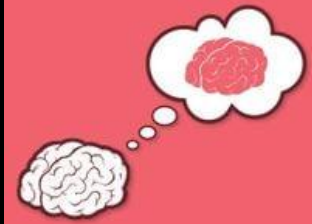# **Before we begin…**

- Please answer the questions in this brief survey.

- Your responses provide a starting point for starting to think about how teaching and learning happens in our classrooms.

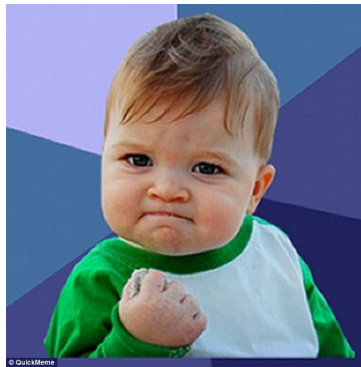- Your responses will also be used to help evaluate the impact of this group.

- https://northumbria.onlinesurveys.ac.uk/metacognition-quiz-project-with-ntlt
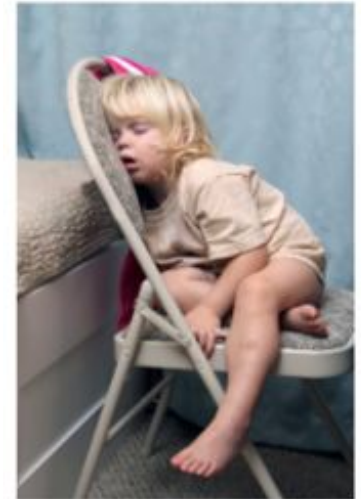
2022 so far?

1

2

3

4

5

6

7

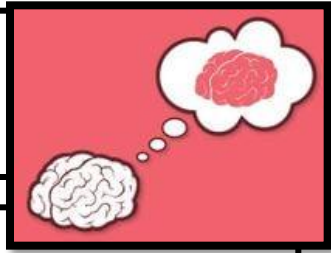# What is metacognition and why is it important?

Introductions

- What is your name?

- Where do you work?

- Why are you interested in metacognition and self-regulation?

- Where are you with this in your context?

- What are you looking for from this group?

Session Overview

- What is metacognition?

- Why is it important?

- How can we develop metacognition in the classroom?

What is metacognition?
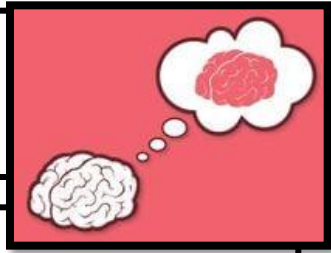
Cognition = what people think and know

Metacognition = how people think about their own thinking

Fogarty, R. (1994). *The Mindful School: How To Teach for Metacognitive Reflection*. IRI/Skylight Publishing, Inc. Palatine, Illinois.

'Think about a time when you were reading and suddenly you got to the bottom of a page of text and **a little voice inside your head said, "I don't know what I just read."** With this awareness of knowing what you *don't* know, you employ a recovery strategy and you read the last sentences; you scan the page of paragraphs looking for key words; you reread the entire page. Whatever you do, you capture the meaning and go on. **This awareness – knowing what you know and what you don't know is called metacognition**' (p. viii).

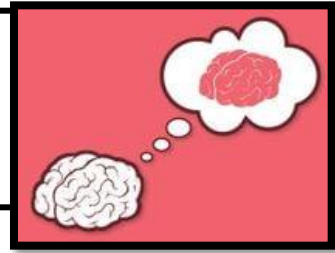| Metacognitive **knowledge**	→	Awareness of strengths & weaknesses relating to the task, learning strategies and self.
Metacognitive **regulation**	→	Action taken to improve learning as a result of metacognitive knowledge.

Northumbria University NEWCASTLE

Metacognitive regulation

Planning

Monitoring

Evaluation

Spot the metacognition
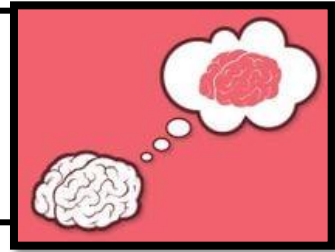
Examples

Ralph is reading to an adult. He reaches a long word and is having difficulty in decoding this. Ralph uses his hand to cover up some of the letters. He decodes the word in small chunks to gradually build up to decode the full word.

Harry practices long division calculations. He completes a list of calculations in his book, setting out his work carefully using the process and format modelled by his class teacher.

Charmaine is writing a newspaper report. She hasn't written a newspaper report before and fears that she will forget what to include. So, before she begins, she considers the features of the text and writes a list at the top of her page

Joseph is counting a set of objects. He stops; he realises that he has lost count! Joseph rearranges the objects so that they are in a line. He starts counting again and this time he uses a finger to touch each object as he counts to

Isla is learning about food in Spanish. She repeats the different foods that the class are studying. She then works with a partner to play a shopping game where they ask for different foods, using the phrase 'Yo quiero un/a …'.

Alex is playing the ukulele during his class music lesson. He listens carefully to the teacher and watches to see when he should start and finish playing. He also puts his instrument away carefully at the end of the lesson so that it is

Non-examples

Miki's spelling test score is lower than for the two previous weeks and she is disappointed. Miki thinks about how she prepared in comparison with other weeks where she was more successful. She

Garry is completing a worded problem in maths. He is unsure what the problem is asking him to do, or what calculations he needs to use. Garry reads the question again. He remembers his teacher telling him to draw images as a

Farhana is completing a reading comprehension task. The question asks her to summarise the main ideas in the text. She writes down her answer, using evidence from the text to support her points.
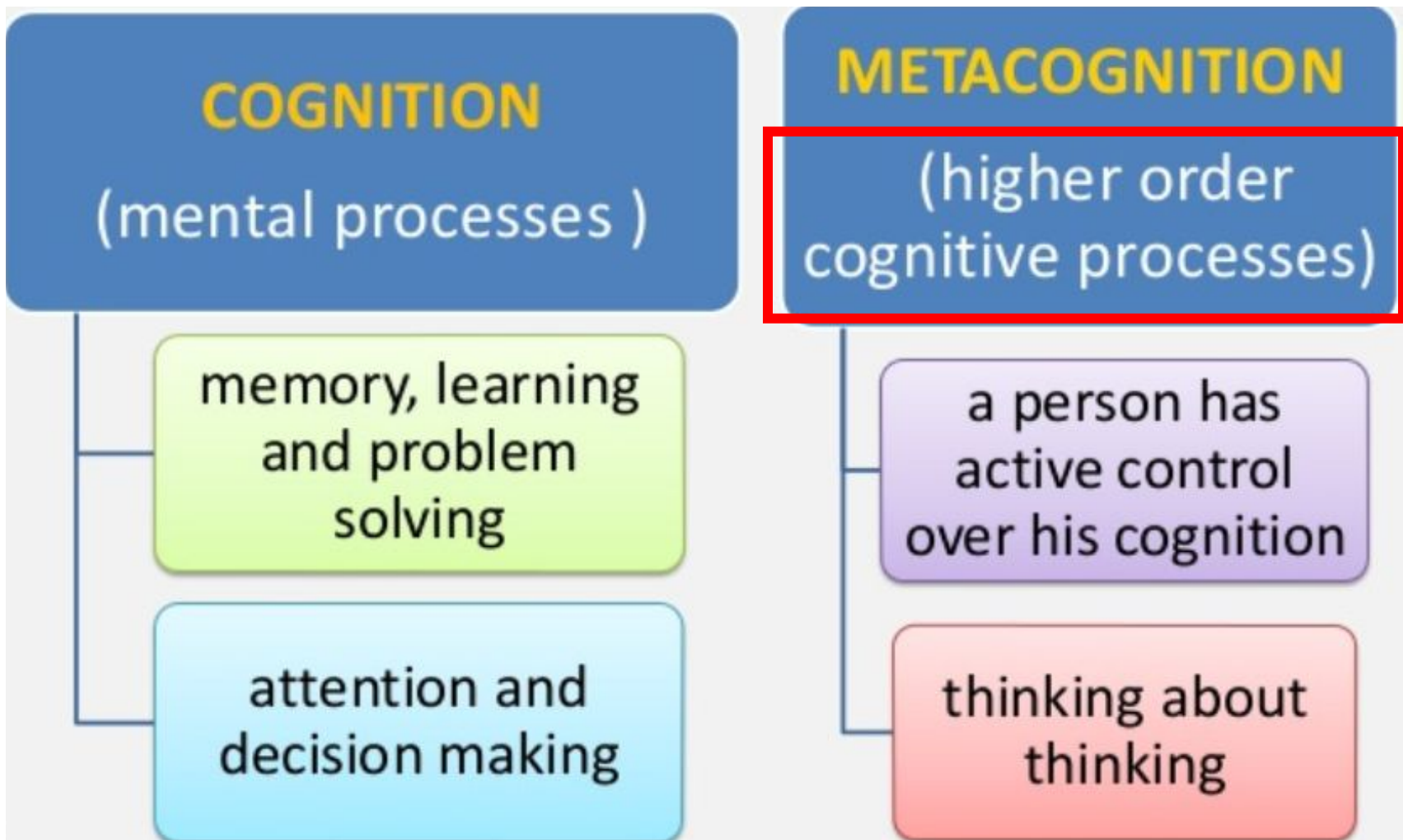
Mo is running; his class are completing the beep test. He really wants to improve upon his previous score. Mo thinks about the last time he completed the test and remembers that he ran too quickly at the

https://jamboard.google.com/d/1ADfGz-U1zWsvM6KRzbXNSWn5jJBOnLvIZrC7uML_jkw/edit?usp=sharing

'Metacognition involves monitoring and regulating thought processes to make sure they are working as effectively as possible' (Schwartz et al, 2009, p. 2).

Quigley, A. & Stringer, E. (2018). Making sense of metacognition.
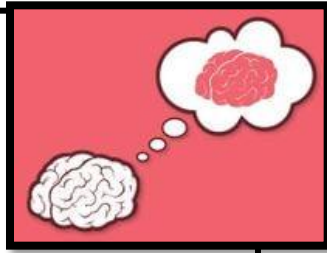
'it is very hard to have knowledge about how competent you are in a given subject domain, or how best you can learn, without solid subject knowledge (Pressley and Harris, 2006). For example, **a student can use metacognitive planning strategies when drafting a GCSE essay about Shakespeare. But without knowledge of Shakespeare's plays, language and the relevant social context, the essay will not be successful**' (Quigley & Stringer, 2018, para. 17).

Why is metacognition important?

Metacognition & academic achievement

- **Pupils with poor metacognitive skills perform less well than their peers**, possibly because their more metacognitively aware peers avoid persevering in unproductive strategies (Tanner, 2012; Kruger & Dunning, 1999; Dunning et al, 2003).

- **Metacognitive skills account for 17% of variance in learning outcomes compared to only 10% for intelligence (Veenman et al, 2006).**

Metacognition and self-regulation

£ £ £ £ £   🔒 🔒 🔒 🔒 🔒   +7

Very high impact for very low cost based on extensive evidence

Metacognition & motivation

- 'Students can **learn to coach themselves**: "Stay on track." "Don't give up." "Concentrate." […] The corresponding thought is: "With enough effort I can learn this."' (Martinez, 2006, p. 699).

- Setbacks in learning can be seen as an impetus to increase effort or to reconsider the strategies used, resulting in substantial increases in the number of attempts pupils make to apply new learning, higher test scores, and even a greater volume of work produced (Dweck, 1986).

Can all children do it?

Yes!
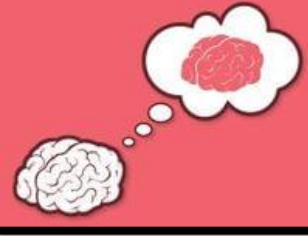
There is evidence of 'metacognitive and self-regulatory processes occurring within the **3–5 age group**' (Whitebread et al., 2009, p. 77).

BUT

Pupils *must* understand and embrace the purpose for metacognitive development if it is to be successful (Lin et al., 2005; Schraw, 1998).

So… tell children about why learning about their own learning (their metacognition) is important.

We do NOT need to make space to teach metacognition…
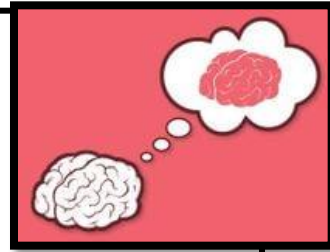
This should be an integral element of our teaching **ACROSS** the curriculum.

| English | Maths | Science | MFL | History | Art | P.E. |
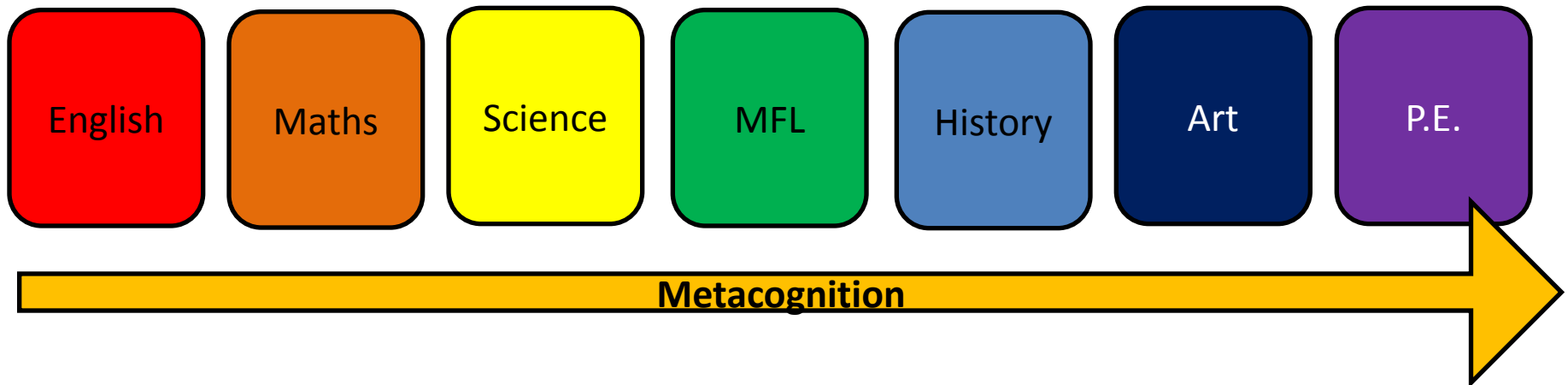
Metacognition →

How can we develop metacognition in the classroom?

2 strategies to start with:
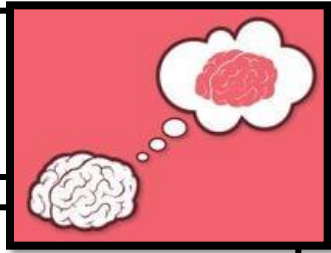
- '‘Think Aloud’

- The debrief

Improving metacognitive talk
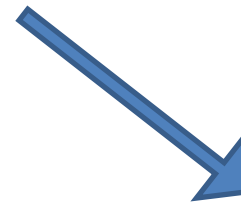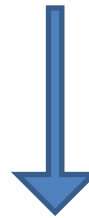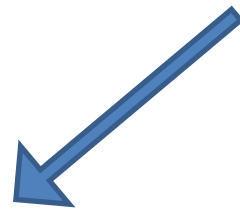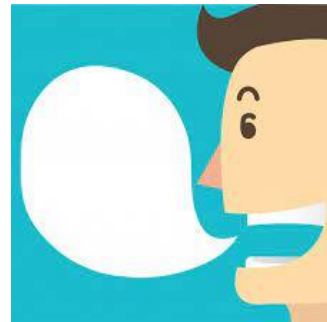
Think Aloud

What is a 'Think Aloud'?

https://www.youtube.com/watch?v=UmhLgsBD1-I

Why use Think Aloud?
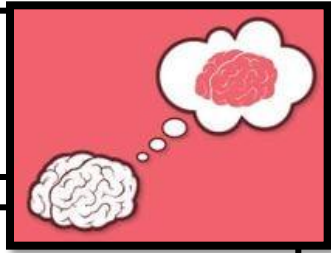
- Think Alouds allow 'expert' learners to model metacognition by describing their own thinking.

- Thought processes are explicitly spoken aloud to provide a model of how an 'expert' learner approaches a task, and why particular choices are made.

Key sentence stems
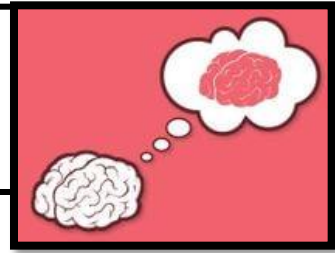
I know because…

I think because…

I do … because …

When to use Think Aloud
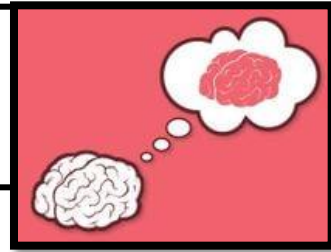
Think of a situation where previously you modelled a technique. Could this be adapted into a Think Aloud?

Catching a ball

Forming a letter

Line drawings

Deciding if there is bias in a historical source

Planning a Think Aloud

Planning a Think Aloud

These steps model the metacognitive cycle of plan, monitor and evaluate. Modelling this aloud for pupils demonstrates how you – as an 'expert' learner – continually monitor the impact of the approach you have adopted during the problem-solving process itself, and then evaluate the effectiveness of this in order to inform future learning.

|	
Plan: ➢ What is the task asking me to do? ➢ Have I seen similar tasks before that look like this one? ➢ What prior learning might help me to successfully complete this task? ➢ What could I use to help me?	
Monitor: ➢ Is my chosen approach working? ➢ Are there different ways to approach this task? ➢ Is there anything I need to change to help me become more successful, or should I stick with my plan? ➢ Is there anything I have used before which might help me here? ➢ How can I check my work? ➢ Looking back, have I made any obvious mistakes?	
Evaluate: ➢ Have I been successful? How do I know? ➢ Have I done everything that was required? Have I missed anything? ➢ Would another person understand my work? (You could ask someone to check.) ➢ Can I explain to someone else what I did and why I did it? ➢ Which elements of my work could be improved? ➢ Would I approach the task in a different way if I tried it again? ➢ Could I share and discuss these different approaches with another person?	

Planning a think aloud - single step model.docx

Reflections

- When would this be useful?

- What benefits would you see?

- What challenges could you encounter?

- How could you overcome these?

- Anything else?

The debrief

The Debrief

Although preferably NOT in such a confrontational way!

- Make deliberate mistakes

- Emphasise to children that you want them to 'Challenge!' you

- Encourage children to ask each other about their learning

- 'Think aloud' – show children that learning is a journey and we can **always** improve and develop

Why use the debrief?

	Student	Teacher
1	Activating prior knowledge	
2	Explicit strategy instruction	
3	Modelling of learned strategy	
4	Memorisation of strategy	
5	Guided practice	
6	Independent practice	
7	Structured reflection	
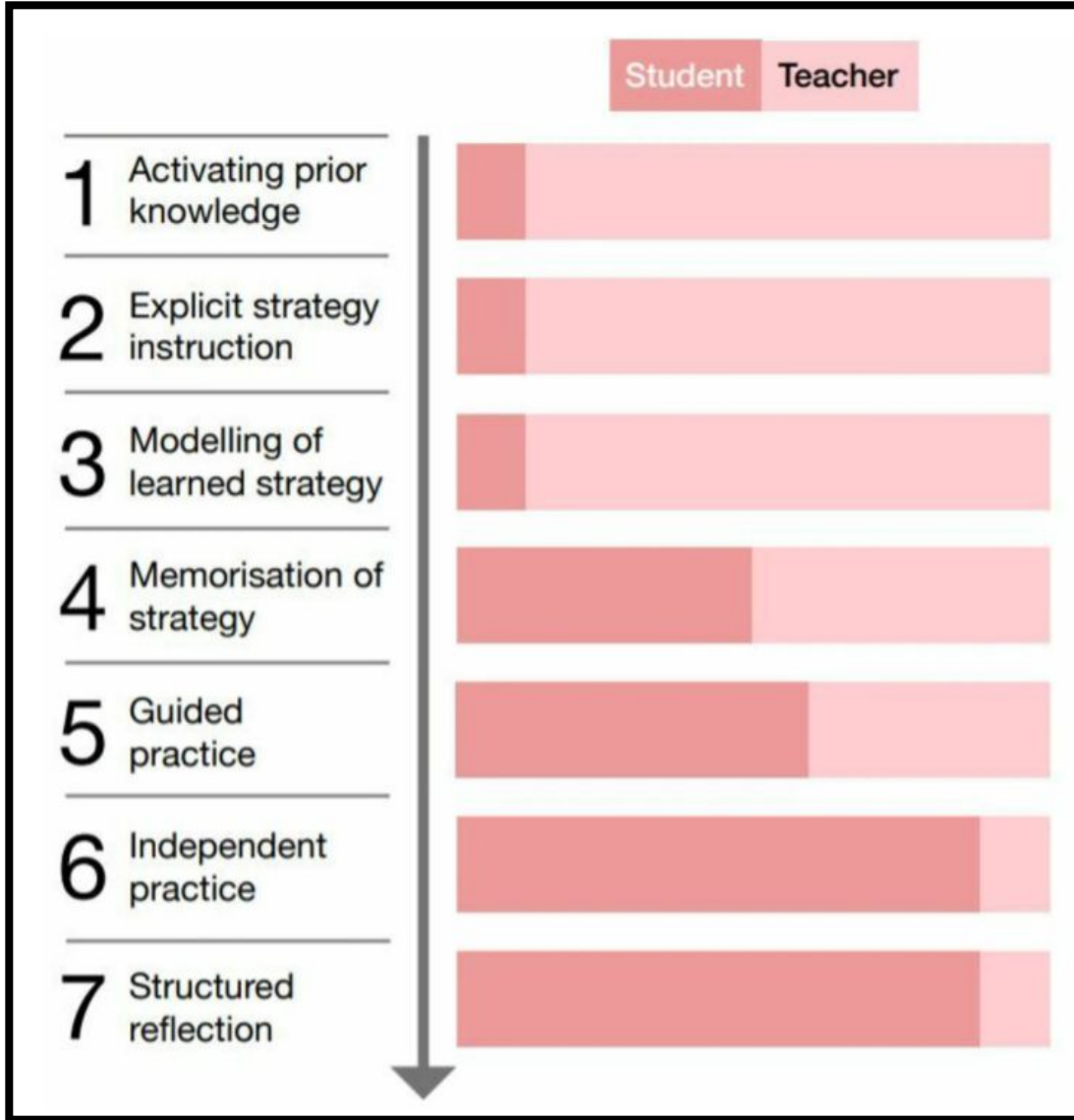
Think Aloud
Teacher is responsible

Debrief
Learner is responsible

The debrief - across the curriculum

Filming and analysing a game in PE

Correcting a teacher's 'mistake'

PSHE- why did an action upset a friend?

What made our musical performance successful?

Promote reflection on learning

What levels of thinking are you using?

Remembering	What happened after?
	Which is the best one?
	How did … happen?
	What does it mean?
Understanding	What is the main idea of …?
	How would you explain … in your own words?
	Which facts or ideas show …?
	How many examples can you find to …?
Analysing	What do you think about …?
	What is the relationships between …?
	What evidence can you find to …?
	What conclusions can you draw …?
Applying	Which approach would you use to …?
	What would happen if …?
	Can you explain why …?
	How is … related to …?
Evaluating	What are the alternatives to …?
	What do you think about …?
	Is there a better solution to …?
	What is the most important aspect of …?
Creating	How would you test …?
	Can you improve …?
	Can you formulate a theory to explain that …?
	Which changes would you make to solve …?

Based on Bloom's Revised Taxonomy (Krathwohl, 2002) to provide opportunities for children to develop different types of thinking.

What have you decided to do first? Why?

How have you chosen to check your work?

Planning

Monitoring

Evaluation

What worked well?
What was challenging?
How did you overcome these challenges?

Questioning during the debrief

Modelling and scaffolding metacognitive talk.docx

	Modelling and scaffolding metacognitive talk (Predominantly teacher-led)	Eliciting and prompting metacognitive talk (Facilitated and supported by the teacher)
Plan	➢ What is the task asking me to do? ➢ Have I seen similar tasks before that look like this one? ➢ What prior learning might help me to successfully complete this task? ➢ What could I use to help me?	➢ **What** will you do? **Why?** ➢ **What** strategies will you use to help you understand the problem? **Why?** ➢ **How** will you start? **Why?**
Monitor	➢ Is my chosen approach working? ➢ Are there different ways to approach this task? ➢ Is there anything I need to change to help me become more successful or should I stick with my plan? ➢ Is there anything I have used before which might help me here? ➢ How can I check my work? ➢ Looking back, have I made any obvious mistakes?	➢ **What** progress are you making? ➢ **What** is going well? **Why?** ➢ **What** is challenging? **Why?** ➢ **What** will you do next? **Why?** ➢ **What** changes do you need to make to your original plan? **Why?**
Evaluate	➢ Have I been successful? How do I know? ➢ Have I done everything that was required? Have I missed anything? ➢ Would another person understand my work? (You could ask someone to check.) ➢ Can I explain to someone else what I did and why I did it? ➢ Which elements of my work could be improved? ➢ Would I approach the task in a different way if I tried it again? ➢ Could I share and discuss these different approaches with another person?	➢ **What** exactly did you do? **Why?** ➢ **Why** did this help you? ➢ **What** worked well? **Why?** ➢ **What** was challenging? **Why?** ➢ **What** have you learned about yourself and your learning?

Reflections
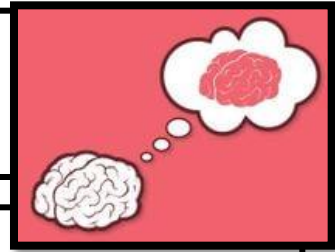
- What similarities and differences can you see to your current practice?

- When would this be useful?

- What benefits would you see?

- What challenges could you encounter?

- How could you overcome these?

- Anything else?

What's next?

This programme

½ day session	**Digging deeper into metacognition** ⬜Teaching for metacognition and the 7 step model
½ day session	**The role of the teacher** ⬜Questioning, task design and feedback to promote metacognition
½ day session	**Developing effective scaffolding** ⬜Using worked examples to model and support metacognition
½ day session	**The role of the pupil** ⬜What is independent learning and how can we promote this? ⬜Promoting peer-collaboration and talk
2 hour webinar	**Embedding and sustaining change** ⬜Reflecting on and evaluating impact

2 recommended resources
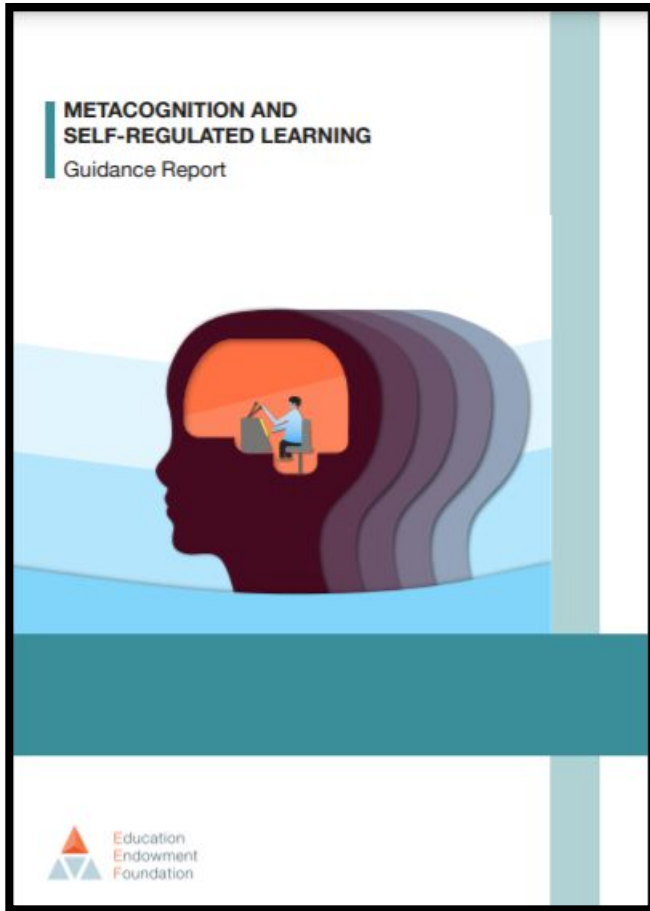
METACOGNITION AND SELF-REGULATED LEARNING
Guidance Report
Education Endowment Foundation

SCHOOL AUDIT TOOL
Whole school approach to curriculum and teaching

Ineffective
- School leaders may exhibit knowledge of how children learn, but it is unclear in school policies and not consistently evidence in practice.
- School leaders and teachers cannot explain the relevance of metacognition and self-regulated learning to the needs of their pupils.
- No training opportunities are available for staff to deepen their understanding of metacognition.
- Staff are not signposted to tools to support metacognition, such as the guidance report.
- There is not the infrastructure for effective collaborative planning to support the development of metacognition and self-regulated learning.
- Teacher planning shows little evidence of a coordinated approach to teaching pupils explicit metacognitive strategies to tackle complex challenges.
- When addressing curriculum design, metacognition and self-regulated learning is not considered.

Improving
- School leaders exhibit knowledge of how children learn and there is some evidence of this in school policies and practices.
- Some school leaders and teachers can explain how metacognition and self-regulated learning is relevant to the needs of their pupils, but this is not consistently articulated.
- Some "light touch" training on metacognition, such as one-off INSET, has taken place, but this has not led to a deep understanding of metacognition and self-regulation.
- Staff have been signposted to tools to support metacognition such as the guidance report.
- There is some infrastructure for collaborative planning, which sees some colleagues develop shared planning to develop metacognition and self-regulated learning, but this practice is inconsistent.
- Teacher planning takes some account of explicitly teaching metacognitive strategies to tackle complex challenges.
- When addressing curriculum design, there is some consideration of metacognition and self-regulated learning.

Exemplary
- School leaders exhibit deep knowledge of how children learn and these are exemplified in school policies and practices.
- Almost all staff can confidently explain how metacognition and self-regulated learning is relevant to the needs of their pupils and this is evident in their planning and practices.
- Staff have access to effective CPD, with sufficient time to develop a deep knowledge and understanding of metacognition and self-regulated learning.
- Staff have been supported with a range of tools for metacognition, including the guidance report, as well as other tools that have been developed by the school to support practice.
- There is a well organised infrastructure that promotes collaborative planning so that all staff are supported to develop metacognition and self-regulated learning .
- Teacher planning consistently displays attention to explicitly teaching metacognitive strategies so that pupils have high success rates when tackling complex challenges.
- When addressing curriculum design, metacognition and self-regulation is embedded consistently in plans.

2   Metacognition and Self Regulated Learning

Education Endowment Foundation

https://d2tic4wvo1iusb.cloudfront.net/eef-guidance-reports/metacognition/EEF_Metacognition_and_self-regulated_learning.pdf
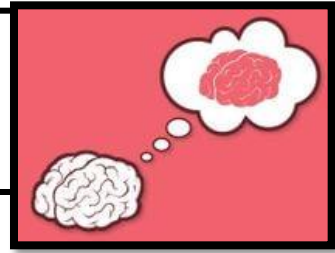
https://d2tic4wvo1iusb.cloudfront.net/eef-guidance-reports/metacognition/7-SchoolAuditTool_2021-10-27-150642_ztrf_2021-10-29-074724_zdeo.pdf

Any questions???

kirstin.mulholland@northumbria.ac.uk