

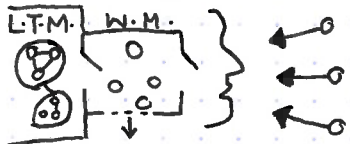
# HOW I WISH I'D TAUGHT MATHS

Sketchnote summary by @mrshawthorne7 sketchCPD.com

## THINKING AND LEARNING

"Experts and novices think differently"

"Student's remember what they attend to"



Choose methods that last

## MOTIVATION

"If the math is the aspirin, what's the headache?"



Motivation

Achievement

## EXPLICIT INSTRUCTION

The power of Stories

Balance of Instruction



HOW? WHY?



## FOCUSSING THINKING



not necessarily useful to categorise or teach to styles.

- ~~Goal-free Problems~~
- ~~reduce split-attention~~
- ~~avoid cognitive overload~~
- ✓ dual coding

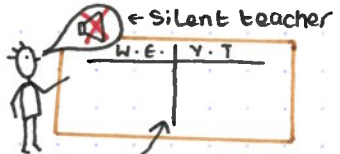
## SELF EXPLANATIONS

The self-explanation effect can be a powerful learning tool.

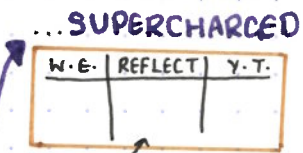
Students are not always natural self explainers so may need prompting.

to... Supercharged worked examples & R.E.C.E.

## WORKED EXAMPLES

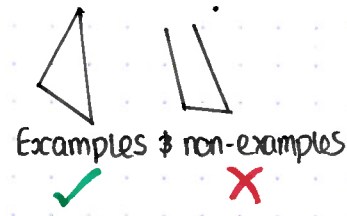


Example-problem Pairs...



Reflection / self-explanation

## CHOICE OF EXAMPLES



Boundary examples  
→ simplify  $\frac{10a}{12a}$

Intelligent Practice

## DELIBERATE PRACTICE (of a skill)

- ① Isolate
- ② Develop
- ③ Assess
- ④ Final Performance
- ⑤ Retrieve later

Let students have access to the answers during deliberate practice

## PROBLEM SOLVING

What is a PROBLEM?  
Why are some students bad at problem Solving?

Isolated Problems

Interweave SSDI

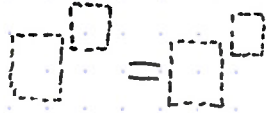
Possible structure

Domain specific knowledge

## PURPOSEFUL PRACTICE

études

Colin Foster



Open Middle

Robert Kaplinsky

mathsvenns.com

## DIAGNOSTIC QUESTIONS and eedi

- (A) (B) (C) (D)

- ✓ Responsive teaching
- ✓ Identify misconceptions
- ✓ Nice task for a department to create questions

## LONG-TERM MEMORY

Performance is a poor indicator of learning

- ✓ Spacing
- ✓ Interleaving
- ✓ Retrieval

Low stakes quiz