**Meta Learning
&
Thinking Skills**

Edutopia: nurturing metacognition in classroom
7 strategies

1. Teach students how their brains are wired for growth.

- The beliefs that students adopt about learning and their own brains will affect their performance. **Research shows that when students develop a growth mindset vs. a fixed mindset, they are more likely to engage in reflective thinking** about *how* they learn and grow. **Teaching kids about the science of metacognition** can be an empowering tool, helping students to understand how they can literally grow their own brains.

2. Give students practice recognizing what they don't understand.

• The act of being confused and identifying one's lack of understanding is an important part of developing self-awareness. Take time at the end of a challenging class to ask, "What was most confusing about the material we explored today?" This not only jumpstarts metacognitive processing, but also creates a classroom culture that acknowledges *confusion* as an integral part of learning.

3. Provide opportunities to reflect on coursework.

• Higher-order thinking skills are fostered as students learn to recognize their own cognitive growth. Questions that help this process might include:
• Before this course, I thought earthquakes were caused by _____. Now I understand them to be the result of _____.
• How has my thinking about greenhouse gases changed since taking this course?

4. Have students keep learning journals.

• One way to help students monitor their own thinking is through the use of personal learning journals. Assign weekly questions that help students reflect on *how* rather than *what* they learned. Questions might include:
• What was easiest for me to learn this week? Why?
• What was most challenging for me to learn? Why?
• What study strategies worked well as I prepared for my exam?
• What strategies for exam preparation didn't work well? What will I do differently next time?
• What study habits worked best for me? How?
• What study habit will I try or improve upon next week?
• Encourage creative expression through whatever journal formats work best for learners, including mind maps, blogs, wikis, diaries, lists, e-tools, etc.

5. Use a "wrapper" to increase students' monitoring skills.

• A "wrapper" is a short intervention that *surrounds* an existing activity and integrates a metacognitive practice. Before a lecture, for example, give a few tips about active listening. Following the lecture, ask students to write down three key ideas from the lecture. Afterward, share what you believe to be the three key ideas and ask students to self-check how closely theirs matched your intended goals. When used often, this activity not only increases learning, but also improves metacognitive monitoring skills.

6. Consider essay vs. multiple-choice exams.

• Research shows that **students use lower-level thinking skills to prepare for multiple-choice exams**, and higher-level metacognitive skills to prepare for essay exams. While it is less time consuming to grade multiple-choice questions, even the addition of several short essay questions can improve the way students reflect on their learning to prepare for test taking.

7. Facilitate reflexive thinking.

• Reflexivity is the metacognitive process of becoming aware of our biases -- prejudices that get in the way of healthy development. Teachers can **create a classroom culture for deeper learning** and reflexivity by encouraging dialogue that challenges human and societal biases. When students engage in conversations or write essays on biases and moral dilemmas related to politics, wealth, racism, poverty, justice, liberty, etc., they learn to "think about their own thinking." They begin to challenge their own biases and become more flexible and adaptive thinkers.