Metacognitive activities involve methods for developing students' ability to plan and assess their own learning, helping them to develop as expert learners. For example, requiring students to reflect on their understanding of topics during lecture, "Muddiest Point" or their exam performance, "Exam Wrappers" can lead to better study strategies.

Muddiest Point

- Creates a positive learning environment that encourages open dialogue, self expression, and trust between instructor and student.

- Helps instructor facilitate students learning while keeping students actively engaged in the learning process rather than being passive participants who only receive information.

- Students who are regularly asked to identify the muddiest point tend to pay more attention not only to the content but to their understanding of this content which is a higher level of thinking.

General Procedure:

1. Pass out 3x5 cards near the end of lecture. You can also use websites such as www.nearpod.com, and have students type in their answers on their phone.

2. If the class is large, you can ask students to form groups of 3-4, and then the group passes in one card.

3. You can modify the questions such as: "I don't understand how to…..", "I was surprised to learn that ….." or try to tap into faulty prior knowledge by asking, "what did you learn today that is different than how you learned that topic in the past?"

4. Make sure to address the questions quickly, preferably by the next lecture period. You can post answers to the most common questions/misunderstandings on your D2L page, or summarize them at the beginning of the next lecture with a slide or handout. You could also ask LAs/TAs to work with this information during recitation.

New technology – a new app called "Tcrunch", free from Apple and Google, students can respond to your question anonymously, and you analyze the data on the app or with an Excel spreadsheet.
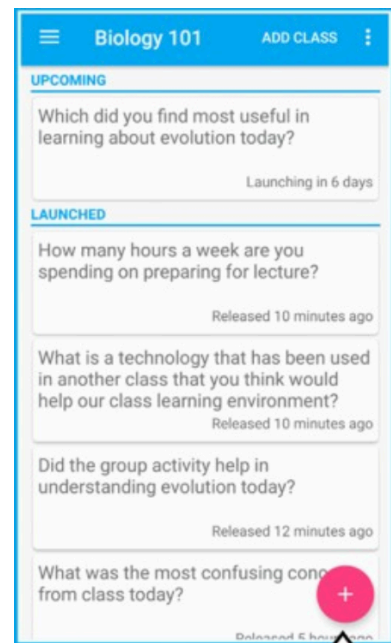
Exam Self-Reflection
("Exam Wrappers")

- Helps students to identify their own individual areas of strength and weakness to guide further study.

- Students will reflect on the adequacy of their preparation time and the appropriateness of their study strategies.

- Students can characterize the nature of their errors to find any recurring patterns that could be addressed.

General Format for assignment:

This form will help you to analyze your exam performance and find strategies that work best for you in learning the material for this course. Self-assessing your progress and adjusting your study strategies accordingly is what effective learners tend to do. Please answer the questions below sincerely. Your responses will have no impact on your grade, but they will inform the instructional team about how we can best support your learning. We will return your completed form before the second exam so that you can use your own responses to guide your approach to studying next time.

1. Approximately how much time did you spend preparing for this exam? _____
2. What percentage of your test-preparation time was spent in each of these activities?

    1. Skimming textbook chapters
    2. Reading textbook chapters thoroughly
    3. Reviewing your own notes
    4. Working on practice exam questions
    5. Reviewing materials from blackboard
    6. Other

        (Please specify: _____)

3. As you look over your graded exam, analyze where/how you lost points. Fill in the blanks below with the number of points you lost due to each of the following:

    1. Trouble applying definitions
    2. Trouble remembering structures
    3. Lack of understanding of a concept
    4. Not knowing how to begin a problem
    5. Careless mistakes
    6. Other

        (Please specify: _____)

4. Based on your responses to the questions above, name 3 things you plan to do differently in preparing for the next exam. For instance, will you just spend more time, change a specific study habit (if so, name it), try to sharpen some other skill (if so, name it), use other resources more, or something else?