**Metacognition – Recommendation 2**

**Recommendation 2:   
Explicitly teach pupils metacognitive strategies, including how to plan, monitor, and evaluate their learning.**

Amy’s geography teacher has asked the class to prepare a short presentation about rainforest ecosystems.  
  
To plan this, Amy reflects on how she learned best on the last topic—using the school textbooks—and decides to read the relevant chapter before drafting her presentation points. However, when reading it she decides that the chapter does not really improve her understanding. She starts to panic as she was relying on this.  
  
Then Amy remembers a geography website her teacher mentioned. She adapts her strategy and searches the website. This provides a more useful overview and she uses the information to summarise some interesting facts.  
  
She reflects on the experience and decides that next time she will gather a range of resources before starting to research a topic, rather than relying on one source

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| |  |  | | --- | --- | | |  | | --- | | While all children like Amy develop metacognition to some extent—and this will continue to develop further as they mature—the extent to which this happens differs significantly between learners; most will not spontaneously develop all the strategies they need or would find useful and therefore require explicit instruction in key metacognitive strategies.  There is some evidence to suggest that disadvantaged pupils are less likely to use such strategies and are, therefore, most likely to benefit from the whole range of approaches to supporting metacognitive and self-regulatory skills, including explicit teaching. [1] [2]  ‘Explicit instruction’ does not denote simply ‘telling’ but describes all the activities that a teacher orchestrates to effect learning in their pupils. It is not to be confused with a lecturing approach but combines explicit teacher input with interactive questioning and feedback.  It is important to provide explicit instruction in metacognitive regulation strategies, in particular: [3]   * **planning**—encouraging pupils to think about the goal of their learning (set by the teacher, or themselves) and to consider how they will approach the task; this includes ensuring they understand the goal, activate relevant prior knowledge about the task, select appropriate strategies, and consider how to allocate their effort; * **monitoring**—emphasising the need, while undertaking the learning task, for pupils to assess the progress they are making; this includes the self-testing and self-questioning activities that are necessary to control learning, and making changes to their chosen strategies; and * **evaluating**—appraising the effectiveness of their plan and its implementation.   This framework can seem clunky and only relevant to discrete, demanding tasks for older learners. In fact, the underlying skills are relevant to most learning choices a pupil makes.  During a lesson, a pupil must decide how much effort to put into listening to the teacher’s explanation of a new topic (planning); while listening, they can consider whether they are understanding the teacher (monitoring) and what to do if they don’t (planning a good question to ask and evaluating if they now have understood the explanation successfully and are ready to move on).  Teachers can explicitly teach these skills by prompting pupils with examples of the things they should be considering at each stage of a learning task.  **For example:** a common activity in art is to draw or paint a self-portrait. Effective teacher questioning while modelling a self-portrait can aid the development of metacognitive reflection: | | |
| **Planning:** ‘What resources do I need to carry out a self-portrait?’‘Have I done a self-portrait before and was it successful?’‘What have I learned from the examples we looked at earlier?’‘Where do I start and what viewpoint will I use?’‘Do I need a line guide to keep my features in proportion?’ |

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| **Monitoring:** ‘Am I doing well?’‘Do I need any different techniques to improve my self-portrait?'‘Are all of my facial features in proportion?’’Am I finding this challenging?’‘Is there anything I need to stop and change to improve my self-portrait?’ |

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| **Evaluation:** ‘How did I do?’‘Did my line guide strategy work?’‘Was it the right viewpoint to choose?’‘How would I do a better self-portrait next time?’‘Are there other perspectives, viewpoints or techniques I would like to try?’ |

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| |  |  | | --- | --- | | |  | | --- | | You can see—through this worked example of a teacher posing metacognitive questions—that some questions for ***planning*** aim to activate prior knowledge (resources, previous exemplars) whereas other questions model deploying the right cognitive strategies (viewpoint, line guides).  The ***monitoring*** questions emphasise both general progress (proportion, editing) alongside checking general motivation (meeting goals and dealing with challenge).  Finally, the ***evaluation*** questions concentrate upon the success of the cognitive strategies (line guide, viewpoint, comparison with other techniques) and on what can be taken forward from the learning.  As discussed, these prompts must accompany instruction in the relevant specific cognitive strategies. In this example, pupils will only be able to consider these questions and approaches if they understand the importance of perspective and the different techniques.  The next email in this series will give an example of applying it with a particular strategy. | | |
| |  |  |  |  | | --- | --- | --- | --- | |  | |  |  | | --- | --- | | |  | | --- | | **Case study: Using self-regulation to improve writing**  An EEF-funded project, [IPEELL: Using Self-Regulation to Improve Writing](https://educationendowmentfoundation.us8.list-manage.com/track/click?u=cb569f99caaaedff117cdc74c&id=dc283dfcbb&e=ab6bf9c839), aimed to use memorable experiences and an approach called **‘Self-Regulated Strategy Development’** (SRSD) [4] to help struggling writers in Years 6 and 7.  SRSD provides a clear structure to help pupils plan, monitor and evaluate their writing. It aims to encourage pupils to take ownership of their work and can be used to teach most genres of writing, including narrative writing.  Led by the Calderdale Excellence Project, this project had a focus on pupils using cognitive strategies like the mnemonic IPEELL—**I**ntroductory paragraph, **P**oints, **E**xamples and elaboration, **E**nd, **L**inks (such as connectives and openers), and **L**anguage (for example, ‘wow’ words, genre specific vocabulary, punctuation, and self-scoring).  The approach explicitly teaches the writing process while encouraging pupils to take ownership of their progress with monitoring and evaluation strategies.  Overall, the project appeared to have a large positive impact on writing outcomes in the independently evaluated efficacy trial. The overall effect size for writing—comparing the progress of pupils in the project to similar pupils who did not participate—was +0.74 standard deviations, or an estimated nine months’ additional progress. [5] | | | |

**Further resources...**  
  
If this email has whetted your appetite to find out more about metacognition and self-regulation, you can:

1. **Download** the EEF's printable metacognition '[School Audit Tool](https://educationendowmentfoundation.us8.list-manage.com/track/click?u=cb569f99caaaedff117cdc74c&id=2cd8f320f7&e=ab6bf9c839)' - it describes what ‘ineffective’, ‘improving’ and ‘effective’ practice could look like in relation to the guidance.
2. **Read** secondary school science teacher, Adam Boxer, helpfully exploring ['7 simple ways to encourage metacognition in the science classroom'](https://educationendowmentfoundation.us8.list-manage.com/track/click?u=cb569f99caaaedff117cdc74c&id=1f63f5f157&e=ab6bf9c839).
3. **Watch** this short, 1-minute Edutopia animation explaining '[What's metacognition - and why does it matter?](https://educationendowmentfoundation.us8.list-manage.com/track/click?u=cb569f99caaaedff117cdc74c&id=29aa8b0a68&e=ab6bf9c839)'