LESSON 1.1 OVERVIEW: WHAT IS METACOGNITION?

Background

**Executive Function:** Executive function (EF) is a broad term used to describe the complex cognitive processes that are the foundation for flexible, goal-directed behaviors. Key EF processes include shifting flexibly (cognitive flexibility), goal setting, organizing and prioritizing, accessing working memory, as well as self-monitoring and self-checking.

**Metacognition:** “Thinking about one’s own thinking.” Self-awareness is the foundation of metacognition. There are three key processes involved in metacognition: (1) Self-understanding – understanding our unique profiles of strengths and challenges; (2) Reflection – thinking about what we know; and (3) Self-regulation – regulating and monitoring our learning. Together, these comprise important learning processes.

**HOW TO TEACH METACOGNITION**

When teaching metacognitive strategies in the classroom, teachers should help students to reflect on their learning. Teachers can model and scaffold the following processes and strategies to help students to reflect, self-regulate, and direct their work:

- **Predicting outcomes**—Predicting helps students understand what kinds of information they might need to successfully solve a problem. Prediction also helps students to compare their initial plans with the final outcomes of a problem or experiment.

- **Evaluating work**—Students review their progress to determine their strengths and challenges.

- **Questioning by the teacher**—The teacher asks students questions to encourage self-reflection as they work, such as: “What are you doing now? Why are you doing it? How does this strategy help you?”

- **Self-assessing**—Students reflect about the effectiveness of the learning strategies they have used.

- **Self-questioning**—Students use questions to check their own knowledge as they are learning. When students learn to ask questions (to themselves or to others) while they work, they intentionally direct their thinking and clarify the areas in which they need assistance.

- **Selecting strategies**—Students decide which strategies are useful for a given task. Strategy selection is linked with the students’ understanding of their own learning strengths and challenges.

- **Using directed or selective thinking**—Students choose to follow a specific line of thinking or a structured approach to solving a problem.
• **Using discourse**—Students discuss ideas with each other and with their teacher. This thinking process helps students to learn to ask questions, to identify gaps in their own knowledge, and to learn from each others’ thoughts and ideas.

• **Critiquing**—Students provide constructive feedback to other students about their work. This process allows the students giving feedback to practice verbalizing their own thinking. It also allows the students receiving the feedback to refine their thinking and to improve their performance.

• **Revising**—After receiving feedback, students check their use of strategies and edit their work.

The activities a teacher uses to teach metacognitive strategies can vary depending on the subject matter. However, all teachers can model metacognitive processes and provide strategy reflection sheets or reflection journals for students to write down their strategies.

The following lesson introduces students to the concept of metacognition. Students learn the definition of metacognition, explore their strengths, and reflect on ways that metacognitive awareness can help them to become strategic learners.
Lesson 1.1: What is Metacognition? Thinking about Thinking

TIME: 1 Hour

LEARNING OBJECTIVES
By the end of this lesson, students will be able to:

1. Identify personal strengths and challenges
2. Define metacognition

METHODS OF INSTRUCTION
• Brainstorming
• Discussing
• Peer sharing

MATERIALS
• “What is Metacognition?” PowerPoint
• “Know a Celebrity Venn Diagram” handout for Metacognitive Activator
• “Know Yourself Venn Diagram” handout
• “Defining Metacognition” handout
• Chalkboard, flip chart, or whiteboard with markers
• Strategy notebooks (used each lesson as a place to put all handouts and reflections)

TEACHER PREPARATION
1. Review “What is Metacognition?” PowerPoint and add any additional information you view as relevant to your students. Change the silhouette picture of the celebrity to a person of your choice (this person does not need to be a celebrity, but rather could be a person known to all the students) or use the slides in the appendix.
2. Make copies of the “Know a Celebrity Venn Diagram,” Know Yourself Venn Diagram,” and “Defining Metacognition” handout (one per student)
DIRECTED LESSON SEQUENCE:

METACOGNITIVE ACTIVATOR

1. Begin the session by posting/projecting a picture of a recognizable celebrity so that it is visible to all students (you may use the PowerPoint slides for this). Alternatively, you may choose to complete this activity using an example of someone that is known to them but not a celebrity (e.g., yourself, the principal of the school). Students often do better with this activity when they have a personal connection to the person on whom the example is based.

2. Distribute the “Know a Celebrity Venn Diagram” handout.

3. Students should complete the handout by first identifying strengths of the chosen person and then identifying their challenges.

4. Once students have completed the handout, ask them to share their responses. Record these responses on the board, chart paper or in the PowerPoint.

GUIDED INSTRUCTION

1. Ask students to review the list of strengths. As a class, identify one strength of the celebrity (i.e., a professional basketball player has a good 3-point shot).

2. Ask students, “If you were to ask _____ why they are so good at _____, what do you think they would say?”

3. Record answers on board, chart paper or in the PowerPoint.

4. Explain to students that the answer demonstrates one aspect of self-awareness that relates to metacognition (thinking about thinking).

5. Using the PowerPoint, introduce students to the concept of self-awareness. In particular, highlight how three aspects of self-awareness make up metacognition:

   a. Awareness of WHAT—understanding one’s strengths and weaknesses (e.g., “I know I’m great at organizing the materials in my backpack, but I’m not so great at organizing my time. I’m always running late!”)

   b. Awareness of HOW—understanding how one can use a strategy to help them learn/perform best (e.g., “I do better when I use dividers to keep my binder organized and when I clean out the binder regularly.”)

   c. Awareness of WHY/WHEN—understanding which strategies one can use to help them succeed and when (e.g., “Cleaning out my binder is best for me at the end of the week when I have time to do it; otherwise it takes too long and I don’t get to my other schoolwork.”)

6. Ask students to connect the three aspects of awareness to the responses they gave when asked, “If you were to ask _____ why they are so good at _____, what do you think they would say?” Ask students to connect the celebrity’s knowledge of the “what” to their knowledge of “how” and “why” (e.g., Lebron James knows that to make a jump
shot (one of his strengths), “I need to bounce the ball and take a deep breath before I shoot the ball.” (Knowledge of HOW one can use a strategy to help him perform best.)

7. Explain how these three aspects of awareness are the foundation of metacognitive awareness, but emphasize that students will learn this type of self-awareness throughout the curriculum; it is acceptable if they have not mastered it yet!

INDEPENDENT PRACTICE
1. Distribute the “Know Yourself Venn Diagram” handouts.
2. As students complete the “Know Yourself Venn Diagram” handouts, they should identify one strength and explain why it is a strength. Does this demonstrate their knowledge of “How?”, “What?”, and “Why/When?”
3. Call on several students to share their responses.

DISCUSSION
1. Explain to students that metacognition plays an important role in our learning.
2. Ask students, “How do you think metacognitive awareness could help you to become a better learner?” Can you give an example of a time when you thought about how you learned something (e.g., how you learned to play a musical instrument, your favorite sport, or learned new vocabulary words)? How did that change/help the outcome of what you were doing?

METACOGNITIVE WRAP-UP
1. Distribute strategy notebooks and the “Defining Metacognition” handout. On the handout, students should write their own definition of metacognition and draw a picture of what they think metacognition looks like.
2. If there is time, have students share their drawings. At the end of class, have students put their “Defining Metacognition” handout in the strategy notebook as they will with all future handouts.