

## Formative Assessment Strategies

### Hinge Questions

A hinge question is a question that is particularly important because it reveals specific flaws or misconceptions in student thinking that teachers need to be aware of. In this math example the difference in success between the two questions reveals that 39% of the students have an incorrect understanding of numerator and denominator relationships. They likely think that if the fraction with the largest denominator ( $1/6$ ) is the smallest, they (incorrectly) assume the opposite is true for the largest since  $3/4$  has the *smallest* denominator in of the choices in the second question. These two questions reveal very specific and useful information about student thinking and the misconceptions that need to be corrected.

### “\$20,000 Pyramid (after the TV show) and also referred to as “Talk a Mile a Minute”

Essentially it is a concept vocabulary quiz game where students work in pairs. One student has his/her back to the board or screen while another faces it. The student who can see the terms must give clues to the term *without saying the term itself*. The partner who cannot see the board/screen must attempt to infer the terms from the clues given by their partner. Students are given 1-2 minutes to attempt one set of terms, then the partners switch places and do the same but with a different set of related terms. As this is happening the teacher walks around and monitors the clues and responses the students are giving to determine how well the students have internalized the information. For example, if a government class is studying how laws are made the term *Bill* could be used. If students say “a proposed law” they understand the concept better than if they resort to clues like “a nickname for someone named William”.

### Card Sort

Students (in groups of 2-4) are given cards with terms printed on them and are asked to sort them into categories that make sense to them. For younger students the teacher may suggest categories (a closed sort) but for older students they are free to create their own categories (open sort). Students are asked to explain the rationale for how their group sorts the cards, and to discuss with groups that have chosen different ways to sort them. In the rock example the cards *Erosion* and *Melting* could correctly be included in either of the rock types. The group’s explanation of why they chose to include it in a certain category helps the teacher determine the depth of student understanding.

### Data Match

Students are shown a complex set of data (graph, chart, table) and a set of statements about that data. They are asked to determine which, if any of the statements is supported by the data, and to support their responses with the data itself. This can be done in small groups or individually. This FA strategy is useful to help teachers see how well students understand data and they different ways it can be presented.

### First Word-Last Word

Students are asked to do a variation of an acrostic poem using a key word from the topic they are learning. This is done at the beginning of instruction, then done again after the learning activities have taken place—typically at the end of a unit. The students (and teacher) can compare the difference in depth of their responses between the first and second versions as a gauge of the learning that has occurred.

### Commit and Toss

Students are shown a hinge question and asked to write their answer and an explanation of it on a sheet of paper anonymously. They then wad up the paper and toss it around the room several times until nobody is sure which student their response is from. NOTE-in classes that can become unruly it might be best to ‘pass’ the notes rather than toss them. Students are asked to open the paper and to stand in the appropriately marked area of the room that represents that answer choice (A,B,C,D corners). The number of students in each corner gives the class a visual representation of the answer distribution, and students can be asked to read the responses they are holding with out fear of embarrassment, since it holds someone else’s thoughts and not their own. The class can discuss the reasoning of students who chose the incorrect answers.