



# METACOGNITION

Let's try teaching students **how** to think instead of **what** to think.

# What is metacognition?

## Metacognition

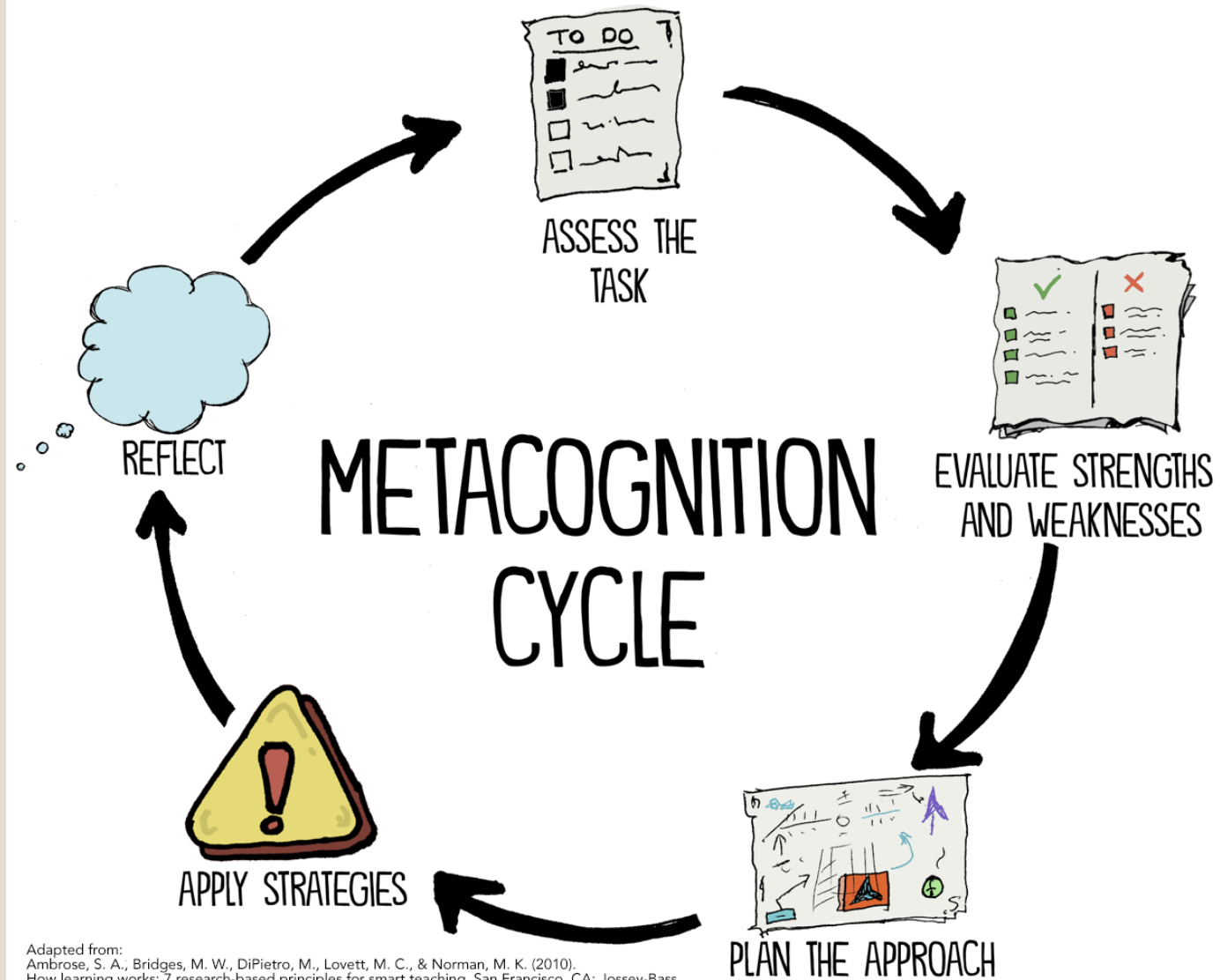
The ability to:

- think about one's own thinking
- be consciously aware of oneself as a problem solver
- monitor, plan, and control one's mental processing (e.g. "Am I *understanding* this material, or just *memorizing* it?")
- accurately judge one's level of learning

Flavell, J. H. (1976). Metacognitive aspects of problem solving. In L. B. Resnick (Ed.), *The nature of intelligence* (pp.231-236). Hillsdale, NJ: Erlbaum

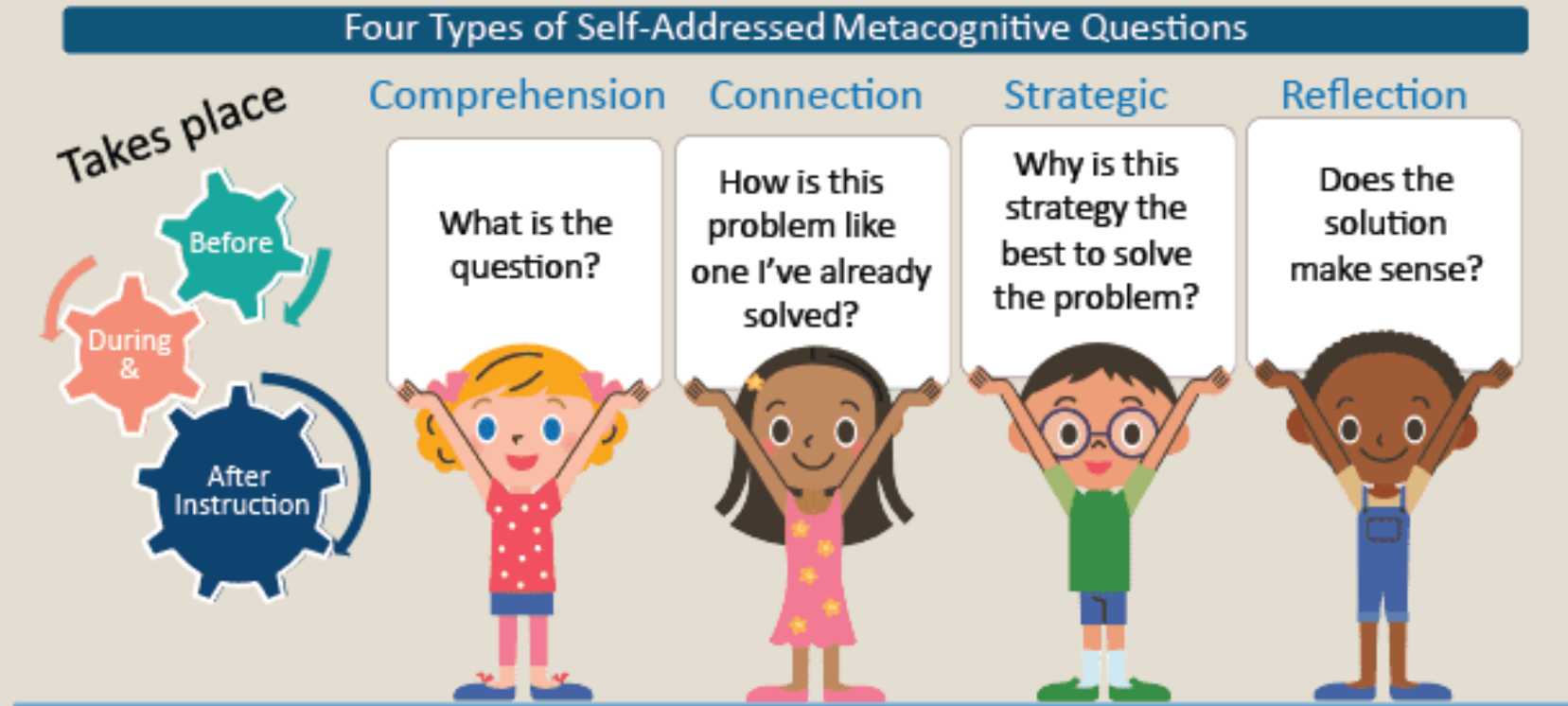
# What are the benefits?

- Increased material comprehension
- Better discussions
- More clearly articulated arguments
- Increased ability to learn independently
- Better critical thinking skills
- Better interdisciplinary application of knowledge



Adapted from:  
Ambrose, S. A., Bridges, M. W., DiPietro, M., Lovett, M. C., & Norman, M. K. (2010).  
How learning works: 7 research-based principles for smart teaching. San Francisco, CA: Jossey-Bass.

# Questions to ask yourself



*HOW METACOGNITION  
BOOSTS LEARNING  
by Youki Terada*

**METACOGNITIVE QUESTIONS**

**During Class**

What are the main ideas of today's lesson?

What am I confused about or was difficult for me to understand?

What questions do I need to ask the teacher or what resources can I use to help me?

Have I recorded the main points and their details and my questions?

What strategies or resources can I use if I get stuck on a question or problem?

**Before a Test**

What am I expected to know and be able to do on this test?

What areas am I confused about or where do I need to clarify my understanding?

How much time should I schedule for preparing for this test?

Where will I have a quiet place to study with the needed materials?

What strategies will best prepare me for the test? (practice questions, study buddy, summarizing information, etc.)

What grade do I think I would get right now?

**After a Test**

What did I not get correct and why was my answer incorrect?

Was there anything on the test that surprised me?

How prepared was I for this test?

What should I have done differently?

Did I receive useful specific feedback from my teacher?

*"Metacognition helps students recognize the gap between being familiar with a topic and understanding it deeply."*

# Answer the following in your notebook:

- Identify two topics with which you feel confident in your understanding.
- Identify two topics with which you are currently struggling.
- How are you going to overcome your struggles with those topics and develop a deeper understanding of them?