

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?
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.

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.

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.

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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- 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.