# Selected CATs for Getting Feedback on Student Learning and Response to Teaching

## Assessing Prior Knowledge, Recall, and Understanding

| Name: Background Knowledge Probe | Description: This technique is designed to collect specific and useful, feedback on students' prior learning. These are short, simple questionnaires prepared by instructors for use at the beginning of a course, at the start of a new unit or lesson, or prior to introducing an important new topic. Students may write short answers, circle the correct response to multiple-choice questions, or both. | What to do with the data: For fast analysis responses can be sorted into "prepared" and "not prepared" piles. For a detailed analysis answers can be classified into the following categories: [-1] = erroneous background knowledge; [0] = no relevant background knowledge; [+1] = some relevant background knowledge; [+2] = significant background knowledge. By summing the individual numerical ratings for each question, the instructor can find out whether the class as a whole has more knowledge about some topics than about others. | Time required: Prep: Med In class: Low Analysis: Med |
| Name: Empty Outline | Description: Students fill in an empty or partially completed outline of an in-class presentation or homework assignment within a limited amount of time. | What to do with the data: You may wish to compare the actual responses to those you expected, counting the number of students who agreed or disagreed with your responses for each item. Instead of or in addition this step, you can look at the range of responses among students, focusing more on the patterns that emerge than on how well they match your expectations. | Time required: Prep: Med In class: Low Analysis: Med |
| Name: Memory Matrix | Description: Students fill in cells of a two-dimensional diagram for which instructor has provided labels. For example, in a music course, labels might consist of periods (Baroque, Classical) by countries (Germany, France, Britain); students enter composers in cells to demonstrate their ability to remember and classify key concepts. | What to do with the data: Tally the numbers of correct and incorrect responses in each cell. Analyze differences both between and among the cells. Look for patterns among the incorrect responses and decide what might be the cause(s). | Time required: Prep: Med In class: Med Analysis: Med |
| Name: Minute Paper | Description: During the last few minutes of the class period, ask students to answer on a half-sheet of paper: “What is the most important point you learned today?” and, “What point remains least clear to you?” The purpose is to elicit data about students’ comprehension of a particular class session. | What to do with the data: Review responses and note any useful comments. During the following class periods emphasize the issues illuminated by your students’ comments. | Time required: Prep: Low In class: Low Analysis: Low |
| Name: Muddiest Point | Description: At the end of class, ask students to jot down a quick response to one question: "What was the muddiest point in _______?" | What to do with the data: As with everything else about this technique, data analysis can and should be kept very simple. Quickly read through at least half of the responses, looking for common types of muddy points. Then go back through all the responses and sort them into piles -several piles containing groups of related muddy points, and one "catch-all" pile made up of one-of-a-kind responses. You may want to count the responses in each group before you decide which to deal with. Or you may want to group together the muddy points that concern facts and principles, those that concern concepts, and those that concern skills. | Time required: Prep: Low In class: Low Analysis: Low |
### Assessing Skill in Analysis and Critical Thinking

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| Categorizing Grid      | Students are given a grid containing two or three important categories – super-ordinate concepts they have been studying – along with a scrambled list of subordinate terms, images, equations, or other items that belong in one or another of those categories. Learners are then given a very limited time to sort the subordinate terms into the correct categories on the grid. | In most cases, you can simply check the grids to see whether students have placed the right items in the correct boxes, making note of those items that are most often miscategorized or left out entirely. Look for patterns in the incorrect responses that can help you see which kinds of examples, and/or which categories, are most difficult for students to deal with. | Prep: Low  
In class: Low  
Analysis: Low |
| Pro and Con Grid       | This assessment forces students to go beyond their first reactions, to search for at least two sides to the issue in question, and to weigh the value of competing claims. Focus on a decision, a judgment, a dilemma, or an issue that has teaching and learning implications for your students. Write out a prompt that will elicit thoughtful pros and cons in relation to this issue or dilemma. You may wish to indicate a specific point of view that students should adopt in coming up with their lists. Finally, let students know how many pros and cons you expect and how they are to be expressed. | Start by listing the points that students have put forth as pros and as cons and by doing a simple frequency count. Which points are most often mentioned? Compare the students’ grid with your. Have they omitted some points that you expected them to mention? Have they included some points that you regards as extraneous? How balanced are the two “sides” of the grid? These are possible matters to report on and to discuss in class when you give the class feedback. | Prep: Low  
In class: Low  
Analysis: Low to Med |

### Assessing Skill in Synthesis and Creative Thinking

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| One-Sentence Summary   | Students summarize knowledge of a topic by constructing a single sentence that answers the questions “Who does what to whom, when, where, how, and why?” The purpose is to require students to select only the defining features of an idea. | Evaluate the quality of each summary quickly and holistically. Note whether students have identified the essential concepts of the class topic and their interrelationships. Share your observations with your students. | Prep: Low  
In class: Med  
Analysis: Med |
| Invented Dialogues     | Students can create Invented Dialogues by carefully selecting and weaving together actual quotes from primary sources. Or, on a more challenging level, they may invent reasonable quotes that fit the character of the speakers and the context. | In these Invented Dialogues, you should look for the same elements you mentioned in your assignment handout. You can count the number of important points that the students adequately address in their dialogues and rate the quality of reasoning expressed in the exchanges. You might want to create a checklist of points to look for as you read through the dialogues. | Prep: Med to High  
In class: High  
Analysis: High |

### Assessing Skill in Application and Performance

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| Directed Paraphrasing  | Ask students to write a layman’s “translation” of something they have just learned–geared to a specified individual or audience– to assess their ability to comprehend and transfer concepts. | Categorize student responses according to characteristics you feel are important. Analyze the responses both within and across categories, noting ways you could address student needs. | Prep: Low  
In class: Med  
Analysis: Med |
| **Application cards** | After teaching about an important theory, principle, or procedure, ask students to write down at least one real-world application for what they have just learned to determine how well they can transfer their learning. | Quickly read once through the applications and categorize them according to their quality. Pick out a broad range of examples and present them to the class. | Prep: Low  
In class: Low  
Analysis: Med |
| **Student-generated test questions** | Allow students to write test questions and model answers for specified topics, in a format consistent with course exams. This will give students the opportunity to evaluate the course topics, reflect on what they understand, and what are good test items. | Make a rough tally of the questions your students propose and the topics that they cover. Evaluate the questions and use the good ones as prompts for discussion. You may also want to revise the questions and use them on the upcoming exam. | Prep: Med  
In class: High  
Analysis: High |