***Formative Assessment Strategies***

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The use of formative assessment is one of the most exciting developments in the field of education in recent years. Used effectively, formative assessment has the power to double the speed of student learning (Wiliam, 2002). This strong effect occurs because formative assessment is useful both for the **student** and the **teacher** – it provides students with feedback and thus aids them in their efforts to meet learning objectives and it gives teachers insight as to how they can best shape instruction to meet student needs. Taras (2002) gives a metaphor that learning without feedback is similar to learning how to shoot a bow and arrow at a target in the dark.

The piece that follows provides research-based information about the following:

* formative assessment definitions
* why use formative assessment
* guidelines for providing formative assessment
* specific formative assessment strategies

When you begin to review the strategies please consider the appropriateness of each option to your specific circumstance and assessment needs. The strategies are organized in the following categories: Community Building, Writing, Reading, Discussing, Listening, and Thinking. I hope that you find these strategies helpful and that you will make the modifications necessary to make them your own!

**Introduction to Formative Assessment**

*Formative Assessment Defined*

Formative feedback is defined as information communicated to the learner intended to modify their thinking with the purpose of improving learning (Shute, 2008). Formative feedback closes the gap between students’ current level of understanding and the desired learning goal. It helps students understand the relationship between a clearly defined set of criteria or standards and their current level of performance (Clark, 2011). Laura Greenstein (2010),

Formative assessment encompasses a variety of strategies for revealing students' understanding, allowing teachers to pinpoint and address any impediments to a student's progress. Teachers use formative data to decide how much and what kind of learning, support, and practice a student needs to reach the goal. When formative assessment is employed before, during, and after instruction, both teachers and students have a measure of progress.

Connie M. Moss and Susan M. Brookhart (2009)also point out that “the primary purpose of formative assessment is to improve learning, not merely to audit it. It is assessment for learning rather than assessment of learning.” Thus, formative assessment is to be used primarily for the students’ benefit as a learning support.

*Why Use Formative Assessment*

Shute (2008) writes that feedback is “one of the most instructionally powerful and least understood features in instructional design” (p.153). Feedback provided in the formative assessment process is ongoing and Wiggins (2012) believes ongoing feedback will ultimately increase student achievement. It allows opportunities for students to reshape their performance to better achieve learning goals. In contrast, feedback provided primarily after summative assessments often comes too late in the process where students may find it meaningless (Huxham, 2007). Formative feedback needs to come when students are still mindful of the learning outcomes and have time to act on the information. This might include returning a test or assignment the next day or giving immediate oral responses to student errors or misconceptions.

In addition to feedback, formative assessment gives teachers tools to help them tailor teaching to specific learning needs. Shute (2008) contends student motivation and effort also increase when teachers use formative feedback to resolve this gap. The classroom climate shifts to a positive focus on learning instead of an anxious focus on grading (Fluckiger et al., 2010). Wiliam (2012) uses an analogy to explain feedback. Just as a thermostat *adjusts room temperature, effective feedback helps maintain a supportive environment for learning.* Nicol and MacFarlane-Dick (2006) have discussed feedback and effects it has on motivational beliefs. Feedback is regulated by motivation. Best practice feedback or feedback that is directed at higher-order thinking skills, allows students to increase internal motivation. Students who are highly motivated will then in turn rely less on external motivational factors from the teacher and develop feedback for themselves by self-assessing their own learning process.

Formative assessment is important to the teacher because it helps teachers meet students’ needs, tracks student achievement, and offer opportunities for students to succeed. It also helps align standards to instruction, and inserts assessment into instruction. Greenstein (2010) provides opportunities for teachers to focus on the students and how they can be more effective in teaching and engaging each individual learner. According to Patricia Blanton (2007), it helps teachers “determine if the instruction [they] have given has been sufficient to change the preconceptions held by [the] students” (p.122). Formative assessment is a way to help students face the unknown and come out successful.

Formative assessment is not only beneficial for teachers, but the students as well. According to Moss and Brookhart (2009),

“students understand and use learning targets, set their own learning goals, select effective learning strategies, and assess their own learning progress. And as students develop into more confident and competent learners, they become motivated (energized) to learn, increasingly able to persist during demanding tasks and to regulate their own effort and actions when they tackle new learning challenges.”

When students are able to reflect on their own learning, discovering what they know and understand as well as what they do not, it allows them to take control of their own learning and help themselves succeed.

Aside from aiding both teacher and student in the teaching and learning process, the ultimate goal of giving feedback is to help students self-regulate their own learning (Gibbs & Simpson, 2004; Nicol-MacFarlane-Dick, 2006). Students should have a strong grasp on what they know and what they do not know. Studies done by Nicol and MacFarlane-Dick (2006) and Sadler (1989) have shown that students should be able to use feedback to determine their strengths and weaknesses, give themselves a mark on a standard, and find ways to improve their own learning.

Oddly enough, summative assessment can be used as formative assessment if the purpose goes beyond the grade given. Homework assignments, lab reports, tests, and quizzes can help the teacher see areas that need to be focused on in future instruction. However, summative assessment can also help students see the areas they need to work on. By allowing students to redo or correct their assignments and tests, they are able to show improvement and mastery in the areas they fell short (Bailey et al., 2010; Boston, 2002; Clark, 2011; Dirksen, 2011; Nolen, 2011; West Virginia Department of Education Website).

**Guidelines for Providing Formative Assessment**

*Effective Feedback Is…*

1. Based on pre-assessment

Another important piece of formative assessment is variation (Bailey et al, 2010). No one student learns in the same way; therefore, no one student should be assessed in the same way. In order to get the big picture of what a student knows, a variety of formative assessment strategies need to be used at many different times. The more information a teacher can gather, the more accurate a picture of a student and his or her learning will appear.

Sticky notes can also be used for pre-assessment in a number of ways. One way is for sorting. Teachers can ask students to write things they know about a topic on their sticky note, and then post these notes on a large display board that groups or organizes the information. The display can remain up throughout the unit to support discussion about learning. There are many strategies which can be used to determine where students are at the beginning of the lesson and what needs to happen in order for them to successfully reach the learning goals—pre-assessment is the first step in ongoing formative assessment to improve achievement (Moss & Brookhart, 2010).

1. Based on what ideal performance looks like

*Where am I going?* (Frey, 2011). At this stage, the teacher determines what the desired learning outcomes are. Students need to know what ideal performance is and their current place on the continuum. Effective, goal-referenced feedback is information that tells students whether they are on track or need to change course (Wiggins, 2012). Formative feedback also provides details of how to improve, rather than simply indicating whether a student’s work is correct or not (Shute, 2008). General praise or personal comments are usually not helpful. The classroom environment must be a place where students understand that errors and misunderstanding are how individuals grow (Wiliam, 2012).

1. Clear

Feedback must be written in language a student can understand, and it must allow them to understand what steps are needed to be taken to improve for next time(Bailey et al., 2010).If students are to make use of feedback, they must understand it. The information should be consistent, stable, and accurate. Feedback should describe how the strengths of a student’s work match the criteria for good work and how they show what the student is learning. Brookhart (2008) asserts that feedback is only effective when it “translates into a clear, positive message that students can hear” (p. 54). Poor feedback categorized as ambiguous, obscure, tardy, or negative in nature may act as a powerful deterrent for student learning (Huxham, 2007). “Feedback can be information that drives formative assessment, or the stumbling block that derails the process” (Brookhart, 2008, p. 4).

1. Accurate

The feedback should be consistent with both the teacher and the student, meaning that both parties agree upon the strengths and improvement (Bailey et al., 2010).

1. Precise

Feedback contains specific goals the student can work on. General statements such as “good job” or “nice work” are not sufficient; they do not help students create goals for future learning. The feedback should reflect how the student is meeting each desired learning outcome (Bailey et al., 2010). Taras (2002) explains that a grade could actually be a counterproductive mark on a student’s work. The study shows that students believe when a grade is given before they receive feedback; the feedback is not even read. Students tend to quickly glance over feedback when there is a mark at the bottom of the page (Gibbs and Simpson, 2004).If a grade is used as feedback and is leading students in the wrong direction, the grade should be not given until feedback is taken into consideration. Boud (2000) found that feedback and a grade is less effective than just feedback itself. Black and William (1998) show that there is a lower increase in performance when a grade is attached along with feedback on formative assessments. Students should be focusing their attention on learning standards rather than on their performance or simply a grade (Boud, 2006). If a grade is to be given, it should not be given until the students first self-assess themselves formatively (Taras, 2002).

1. Selective

The feedback given must be specific to the task being assessed (Bailey et al., 2010). Feedback can be of little value if it overwhelms students and Shute (2008) maintains long and complicated feedback is counterproductive and may be rendered useless. Often teachers want to “fix” everything, but too much feedback can be counterproductive. Wiggins (2012) maintains it is better to concentrate on one or two key elements of performance. Real learning occurs when feedback consists of a usable amount of information that connects with something students already know and takes them to the next level of understanding (Brookhart, 2008).

In order for feedback to be feedback at all, it must provide a student with specifically what they need to do more or less of going forward (Wiggins 2012). Providing feedback that looks at both what was done well in addition to what needs to be worked on is essential to encouraging students. Feedback must be based on specific observations rather than judgments. When judgments are used in place of specific observations, validity and trust is lost. If students do not trust the educator providing the feedback, they are much less likely to respond to the feedback with productive action.

1. Timely

Feedback needs to be given as soon as possible after the task is completed. The longer time there is between the task and the feedback, the less effective it will be. It will lose its meaning since the student may have forgotten how they performed on the task (Bailey et al., 2010).

1. Conveyed in a variety of modes

Feedback is more effective when conveyed in a variety of modes (Brinko, 1993). Heinrich, Milne, and Moore (2009) completed a study looking at using e-tools for assessment and feedback purposes. They interviewed and had 90 university staff members complete surveys about the use of e-tools for assessment purposes. Results from this study showed that using an online form of feedback can sometimes be much more beneficial to students because they always have access on discussion boards to ask questions about feedback and read it on their own time. The study also pointed out another positive to giving feedback online is that students always have electronic copies of their assignments, with feedback, on their website or computer to look back on for help on future assignments.

Modeling should also be provided to support students understanding. This could be done verbally, by example or by providing samples of the task. Demonstration feedback may be given when students need to see how to do something or learn what something looks like (Brookhart, 2008).

Formative assessment after instruction can be used to determine if students are ready for the summative assessment. Post instruction formative assessment also provides an opportunity for students to reflect on their learning, develop a future work plan, and address concepts that are still unclear. “Post-instruction assessment data help teacher select final, customized interventions to support student learning in identified spots” (Greenstein, 2010). Using post-instruction formative assessment teachers can adjust whole class instruction, make adjustments as needed to the summative assessment and reteach material students are struggling with before the summative assessment is given. Post-formative assessment techniques should identify the remaining gaps in students’ knowledge or understanding, determine final customized interventions and provide thoughtful reflection and insight into the learning that has occurred.

With many different types of feedback, it is important to understand that feedback is best used when students are asked to self-assess. Kealy and Ritzhaupt (2010) have found this to be correct through a series of feedback processes. Students who received feedback and had to self-assess spent significantly more time analyzing and reading their feedback than the other two groups who just received feedback.

1. Understood how to be used

It is crucial that formative assessment feedback be given and used appropriately but that students know how to use it. The biggest connection observed through the studies reviewed was the fact that students do not understand how to use feedback appropriately (Butler & Nisan, 1986). Simply offering feedback is not enough. Students need to understand exactly how to use that feedback to close the gap on standards they have not yet mastered (Taras, 2002).

Nicol and Macfarlane-Dick (2006) suggest several specific strategies to help students use formative feedback. Teachers can provide feedback on works in progress and increase opportunities for students to resubmit work. Two-stage assignments can be introduced where feedback in stage one helps improve stage two.

**Strategies**

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| **COMMUNITY BUILDING.**  ***1. Tales from the Trenches*** - (Brookfield, 1990)  This exercise works well in courses with students who work full time or are involved in an internship or clinical practice.  At the start of each class, students describe a vivid, recent experience they’ve had since last week’s session. Often a student will focus on their frustration at the gap between theory and practice/real life. Invariably, other students jump into the conversation with similar tales. One of the best ways to provoke student tales is for the instructor to open class with a tale of her own. You can broaden this sharing by inviting people to clip and bring in items of interest from the newspaper/professional journals.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **WRITING**  ***2. QQTP (Quotations, questions, talking points) -*** (M. Larson, personal communication, March 3, 2011; adapted from P. Connor-Greene, 2005)  The following directions can be shared with students: To help focus your reading and encourage you to come to class prepared to discuss, plan to bring a 2QQTP on the reading indicated for that day on the syllabus. Q: Two quotations from that day’s reading that you found compelling, Q: Two questions prompted by the day’s readings, TP: Two ideas that could be used as “talking points” during the class discussion about that reading. Each 2QQTP should be typed and is due at the beginning of class. Plan to write about two full pages (approx 500-750 words) by elaborating on one or more of the items you’ve selected- quotation, question, and/or talking point. For classes that meet more often, one full page might be more reasonable.  ***3. Mind Dump -*** (Nilson, 2010)  After reading and answering any questions about the reading, students are given 5-10 minutes to write down everything they can remember from the readings. These can be collected and given back to students before tests or used to help reinforce information from a reading and motivate effective summarizing.  ***4. Reflective Writing -*** (Kalman, 2007)  Students first read a section or two for the assigned chapter while highlighting or using other comprehension strategies. After reading, students free-write about the section they just read for roughly two-thirds of a page. This writing is not summarizing, but rather about what the section means and what they still don’t understand. This also serves a foundation for generating questions about the reading. Kalman grades free-writes for completeness.  ***5. Word Journal -*** (M. Larson, personal communication, September 2003)  After reading a short text, students are to choose a single word that sums up what they have read. In one or two paragraphs, students should elaborate on why the word they chose was appropriate for that text.  ***6. Ticket Out the Door (Exit Slip) -*** (Tileston, 2007)  In this technique, students answer a question individually or in groups about the lesson. The answers are given to the instructor when the class ends as the students’ “ticket out the door.” This technique is a great way to evaluate the effectiveness of the lesson because students who did not understand the lesson will not be able to give in-depth answers.  **Example:**  ***7. Minute Paper*** - (Wilson, 1986)  *I learned that…*  *I changed my mind about…*  *Because…*  *I am confused about…*  Announce at the beginning of class that you will be interrupting the class session at some point and asking the students to write a paper. Inform students that they will have one minute (could be 2-3 minutes at your discretion) to write a paper on a topic related to the class content. You determine the specific topic and how papers will be used. Options for use may include: (a) sharing with a partner, (b) sharing with large or small group, or (c) handing to instructor (all, some, or none could be graded).    ***8. Double-Entry Journal -*** *(*Angelo & Cross, 1993)  In this exercise, students engage in a dialogue with the text, exploring their reactions to the reading.  Directions:  a) In the column on the left, record comments related to the assigned reading (theory, ideas, assertions)  b) In the column on the right, record your observations, questions, comments.  c) Come to class prepared to discuss your journal entries.  Text Notes Questions/Comments/Observations    ***9. Work Critique***  Previous to handing in a required assignment, students are asked to reflect on the quality of their work. This can be simply accomplished by having students write 1, 2, or 3 on the top of their paper. 1 = Well done, 2 = OK, 3 = Could be Better. In addition to the number, students may be asked to write a brief explanation of their self-evaluation.  ***10. Card Questions*** - (Frederick, 1987)  Divide the class into groups of 2-4 students. This can be done at the start, middle, or end of class. The task of each group is to "take five minutes to agree on one question that you think is crucial we respond to." The group writes on a note card and the instructor and the class later address it. This activity is particularly appropriate for guest speakers and introducing new concepts.  ***11. Anticipation Guides*** - (Readance, Bean, & Baldwin, 1989)  This strategy creates curiosity about a topic of study as well as cognitive disequilibrium among students. Begin the process by writing a series of 3 to 10 statements (some true and some false) related to key concepts. Students individually or in small groups indicate if they agree or disagree with the statements. At the conclusion of the unit of study students return to the "Anticipation Guide" and confirm or change their response to each item.    ***12. Affinity Categories***  This method is designed to help students organize and structure information in a meaningful way. Begin by having students write important ideas and thoughts from the class on large Post-it notes. Place all of the Post-its on a board and read these ideas aloud for the entire class. Ask the students to discuss different ways to categorize or sort the ideas.  ***13. Cornell Method*** – (Pauk, 1974)  This note-taking strategy helps students learn to discern which information is most important. Students divide a piece of paper into two sections by drawing a line from top to bottom two inches from the left side of the paper. They then record all information from a lecture on the right side of the paper, without making any decisions about what information is important. Have them review their notes after the lecture and copy key words and thoughts onto the two-inch margin on the left. End this process with class reflection and synthesis of information: these observations are written at the bottom of the page.  ***14. Anecdotal Records*** *-* (Bailey et al., 2010; Clark, 2011; West Virginia Department of Education Website)  Observation is one of the most common ways to formally assess students. Using anecdotal records, teachers can make notes about student performance and behavior that may not be easily assessed through traditional assessment methods. These records can be created by using a clipboard and paper, a notebook, sticky notes, label paper, or even charts. Anecdotal records are most effective when used on a limited basis and the results can be shared in writing or orally with students.  ***15. Self-Assessment*** *-* (Bailey et al., 2010; Clark, 2011; Shepard, 2005; Volante, 2011; West Virginia Department of Education Website)  Self-assessment is a good way for an instructor to understand how a student feels he or she is performing in the classroom. This can be accomplished through a variety of ways, but the point is that the student is thinking about their own performance, sharing what they believe their strengths and areas of improvement are. Self-assessment is most effective when it directly relates to the criteria for a specific task. Many instructors have had good success in asking students to turn in a written self-assessment at the time an assignment is due. At times, self-assessment can also be used to help students create learning goals for themselves.    ***16. Peer Assessment*** *-*  (Bailey et al., 2010; Clark, 2011; Fluckiger, Vigil, Pasco, & Danielson, 2010; Volante, 2011; West Virginia Department of Education Website)  Peer assessment is similar to self-assessment, except that the information is coming from other students in the class. Usually this is done in a survey format, where students answer questions or rate their peer on what they know, or how they are performing in a group setting. Peer feedback can be extremely powerful, but students must first learn the skills of providing quality feedback to one another. Peer feedback tends to be most effective when it directly relates to assignment criteria.  ***17. Daily Problem-Solving Warm-Ups***  Warm-up problems to facilitate student self-assessment and instructor understanding of current concepts (math, science, art, etc.) are an effective type of formative assessment. They have the added bonus of establishing structure in the beginning of class, focusing student attention, reviewing recent topics, and making connections to former learning, which is a major component of teaching and learning. If the instructor sees consistent errors in student work during the warm-up process these errors can be briefly addressed during whole group instruction time.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **READING**    ***18. 3-2-1*** (D. Swensen, personal communication, May 1, 2011)  Students read an assigned portion of text and write down the following: 3 content pieces that are important, 2 content pieces that are interesting, 1 question that results from the reading. Students can share their written comments in small groups or whole group at the discretion of the instructor. The strategy can be also be used in a Jigsaw format, i.e. students read different sections of the text and report back to their pre-assigned group.  ***19. What-I-Know Sheet*** - (Richardson & Morgan, 1994)  Before a specific reading assignment, distribute a "What-I-Know (WIK) Sheet to students. The "Before Reading" column can be completed individually or as a class. The "During Reading" and "After Reading" columns should be completed individually followed by a time of oral sharing in a large or small group setting. What-I-Know Sheet Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Topic:  Purpose: Before Reading During Reading After Reading What I What I’d like Interesting or What I What I’d  Know: to Know: Important Concepts: Know now Like to  Know:  ***20. Matrix Sheet***  Before a specific reading assignment, distribute a "Matrix Sheet” to students (see Figure 3).   Topic of Study BEFORE READING DURING READING PROOF Statement Agree Disagree Agree Disagree Page 1.  2.  3.  On this "Matrix Sheet" the instructor writes 6-10 statements dealing with important concepts in the assigned reading. Students read each statement and check *agree* or *disagree* in the "Before Reading" column. Students then read the assigned text and check *agree* or *disagree* in the "During Reading" column. After checking each statement, students record the page and paragraph that proves their answer. After the "Matrix Sheet" is complete, the students create a 1-2 page summary paper based on their findings.  **LISTENING**    ***21. Listen, Recall, and Ask; then Pair, Compare, and Answer -*** *(*Nilson, 2010*)*  In this strategy, students are not allowed to take notes during a lecture-but only listen. After the lecture, they open their notebooks and write down as many main points from the lecture as they can remember as well as any questions they might have. They should also be instructed to leave a good amount of space under each point so that they can fill in anything they missed when they compare with a partner. Give students three to four minutes for individual note writing plus two to four minutes for partner comparison and question answering.  ***22. Listening Teams*** - (Silberman, 1996)  This strategy helps students stay focused during lecture. Divide the class into four groups of equal size. One group, the "Questioners," is responsible for asking at least two questions about the material covered in the lecture. A second group, the "Agreers," is responsible for telling which points of the lecture they agreed with and explaining why. The third group, "Nay Sayers," is responsible for commenting on points they disagreed with and explaining why. The fourth group, "Example Givers," is responsible for giving specific examples or applications of the material. Before students respond in the large group setting, provide a few moments to think and organize comments.  ***23. Designated Listener*** - (Brookfield & Preskill, 1999)  This strategy is especially helpful during class discussions. One student in the class becomes the designated listener. This student’s job is to raise questions, clarify or explain main points, and to take notes on what is said (neither criticizing nor approving). The designated listener helps to extend and deepen conversations. Near the end of a listening time, the designated listener should summarize main ideas and comment on participation levels of the class. It is important to make sure every student has an opportunity to be designated listener during the course.  ***24. Four Corners*** (Guillaume, Yopp, & Yopp, 2007)  This is a cooperative learning strategy which encourages students to make decisions about their opinion on a certain topic. Before the students can form their opinions, the teacher needs to set up a list of 3 to 5 statements about the topic. Write statements which might spark students’ interest on the topic and alert them to what they will be learning. Next to each statement, write the abbreviations, SA, A, D, and SD (Strongly Agree, Agree, Disagree and Strongly Disagree). This form will be handed out to students and they will decide how they feel about the statements made and circle the corresponding response. After the students complete the form, create four corners in the classroom that represent each of the four responses. Read a statement from the form (not necessarily in order, or every statement) and have the students move to the corner that represents the opinion they circled. Once in their corner, ask them to discuss their opinion with the others in that corner. This information should then be summarized and explained to the rest of the class. Repeat this process for as many statements as you would like to discuss.    ***25. Continuum*** (Guilliaume, Yopp, & Yopp, 2007)  This strategy will be helpful in getting an idea of how comfortable your students are with a particular topic. On the board or a piece of chart paper, place a horizontal line. At the top, write the topic being introduced. Below the line on one end, write “completely unfamiliar.” On the opposite end of the continuum, write “very familiar.” Have students come up to the line and mark where they stand in relation to the topic. At the conclusion of the class students may be asked to return to the continuum and place a new mark on the line. Those students experiencing significant positive movement on the continuum may be asked to describe the new learning that precipitated continuum movement.  ***26. Student Interviews***  Prepare 2-5 questions related to key principles you have developed in class. At some point in the class session, announce to students that you will change your role from instructor to potential employer. After making this statement, ask for 2-3 volunteers willing to be interviewed for a position (you determine the position title). Candidates for the position may remain seated or brought to the front of the room. Proceed with your questioning of the candidates, thank them for their time, and ask the entire class to reflect on their responses. Reflection questions might include: (a) "Which candidate would you hire? Why?" (b) "What might you add to what the candidates said?" (c) "What other meaningful questions could the interviewer have asked?"  ***27. Poster Session*** - (Silberman, 1996)  This alternative presentation method offers students an opportunity to express their thoughts and feelings graphically. Begin by asking each student to select a topic of his or her choice related to the content being studied. Next, ask students to research their topic and prepare a visual display of their concept on a poster board. Although the poster should be self-explanatory you may also require students to prepare a one-page handout to accompany it. During designated class time, students circulate around the room viewing and discussing each other's poster presentations.  ***28. Post - it™ Exchange*** - (Silberman, 1996)  This strategy allows students to become better acquainted with classmates, consider new thoughts, and move around the classroom. The directions:  Distribute one Post - it™ note per student and ask each to write one of the following on their note:   * a value they hold * a recent experience * a creative idea for a problem posed by the instructor * a question about the subject matter of the class * an opinion they have about a topic of your choosing * a fact about themselves or the class subject matter   Next, students stick the note to their clothing and circulate around the room reading each other's notes. Once students have read all of their classmate's notes, they exchange their note with one classmate. The exchange must be mutual and based on the desire to possess a similar value, experience, idea, question, etc. Students may make more than one exchange if they wish. Conclude the exercise in a whole group setting by asking students to share the trades they made and why those exchanges were made.  ***29. Bumper Stickers***- (Silberman, 1996)  This enjoyable activity serves as an excellent review of what has been learned during a unit or course of study. In this activity, students are encouraged to focus on one thing they have learned, a key thought or piece of advice, an action step for the future, or a question to ponder. Students are asked to express their thought(s) as concisely as possible on a bumper sticker. In addition to providing the thinking prompt, the instructor also supplies the materials and supplies necessary to make the bumper stickers as attractive as possible. The activity is concluded by displaying the bumper stickers in the classroom as a reminder of recent learning.  ***30. Quick Sketch***  Representing ideas through drawing provides students with an alternative way of responding to text or lecture/discussion. The sketches may also serve as a source of good assessment information about a student’s grasp of main idea and sequential order. The directions for this activity are quite simple, “Based on what you have just read/heard, capture the essence of the content through visual images. Words are acceptable in a limited number, try to capture your insights through images however.”  ***31. Gallery of Learning***- (Silberman, 1996)  This creative activity is a way to assess and reinforce what students have learned during a course of study. The activity may be conducted individually, with a partner, or in a small group. The steps for creating a “Gallery of Learning” are as follows: (a) ask students to think about new knowledge, skills, improvement, renewed interest, or confidence they have gained in recent study, (b) provide each student with a piece of paper and a variety of writing instruments, (c) ask students to write/sketch their new learning onto a piece of paper; that paper is then hung on the walls of the classroom, (d) once each student has posted their work on the wall they are free to circulate and read what others have learned, and (e) each student writes their initials on gallery additions that represent learning they are taking away as well.  ***32. Concept Map***- (Donald, 1998)  When beginning a course or a content area, ask students to create a concept map based on their current knowledge of that area. Note: some modeling of concept map construction may be needed. Once students have created their initial map, have them compare/discuss their maps with each other. Repeat this process again later in the course 1-2 times to help students keep track of their own progress. This strategy also helps students access their prior knowledge of a general subject area and provides the instructor with another way to informally assess student learning.  .  **CONVERSATION/DISCUSSION**  ***33. Four Minute Summary –*** (S. Wyse, personal communication, April 19, 2011)  Create four person study groups at the conclusion of a lecture, video presentation, or reading. List four specific questions on the board/PowerPoint slide. Each group decides which member will be responsible for delivering a one-minute summary for each of the four prompts. After each group member has presented their one-minute summary to the group the other three members may add additional content they feel is essential. The instructor is encouraged to circulate throughout the room to respond to questions while each group discusses the four questions. Whole group discussion, focused on hearing summary statements for each of the four prompts, may be used to conclude the experience and/or class session.  ***34. Partner Brainstorm -*** (Guillaume, Yopp, & Yopp, 2007)  This is an activity in which students brainstorm as much information about a certain topic as they can. Students are organized into pairs. Students will take turns orally listing all that they know about the specific topic. Students cannot repeat something that has already been said. Give the students a certain amount of time and see how far they get, and then have each student share something they said with the entire class. This strategy can serve as an effective tool for review if used in advance of an assessment.  ***35. Turn to Your Partner***  This strategy encourages students to engage in personal understanding of a topic and then expand to interact with others and their ideas. There are five steps to this process. The first is to have students formulate a written response to a question or prompt provided by the instructor. Secondly, they are to share their answer with a partner. Their next task is to listen to what their partner says. Next, the partners need to reach a deeper understanding by discussing the topic. Lastly, they need to account for their discussion by being prepared to share their thoughts with the rest of the class. For a visual aid, it might be helpful to list the underlined words in order to show the process students will be involved in.  ***36. Class Meeting***  In order to obtain student feedback about how well your instruction is meeting their educational needs, announce that a class meeting will be held during the next session. Explain the purpose of the meeting ahead of time and ask students to come prepared to talk about these two questions: (1) What do you feel is going particularly well in this class? (2) What could be changed to make this class better? The class meeting begins with the instructor asking for responses. It is crucial that the instructor fully listens and resists the tendency to become defensive. If a student’s comment is unclear, ask for further elaboration. Once student comments have been heard, devote a short period of time to group problem solving of issues that arose during the meeting.  ***37. Feedback Form* -** (Brookfield, 1990)  Each week have students complete the following:   1. At what moment in class this week did you feel most engaged with what was happening? 2. At what moment did you feel most distanced? 3. What action that anyone (instructor or student) took in class this week did you find most affirming or helpful?   4. Has the course content/teaching strategies met your expectations thus far? Why or why not?  5. What would you suggest we can do to improve this class?  At the beginning of the next class, briefly summarize and give your response to the comments.  ***38. Whip Around, Pass Option*** - (Harmin, 1994).  Ask each student in turn to speak on an issue or to say, “I pass.” This strategy can be used with all or part of a class. It is especially useful when the question asked will likely draw a variety of responses. Try saying:  “Let’s whip down the row of students by the window. When it’s your turn, either give your thoughts or say *I pass.* You don’t have to respond if you prefer not to. Let’s go!”  “We all have different ideas on \_\_\_\_. Let’s start with John and whip around the whole class, giving each person a chance to share one idea. You can always say *I pass.* But first take a moment to think about what idea you might want to share. [Pause.] Okay John, please start us off.”  “Look over your responses to the chapter 2 questions. I’d like to whip around at least part of the class now and ask you to read just one of your responses. If you’d rather not read yours, just say *I pass*. Jessie, would you begin please.”  ***39. Student Interviews***  This strategy is a change of pace from normal large group discussion after an assigned reading, a lecture, or a video. The instructor prepares a handout containing 3-10 discussion questions that students respond to with a partner after the planned instructional activity. Students take turns responding to each question until all the items are completed or until the allotted time runs out. The strategy may also include a brief large group discussion in which each pair shares one important insight gained from their partner.    ***40. Carousel Activity***  Questions relevant to the course objectives are written on large sheets of paper and placed at various locations in the room (use 5-8 question sheets). Teams of students rotate between all question sheets and then write their responses on the sheet. After all teams have rotated between question sheets, each team writes a summary statement of comments on one particular sheet or they identify the 2-3 key thoughts expressed on the sheet. Each team then reports to the larger group.  ***41. Socratic Seminar*** – (Fisher & Frey, 2007)  The aim of this activity is to engage students in rich discussion around text. The text for the seminar should be chosen on the basis of its ability to foster discussion and capture group imagination – narrative and informational texts can be used. Socratic seminars begin with a question posed by the teacher; the initial question should be open, without a right or wrong answer, and reflect genuine interest. The role of the teacher is both discussion facilitator and participant. Participants should be encouraged to study the text in advance, listen actively, share their thoughts, and use the text to support those thoughts. Some guidelines for participants are presented below (Adams, 2004)   1. Refer to the text when needed during discussion. A seminar is not a test of memory. You are not “learning a subject”; your goal is to understand the ideas, issues, and values reflected in the text. 2. It’s okay to “pass” when asked to contribute. 3. Do not participate if you are not prepared. A seminar should not be a bull session. 4. Do not stay confused; ask for clarification. 5. Stick to the point currently under discussion; make notes about ideas you want to come back to. 6. Don’t raise hands; take turns speaking. 7. Listen carefully. 8. Speak up so that all can hear you. 9. Talk to each other, not just to the leader or teacher. 10. Discuss ideas rather than each other’s opinions. 11. You are responsible for the seminar, even if you don’t know it or admit it.   ***42. “Quick-and-Quiet” Feedback*** – (Brookhart, 2008)  This feedback technique is to be used one-on-one with students, usually concerning the process a student is using to do a particular task. If a student is struggling, engage in brief, individual coaching/tutoring sessions – it is unplanned and given on the basis of student need. The “quick” and “quiet” nature of this feedback system ensures that the student’s difficulty will not be broadcasted for the entire class. It is also important to help students know that receiving these one-on-ones is not a sign of incompetency – make them a frequent occurrence in the classroom, and each student should get “quick-and-quiet” feedback at least once.  ***43. In/Out of Class Student Conferencing*** – (Brookhart, 2008)  This type of feedback is planned, unlike the “quick-and-quiet” feedback technique. These individualized student conferences work best within a lesson in which students are working independently, freeing the teacher to speak with students one by one about their work. The planned nature of this feedback technique allows the discussion to be focused on the task rather than the process. It is useful for both student and teacher to have reviewed the student’s work so that both are ready to discuss it during the conference.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    **THINKING**  ***44. Multiple-Choice Item -*** (Mazur, 1997)  Display a multiple-choice item question (preferably conceptual) on the board or Power Point that is related to the content of your mini-lecture. Give four response options for student to choose from. Survey the students’ responses (this can be done in a variety of ways including hands, flashcards, and clickers). You can also survey the students’ level of confidence about the response option they chose. Have students take a minute to “convince” their neighbor of their answer and then resurvey the students’ responses.  ***45. Pair and Compare*** – (Nilson, 2010)  This strategy is designed as a break in the middle or at the end of a lecture or mini-lecture. Students pair off and compare their lecture notes as partners. They can then fill in what they may have missed. Through the use of this process, the instructor gives students the opportunity to review and process the content of the lecture.  ***46. Tug of War*** *–* (Ritchhart, Church, & Morrison, 2011)  This Harvard Thinking Routine helps students better understand and explore different sides of fairness dilemmas. It is interactive in nature and engages students in new kinds of thinking. The following four steps are a good way to implement this activity.   1. First, present students with a fairness dilemma. Draw a rope, or present an actual one, to illustrate the controversy being discussed. 2. Second, identify the controversy, which factors are “pulling” at either side of the dilemma. 3. Third, engage students by asking them to think about *why* each factor is “tugging” at one side or the other of the dilemma, identifying the strongest arguments. Perhaps ask students to decide which side they would most likely choose themselves. 4. Lastly, push students further by asking “what if” questions, encouraging them to explore the topic more completely.   This activity is best suited for the whole class, and is helpful for students in that it makes their thinking visible by providing visuals and fostering interaction.  ***47. CSI: Color, Symbol, Image Routine***– (Ritchhart, Church, & Morrison, 2011)  This Harvard Thinking Routine challenges students to engage in a different type of thinking by having them communicate the essence of an idea non-verbally. After students read, watch, or listen to something, ask students to choose three things that stood out most to them and have them do the following:   1. For one item, choose a color that best represents or captures the essence of the main idea. 2. For another item, choose a symbol that best represents or captures the essence of the main idea. 3. For the last item, choose an image that best represents or captures the essence of the main idea.   After completing this portion of the activity, have students pair up and share their colors, symbols, and images, explaining their reasoning for each choice, and facilitating discussion of the topic at hand. It is good if students have had some experience identifying main ideas in text prior to this activity. This activity can be used as an accompaniment to reading, watching, or listening to foster comprehension or as an avenue for reflecting on previous lessons or events.  ***48. Compass Points***(Ritchhart, Church, & Morrison, 2011)  The purpose of this Harvard Thinking Routine is to help students methodically process, explore, and evaluate an idea or proposition. Begin by presenting students with a proposition/idea and drawing a compass on the board, labeling each point thus:   1. E = Excited   What excites you about this idea or proposition? What’s the upside?   1. W = Worrisome   What do you find worrisome about this idea or proposition? What’s the downside?   1. N = Need to Know   What else do you need to know or find out about this idea or proposition? What additional information would help you to evaluate it?   1. S = Stance or Suggestion for Moving Forward   What is your current stance or opinion on the idea or proposition? How might you move forward in your evaluation of this idea or proposition?  This order is generally the easiest for students to follow, beginning with the positive points and then moving deeper. Another option would be to ask students to evaluate the proposition prior to going through the compass points, and then ask them how their thinking changed after completing the compass point discussions.  ***49. Connect/Extend/Challenge***(Ritchhart, Church, & Morrison, 2011)  The aim of this Harvard Thinking Routine is to help students make thoughtful connections between old knowledge and new knowledge and to evaluate their individual levels of comprehension. Have students respond to the following questions in each category:   1. Connect: How is the new information connected to what you already knew? 2. Extend: What new ideas did you get that extended or pushed your thinking in new directions? 3. Challenge: What is still challenging or confusing for you to understand? What questions, wonderings, or puzzles do you now have?   This activity can be used with the whole class, in small groups, or individually. If working in a group, have students share their ideas with one another or the whole class. In any case, it may be beneficial to keep a record of students’ ideas in the classroom, continually adding to the list to show progress and make their thinking active.  ***50. Claim/Support/Question*** - (Ritchhart, Church, & Morrison, 2011)  This Harvard Thinking Routine helps students learn how to reason logically and develop thoughtful interpretations of topics. Reasoning with evidence is especially emphasized, developing logical arguments to support claims. To begin, present students with a particular topic. Then, have students follow these steps to explore the topic thoroughly:   1. Make a claim about the topic – an explanation or interpretation of some aspect of the topic. 2. Identify support for your claim – things you see, feel, and know that support your claim. 3. Ask a question related to your claim – What’s left hanging? What isn’t explained? What new reasons does your claim raise?   This activity works well for individual students, small groups, and for whole group discussions. In large group discussions, each student should have the opportunity to share his or her insights to each question. Through this type of dialogue, students learn how to identify truth claims and explore strategies for uncovering truth.  ***51. Generate, Sort, Connect, Elaborate: Concept Maps*** - (Ritchhart, Church, & Morrison, 2011)  This Harvard Thinking Routine helps students engage in a different type of thinking by bringing to the surface prior knowledge to help generate new ideas about a topic and make connections between those ideas. Concept maps are unique in that they allow students to organize their thinking in a non-linear manner. It is helpful to follow these four steps in helping students create concept maps:   1. Generate a list of ideas and initial thoughts that come to mind when you think about this particular topic/issue. 2. Sort your ideas according to how central or tangential they are. Place your central ideas near the center and more tangential ideas toward the outside of the page. 3. Connect your ideas by drawing connecting lines between ideas that have something in common. Explain and write in a short sentence how the ideas are connected. 4. Elaborate on any of the ideas/thoughts you have written so far by adding new ideas that expand, extend, or add in any way to your initial ideas.   This activity can be used as a pre-assessment at the beginning of a unit depending on the students’ background knowledge of the topic, or as an ongoing assessment during a unit to see how well students are grasping the information and synthesizing ideas. Concept maps can also be used progressively with students adding to it throughout a unit. It is also beneficial to students to discuss their maps in small groups or with a partner to help solidify and consolidate their ideas and also to gain other perspectives.  ***52. What Makes You Say That?***– (Ritchhart, Church, & Morrison, 2011)  This Harvard Thinking Routine teaches students to provide evidential reasoning for their observations. It helps students describe what they observe or know and then encourages them to formulate explanations. Through this exercise, students are also encouraged to recognize and understand alternative explanations and multiple perspectives. After presenting students with a particular concept or object, ask them the following questions:   1. What’s going on? 2. What do you see that makes you say that?   Because the questions in this routine are open and flexible, they can be implemented in virtually any subject area, and can also be useful when introducing a new topic or concept to gather student understanding. The hope is that students would internalize this routine of evidential explanation and begin to engage in this type of thinking and analyzing without being prompted. |  |

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