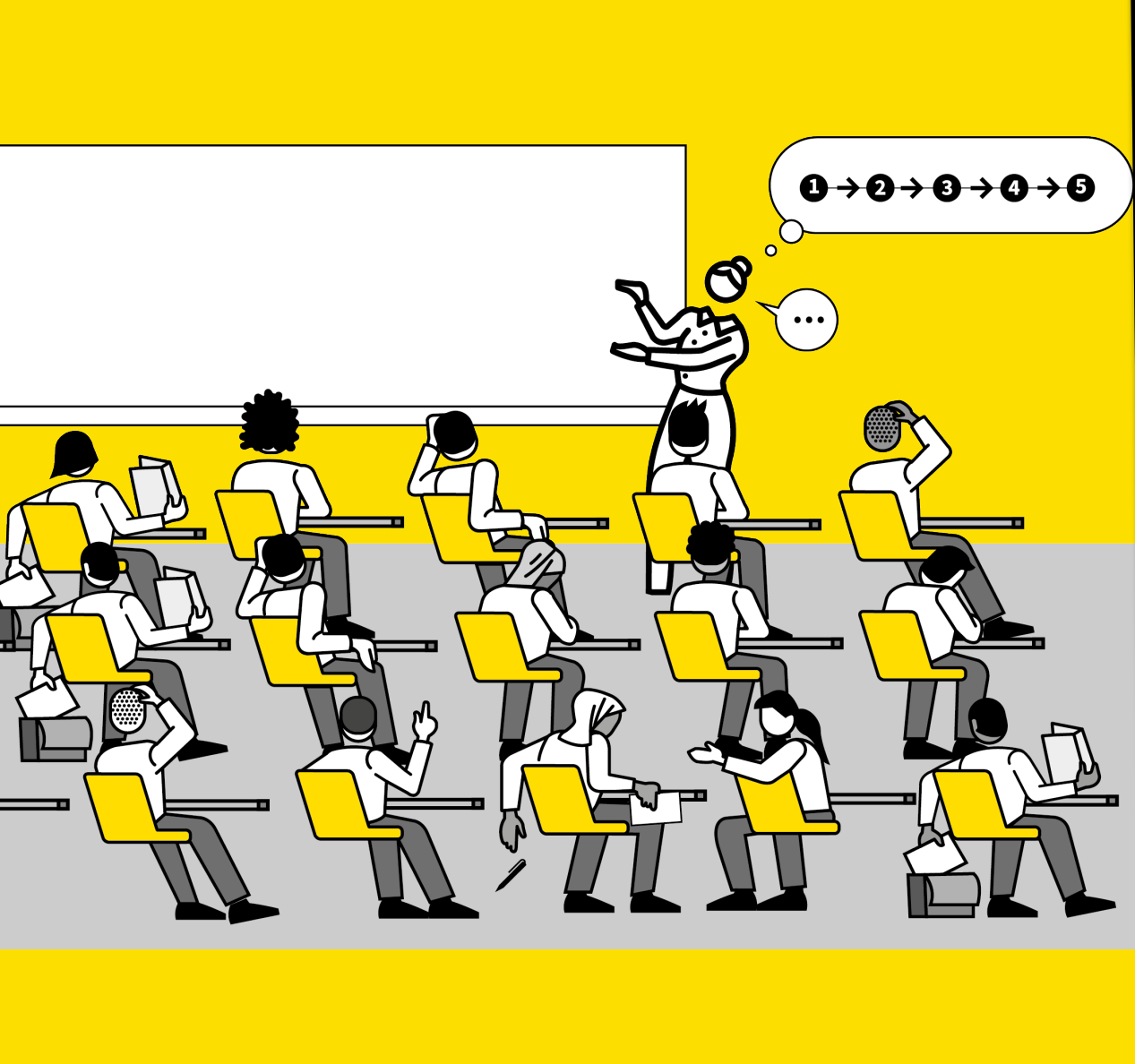


Honeybee Pollination



Honeybee Pollination





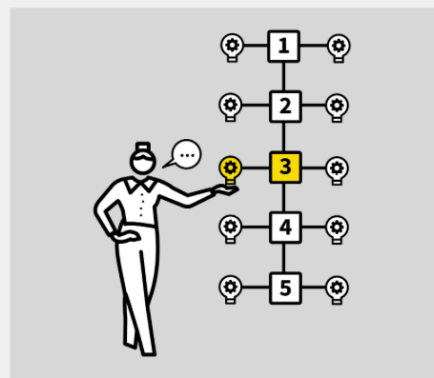
Professional dialogue | Builds on Shared Understanding



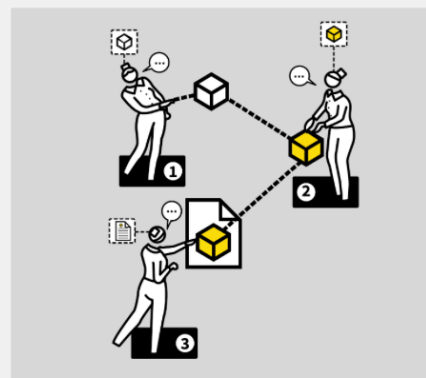


Collective Action | individuals with common purpose

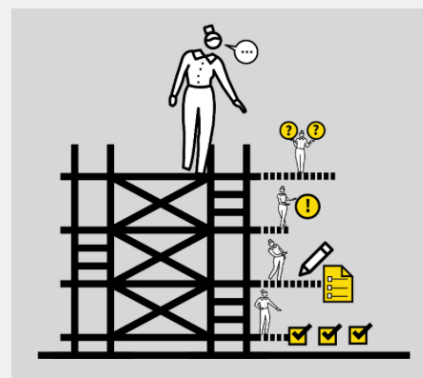




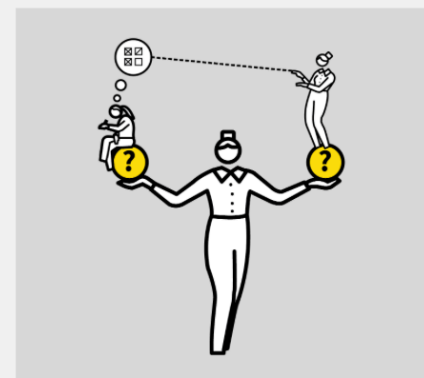
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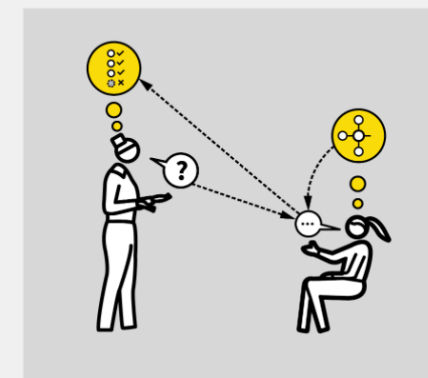
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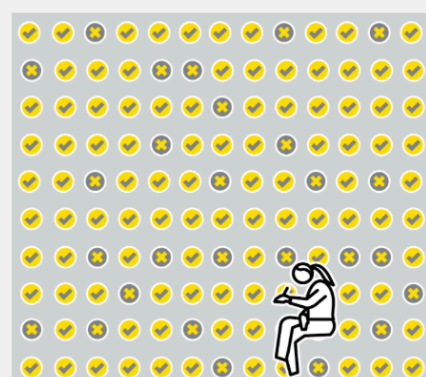
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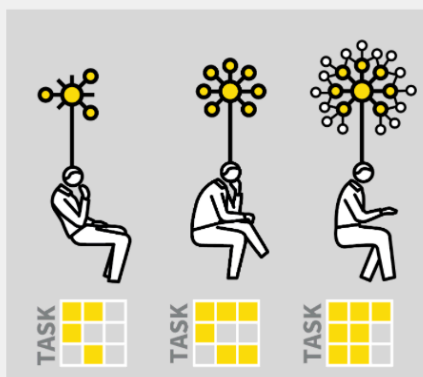
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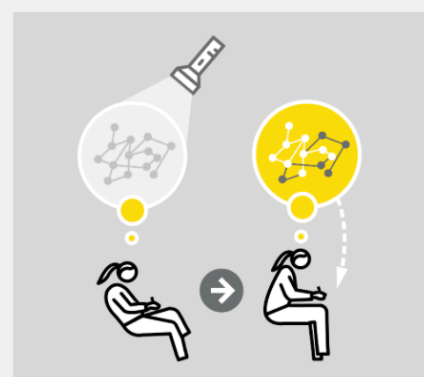
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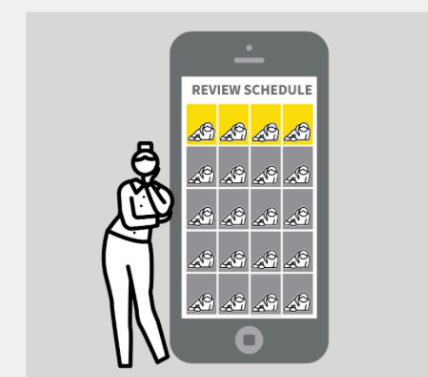
OBTAIN A HIGH SUCCESS RATE



INDEPENDENT PRACTICE



DAILY REVIEW



WEEKLY AND MONTHLY REVIEW

CLICK A STRATEGY TO GET STARTED



**It's NOT a
Checklist.**

Barak Rosenshine's

PRINCIPLES OF INSTRUCTION



A thematic interpretation for teachers by Tom Sherrington @teacherhead



OLIVER CAVIGLIOLI @olcav

REVIEWING MATERIAL

1 Daily review

10 Weekly and monthly review




Daily review is important in helping to resurface prior learning from the last lesson. Let's not be surprised that students don't immediately remember everything. They won't! It's a powerful technique for building fluency and confidence and it's especially important if we're about to introduce new learning – to activate relevant prior learning in working memory.

QUESTIONING

3 Ask questions

6 Check for student understanding




The main message I always stress is summarised in the mantra: ask more questions to more students in more depth. Rosenshine gives lots of great examples of the types of questions teachers can ask. He also reinforces the importance of process questions. We need ask how students worked things out, not just get answers. He is also really good on stressing that asking questions is about getting feedback to us as teachers about how well we've taught the material and about the need to check understanding to ensure misconceptions are flushed out and tackled.

SEQUENCING CONCEPTS & MODELLING

2 Present new material using small steps

4 Provide models

8 Provide scaffolds for difficult tasks





Small steps – with practice at each stage. We need to break down our concepts and procedures (like multi-stage maths problems or writing) into small steps so that each can be practised.

Models – including the importance of the worked-example effect to reduce cognitive load. We need to give many worked examples; too often teachers give too few.

Scaffolding is needed to develop expertise – a form of mastery coaching, where cognitive supports are given – such as how to structure extended writing – but they are gradually withdrawn. The sequencing is key. Stabilisers on a bike are really powerful aids to the learning and confidence building – but eventually they need to come off.

STAGES OF PRACTICE

5 Guide student practice

7 Obtain a high success rate

9 Independent practice





Teachers need to be up close to students' initial attempts, making sure that they are building confidence and not making too many errors. This is a common weakness with 'less effective teachers'. Guided practice requires close supervision and feedback.

High success rate – in questioning and practice – is important. Rosenshine suggests the optimum is 80%. i.e. high! Not 95-100% (too easy). He even suggests 70% is too low.

Independent, monitored practice. Successful teachers make time for students to do the things they've been taught, by themselves... when they're ready. "Students need extensive, successful, independent practice in order for skills and knowledge to become automatic"

It's not about whether you do these things or not

It's about:

- how well you do them.
- how intensively you do them
- how well you adapt and adjust according to student responses
- how well you blend instruction with other teaching modes.



Thank you!



walkthrus.co.uk