

Formative Assessment Institute Day 3

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Time Frame 3 Hours

Essential Question(s)

What is the role of assessment in the design of effective learning environments?

Summary

During this third day of the Formative Assessment Institute, participants focus on distinguishing Assessment of Learning, Assessment for Learning, and Assessment as Learning.

Learning Goals

- Define formative assessment
- Analyze strategies to determine their purpose in the formative assessment-centered classroom

Attachments

- Card Sort ELA—Formative Assessment Institute Day 3.docx
- Card Sort ELA—Formative Assessment Institute Day 3.pdf
- Card Sort Math—Formative Assessment Institute Day 3.docx
- Card Sort Math—Formative Assessment Institute Day 3.pdf
- Card Sort Science—Formative Assessment Institute Day 3.docx
- Card Sort Science—Formative Assessment Institute Day 3.pdf
- Card Sort Social Studies—Formative Assessment Institute Day 3.docx
- Card Sort Social Studies—Formative Assessment Institute Day 3.pdf
- Frayer Model—Formative Assessment Institute Day 3.docx
- Frayer Model—Formative Assessment Institute Day 3.pdf
- Justified True or False ELA—Formative Assessment Institute Day 3.docx
- Justified True or False ELA—Formative Assessment Institute Day 3.pdf
- Justified True or False Math—Formative Assessment Institute Day 3.docx
- Justified True or False Math—Formative Assessment Institute Day 3.pdf
- Justified True or False Science—Formative Assessment Institute Day 3.docx
- Justified True or False Science—Formative Assessment Institute Day 3.pdf
- Justified True or False Social Studies—Formative Assessment Institute Day 3.docx
- Justified True or False Social Studies—Formative Assessment Institute Day 3.pdf
- Note Catcher—Formative Assessment Institute Day 3.docx
- Note Catcher—Formative Assessment Institute Day 3.pdf
- Presentation Slides—Formative Assessment Institute Day 3.pptx

Materials

- Presentation Slides (attached)
- Card Sort Math (attached; one per Math teacher)
- Card Sort Social Studies (attached; one per Social Studies teacher)
- Card Sort English Language Arts (attached; one per English Language Arts teacher)
- Card Sort Science (attached; one per Science teacher)
- Justified True or False Statements Math (attached; one per Math teacher)
- Justified True or False Statements Social Studies (attached; one per Social Studies teacher)
- Justified True or False Statements English Language Arts (attached; one per English Language Arts teacher)
- Justified True or False Statements Science (attached; one per Science teacher)
- Note Catcher (attached; one per teacher)

Engage

Presenter's Note: Setting Up

1. Have handouts and materials available on the table for participants. All participants should receive a copy of the Note Catcher and a copy of the Card Sort and Justified True or False handout for their subject area. Tables work best when organized into small working groups.
2. Card Sort Cards will need to be printed on card stock and cut ahead of time. Store each set in a small self-sealing bag for safe keeping.
3. On **slide 9**, insert a photo of the anchor chart created on Day 1 of the institute listing their purposes for formative assessment in the classroom.
4. Mentimeter - set up a word cloud Mentimeter that will allow your participants to participate in the Collaborative Word Cloud at the start of the session.

Using the attached **Presentation Slides** display **slide 2**. Introduce yourself and welcome the participants to the Formative Assessment Institute.

Display **slide 3**. Share with the participants that this is day 3 of a 4-day professional development institute covering formative assessment in the classroom.

Display the appropriate grant goals from **slides 4-6.** Select the appropriate goals for your group of participants: GEAR UP for the FUTURE, O+C=K, or MY SUCCESS. Hide the other two slides.

Display **slide 7**. Share the essential question for the institute: *What is the role of assessment in the design of effective learning environments?*

Display **slide 8**. Share the session objectives with participants:

1. Define formative assessment
2. Analyze strategies to determine their purpose in the formative assessment-centered classroom

Display **slide 9**. Remind participants that they will be referring back to the purposes throughout the institute.

Display **slide 10**. Share the instructional strategy, Collaborative Word Cloud, with participants.

Introduce the activity:

In yesterday's session, we talked about the different purposes for which formative assessment strategies can be used. We also have a list of ideas about formative assessment in our anchor chart that we have been referring to in our discussions. In our first activity, we will identify key characteristics of formative assessment using a word cloud. Then we will agree on a group definition of formative assessment based on everything we have talked about so far.

Share the Mentimeter link you created earlier with participants. Ask them to work in small groups to come up with 3-5 characteristics unique to formative assessment and then add them to the word cloud.

Some examples you may see include *ongoing*, *inform instruction*, *not graded*, etc. Once participants have submitted their responses, download the word cloud. Add it to **slide 11** to share with them.

Explore

Display **slide 12**. Pass out the attached **Frayer Model** handout, and share the instructional strategy, Frayer Model, with participants. Instruct them to include the following information about formative assessments in their Frayer Model:

- Definition in their own words
- Characteristics
- Examples
- Non-examples

Once all participants have finished, ask a few to share out with the group. Work to create a group definition.

Display **slide 13**. Share Page Keeley's definition of formative assessment.

> Formative assessment is a systematic process of collecting evidence about students' thinking and learning to inform instruction and provide feedback to the students while simultaneously promoting learning. It happens during the learning process.
>
> It is assessment for learning rather than assessment of learning, and it can also be assessment as learning.

How does their group definition compare to hers?

Take a moment to discuss how the word cloud and Frayer Model were used here for assessment AS learning. Get ideas about other ways these strategies could be used as formative (or even summative) assessments.

Display **slide 14.** Introduce the concepts of evaluation and assessment:

Another term you hear a lot in education is "evaluation." It is sometimes used interchangeably with assessment. They are two different things. Formative assessment should never be considered evaluation. That is why it is suggested that formative assessment not be graded (except as participation).

Explain

Display **slide 15**. Introduce the concept of metacognition: *One of the hardest things to think about is assessment AS learning. As teachers, we are charged with getting students to think about their own learning. This is called metacognition.*

Display **slide 16**. Share the following video: https://www.youtube.com/watch?v=9s0UURBihH8&t=47s

Embedded video
https://youtube.com/watch?v=9s0UURBihH8

Display **slide 17.** Introduce the concept of the metacognitive strategy, What Are You Doing And Why? Have participants pair-share how this could be used in their own content areas. Ask for volunteers to share out.

Display **slide 18.** Pass out the attached **Note Catcher**. Allow participants time to reflect on the assessment strategies that they have explored up to this point and answer the question, *How were they used and how can I use them?*

Announce a short break.

Extend

Presenter's Note: Setting Up for Part 2

While the participants are taking their break, make sure the materials and tables have been set up for each content area. You may find that most of the participants have already sat according to their subject-specific groups, or professional learning community (PLC) groups, and if this is the case, then set up should go quickly.

If the participants did not sit with their PLCs, then you will want to prepare them before the break to take their materials with them so that they don't get moved around. They can move to a common location/table so they're set when they return.

1. All participants should receive a copy of the Card Sort for their subject area. Print them on heavier paper. Cut out cards and laminate them prior to the session. Store each Card Sort in a bag or envelope for safekeeping.
2. Ensure that each participant has a copy of the Justified True or False handout for their subject area.

Display **slide 19**. As participants are returning from their break, prompt them to sit with their PLCs. Introduce the agenda for the rest of the session: *"Now that we have explored the characteristics and purposes of formative assessment in general, the rest of our time will be devoted to looking at how formative assessment can be used in specific content areas."*

Display **slide 20**. Share the instructional strategy, Card Sort, with the participants. Instruct them to read each of the brief scenarios on the cards and sort them into one of the following categories:

- Assessment **as** Learning
- Assessment **of** Learning
- Assessment **for** Learning

Once participants have had a chance to discuss their card sorts, hold a whole group discussion to emphasize that strategies are not always content-specific. They can be used in different content areas for different purposes and objectives. This is why it is important to start with a goal, objective, or desired outcome when you design a formative assessment.

Display **slide 21**. Share the instructional strategy, Not Like the Others, with participants.

Display **slides 22-25** to show examples from each content area. Provide the whole group an opportunity to look at each subject's sample formative assessments and try to answer the question, *What type of data are you collecting from your students and how can you use it?*

Encourage every content area to stretch their thinking at this time, but ask the math teachers to provide insight into their example, social studies teachers to provide insight into their example, etc.

Display **slide 26**. Share the instructional strategy, Justified True or False, with participants. Pass out the attached **Justified True or False** handout to each of the content tables. There is a handout specific to each content area. Each has an example of a Justified True of False assessment with sample student responses. As a small group, instruct participants to review the sample responses and discuss the following: *What does the information tell you, and what next steps can you take with the information.*

As participants are discussing these questions, walk around, monitor, and provide support in reading the data.

Sample Responses (Math):

1. The first statement is false. This student does understand that quadratics have 2 solutions—their reasoning is a true statement—but this student seems to have a misunderstanding of *real* solutions. Give students three quadratic equations to solve: one with 2 real solutions, one with 1 real solution, and one with 2 imaginary solutions. Encourage students to solve the quadratic with 1 real solution using factoring so they can more easily see that that equation has the same 1 solution twice (multiplicity of 2).
2. The second statement is true. This student does have a misunderstanding about the method of *completing the square*. Students often feel like completing the square does not always work because they avoid it when there are fractions—for good reason—but it does always work when solving quadratic equations. Consider having students create a graphic organizer to compare and contrast the different methods of solving a quadratic equation; help students see advantages and disadvantages for each method. Consider having the class help prove the quadratic formula using completing the square; this often helps students see that those two methods are more closely connected.
3. The third statement is true. This student could be unclear on the definition of vertex or has just grouped all vocabulary words associated with quadratics together. Consider a quick formative assessment to ask students to find the zeros and vertex of a quadratic equation or graph. Ask students to explain the differences in the method of finding those characteristics and where they are on the graph. Acknowledge that a vertex can be a zero, but that those two words do not hold the same meaning. Also, be intentional about using the words *roots*, *zeros*, *solutions*, and *x-intercepts* interchangeably when asking students to solve quadratic equations.

Sample Responses (Social Studies):

1. The first statement is false. The student demonstrated an understanding that the federal government's power is derived from the Constitution but has a misunderstanding that the Constitution reserves some powers for the state and some powers are held concurrently. Consider refreshing students on the division of power in the United States by having students create Venn diagrams with powers that are at the federal level, powers that are at the state level, and powers that the federal and state level share.
2. The second statement is false, and the student correctly reasoned that some positions are appointed by the president. However, the student did not demonstrate that the positions appointed by the President must also be approved by the Senate. Ask students to go deeper in their explanation when thinking about the power of appointments.
3. The third statement is true, and the student chose false, reasoning that citizens only vote. Review with students the various ways in which citizens can be involved in democratic and civic processes and consider teaching a lesson on the rights and responsibilities of citizens such as the lesson, What Does It Mean To Be A Good Citizen?
4. The fourth statement is false, and the student correctly chose it; however, the reasoning demonstrates a misconception. Review with students the term lengths for leaders in each branch, and post an anchor chart in the classroom that distinguishes between terms for elected officials.

Sample Responses (English Language Arts)

A complex sentence combines a dependent clause with an independent clause. When the dependent clause is placed before the independent clause, the two clauses are divided by a comma; otherwise, no punctuation is necessary.

1. The first sentence is a complex sentence because it contains both an independent clause and a dependent clause. The student recognizes that the subordinate conjunction **when** introduces a dependent clause.
2. The second sentence is NOT a complex sentence since it does not contain a dependent clause. This student understands that both these clauses are independent and can stand alone.
3. The third sentence is a compound-complex sentence. Both independent clauses joined by **and** can stand alone as two separate sentences. The dependent clause is embedded in the first independent clause. The student recognized that there was a subordinating conjunction introducing the dependent clause: **while.**
4. The fourth sentence is not complex. There is only one independent clause. This student seems to understand what a sentence is composed of, enough to know it's not complex.

Sample Responses (Science)

1. The first statement is false. This student's answer indicates that they understand that DNA serves a variety of functions, both regulatory and structural. An additional detail that would more thoroughly illustrate their understanding is that genes specifically are the regions of DNA that code for proteins.
2. The second statement is true, and the student's explanation is well-thought out. Sexually reproducing organisms begin development as a single-celled zygote, which then undergoes cell division, so all subsequent cells are identical copies. Asexually reproducing organisms also produce identical copies of their cells, though the specific processes generating these copies may differ.
3. The third statement is true, and the student provides an appropriate piece of evidence to support the statement. Technological advances in scientific tools have allowed us to see DNA in greater detail. As a result, scientists have observed in high resolution that each chromosome is single long DNA molecule, which is tightly coiled to form the chromosome structure.
4. The fourth statement is false, and the student has identified the incorrect detail from the statement. Mitosis creates identical copies of a cell as it divides in two. Only during meiosis, when sex cells replicate, do chromosomes bind in such a way that they can cross over one another and swap pieces of their DNA.

Show **slides 27-30** as a review for the entire group if you feel they would be beneficial to the participants.

Display **slide 31.** Bring participants' attention back to their Note Catchers. Provide them time to reflect on the assessment strategies that they have explored up to this point and answer the question, *How were the strategies used and how can I use them?*

Evaluate

Display **slide 32.** Instruct participants to pull out the student work samples they brought with them. Ask them to spend the remaining time with their content groups examining their student work and determining the next best steps to take in the classroom.

Research Rationale

Analyzing the current skill level of students in a classroom at any given time and determining the best course of action for ensuring they all meet the target learning goals can be a challenge even for seasoned teachers. The idea of using formative assessment to meet the individual needs of students is not a new topic. In fact, researchers as far back as Benjamin Bloom have shown that one-to-one tutoring is the most effective form of instruction because of the tutor's ability to pinpoint misconceptions and provide immediate feedback and correctives (William, 2011). Despite continued research backing up the claims that formative assessment can enhance student success, teachers may continue to struggle in their efforts to use the full array of formative assessment practices available. The question then becomes "What can teachers do to effectively improve and enhance their use of formative assessment in the classroom environment?"

Resources

- Keeley, P. (2019). GUEST Editorial: Formative assessment in the science classroom: What it is and what it is not. Science and Children, 56(9), 8–11. https://www.jstor.org/stable/26901465
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- K20 Center. (n.d.). Frayer model. Strategies. https://learn.k20center.ou.edu/strategy/126
- K20 Center. (n.d.). Justified true or false. Strategies. https://learn.k20center.ou.edu/strategy/174
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- William, D. (2011). What is assessment for learning? *Studies in Educational Evaluation*, 37(1), 3-14. doi:https://doi.org/10.1016/j.stueduc.2011.03.001
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