

This **metacognition menu** offers suggestions for instructors seeking to embed metacognition into their courses. Note that some activities are linked to additional information about the activity.

| What? | When? | Where? | How? |
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| Pre-Assessment | Beginning of semester | Courses that build on previous courses | Create a no-stakes pre-test tied to learning outcomes so students are aware of what they don't know. |
| Strategy Reflection | Beginning of semester | Any course | Ask students to reflect on the strategies they've used in the past to learn similar material. Were those strategies effective? How might they be adapted for the current course? |
| Student Testimonial | Beginning of semester | Any course | Invite a former student who was successful in the course to share their metacognitive strategies. |
| Introduce Metacognition | Beginning of semester | Any course | Use a handout like the one linked here to explain metacognition and offer examples of metacognitive behaviors. If you have more time, assign Stephen Chew's " How to Study " video series for discussion and reflection. |
| Participatory Pedagogy (also known as Students-as-Partners) | Throughout semester | Any course, but easier to implement in small courses | Actively involve students in contributing to the curriculum, integrating and articulating their own goals |
| Specifications Grading | Throughout semester | Any course | Use this grading system to encourage students to plan and self-direct their learning. |
| Time Capsule Assignment | Throughout semester | Any course with frequent writing assignments | Students compare their written work from several different points in the semester. |
| Status Reports | Throughout semester | Any course with a lengthy project | Students create weekly reports about current status and plans, with reflections on how to be strategic in completing the assignment. |

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| Guided Reading | Before a Test | Any course with reading assignments | Generate questions for students to answer as they read. |
| Self-Assessments | Before Class Time | Any course | Students complete low- or no-stakes “checks” to ensure they understand content. |
| Self-Generated Questions | Before/During/After Class Time | Any course with reading assignments | Ask students to spend 10 minutes previewing the assigned reading and to generate 2-3 questions they have about the reading. Direct them to think about these questions during class. Then, after class, direct them to read the assigned reading, continuing to keep those questions in mind. |
| Think-Pair-Share | During Class Time | Any course | Give students prompts for reflection, first individually, then sharing in a smaller group, and finally in a larger group. |
| Minute Paper | During Class Time | Any course | Students reflect on a prompt in a stream-of-consciousness fashion. These are especially good to use at the beginning of class as a “check” for class preparation or to prompt discussion. They can also be used at the end of class to help students reflect on topics that may require more review. |
| Learning Checks | During Class Time | Any course | As you’re teaching content, frequently ask students “How are you trying to learn this? What will you do to make sure you remember this?” |
| Modeling Metacognition | During Class Time | Any course | Model your own thought and decision process when planning for solving a problem and model the process that you go through when making sense of what a problem is asking. |
| Mind Map | After Class Time | Any course | Have students reorganize notes into visual form, with links between related concepts. |

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| Audience Audit | During a Writing Assignment | Any course with a writing assignment | Students complete a three-part process of auditing their work, paying special attention to audience. |
| Self-Generated Practice Test | Before a Test | Any course with tests | Have students create a practice test and answer the questions as a homework assignment. Use some of the most well-crafted questions on the actual test. |
| Review Chart | Before a Test | Any course | Have students place topics on a chart as you are reviewing for a test, with headings like “I understand this topic well,” “I recognize this topic but need to review more,” and “I have never heard of this before.” |
| Strategy Project | Before/After a Test | Any course using tests | Require students to try several metacognitive strategies to study for a test and reflect on the process. Other examples of this project can be found in the reference and resources section (Steiner, 2016; Whittlesey & Steiner, 2021). |
| Grade Prediction | Before/After a Test | Any course using tests | Have students predict their grade before they submit their test. Then, once graded, have them compare the grade they predicted they’d earn with the grade they earned. A large mismatch may indicate poor metacognition. |
| Confidence Judgements | During a Test | Any course using tests | For each test question, ask for a judgement of their confidence (i.e., high/medium/low) in the answer they chose. Counsel them that when confidence is low, they should consider changing their answer. When the test is returned, have them reflect on how their confidence judgements are related to their performance. |

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| IF-Ats | During a Test | Any course that uses multiple choice tests | For multiple choice tests, give immediate feedback by letting students scratch off the answer they think is correct, revealing whether they chose correctly. Choosing the answer correctly on the first try earns full credit. Choosing it on subsequent tries earns successively less partial credit. This method may also be used in groups (distributed cognition), where the first guess is done individually, then the reasoning for the guesses are talked about with the group. |
| Exam Wrappers | After a Test | Any course that uses tests | Students reflect on their test performance, analyzing how they'll change their strategies next time. |
| Assignment Wrappers | After an Assignment | Any course | Students reflect on their assignment with directed questions (the version linked here involves students reflecting on lab assignments). |

Additional Resources and References

- Bjork, R. A., Dunlosky, J., & Kornell, N. (2013). Self-regulated learning: Beliefs, techniques, and illusions. *Annual Review of Psychology*, *64*, 417–444. [doi: 10.1146/annurev-psych-113011-143823](https://doi.org/10.1146/annurev-psych-113011-143823)
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- Epstein, M. L., Lazarus, A. D., Calvano, T. B., & Matthews, K. A. (2002). Immediate feedback assessment technique promotes learning and corrects inaccurate first responses. *The Psychological Record*, *52*(2), 187.
- Nilson, L. (2014). *Specifications grading: Restoring rigor, motivating students, and saving faculty time*. Herndon, VA: Stylus.
- Schraw, G. & Dennison, R.S. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology*, *19*, 460-475.
- Steiner, H.H. (2016). The strategy project: Promoting self-regulated learning through an authentic assignment. *International Journal of Teaching and Learning in Higher Education*, *28* (2), 271- 282.
- Steiner, H.H., Trivedi, N., & Brown, J. (2019). Bringing a self-regulated learning strategies project to scale in a first-year seminar. *Journal of Effective Teaching in Higher Education*, *1*(2), 27-44.
- Whittlesey, V. & Steiner, H.H. (2021). The strategy project: An exploration of enhancing self-regulated learning in an introductory psychology course. *InSight: A Journal of Scholarly Teaching*, *16*, 69-87.