Formative Assessment
MTSS Toolkits

The purpose of the MTSS (Increased Engagement) Toolkits is to present a select group of high-yield practices that not only foster relationships between adults and students, but also improve outcomes for ALL youth. The toolkits will have a laser-like focus on six, research-based, pedagogical practices resulting in increased engagement, more effective tier-one instruction, and ultimately, increased student achievement. The Multi-Tiered Systems of Support (MTSS) Academic Resource Department will provide instructional support to enhance pedagogical-efficacy for all teachers.
Formative Assessment

Continuous Curriculum-Based Assessment of Progress

(High-Yield Instructional Practices)

Providing Formative Evaluation
Cooperative vs. Competitive Learning
Reciprocal Teaching
Feedback
Brief and Non-graded Assessment
More Informative and Graded
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>06</td>
<td>6 Essential Systems for a Strong Learning Environment</td>
</tr>
<tr>
<td>08</td>
<td>System 4: Progress Monitoring and Analysis of Student Work Blueprint</td>
</tr>
<tr>
<td>10</td>
<td>Formative Assessment Introduction</td>
</tr>
<tr>
<td>22</td>
<td>Application</td>
</tr>
<tr>
<td>44</td>
<td>Strategies For Implementation</td>
</tr>
<tr>
<td>46</td>
<td>Teacher Self-Assessment</td>
</tr>
<tr>
<td>48</td>
<td>Resources</td>
</tr>
</tbody>
</table>
Six Essential Systems for a Strong Learning Climate

INSTRUCTIONAL PLANNING AND PRACTICE FOR DEEPER LEARNING

Teams of teachers and administrators collaboratively plan units, lessons, and assessments to reinforce high levels of learning and ensure mastery for all students.

MTSS TOOLKIT: Modes of Instruction & Modes of Student Practice

STANDARDS IMPLEMENTATION

The school identifies essential, grade-level standards that a student must reach to demonstrate high levels of learning and commits to ensure mastery and application for all students. This serves as the foundation for instructional transformation and informs every other system in this process.

MTSS TOOLKIT: Teacher Clarity
EFFECTIVE USE OF DATA
The school collects, analyzes, and uses key data points to inform academic and non-academic decision making.
MTSS TOOLKIT: Self-Reflection and Assessment

INSTRUCTIONAL FEEDBACK AND PROFESSIONAL LEARNING
The District and school have identified common frameworks (leadership, content, pedagogy, systems) and use structured walkthroughs, feedback and coaching, and professional learning to improve leadership and instructional practices.
MTSS TOOLKIT: Feedback Via Engagement

ACADEMIC AND BEHAVIORAL SUPPORT
Teachers use academic and behavioral data to prescribe short- and long-term supports for students to meet and exceed standards and strengthen their sense of belonging.
MTSS TOOLKIT: Classroom Systems That Support Student Behavior

PROGRESS MONITORING AND ANALYSIS OF STUDENT WORK
Teams of teachers and school leadership collect/review/analyze data and student work samples to determine student progress towards meeting mastery and application of standards and performance benchmarks.
MTSS TOOLKIT: Formative Assessment

MTSS TOOLKIT 4 // FORMATIVE ASSESSMENT
INTRODUCTION

Blueprint: System 4 - Progress Monitoring and Analysis of Student Work

Definition

Teams of teachers and school leadership collect/review/analyze data and student work samples to determine student progress towards meeting mastery and application of standards and performance benchmarks.

Description

In this system, teachers and administrators create processes for tracking individual student performance on a standard during the instructional cycle. This information is shared in PLCs to discuss corrective instructional practices (whole class and individual). Samples of student work are analyzed to identify performance trends and instructional needs. In addition, the school maintains up-to-date information regarding students trending towards meeting grade-level benchmarks and Academic and Career Technical Readiness. Administrators maintain and review student performance information in order to and provide instructional supports to ensure that all students meet standards and benchmarks.
## Success Criteria

<table>
<thead>
<tr>
<th>FORMATIVE CLASSROOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 School leadership verifies progress monitoring throughout the instructional cycle. (1.3) (1.7)</td>
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<td>2 A timeline for progress monitoring checkpoints is established. (4.8)</td>
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<td>3 All staff members involved in providing instructional supports to students participate in progress monitoring and reviewing student work samples. (1.3) (2.5)</td>
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<td>4 Multiple and varied sources of data are collected, monitored, and analyzed to inform progress towards meeting mastery of standards and ensure equitable opportunities at the following levels: (1.4) (1.7)</td>
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<td>a Individual student (1.4) (1.7)</td>
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<td>b Classroom (1.4) (1.7)</td>
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<td>c Teacher (1.4) (1.7)</td>
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<td>d Team/Department/Grade (1.4) (1.7)</td>
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<td>e School (1.4) (1.7)</td>
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<td>5 PLCs use a protocol (i.e. Elements of Quality Work) to analyze student work in order to identify trends and needs and determine effective, equitable, and varied instructional practices. (1.4) (2.4)</td>
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**Success Criteria**

### PROGRESS TOWARD MAP GROWTH GOALS

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<tr>
<td><strong>1</strong></td>
<td>Data review and goal setting takes place immediately following MAP administrations with: (1.3)</td>
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<tr>
<td>a</td>
<td>Students (1.3)</td>
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<td>b</td>
<td>Teachers (1.3)</td>
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<td>c</td>
<td>Administrators (1.3)</td>
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<td>d</td>
<td>Grade-level teams (1.3)</td>
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<td>e</td>
<td>Parents (1.3)</td>
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| **2** | School-wide strategies are planned to accelerate growth toward MAP benchmarks and mastery of standards. (1.3) (4.8) |

| **3** | Schools will analyze the percentage of students meeting growth targets to determine the effectiveness of core instruction. (1.3) |

### ACADEMIC AND TRANSITION READINESS (ALL LEVELS)

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<tr>
<td><strong>1</strong></td>
<td>MAP data is used for instructional planning. (1.3)</td>
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| **2** | MAP results are compared to progress toward ACT Benchmarks. (1.3) |

| **3** | ACT Standards and Curriculum Review documents guide progress toward meeting transition and college readiness standards at all levels. (1.4) (1.2) (1.3) |
## Ensuring Equity

<table>
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<th>Data analysis procedures include examining the progress of subgroups of students using multiple sources of data to ensure appropriate structures and supports are in place. (1.3) (6.4)</th>
</tr>
</thead>
<tbody>
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<td>2</td>
<td>PLCs intentionally focus on achievement gaps and racial inequities in student data. (1.3) (6.4)</td>
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<tr>
<td>3</td>
<td>Teachers are mindful of and address bias when analyzing data and creating instructional groups. (1.3) (6.1)</td>
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<td>4</td>
<td>Elements of Quality Work are used to analyze work products, with specific considerations for student populations including, but not limited to, students of color ECE and ELLs. (1.2) (1.4) (1.11) (2.2)</td>
</tr>
</tbody>
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Formative assessment is a critical process used to develop effective teaching that can be formal or informal in nature. Examples of tools used in formative assessment include curriculum-based measurement, curriculum-based assessment, and teacher observation. Formative assessment captures data of student performance which a teacher can evaluate as it relates to learning targets and objectives.

The purpose of formative assessment is to use the evidence collected to inform future lesson planning and instruction. Formative assessments, unlike summative assessments, measure a student’s performance throughout as well as at the end of the lesson or instruction. Summative assessment data, which are often collected when the unit is completed, reflects achievement but are not as easily used for actual changes in teaching strategies within a lesson or day-to-day instruction.

Summative assessment is often considered an evaluation OF learning, while formative assessment is considered evaluation FOR learning. Black, Harrison, Lee, Marshall, and Wiliam (2003) suggest that formative assessment “occurs when information about learning is evoked and then used to modify the teaching and learning activities in which teachers and students are engaged” (p. 122). Formative assessment is about making active changes in teaching through instructional decision making.
Feedback

Feedback refers to a teacher’s indication to a student whether a behavior/action/skill was demonstrated correctly. This can be as simple as thumbs up or thumbs down - or as complex as long discussions. The key is in both the frequency and ratio of positive to negative feedback. While high levels of feedback are preferable to low levels, repeated use of negative feedback is an indication that instruction is not working and must be reconsidered. As a general rule, the more the teacher engages the student, the more opportunities there will be for feedback (Hattie, 2009).

Cooperative vs. Competitive Learning

When engaged in cooperative learning, students are involved in discussion and learning with their peers in a structured manner; whereas, in competitive learning, students compete to reach a goal (Hattie, 2009).

Providing Formative Evaluation

Formative evaluation is the process of gathering evidence to inform instruction. In other words, it is a way of thinking about measuring progress in learning and responding to it in teaching (Hattie, 2017).

Reciprocal Teaching

Reciprocal teaching is an instructional practice which teaches students cognitive strategies that lead to improved learning outcomes. Teachers enable their students to learn and use cognitive strategies such as summarizing, questioning, clarifying, and predicting in a dialogue where the teacher-student roles have been reversed.
Brief and Non-Graded Assessment

Brief and non-graded assessments are short informative snapshots designed to measure a student’s knowledge and provide the teacher with diagnostic information to help move the student’s learning forward.

More Informative and Graded Assessment

These types of assessments evaluate student learning and performance. It provides teachers with data about patterns in the student’s learning across courses and programs. Graded assessments are not limited to chapter, unit, and/or benchmark tests. Performance-based assessments, such as projects, presentations, and portfolios, are another way to evaluate a student’s mastery of content. Competitive learning, students compete to reach a goal (Hattie, 2009).

Reddy, Dudek, and Shernoff (2016) stated that the formative assessment process is frequently “the missing link in response to intervention” (p. 607). Formative assessment can allow teachers to go beyond examining error patterns or misconceptions related to content acquisition by collecting useful information about students’ thinking. This includes focusing on student strengths and prior knowledge about the content. By identifying underlying naïve understandings or misconceptions while pinpointing students’ assets, instruction can be tailored to students’ needs by building on their existing knowledge and skills. Asset-based assessment and teaching respects students varied academic, social emotional and dispositional strengths demonstrated during a variety of approaches such as interviews or observations. When teachers and students shift the attention to what knowledge is in place rather than only what knowledge is missing, the conversation is more positive and productive. This change allows for the construction of cognitive structures to new and potentially challenging learning using a foundation grounded in content, processes, skills, and concepts that are already known by the student.
Formative evaluation provides the teacher with feedback on what is happening in their classroom by answering important questions such as: 1) Where am I going? (i.e., goals); 2) How am I going? (i.e., progress toward goals); and 3) Where to next? (i.e., what activities/strategies are needed to improve progress) (Hattie & Timperley, 2007). The importance of formative evaluation cannot be overstated. Hattie (2008, 2012) found that providing formative evaluation has a significant effect on student achievement. Furthermore, he states “the major message is for teachers to pay attention to the formative effects of their teaching, as it is these attributes of seeking formative evaluation of the effects (intended and unintended) of their programs that makes for teacher excellence” (Hattie, 2008).

Fuchs and Fuchs (1986) found that use of systematic formative evaluations was related to increased achievement for students with mild learning disabilities. Furthermore, Hattie (2008) reports that effect sizes were higher in studies where teachers were required to use data and evidence-based models compared to teacher judgment. Additionally, using the formative assessment process in pinpointing and responding to the needs of students has resulted in the reduction of the number of students who need more intensive instruction (Brown-Chidsey & Steege, 2005) and in the increase of student performance from one-half to one standard deviation (Black & Wiliam, 1998). Black and Wiliam go on to report medium to large effect sizes, between 0.4 and 0.7, measured by the pre-to-post evaluations of students in the classrooms where formative assessments are used. These findings were evident across all content areas, grade levels, and for students with differing ability levels (Wiliam, Lee, Harrison & Black, 2004).
Measuring student readiness for postsecondary education, career and life requires an assessment process that goes beyond content knowledge and enables students to demonstrate deeper learning skills. No single assessment can give insight into the various skills and knowledge students need to demonstrate deeper learning. However, a comprehensive system of assessments including performance tasks, curriculum-embedded tasks, portfolios, journals, written assessments, and student defenses can lead to teachers having the capacity to capture student progress.

Formative Assessment is a key component in Project-Based Learning (PBL). Assessment can be integrated seamlessly into PBL to measure student understanding from the beginning to the end of the project cycle. Arguably, formative assessment is the most important part of PBL as it provides information of whether students are meeting set goals and objectives.
INTRODUCTION

Considerations

Culturally Responsive

In teaching students from various cultures, it is necessary to employ/accept multiple approaches. Culturally sensitive assessments include options, personalization, and choice to develop confidence. Teachers should include learning goals and/or learning logs that document progress, peer reviews, and frequent feedback. Meaningful and frequent assessments, including alternative forms of assessment, should be used to inform instruction, support student learning, and assist students in monitoring their learning (i.e. oral presentations, artwork, problem-based assessment, performance assessment, retelling, practical use of tools and resources, technology use, etc.).

For example, teachers may use a problem-solving approach where questions are formulated, and solutions are developed engaging students in solving meaningful problems. Problem solving becomes culturally responsive when students address problems that touch upon cultural and/or linguistic issues, reflecting critical thinking, resulting in the culmination of an oral project.

Early Childhood

In early childhood, it is recommended that teachers use authentic assessment, which “refers to the systematic recording or developmental observations over time about the naturally occurring behaviors and functional competencies of young children in daily routines by familiar and knowledgeable caregivers in the child’s life” (Bagnato & Yeh Ho, 2006, p. 16). Assessment that is both authentic and formative provides valuable information about children’s strengths and needs that can be used to design and adjust instruction. There are many types of assessment strategies that can be used authentically and formatively. Two often-used ones are checklists and anecdotal notes. Checklists are a quick and easy strategy for recording children’s behavior. For example, a teacher might create a checklist to measure children’s demonstration of their individualized objectives.

When using anecdotal notes, teachers observe children’s actions and behaviors and record notes on what the child did and said, without providing an interpretation. Anecdotal notes must be descriptive and objective. They should be written in a way that allows them to be used to evaluate a child’s learning and plan future instruction. For example, a teacher might note whether a child could distinguish between letters and words in the morning message: During morning meeting, Nevaeh circled a letter (m) on the morning message. When asked to underline a word, she underlined the first two letters in a word (tree). A teacher might also use anecdotal notes to record a child’s social-emotional skills: On the playground, Y and S ran into each other and fell. Y yelled at S, saying, “You pushed me.” I reminded Y to take three deep breaths and then talk with a calm voice. Y did this and then talked to S without yelling.

Checklists and anecdotal notes also can be used together, as in the preceding example. The teacher used the notes to indicate whether the child needed support to perform the behavior correctly. When using authentic and formative assessment, assessment and instruction often go together. This means that you first provide an opportunity for the child to demonstrate the behavior independently. However, if the child needs assistance to demonstrate the behavior, you provide that assistance. You then note on your assessment the level of assistance the child needed to demonstrate the behavior.
Introduction

Exceptional Child Education

When working with students who are identified as exceptional, the teacher must take into consideration the students’ individual needs. During planning of instruction, teachers can use the principles of Universal Design for Learning (UDL) to identify barriers that may prevent the student from demonstrating understanding of a concept. The UDL principle, “multiple means of action and expression,” reminds us that students may need accommodations for physical barriers (e.g., utilizing assistive technology), for expression (e.g., utilizing calculator for math fluency), and for executive functioning (e.g., scaffolds for goal setting- breaking down larger goals into manageable steps) to demonstrate their understanding (CAST, 2018). Another key consideration during planning of instruction is engaging the students in developing learning targets with clear mastery criteria for instruction. Students can set learning goals and help monitor their own progress toward those goals.

During instruction, teachers should share the learning targets with the students and repeat them during instruction as well as at the end of the lesson. In this way, students will be reminded of what is expected and how they will be assessed for mastery. Teachers should share models of expected work that meet the success criteria. Providing corrective feedback during instruction that is explicit and behavior specific will lead to increased outcomes.

Following corrective feedback, the student should have a clear understanding of what was completed correctly and what needs improvement: “I like how you started this sentence with a capital letter, and your letter and word spacing is spot on. However, I notice there is no punctuation. Remember, punctuation tells your reader how to read the sentence.” Questioning throughout the lesson should focus on assessment questions which elicit student thinking and allow the teacher to understand how the student is processing the information. Formative assessment data must be collected frequently and at varied intervals throughout the week. This formative assessment data collection should inform changes in instructional programming in future lessons.
Project-Based Learning (PBL):

Within PBL, it is vital that the teacher consider the following:

- Start with the end in mind. High-quality PBL begins by deciding what the final product will be and determining the knowledge and skills students will need to develop in order to complete the final product. This is the first step in determining the assessments that will need to be incorporated into the project.

- Once the teacher has identified the content and skills students will need to master, you can begin to build a rubric for the final project. There are expert tools available that can support teachers in creating the rubric (e.g. bie.org).

- Break the project into benchmarks and create assessments for each of these benchmarks. This allows teachers to break the project into smaller digestible chunks.

- Use a calendar to plan out the assessments throughout the project.

- Use a variety of assessment modes including performance assessment, written assessments, exit slips, reflection logs, etc.

- Formative assessment should include self-assessment. This creates a culture where students are owners of their own learning. They are able to grow more self-directed and independent.

- Cooperative learning is an important piece to PBL. It also gives the opportunity for peer assessment and feedback.

- Student-teacher conferences are an ideal place for teachers to assess and give feedback.

- Student led conferences can be held in order for students to direct their own learning.

- Assessment should focus not only on the content knowledge but also on the skills of critical thinking and problem-solving.

- Assessment does not have to be a formal assessment, but rather can be continuous and authentic throughout the journey.
APPLICATION

Vignettes From:
Elementary School
Middle School
High School

Literacy
Mathematics
Social Studies
Science
Related Arts / Electives
The following vignette is an example of a teacher asking questions to probe student reading interest and comprehension. In addition, she follows up with conducting a running record to assess the oral reading of the student.

Ms. Martin regularly conducts reading conferences with her students as they engage in independent reading during the reading workshop. At the beginning of each conference, she begins with an open-ended invitation: “Tell me about what you are reading.” From the student’s response, she begins to analyze what aspects of the text the student is attending to while reading. What is the child choosing for independent reading? What topics and genres of books are of interest to this child? Is the student able to attend to aspects of the text including attention to character, plot, setting, meaning making, details, dialogue and other details? Ms. Martin makes note of this reader’s strengths and possible teaching points.

Next, she wants to administer a running record to assess where students’ reading errors are taking place. She selects an appropriately leveled passage to read with a student and begins marking miscues as the student reads aloud. She pays attention to the child’s use of illustrations, sounding out words, noticing if this word looks like one she has seen before, putting in another word that makes sense, or re-reading the sentence by returning to the beginning.

As the student reads, Ms. Martin notices he is replacing words that match visually but do not align with the overall meaning. For example, the text read, “The cat meowed.” However, the student said, “The car meowed.” Ms. Martin sees that the words are visually and structurally similar, but the sentence does not make sense. She will use this data to focus her guided reading instruction with this student on asking and answering questions about meaning. For example, “Does this make sense? Does the error make sense in terms of the meaning or message of the story? If it doesn’t make sense, what can I replace it with to change the meaning?”

The following vignette is an example of a high school English teacher implementing an audience response practice using the web-based program Nearpod to collect non-graded data to check for understanding. This was done prior to the class completing the reading of a novel and taking a comprehensive summative assessment.

Mr. Gonzalez decides to use an audience response system to formatively evaluate student performance and inform student progress. This practice allows him to scan student responses on an electronic device and anonymously display results for class viewing and discussion using a web program called Nearpod.

The class has been reading Animal Farm (Orwell, 1945), a novel about a farm being controlled by a boar named Old Major. Old Major is attempting to convince the other farm animals to follow him in making the dream he had of living on the farm without human beings come to fruition. When Mr. Gonzalez introduced the novel to the class, he clearly communicated they would be focusing on Orwell’s use of symbolism.

Mr. Gonzalez generates several comprehension questions for his students on Nearpod. Through whole group discussion he provides feedback of Orwell’s use of symbolism in the novel. By using Nearpod, students can anonymously respond to the teachers practice test/quiz questions, receive timely corrective feedback, and measure progress towards the learning targets prior to the summative assessment.

After taking the quiz, the students in his class analyzed their results and met in teams aligned to the questions they answered incorrectly. Sarah missed three of the five questions and was most confused by the second question, which asked, “How did the painting of the seven commandments on the side of barn in the story symbolize the collective memory of a modern nation?” Sarah decided to work with a group who selected the same question, so they could build on each other’s knowledge. The group used the internet to search how Orwell’s symbolic use of the barn represented how an institute in power can alter a community’s perception of history to bolster its control. Sarah then remembered learning about institutes in power and their authority over the creation of laws that were written specifically for oppression and control of people. She responded, “I remember this now. I learned about this last year in social studies!” The group affirmed Sarah’s recall of background knowledge and used it to connect the story.

The following vignette is an example of a teacher checking for understanding through a non-graded, informal mathematical task focusing on place value.

A critical foundational concept is the understanding of unitizing. Unitizing is seeing multiple items as one unit and is foundational to comprehending the place value system (ten ones is the same as one unit often). Students may find this concept challenging and therefore the Digit Correspondence Task (Kamii, 1985; Ross 1986, 2002), has been used widely in the study of place-value development. Students are asked to give meaning to a two-digit number through the use of materials to match the digits in the number. Here is an adaptation of the original tasks.

1. Take out 24 counters (this number can also be 18 or whatever is appropriate for your student).

2. Ask the student to count the counters, and then have the student write down on paper the number that tells how many he or she counted. In this example the student should write down “24.”

3. Circle the 4 in 24 and then ask the student, “Does this part of your number have anything to do with how many counters there are? Can you show me with the counters?”

4. Now circle the 2 and repeat the questions exactly. “Does this part of your number have anything to do with how many counters you have? Can you show me with the counters?”

Here are three diverse responses to the task (note that the teacher, Ms. Murray, gives some preliminary counting opportunities to get each student comfortable with the interviewing situation):

**Leo.** Ms. Murray first asks Leo to count a collection of 20 counters from a bucket of counters. Leo counts 18 counters without an organized approach and when Ms. Murray asks, “How many do you have?” He says, “18.” Ms. Murray follows up with, “But I asked you to count 20.” Leo quickly adds two more counters to the group. Then Ms. Murray requests, “Take out four more and tell me how many you have now.” Leo takes four more, counts the total on his fingers, and states, “24.” “Can you write that number on the paper?” asks Ms. Murray. Leo writes 24. Ms. Murray circles the 4 and asks, “Does this part of your number have anything to do with how many counters there are? Can you show me with the counters?” Leo removes four counters. Then Ms. Murray circles the 2 and says, “Show me this number with your counters.” Leo counts out two counters.

**Maria.** Ms. Murray asks Maria to complete the same task of counting 20 counters and Maria does so placing them into one long row of 20. Then she asks, “How many do you have?” Maria replies, “20.” Ms. Murray asks, “Can you add four more counters to your pile?” Maria adds four more to her row and says unprompted, “Now I have 24.” Ms. Murray responds with, “Can you write that number?” Maria writes the number 24. Ms. Murray circles the 4 and asks the question from the task. Maria pulls away the last four counters from her line of counters. Then the teacher circles the 2 and asks how it is related and Maria says, “It is the rest of them.”
John. Ms. Murray asks John to count out 20 counters. John counts out 20 and places them into two piles of 10 counters each. Then Ms. Murray asks, “How many do you have?” John says, “20”. The teacher then asks John to add four more, and he does so by creating another separate pile. John says unprompted, “Now I have 24.” Ms. Murray says, “You do. Can you write that number?” John writes the number 24. The teacher circles the 4 and asks, “Does this part of your number have anything to do with how many counters you have?” John says, “The four is in the ones place.” Then he points to the four counters in the small pile. Ms. Murray says, as she circles the 2, “Does this part of your number have anything to do with how many counters there are?” While pointing to both groups of 10 counters, John replies, “That is the two groups of 10 that I counted.”

These three students align with findings from research (Ross, 1989 and 2002) that reveals five levels of understanding of place value that can be identified from administering this interview.

1. The child writes 24 but finds no meaning in the individual digits, seeing the number 24 as a single numeral.
2. The child accurately identifies the tens and ones positions, but makes no direct connection between the circled digits and the counters.
3. This level aligns with the performance of Leo where the child matches four counters with the 4 and two counters with the 2, taking the digits on “face value.”
4. Like Maria’s response, this level marks the transition to place value understanding where the 4 is matched with a set of four counters and the 2 is linked to the remaining counters, as a whole group.
5. This final level is considered “full understanding” where a student, like John in this case, indicates that the 2 is correlated with two groups of ten counters and the 4 with four single counters.

From this point the teacher was able to group Leo and Maria with other students who showed evidence of similar thinking for activities that involved forming numbers with base ten materials on place value mats. John was ready to move to other more sophisticated place value situations.


The following vignette is an example of a teacher formatively assessing student learning through using response slates (dry erase boards). The boards allow the teacher to examine student responses and identify student misconceptions quickly. They also provide students opportunities to see multiple examples when exploring new concepts.

Dr. Brahim’s students have been studying expressions, equations, and inequalities. She decided to use dry erase markers and laminated white paper (dry erase boards, plastic white plates, and sheet protectors can also be used) to formatively assess students’ understanding of the similarities and differences between the three. Before class began, she made sure that all the necessary materials were on her students’ desk. As students entered the room, she reminded her class to leave materials alone until instructed to use them. Once her class was seated, Dr. Brahim asked students to write an example of an expression on their white board. She then had students show their responses to their classmates.

Next, she asked Suzanne, “What are the characteristics of an expression?” Suzanne responded, “It has numbers.” Dr. Brahim asked Cory, “So does that mean that any of the answers on the whiteboards with something other than numbers are not expressions?” Corey replied, “Expressions can have letters, too.” Dr. Brahim responded, “When you say letters, do you mean variables? Demetria, can there be anything else in an expression besides numbers and variables?” Demetria, thought for a moment and then replied, “Well, can’t we also have addition and subtraction in expressions?” Dr. Brahim responded “Can it only be addition and subtraction?” Demetria’s eyes opened wide and exclaimed, “No, we can use the operations of multiplication and division, too.” Dr. Brahim summarized, “An expression is a mathematical phrase that can contain numbers, variables and operators.” She then gave her students an opportunity to alter their earlier responses based on the class definition that had been created. She asked students to share their responses with classmates one more time. She asked Jerome, “Please point to a classmate’s example you think is an expression and justify why it is.” Jerome pointed to Penelope’s statement of 3xy. He said, “This is an expression, because it has numbers and variables that are connected by multiplication!” Dr. Brahim continued this same process when examining equations and inequalities.

After multiple class discussions, Dr. Brahim was able to identify common misconceptions based on the variety of answers written and communicated. At the end of the lesson, Dr. Brahim asked students to create three columns on their white-boards and label them with expression, equation, and inequality. To determine if students clearly understood the differences between each, she asked them to write an example in each column. Dr. Brahim circulated and assisted students who continued to have misconceptions.

The following vignette is an example of a teacher formatively assessing student learning through the app, Plickers. The app allows the teacher to collect real-time formative assessment which can be used to provide immediate feedback to students and inform upcoming lessons. For more information on Plickers, you can go to: https://www.plickers.com/

Ms. Goodman is a social studies teacher who is looking for more engaging ways to assess student learning. Although she would check for understanding through some small group activities and questioning during the lesson, her main formative assessment tool was through quizzes at the end of the week. She knew the weekly quizzes were not giving her the opportunity to address misconceptions through immediate corrective feedback; however, she couldn’t feasibly grade quizzes every night. After doing a little research, she found an app called Plickers that would allow her to collect real-time formative assessment data for each student. Ms. Goodman decided that she would use the Plickers app during the upcoming unit, Structures of Local Government.

Prior to the unit, Ms. Goodman created an exit slip consisting of five multiple-choice questions for each lesson on the Plickers app.

Questions ranged from:
1. Identifying branches of government
2. How rules address needs, can be enforced, or ensure fairness
3. Individuals that make up each branch of local government
4. How each branch of local government uses its power to promote the common good

She then printed the individual student cards and distributed them to the students. At the end of each lesson, Ms. Goodman was able to display the questions on the board and prompt the students to raise their card with their answer. She then used her phone to scan in each response. By collecting real-time data, it not only allowed her to provide immediate feedback to students, it also helped inform what she needed to address in upcoming lessons.
The following vignette is an example of a teacher formatively assessing student learning through an application called Kahoot. The app allows the teacher to collect real-time formative assessment data which can be used to provide immediate feedback to students and inform upcoming lessons. For more information on Kahoot, you can go to: https://kahoot.it/

Mr. Pham, a social studies teacher, has been teaching the various forms of government and is not sure if his students are able to analyze issues that relate to the rights and responsibilities of citizens in a democracy. He considers checking this ability to analyze on an assessment at the end of the week but worries that he will have wasted a lot of instructional time if he waits until then to administer the assessment.

He discusses his dilemma with his professional learning community (PLC) and they decide to get immediate feedback during the next day’s lesson by creating a Kahoot game (https://kahoot.it) that includes scenarios which describe situations involving citizen rights and responsibilities. This application allows the PLC to create multiple choice questions that can be projected for students to see when the game is activated. Students log into the game with a device (iPad, laptop, desktop, or phone) and submit answers through the application within a set timeframe. After the set timeframe, the application displays the correct answer and tracks the submitted answers for each player/team that is logged into the game.

Mr. Pham and his colleagues know that they will be able to download a spreadsheet with the player/team results and analyze game results to determine: questions or areas of content that were missed the most often, students who missed high number of questions, and distractors that were frequently chosen.

The PLC discusses whether students should play individually or as a group. They decide that if enough devices are available, students will play individually. If there are not enough devices, the teachers will partner students with a similar perceived understanding of current content for authentic results. The PLC members decide to meet during planning time the next day to compare results and complete the analysis of the data. They agree to determine next steps for instruction from the trends in the student data.
The following vignette is an example of a teacher using a formative assessment strategy called “Four Corners”. This strategy is used with selected response questions to identify groups of students with similar responses to the question asked. Students move to a corner of the room designated to match their response or similar way of thinking. Four Corners works well to engage all students in academic conversations about various topics.

Mr. Sparks has been working with his students on electricity and the flow of energy in a circuit. He recently introduced his students to the concept of parallel and series circuits. Mr. Sparks is aware of the common misconceptions students develop about the flow of electrical current in these circuits. Specifically, he knows that students often misunderstand how a lightbulb remains lit in an open parallel circuit compared to an open series circuit. Mr. Sparks wants to incorporate assessment strategies into his instruction that allow him to quickly identify this common misconception, so he can modify his instruction as needed to address the misconception.

After a little research, Mr. Sparks decided to use a formative assessment strategy called “Four Corners”. Four Corners provides an opportunity for students to make their ideas public. Student begin by writing their own ideas to a question. Then they are asked to move to a labeled corner of the room with their papers. By meeting “in the corner” with students who have similar ideas, students can further discuss and clarify their own thinking with others before returning to their seats and engaging in scientific argumentation with the class or small groups of students with different ideas. In the process of explaining their thinking, students sometimes notice gaps or inconsistencies in their own reasoning and question whether they have enough information to support their thinking. (Keeley, 2008)

Mr. Sparks hoped early use of this formative assessment strategy would help him identify the misconception as early as possible and inform his need to modify upcoming instructional activities. The information gathered from this strategy also helps Mr. Sparks identify the need for differentiation of instruction to adapt to individual learner differences, along with identifying areas of student interest.
The following vignette is an example of a teacher using a variation of the 3-2-1 strategy to formatively assess student learning. The 3-2-1 strategy provides a structure for students to record and summarize their own comprehension and can be used by the teacher to inform instructional decision making.

Mr. Valrey has been working with his seventh-graders on photosynthesis and the flow of energy into and out of organisms. He recently introduced his students to the concept of cellular respiration. Mr. Valrey is aware of the common misconceptions students develop about cellular respiration. Specifically, he knows that students often consider the processes of cellular respiration and breathing to be the same. Mr. Valrey wants to incorporate assessment strategies into his instruction that will allow him to quickly identify this misconception, so he can modify his instruction as needed.

After a little research, Mr. Valrey decided to use a variation of the 3-2-1 strategy to prompt students in comparing and contrasting the processes of cellular respiration and breathing. At the end of class on the first day of the unit, he asked his students to write down three differences between the processes, two similarities, and one remaining question or point of confusion. Mr. Valrey hoped use of this formative assessment strategy would help him identify students with misconceptions in the first two lessons, so that he could modify his upcoming instructional activities. He decided to create a differentiated activity for the next lesson which included different levels of questions based on responses to the 3-2-1 strategy.

Elementary

The following vignette is an example of a non-graded formative assessment to use with elementary students.

Ms. Armstrong has been teaching her Health and Physical Education class about making healthy life choices. To assess students’ progress towards learning targets, she used the “Yes or No” maze activity.

Ms. Armstrong built a maze out of various gym equipment. She placed a cone at each junction in the maze. She created cards that showed healthy and unhealthy life choices (such as: ‘watch TV for two hours’, or ‘eat plain yogurt for a snack’) and then hid one card under each cone. Ms. Armstrong instructed students to travel through the maze one at a time. At each junction, students chose ‘Yes’ or ‘No’ for the action listed on the card. The students turned right for ‘Yes’ and left for ‘No’ to indicate whether the card reflected a healthy life choice. After everyone made it through the maze, she asked students to discuss with a partner their answers and justify how they ended the maze where they did. The placement of students when they finished established a visual model that readily displayed student comprehension of the content for the teacher to see.
A P P L I C A T I O N

Included Here:
Providing Formative Evaluation Feedback
Brief and Non-Graded Assessment

Related Arts / Electives

Middle / High

The following vignette is an example of a Journalism/Yearbook teacher using Google Forms to formatively pre-assess student knowledge of effective newspaper layout techniques. The use of Google Forms provide instant feedback to the teacher and graphs results for both the teacher and the students.

After a few weeks into the school year, Ms. Lincoln’s class had learned about critical features of newspaper layouts. Before she introduced the lesson, she wanted to gain a better understanding of her students’ level of knowledge on how to appropriately use newspaper layouts as means to grab a reader’s attention. She created a brief and non-graded quiz using Google Forms in her Google Classroom.

She provided each student with written directions that included:

- How to access their Google Drive and login
- How to access their assigned Google Classroom
- A picture diagram on how to access the Google Form quiz

Once all students accessed the Google Form quiz, she then projected a sample newspaper layout that they would use to answer the quiz questions. Once students submitted their responses, data results were instantly graphed and displayed for the class to see. Individually, students were able to access their results to see how well they did. By using Google Forms, Ms. Lincoln was able to access and use the data from the automatically created spreadsheet to inform her instructional practices. Students were asked to complete a reflection form on the quiz and record their results within an individual tracking sheet on their drive.

Strategies for Implementation
The following are strategies that teachers can begin implementing in their classroom tomorrow:

1. Use exit slips to check for student understanding of the major take-away of the lesson.

2. Cooperative learning strategies allow all students to be actively engaged while teachers can assess what each student knows. *

3. Using response boards (e.g., dry erase boards) allows teachers to immediately assess student comprehension.

4. Intentionally select students to explain their thinking and probe them to gather additional information. Also, consider choosing a student who answered the question in a unique way or a student who can link their idea to others. *

5. During a guided reading lesson, make anecdotal notes of the common error patterns students are making during read-aloud. *

6. Use progress monitoring tools such as curriculum-based measurements (e.g., DIBELS, EasyCBM, and/or curriculum-based assessments). *

*Can also be used in early childhood.
Teacher Self-Assessment (Success Criteria)
The following reflection questions are designed for teachers to self-assess and/or reflect on Formative practices.

1. Do I use a variety of methods to assess student progress towards mastery of learning goals?
2. Do I use student performance data to determine my next steps in instructional practice?
3. Do I have an efficient and effective system for monitoring student attainment of learning goals?
4. Do I use the results of assessments to benefit my students’ learning?
5. Do I adjust my instruction in response to evidence of my students’ understanding?
Resources
ARTICLES:

(2014) Article retrieved from URL: https://sites.google.com/site/nynjgs13/conference-sessions/utilizing-google-forms-for-formative-assessment


BOOKS:


WEBSITES:


VIDEOS:


