Center for Teaching & Learning
UNIVERSITY OF COLORADO BOULDER

Classroom Assessment Techniques (CATs)

Classroom Assessment Techniques (CATs) are quick, low-stakes methods used to gauge student learning. CATs are highly effective and efficient student-centered strategies to check for understanding. Instructors can use the information as feedback to modify activities, provide additional support, or change the pace of instruction. This guide provides evidence-based information about CATs and links to descriptions, ideas, and how-to instructions for numerous learning assessment strategies. Also listed are a few favorites that can be used in all kinds of classrooms.

CATs help students set their attention on the class session

Students come to class with a lot on their minds. CATs can be used at the beginning of class to help them focus their attention and prepare to listen and engage. Quick information from students at the beginning of class can communicate to the instructor what concepts need more explanation or clarification.

⭐ CTL Favorite: Fish Bowl

Ask each student to write one issue or concept they want clarified on a card and drop it in a fishbowl (cardboard box, hat, etc.) as they enter class. During class, select cards from the bowl and clarify any issues or concepts from the card. This gives students who are hesitant to participate an opportunity to ask questions. You can also do this activity at the end of class and review at the start of the next class.

⭐ CTL Favorite: Clicker Quizzes or [Mentimeter Poll](#)

Brief low-stakes quizzes at the start of class can help students recall information from homework or a previous lesson. It's also a great way to check on how well students are understanding the material. Using clickers or a polling tool that provides immediate results can inform that day's instruction. It is important to correct misconceptions right away so that students do not remember wrong information.

CATs improve student engagement

When instructors use CATs in the classroom, students are more likely to participate in the activities of the class. Students may feel that they have a voice and that their instructor cares about their learning. You may also bring out friendly (no losers) competition, peer support, and make it okay to be wrong.

⭐ CTL Favorite: Student-Generated Test Questions

Ask students to prepare two or three potential test questions and the correct (or A+) responses for each. It is best to do this 2-3 weeks before the exam so there is time for feedback and correcting misinformation. Use the questions for a review sheet, and include at least some of the questions in the real exam.

CATs help students create connections between prior knowledge and new information

At the beginning of the semester or a new content unit, it is important to learn what students know so that you can target instruction and focus on what they need most as well as the pace that is most appropriate. CATs can ask students to apply knowledge and skills learned in class to their own lives, which can help them make sense of new information.

⭐ CTL Favorite: Background Knowledge Probe

Prepare a short, simple questionnaire with 2-3 open-ended questions to collect information about what students know about a class subject. Use simple language and encourage students to provide thoughtful answers. This activity is particularly useful for students who have had some previous coursework (in high school, for example) or experiences. Gather and compile the responses, and share the results with students in a subsequent class.

⭐ CTL Favorite: Misconception Check

Provide a common misconception about a topic and have students explain why they agree or disagree with it. This is best used when reviewing a lesson to check for understanding and to help students walk through their thinking process.

CATs check for understanding

CATs are a form of formative assessment. Formative assessment provides information to the instructor about how well students are learning. Formative assessments help students identify their strengths and areas where they are struggling.

⭐ CTL Favorite: One Sentence Summary

The One Sentence Summary requires students to synthesize information into a single sentence. Ask students to identify the who-what-when-where-why of something they read or did in preparation for class. This technique can also be used to help students connect ideas over time or in an instructional unit. Instructors can quickly scan and compare responses.

⭐ CTL Favorite: Color Cards

Provide each student with a set of three color-coded cards. Red means *Stop, I need help*; Green means *Keep going, I understand*; Yellow means *Slow down, I'm a little confused*. In a Zoom class, you can ask students to use emojis like thumbs up/thumbs down or a set of smiley faces.

CATs help students monitor their learning and improve performance

CATs can be self-assessments for students, too. Students want immediate feedback about what they are doing well and what they need to work on. Reflective activities can support student metacognition and help them develop their awareness about learning new material. Low-stakes assessments can help students improve their performance on high stakes assessments--like exams--because they help students process the material and gives them opportunity to practice skills.

⭐ CTL Favorite: The Muddiest Point

Ask students to write in response to the prompt, *What was the muddiest point in (the lecture, the homework assignment, the reading, the film, etc.)?* You can group responses by theme and decide what to spend more time addressing in an assignment or activity.

CATs provide closure to the class session and prepare students for what comes next

A thoughtful and purposeful closure to the class session helps students to reflect on their experience. These activities support retention and recall by asking students to go over information they learned and identify anything that is unclear. Instructors can use the information to adjust instruction for the next class session.

⭐ **CTL Favorite: The Minute Paper**

At the end of class, ask students to answer a question or reflect on something from that day's class and allow time for students to respond. Questions might include:

- What was the most surprising and/or unexpected idea in today's discussion?
- What was the most important idea, concept, or point you are taking away from today's (this week's class) class?
- What do you understand now that you didn't before today?
- What's one question about today's course material you want answered?

⭐ **CTL Favorite: 3-2-1**

At the end of class, have students write down or complete an online survey (you can use Google Forms) to ask about the day's lesson: 3 things you found out, 2 interesting things, and 1 question you still have.

Choosing and Using CATs Effectively

CATs can be valuable tools for engaging students in their own learning, but not all CATs are right for every classroom. A few things to consider when choosing and using CATs:

- Be purposeful. Choose CATs that align with course learning goals and course design. Plan ahead for the best times to use them and for *how* you will use the information.

- Review student responses immediately and discuss them in the following class period--or even in a follow-up post on Canvas. Use the information to address concerns, correct misconceptions, or adjust instruction.

- Make it clear to students that participation is not optional. CATs are usually non-graded activities, though they may count towards a participation grade. Keep the values low, or give credit for completion. It is best to not mark down grades

for wrong answers, since we want to encourage students to take risks and make mistakes.

- CATs should be a regular and ongoing part of classroom instruction.

Remember, learning is an ongoing process of experimentation, inquiry, and reflection. People learn at different rates and have different stumbling blocks. By paying attention to how well students are understanding and processing information in your class, you can adapt your instruction to meet their needs. Using CATs effectively can create a positive, student-centered environment where students feel valued and respected as learners.

So Many More CATs

📚 Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques: A handbook for college teachers* (second ed.). San Francisco: Jossey-Bass.

🔗 [Selected Classroom Assessment Techniques (CATs) for Getting Feedback on Student Learning (adapted from Angelo & Cross)](#)

🔗 Cornell University Center for Teaching Innovation -- [Assessing Prior Knowledge](#)

🔗 Edutopia -- [53 ways to check for understanding](#)

🔗 Vanderbilt University Center for Teaching and Learning -- [Classroom Assessment Techniques](#)

🔗 Yale University Poorvu Center for Teaching and Learning -- [Classroom Assessment Techniques](#)