

Formative Assessment Preassessment

1. In spring 2016, a science curriculum supervisor needs to plan the summer workshops that the district will offer to its middle school science teachers. She analyzes the scores the district's middle school students obtained on the 2015 state tests and notes that while the science scores are generally comparable to those of the rest of the state, the students in her district appear to be scoring rather poorly on items involving physical sciences when compared with those testing life sciences. She decides to make physical science the focus of the professional development activities offered in summer 2016, which are well attended by the district's middle school science teachers. Teachers return to school in fall 2016 and use the revised instructional methods they have developed over the summer. As a result, when students take the state test in spring 2017, the achievement of middle school students in the district on items involving physical sciences increases, and so the district's performance on the state tests, which is reported in summer 2017, improves.
2. Each year, a group of algebra 1 high school teachers reviews students' performance on a statewide algebra 1 test and, in particular, looks at the facility (proportion correct) for each item on the test. When item facilities are lower than the group expects, the group looks at how teachers prepared and delivered instruction on that aspect of the curriculum and considers ways in which teachers can strengthen the instruction in the following year.
3. A school district administers a series of interim tests, tied to the curriculum, at intervals of six to ten weeks to check on student progress. The district uses past experience to determine a threshold that gives students an 80 percent chance of passing the state test, and requires students whose interim test scores fall below the threshold to attend additional instruction on Saturday mornings.
4. Since 2003, the School District of Philadelphia has mandated a core curriculum that includes a tightly sequenced planning and scheduling timeline, in which the school year is divided up into a number of six-week cycles (Oláh, Lawrence, & Riggan, 2010). In each six-week cycle, the district expects teachers to use the first five weeks for instruction, at the end of which students take a multiple-choice test, which the teacher can use to determine how to spend the final week of the cycle. If students have done well, teachers typically schedule enrichment and enhancement activities, but if there are significant weaknesses in students' understanding, the final week becomes a "re-teaching week" (Oláh et al., 2010).

5. A middle school science teacher is designing a unit on pulleys and levers. She allocates fourteen periods to the unit, but plans to cover all the content in the first eleven periods. Building on ideas common in the Japanese educational system (see, for example, Lewis, 2002), in period twelve, the teacher gives the students a quiz and collects the papers. Instead of grading the papers, she reads through them carefully, and based on what she discovers about what the class has and has not learned, she plans appropriate remedial activity for periods thirteen and fourteen.
6. A history teacher has been teaching about the issue of bias in historical sources. Three minutes before the end of the lesson, students pack away their books and receive an index card on which the teacher asks them to respond to the question "Why are historians concerned about bias in historical sources?" The students turn in these exit passes as they leave the class at the end of the period. After all the students leave, the teacher reads through the cards and then discards them, concluding that the students' answers indicate a good enough understanding for the teacher to move on to a new chapter.
7. A language arts teacher has been teaching his students about different kinds of figurative language. Before moving on, he wants to check his students' understanding of the terms he has been teaching, so he uses a real-time test. The teacher gives each student a set of six cards bearing the letters A, B, C, D, E, and F; and on the board, he displays the following.
- A. Alliteration
 - B. Onomatopoeia
 - C. Hyperbole
 - D. Personification
 - E. Simile
 - F. Metaphor

He then reads a series of five statements.

1. This backpack weighs a ton.
2. He was as tall as a house.
3. The sweetly smiling sunshine melted all the snow.
4. He honked his horn at the cyclist.
5. He was a bull in a china shop.

After the teacher reads each statement, he asks the class to hold up a letter card (or cards) to indicate which kind or kinds of figurative language features in each statement. All students respond correctly to the first question, but in responding to the second, each student holds up a single card (some hold up E, and some hold up C). The teacher reminds the class that some statements might be more than a single type of figurative language. Once the students realize that there can be more than one answer, the class responds correctly to statements two, three, and four. About half the students, however, indicate that they think statement five is a simile. The teacher then leads a whole-class discussion during which students give their reasons for why they think statement five is a simile

or a metaphor, and after a few minutes, all the students agree that it is a metaphor, because it does not include *like* or *as*.

8. An advanced placement (AP) calculus teacher has been teaching students about graph sketching and wants to check quickly that the students grasp the main principles. She asks the students, "Please sketch the graph of $y = 1$ over $1 + x^2$." Each student sketches the graph on a whiteboard and holds it up for the teacher to see. The teacher sees that the class understands and moves on.