

Kinds of Assessment

Teachers use several different kinds of assessment in the videos. Each may have several variations, depending on circumstances. As teachers use new methods of looking at student work, they develop their own refinements to get more complete information.

It is important to use more than one way to look at student learning. Multiple sources give information from different perspectives. Using a variety of these techniques creates an assessment “system” that is not rigid, but systematic in its processes and results. Read this section to familiarize yourself with these practices and to help support your discussion of these ideas with others.

Questioning and Documentation

Observing and talking with students as they work on mathematics tasks is the most useful assessment tool available. This is the life of learning in the classroom. There are at least two developments, however, in current trends: questioning and documenting.

Asking probing questions of students has partially replaced giving directions. For example, when students say they cannot figure out what to do next, the teacher might ask, “What have you tried so far?” “Tell me about your thinking,” or “What are some things you could try?” The resulting conversation will give the teacher a better idea of the sticking point and should help students become more self-directing. Students will begin to ask themselves, “What else can we try?”

When observations and conversations are backed up by documentation, teachers can integrate instruction and assessment for a fresh, clear look at student learning. Documentation gives an accurate memory of what was seen, not only for planning but also for clear communication with students, parents, or administrators. Class lists, clipboards, address labels, three-by-five cards, and self-stick notes may be useful. Whatever the method, documentation should be kept simple and easy to manage. Look for important things to record; skip the minutia.

Multiple-Choice Questions

Multiple choice has been the most commonly used method for assessing large groups of students and for standardized testing. Items ask a question and give the student a choice of four or five possible responses. The answer choices are usually based on common errors students might make. Sometimes students are asked to explain how their answer was chosen or why each possible choice was either selected or not selected.

Standardized Tests

Standardized tests are produced, usually by commercial publishers, after a set of items has been tried with a sampling of students from various locations. The results of the sampling are considered the norm, and scores from later groups of students are assigned values based on those norms. For example, if the average percent of correct answers had been established as 65%, then any later scores above 65% correct would be “above the 50th percentile.” The reference is to a statistical standard rather than a standard of quality.



Helen Compton

Professional Development

Assessment is an area that I think requires conversation. It is very useful for me to have a group of colleagues to compare notes with; to try things out; perhaps together, if we can; and see how it works in my class versus how it works in somebody else's class. And, ... in some cases to actually assess the results of those activities together.

Learning about assessment, ... new techniques, [and] getting some ideas about how to improve assessment in my classroom happens generally by attending conferences and working with other teachers ... looking at ideas that they have found to be successful.... I would have a hard time thinking about making some of the changes that I have made without the support of my colleagues and without some kind of formal information that comes through professional development programs.



From "Case Study: Group Test"

Short Tasks

Short tasks require students to form their own answers. A simple example would be a multiplication problem, say 24 times 33, asking students to show their work. Another task might require students to look at some data and enter the information on a graph. Also used are word problems such as this:

Carmen and her mother went to the bicycle shop when they saw an advertisement that said "25% off all bicycles, no sales tax." The regular price of the bicycle Carmen wanted was \$80. How much money did Carmen need? Show your work.

Open-Ended Questions

Open-ended questions are similar to short tasks, but may be longer and may not have a single right answer. Students will need to explain their ideas and how they solved problems. An example:

How many days of the year do most students *not* attend school? Explain how you found your answer.

Investigations or Longer Tasks

Investigations involve extended work, from an hour to several weeks. Students may pose their own questions, decide on resources to use, develop strategies to solve problems, compare, explain, justify, interpret, and generalize results. An example:

Plan and conduct a survey in your school about student opinions on the next election. Keep a log of your steps. Present your results orally and with a graphic display.

Student Presentations

Student presentations offer an ideal way to assess student understanding. Are the important ideas clearly brought out? Are questions from other students answered fully? Does the presenter correct or revise errors that may be pointed out? Some teachers devise check sheets for their own use, for student planning, and for other students to use as they listen to a presentation.

Group Tests

A group test is much like the normal daily classroom activity, except that it usually presents a more difficult problem than those students have already studied. Students are required to work with their group but students turn in their own paper and may be asked to further explain the work.



From "Case Study: Fraction Tracks"

Self-Evaluation and Peer Evaluation

As students move toward being adults, they need to develop the ability to evaluate their own work. The roots of this begin early, when teachers consistently ask questions such as, "What does each part of this problem mean?" "How did you organize your information?" "Is there a pattern?" or "Is that answer reasonable?"

Student understanding of goals, purposes, and criteria for judging good work should begin in the very early grades and continue throughout the school years. Practice in assessing one's own work as well as that of others helps develop abilities to plan and carry out projects successfully.

Journals and Writing

Many teachers make use of student journals as a means of communication and evaluation of daily progress. The journals may take the form of a log of work, or may be more like personal letters between the teacher and student. Writing in mathematics can help students learn to explain and clarify their ideas. And don't forget to suggest the use of diagrams and illustrations, especially in mathematics journals. This can be especially helpful to students who do not have language or writing mastery.

Portfolios

A mathematics portfolio is a collection of a student's work over time. Some might be called "working portfolios," with most of the student's work included. Others may be more selective, including work that is decided on by the teacher, by the student, by school requirements, or by any combination of those. Selective portfolios should be organized and completed by the student, with a table of contents, perhaps a letter to the reader, or other notation that shows the student understands the importance of the work. Some portfolios may include several revisions of a paper, indicating the student's progress in doing increasingly better work.

Portfolios are especially useful in communicating with parents. Sometimes students themselves present their portfolios to family members or to community groups such as school boards.



From "Case Study: Building Rafts with Rods"



From "Case Study: Problem Solvers Fall & Spring"