Professional Development

Data-Driven Decision Making

Using Assessment to Inform Instruction and Improve Student Achievement

As mathematics educators, we understand the importance of assessment to the mathematics teaching/learning process. Assessment is an important and essential tool for teachers to use to improve instruction. In fact, it is assessment that truly distinguishes between teaching and learning. But what is it that distinguishes effective assessment from routine, calendar-based assessment? How does a teacher ensure that assessment informs teaching in a meaningful way, one that consistently shapes students learning?

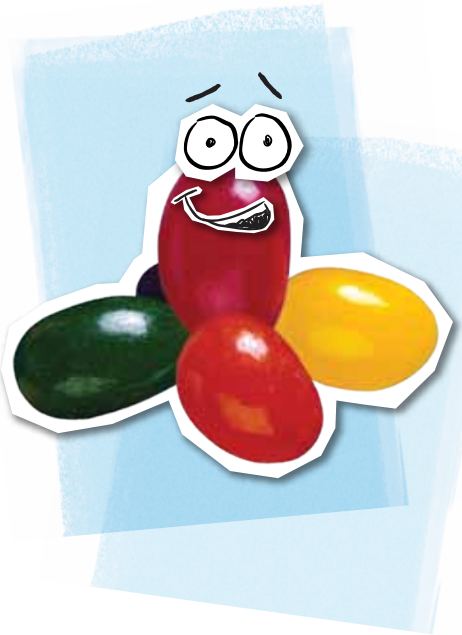
Put simply, it requires data-driven decision making based on an ongoing assessment cycle. Teachers need to take the data collected from their students' performance on various assessments and use this data to make decisions on next steps for instruction.

The Assessment Cycle

To be truly effective, assessment must be embedded in the teaching and learning process, not just administered out of context at set intervals during the school year. Ongoing assessment helps teachers fine-tune the teaching process to ensure student understanding of mathematical concepts. Assessment must gather a bounty of information in order to help teachers measure student progress and glean students' potential. To this end, teachers should strive to keep accurate and dated information on their students' progress in mathematics throughout the learning process.

Consider the following three stages of the assessment cycle:

- **Stage 1:** Identify what is to be taught, how it will be taught, and how to assess student learning.
- **Stage 2:** Gather evidence of student learning, interpret student responses, and record data.
- **Stage 3:** Act on the results. How does the data impact my teaching methods? What concepts need to be retaught?



Stages of the Assessment Cycle	
Stage 1	Do students possess crucial prerequisite skills and knowledge? Do students already know some of the material that is to be taught?
Stage 2	Are students progressing adequately toward achieving the standards?
Stage 3	Have students achieved the goals defined by a given standard of a group of standards?

Forms of Assessment

In order to effectively measure mathematical learning, teachers must make sure we include various forms of assessment. A complete assessment program should include multiple measures:

Diagnostic: The purpose of a diagnostic assessment is to determine whether the student has the skills and knowledge necessary to begin the chapter, or if the student needs intervention prior to beginning the chapter.

Formative: Daily formative assessment should include scaffolding questions as well as talking, thinking, and writing about mathematics.

Summative: Summative assessment helps the teacher determine whether the students have learned the material that they were taught throughout the chapter.

Entry-Level Assessment (Diagnostic)

McGraw-Hill My Math examples include:

- Am I Ready pre-chapter
- Modeling the Math (Teacher Edition)
- Online Readiness Quizzes
- Common Core Quick Check

Progress Monitoring (Formative)

McGraw-Hill My Math examples include:

- Talk Math
- Write Math
- Building on the Essential Question
- Check My Progress

Evaluation (Summative)

McGraw-Hill My Math examples include:

- My Review
- Reflect Page
- Chapter assessments (both print and online)

Assessment Ideas to Guide Instruction

Assessment allows the teacher to consider the strengths and challenges of students; the effectiveness of the mathematics curriculum; and the next steps that should be taken in the instructional process. Some ways to use assessment to guide instruction are:

- ✔ Pose a "Talk Math" question during a lesson. Encourage students to work in small groups, discussing possible solutions to the question.
- ✔ Probe for prior knowledge before the introduction of a new concept.
- ✔ Observe students while they are working either in groups or individually which will give you information regarding their understanding of mathematics.
- ✔ Conduct student interviews which will offer an opportunity to use questioning strategies to explore an individual student's understanding of a concept.

References

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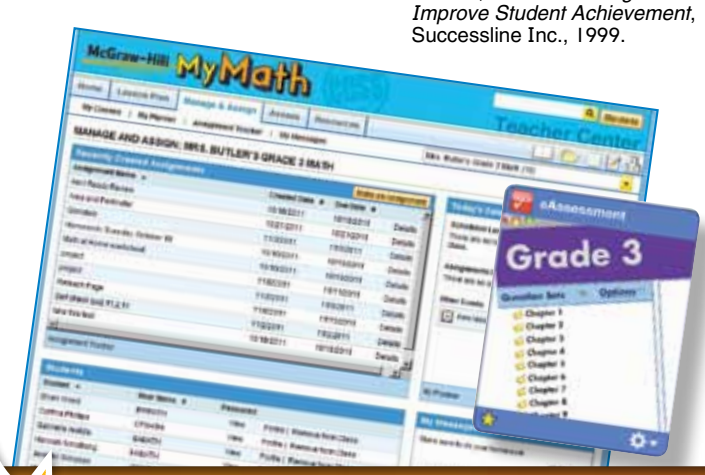
Wahlstrom, Deborah. *Using DATA to Improve Student Achievement*, Successline Inc., 1999.



Online eAssessment —allows you to create, administer, score, and report student assessments from one easy-to-use platform

For resources to help you assess students, visit *mhmymath.com*

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