



Designing Formative Assessment -a workshop for K-12 teachers-

Presented by

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8-Term Matching “Quiz”

**Assessment
Instruction**

**Curriculum
Learning**

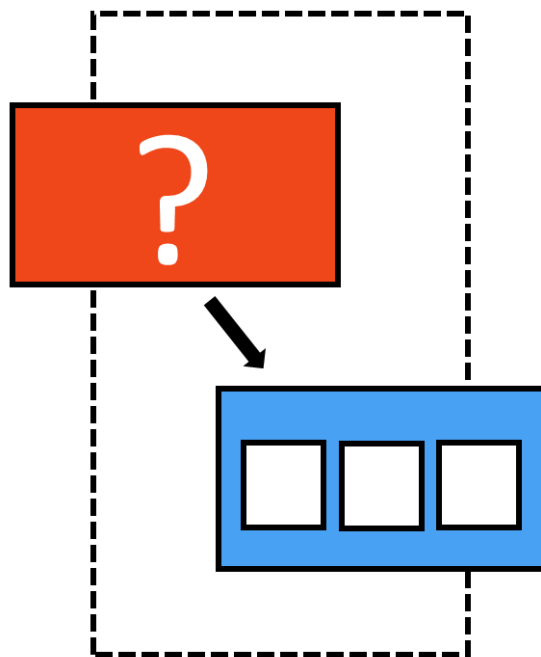
**Evaluation
Reliability**

**Grading
Validity**

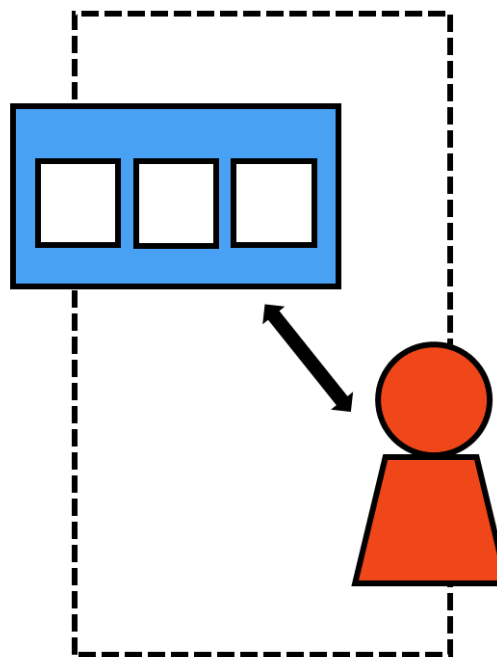
	Sustained change or growth in a person’s knowledge, skills, and/or dispositions that transfers to a different context
	The degree to which a student’s performance on an assessment is <i>not</i> unduly influenced by raw chance, systematic error, bias, or cheating
	Planned and unplanned experiences provided by a teacher, which are intended to result in learning outcomes for students
	The use of instruments and techniques to collect information about student learning
	A summative judgment about a student’s learning based on collected evidence
	A teacher’s use of relative numbers or symbols to succinctly communicate to someone else her or his judgment about the nature and/or degree of student learning
	The extent to which inferences or judgments about student learning are appropriate based upon the evidence demonstrated by the student
	A structured series of intended learning outcomes

Formative Assessment: An Intentional Process

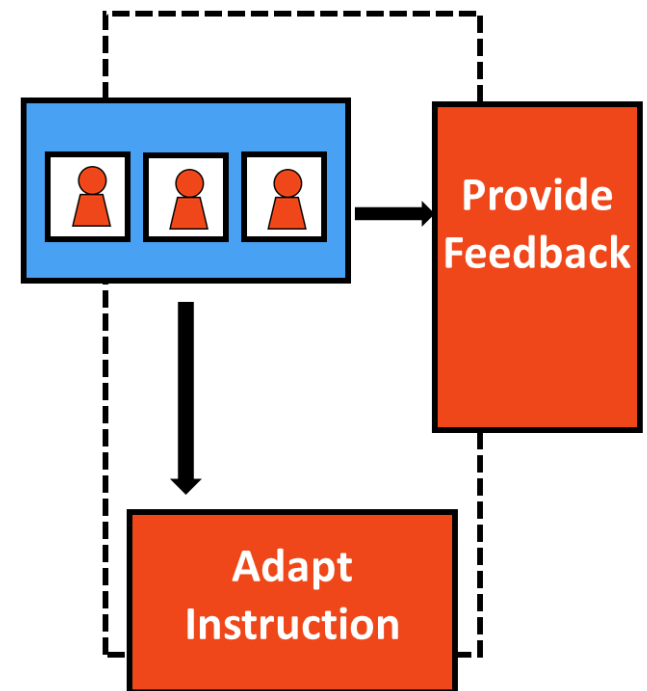
Elicit & Capture



Analyze & Infer



Communicate & Use



Formative Assessment Techniques

ABC Brainstorming – Students generate ideas about a topic, one for each letter of the alphabet (or group of letters).

Agree/Disagree Statements – Given a statement that draws a relationship between two numbers, equations, or concepts, students decide if they agree or disagree with the statement and then explain how they can find out if their reasoning is correct.

Analogies – Students complete analogy prompts.

Bunny Ears – Placing their hands on their heads like bunny ears, students use their fingers to display two addends used to create a given sum.

Calendar Play – Students color in different boxes on a calendar in response to teacher prompts (e.g., “Use pink to color in the space that is two days from the 13th,” or “Use yellow to color in the space that is the third Monday.”).

Carousel Brainstorm – Working in groups, students respond to a statement posted in the room. When time is called, they rotate to the next posted statement, review the comments already there, and post additional comments. Rotation continues until statements are reviewed by all groups. Variations: Students initial &/or use different colors to mark their contributions. Students work on smaller sheets of paper that can be passed rather than having the students move.

Charades – Students act out concepts, topics, vocabulary terms, etc. and have their classmates guess.

Checklists – Students use checklists (class- or teacher-generated) to assess their level of preparation or understanding.

Choral Response – Students respond in unison to a teacher prompt.

Cloze Procedure – As they read, students fill in blanks intentionally created by the teacher.

Commit & Toss – Students write their answers on a sheet of paper, ball them up, and at the teacher’s signal, throw them around the room until the teacher calls time. Students then share the answer on the sheet of paper they are holding when time is called.

Concept Maps – Using boxes, circles, lines, arrows, etc., students create diagrams to show how various ideas are related.

Conferences – Students meet with the teacher or with peers to plan, create, revise, or assess.

Confidence Indicator – Students indicate their degree of confidence in a response by placing a sticky note in the appropriate column on a bar graph.

Counting Choir – Students are placed in four groups: counting by ones, by twos, by fives, and by tens. The teacher begins counting a number sequence (e.g., 22, 23, 24,...?) and then points to a student in one of the groups. That student provides the next number in the sequence that is appropriate for their group.

***Create the Problem** – Given a solution, students work backwards to generate a plausible problem that will result in the given solution.

Demonstration Stations – Students complete activities at various stations, explaining their thinking and methods to others or recording them in some written form. Students might determine which stations should be established based on their understanding of the material.

Discussions – Students engage in paired, small group, or whole class discussions on various topics (see specific variations: Fishbowl, Inside/Outside, Socratic Seminar).

Double Entry Journals – Students create two-column charts in which they record factual information (evidence) on the left and their personal responses, thoughts, and questions (commentary) to those on the right.

Drawings – Students create drawings of ideas, questions, words, relationships, etc.

Effort Meter – Using a meter template, students assess their level of effort, the amount of time, and the degree of care they brought to a task.

Every Graph Tells a Story – Given a graph, students choose or generate the statement that best tells the story of the graph.

Examples/Non-Examples – Students generate or select both good examples and unfit examples of a topic, criterion, or concept.

Exit Slips (License to Leave) – Students write brief responses to 2-3 questions about the day’s learning. Variation: Students can submit their exit slips in appropriate folders (“totally have it,” “feeling okay,” “still need help”).

Fact Storming – Students brainstorm as many ideas, examples, etc. as possible on a given topic.

Feedback Request – Students list three or four topics or areas on which they would like feedback for a given assignment.

Find Someone Who... – Working from a teacher generated grid or checklist of tasks and information, students move around the classroom to find and obtain the signatures of peers who know/can do what is listed on the grid/checklist.

Fishbowl – Students divide into two groups. One group assembles in the middle of the others and engages in discussion about a given topic with the others making written observations of the discussion. After a determined amount of time, the groups switch roles.

Fist to Five – Students respond to questions using up to five fingers. The fingers can represent any manner of constructs (yes/no, numbers, degree of confidence, corresponding letters of the alphabet, etc.).

Four Corners – Students respond to questions by moving to one of the four corners of the room which are labeled as needed (see specific variation: Vote with Your Feet).

Give One/Get One – After generating a list of ideas, students work with a partner, sharing their list until they get a new idea from their partner and give a new idea to their partner.

Graffiti Wall (Collage) – Working to capture many ideas about one topic or unit, students add drawings, captions, doodles, quotes, lyrics, etc. to a long stretch of butcher paper. Variation: Students create smaller versions using regular sized paper.

Graphic Organizers – Students use or create charts, tables, or webs to organize information or ideas.

Human Place Value – Students hold a placard with a given digit and are told to arrange themselves as a given number (e.g., 7,349). Students are then asked which place they are standing in.

Human Scatter Graph – One side of the room is labeled as the X-axis (selected answer) and another as the Y-axis (degree of confidence). Based on their answer and degree of confidence, students position themselves in the appropriate place on the graph.

Idea Wave – After listing their ideas/responses to a prompt, students offer one of their ideas when the wave reaches them, collecting ideas they did not consider as the wave moves around the classroom.

Inside/Outside – Students count off by 1's and 2's. "Ones" form an outer circle and "twos" form an inner circle. A one faces a two and discusses the question being posed. For the next question, the outside circle moves to the right, creating new discussion pairs.

Is It Fair? – Given a scenario in which decisions are made using proportions, probability, ratio, division, percentages, etc., students determine if the decision made in the scenario is mathematically fair or not and explain their reasoning.

Know/Want to Know/Learned (KWL) – Students use a graphic organizer or journal to list what they already know, what they want to know, and later, what they have learned.

Learning Logs & Charts – Students maintain logs of their learning goals and progress; teachers monitor these periodically.

Mad Minute – Students complete as many math facts as possible in a minute, predicting how well they will do before and charting how well they did afterwards.

Matching Cards – Students look for pairs of cards which are equivalent but expressed differently (e.g., $\frac{3}{4}$ and 75%).

Mathematician's Ideas Comparison – Students are presented with a problem and asked to decide how they would solve it and what they think the answer would be, providing their reasoning in writing. They then compare their response with how a mathematician would respond to determine similarities and differences.

My Textbook Page – Students create a textbook page for some given topic during the course of a unit.

Non-Verbal Signals – Students use hand signals or manipulatives to indicate understanding, confusion, agreement, etc. (see specific variations: Fist of Five, Response Cards, Thumbs-Up/Thumbs-Down, Traffic Light, White Boards).

Numbered Heads – Students numbered 1 to 4 work in a group to discuss, problem solve, etc.; the teacher selects a number from 1 to 4 and has that student share the team's discussion/answer.

Numbers on the Line – Students draw a number card and then take turns pinning it to a clothesline in the proper sequence.

Observations – Teachers observe students engaged in various behaviors and record their findings.

Odd One Out – Given a set of multiple options, students select the one that is different from the others and offer an explanation for their choice.

One-Minute Essays – Students write single or multiple sentence responses for one minute.

One-Minute Fluency – Students read the same passage out loud for a week, one minute each day, recording their level of fluency each time.

One-Sentence Summaries – Students summarize what they learned (read, heard, saw) in one sentence.

Open-Ended Questions – Students create or respond to open-ended questions (how/why).

Pass the Problem – Working individually or with partners, students begin working to respond to a problem. When time is called, students pass the partially completed problem to another student or pair of students who then complete the problem, modifying, adding, or changing the initial work as they deem necessary.

Pictionary – Students illustrate concepts, topics, vocabulary terms and have their classmates guess.

Picture Notetaking – Students take notes by illustrating and labeling the information.

Placemats – Students work in groups of four to illustrate a key topic (in the middle of the placemat), each working within their quadrant along the outside (similar to Frayer Model).

Pop-Up Indicator – Students stand when the answer they chose is called by the teacher.

Portfolio – Students save or assemble school work to demonstrate growth and excellence.

Problem Solving – Students solve teacher-generated problems.

Process/Product Exemplars I – Students review an exemplary model of a process or product, noting reasons for its success and using it to evaluate their own process or product. Variation: Students review models of varying levels of success and rank them.

Process/Product Exemplars II – Students create a process or product exemplar and explain how/why their product is effective.

Progress Map – Students keep a running record of assignments, dates, grades, and feedback. This is essentially a personal gradebook for each student to maintain.

Questionnaires – Students respond to questionnaires or surveys on a given topic.

Questioning – Students respond to and ask questions.

Reflection Journals – Students keep journals and reflect on their learning and the meaning it has for their lives. Alternatively, students keep journals in which they reflect on their progress and growth.

Repeat Pre-Assessment – Students re-take a pre-assessment during the unit, discussing answers until they compile a correct “key.”

Repeated Directions – Students repeat teacher directions to confirm their understanding of what they are to do.
Response Cards – Students use cards to answer teacher questions in a whole group setting (Ex: yes/no cards).

Rubric Application – Students use a rubric to assess their own or a peer’s work, writing comments about what they think is good or needs improving.

Rubric Translation – Students review a rubric and discuss/re-write expectations in their own words.

Self-Marking Quizzes – Students score and review quiz answers, writing explanations of the correct answers for those they got wrong.

Sentence Prompts – Students complete prompts such as “I still need to know....,” “I understand...,” “I was surprised that...,” “I became more aware of...,” etc.

Sniglets – Students create made-up words to capture the essence of an idea.

Socratic Seminar – Students engage in a whole-class, student-run discussion of given topics while the teacher observes.

Sorts (Open & Closed) – Students (or teachers) generate a list of ideas. Students sort these into categories of their choosing (open sort) or of the teacher’s choosing (closed sort). Putting ideas on index cards or sticky notes encourages students to try a variety of sorts.

SOS (Statement, Opinion, Support) Summary – Students respond to a teacher’s statement by offering their opinion and support for that opinion.

Spinner – Students use a spinner to determine what they must do with a given question or piece of information (explain, give an example, think of an opposite, predict, etc.).

Sticky Bars – Students write their answer to a select-response question on a sticky note and then place the sticky note in the appropriate place on a bar graph.

Strategy Probe – Students complete a problem-solving task and then review written examples of how other students solved the same problem correctly but differently. They decide which of the example strategies is closest to how they approached solving the problem.

Student-Generated Test Questions – Students generate questions they think would be appropriate for a summative assessment. Similarly, students generate their own study questions or study guide.

Take a Stand – Students must confirm or oppose another student’s response (as opposed to the teacher confirming or opposing).

Teach a Friend – Students work in pairs to teach an idea or concept to a peer.

Think-Pair-Share – Students answer a question independently, pair with a partner to discuss the answers, and then share their thinking with the whole class.

3D – Working with a limited amount of time and using only found materials, students create three dimensional objects that are symbolic or representative of the information they have been learning. Students present their objects to the class, offering an explanation of their intention and thinking. Variation: Students stage the setting of an event and/or create costumes for characters or people.

Three Facts and a Fib – Students generate three facts and one fib about a given topic and then share them in groups, attempting to detect all of the fibs. Alternatively, the teacher could generate fibs or misconceptions for students to grapple with.

3,2,1 – Students generate a list of three things they have learned, two connections they have made, and one question they still have.

Thumbs Up, Thumbs Down – Students demonstrate agreement or understanding in a whole class setting by putting their thumb up or down.

Traffic Light – Students hold up red, yellow, or green circles to demonstrate their level of understanding or agreement. Variation: Students display a red, yellow, or green cup on their desk.

Turn & Talk – Students turn to a peer and briefly discuss a given question, problem, or idea.

Twelve-Word Summary (Tweet It) – Students work to distill what they have learned in a class period into a twelve-word summary.

Vote with Your Feet – Students line up and then step forward or backward to agree/disagree with a statement.

What I Know/Don't Know – Students reflect on their own learning and generate lists of what they know and don't know. Students elaborate on where they are getting stuck.

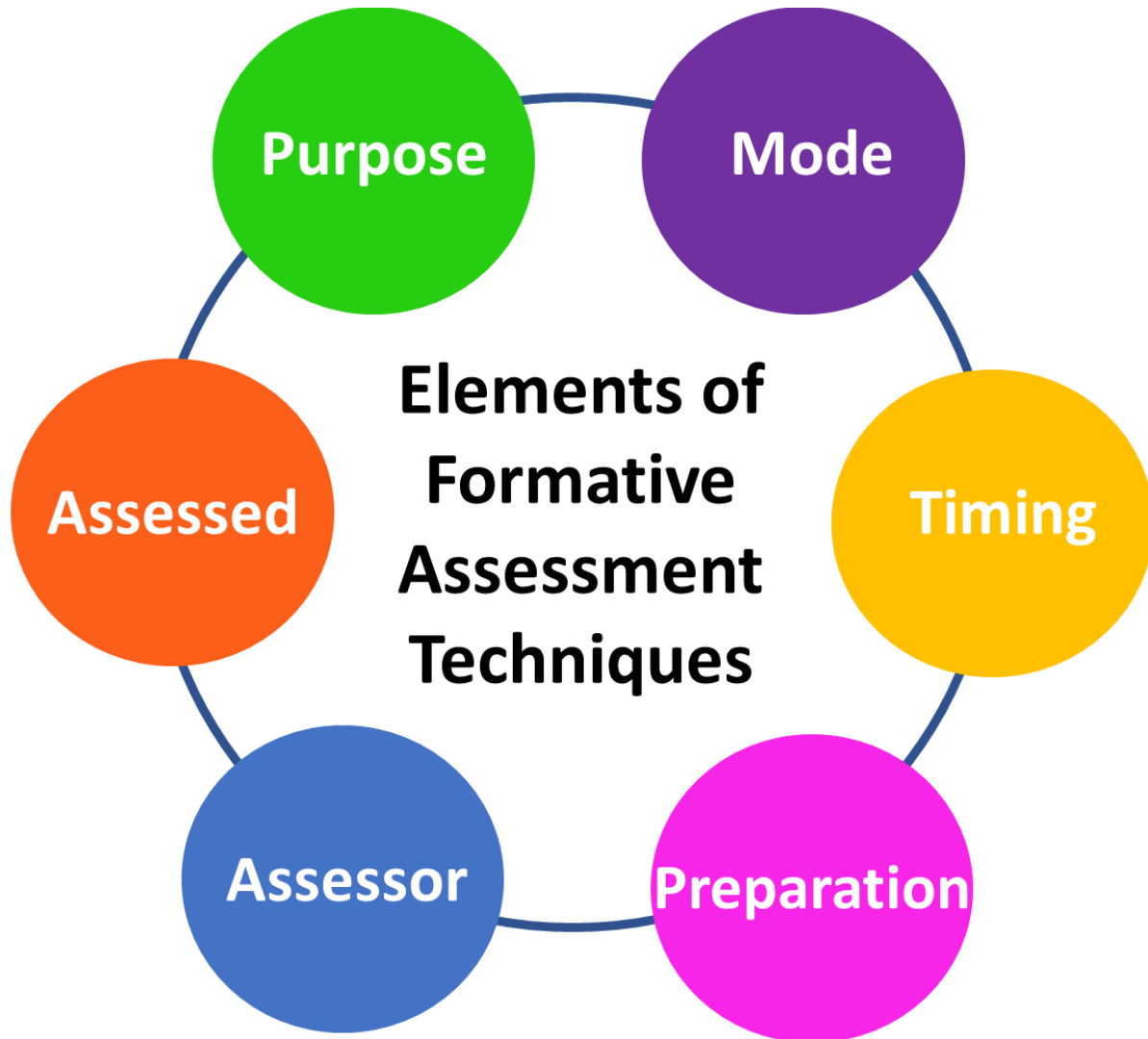
What Not to Do – Students generate a list of pitfalls for other students to avoid. Conversely, they can offer advice about what to do.

Whip Around – Students brainstorm ideas in response to a teacher prompt. The teacher repeats the prompt and then has each student offer one of his/her ideas in quick succession.

Whiteboards – Students use individual dry erase boards to respond quickly to ideas, questions, problems in class.

Why Boxes – Students solve a problem on the left and explain each step on the right.

Writing Continuums – Students compare their writing to samples written at various levels to determine their current level of writing development.



Purpose: What is my intended learning outcome? What do I want to know about student learning? Progress? Affect? Cognition?

Mode: How will I assess? Written? Oral? Visual (non-linguistic)? Kinesthetic?

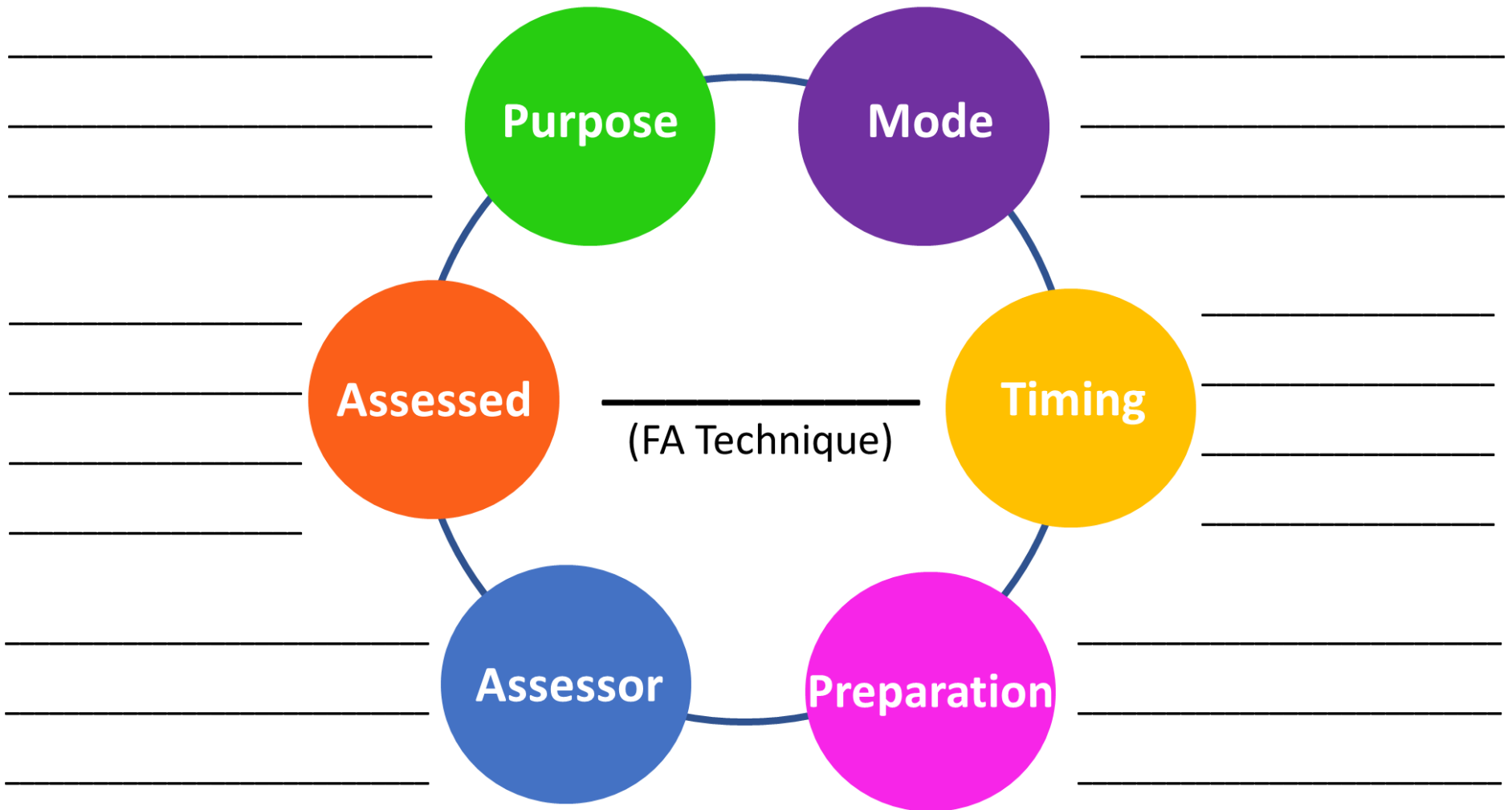
Timing: Where are we in the teaching/learning process? Before instruction? During instruction? After instruction?

Preparation: What will I need? What do I have? Nothing? Technology? Time? Space? Supplies?

Assessor: Who will do the assessing? Students? Peers? Teacher?

Assessed: Who will be assessed? Individual students? Partners? Groups? Whole class?

Analyze a Formative Assessment Technique



Design a Formative Assessment Technique

1.

Think of a particularly challenging concept or skill with which your students and/or you tend to struggle each year. Write out that intended learning outcome.

2.

Then, take a few minutes to work through each of the six elements of formative assessment techniques. In the scaffold below, circle specific elements and use the extra space to jot down your thinking and planning. Be *purposeful* and *explain* your thinking.

Purpose (What do I want to know about student learning?)

Progress
Affect
Cognition

Mode (How will I assess?)

Written
Oral
Visual
Kinesthetic

Timing (Where are we in the learning process?)

Before Instruction
During Instruction
After Instruction

Preparation (What do I need? What do I have?)

Nothing
Space
Supplies
Technology
Time

Assessor (Who will do the assessing?)

Student
Peer
Teacher

Assessed (Who will be assessed?)

Individual Students
Partners
Groups

3.

Finally, create, choose, or amend a formative assessment technique that supports the intentions you considered above. Briefly describe your formative assessment technique in the space below. Be clear enough that a colleague could read it and understand what to do. Remember, this brief workshop activity is an opportunity to refine and deepen your knowledge and skills as a professional educator *while also making something useful for your teaching.*

Formative Assessment Planning Template – Concept Drawing

Intended Learning Outcomes (What will students know or be able to do?)	Formative Assessment (What evidence are you willing to accept that students have learned?)		
Knowledge, Skills, & Dispositions	Elicit and Capture make student thinking visible	Analyze & Infer make sense of what you “see”	Communicate & Use progress student learning
<p>ILO(s): <i>Students will demonstrate understanding of core transcendental concepts.</i></p>	<p>Technique: <i>Concept Drawing</i> <i>Working in pairs on chart paper with a tree and a river already drawn in, students will add drawings (with labels) to illustrate four transcendental concepts.</i></p> <p>Purpose: <i>Cognition (understand); Progress (preparation, progress)</i></p> <p>Mode: <i>Visual, Oral, Kinesthetic</i></p> <p>Timing: <i>during instruction</i></p> <p>Preparation: <i>draw background on chart paper</i></p> <p>Assessor: <i>Teacher & Students</i></p> <p>Assessed: <i>Student Pairs</i></p>	<p>Teacher (on the fly and/or after the fact)</p> <p>Student(s)</p>	<p>Feedback (on the fly and/or after the fact)</p> <p>Instructional Decision Making (on the fly and/or after the fact)</p>

Formative Assessment Case Study

Ms. Arraza's geometry class has been learning about the properties of triangles so they can use those properties in their proofs. On Tuesday, Ms. Arraza modeled her thinking about triangles and how to use their properties (such as exterior angles and remote interior angles) to solve problems. Students then engaged in group work to practice applying this information. At the end of class, they completed exit slips on which they had to identify properties of equilateral triangles and explain how those properties could be used to figure out related angles. Ms. Arraza's review of the exit slips indicated that most of the students in the class did not correctly identify the properties or explain their uses. Ms. Arraza felt that she had modeled the concept well and hypothesized that her students needed additional opportunities to work with the information to understand how to actually use it. For Wednesday's lesson, she decided to give each group a different prompt that requires using the properties of an equilateral triangle in a proof.

On Wednesday, Ms. Arraza gives each group a prompt and tells them to solve the proof on a large piece of poster paper with each member contributing information using a different color marker. During the first round, several groups make errors. Ms. Arraza selects two groups who use the information from the prompts correctly to share their thinking with the whole class. She then asks groups to trade prompts and try the process again. As the groups work, Ms. Arraza circulates and talks with students about their work, questioning, prompting, and cueing to guide their understanding. She identifies two additional groups to share their work because they demonstrated success on the second problem. One group, however, does not correctly solve the proof, so she has the students switch the prompts again. After the third time, the group that had not yet achieved a correct answer gets the proof correct. At the end of the class, individual students complete exit slips which require them to use the information they learned during the class period. Ms. Arraza discovers that only two students gave incorrect answers and concludes that the rest of the class is ready to move forward.

Adapted from: Frey, N., & Fisher, D. (2011). *The formative assessment action plan*. Alexandria, VA: ASCD.

Hylton, S. P. (2018)




Case Study -- Questions to Consider

1. Name the various ways in which Ms. Arraza elicited and captured information about student learning (first step of the formative assessment process).
2. Choose one of the formative assessment techniques Ms. Arraza used and determine the purpose, mode, timing, preparation, assessor, and assessed for the technique.
3. Did Ms. Arraza analyze the information she collected (second step of the formative assessment process)? If so, what inferences did she make? If not, what inferences could she reasonably have made?
4. Did Ms. Arraza make use of the information she collected (third step of the formative assessment process)? If so, how? If not, what could she have done?
5. Did Ms. Arraza provide feedback to individual students based on the information she collected (third step of the formative assessment process)? If so, how? If not, what could she have done?
6. Identify three places where the formative assessment process would have been stopped if Ms. Arraza had done something else.
7. Do you think Ms. Arraza identified individual student needs with this exercise? If so, how? If not, what could she have done instead?
8. Do you think Ms. Arraza responded to individual student needs with this exercise? If so, how? If not, what could she have done?
9. What should Ms. Arraza include in her plans for Thursday's class?

next steps for me



I Liked, I Learned, I Wish, I Wonder

 <p>I liked...</p>	<p>I learned...</p> 
 <p>I wish...</p>	<p>I wonder... ?</p>

