



The Power of Standards, Scales, and Assessments

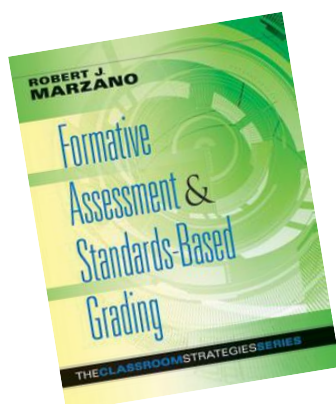
Montrose Schools
January 18, 2016



Dr. Mike Ruyle
ruyle34@gmail.com



@Mike Ruyle



Lotus Chart

	Valid/ Reliable			Proficiency Scales			Aligned Assessments	
	Guaranteed/ Viable			Learning Goals			Student Engagement	
	Levels of Achievement			Declarative/ Procedural Knowledge			Students Monitor Growth	

One to Grow On / Finding Your Grading Compass

Carol Ann Tomlinson

I wanted to be students' mentor; it was a difficult role reversal when I abruptly became their judge.

I recall standing in the doorway to greet my students one morning during my third year of teaching after I had just completed report cards. As I made small talk with the kids entering our room, I had a profoundly troubling insight. I heard these words in my head: "You could fill out their report cards right now for the rest of the year with 90 percent accuracy." This realization that my grading practices were contributing to a self-fulfilling prophecy marked a transition in my uneasy relationship with grades.

Up to that point, I'd seen student assignments as a mechanism for generating grades, which I recorded faithfully in my grade book so that when parents came to school for conferences I could justify report card grades ("See—here are the 19 grades I averaged to arrive at Jason's C.") The more grades, the more secure I felt.

I'd like to think that even in those days I didn't see grades as rewards or punishments, but maybe I did. Maybe I said to myself, "If I don't grade homework, they won't do it."

I was worried about students who went home class after class, quarter after quarter with low grades. In a naïve way, I understood that such discouragement does little to motivate students to embrace the next task with trust or enthusiasm. I also worried about the kids who were supremely motivated to get As but had little interest in learning. I wanted to be my students' mentor; it was a difficult role reversal when I abruptly became their judge.

What I've Come to Know

That epiphany caused me to be more reflective about grading. I can't recall in which order I drew the following conclusions. Some of them were a long time coming. In the end, they led my grading practices to reflect what I believed about teaching and learning—rather than to dictate how I taught.

- Grading itself contributes little to learning. Grading is a small part of a much bigger, more important cycle of instruction, assessment, and adjustment—which *does* lead to learning.
- My job is to teach for success. To do that, I have to abandon "gotcha" testing and grading.
- The better I teach, the better students' grades will be.
- I need to have a clear set of indicators of success on each assignment and for each unit of study. My students also need to be clear about those indicators—and contribute to creating them.
- If I have students who consistently make low grades, there's something lacking in my teaching or in my relationship with those students.
- If I have students who consistently make very high grades with no struggle or need for support, I'm underestimating their capacity—and wasting their time. An A that doesn't represent personal struggle and growth is a lie.
- I need to grade fewer pieces of student work. Most student work should be practice—a time for making errors and figuring out what didn't work. Grading too often and too soon discourages that nonnegotiable element of learning.
- Consistent, specific feedback on a student's competency in essential goals is a more potent teaching tool than a letter or number grade will ever be.
- I need to provide my students with models of quality a bit beyond their current reach and then scaffold their progress in reaching that level. Students need to see what quality looks like.

- No matter how hard I try to replace my judgment in grading with foolproof criteria for success, grading will always have some element of subjectivity in it. Being a professional means exercising professional judgment.
 - I should use rubrics and similar tools that define success as a guide rather than as a commitment. I cannot and should not promise students that if they cite four references rather than three or use varied transitions between paragraphs, an A is guaranteed.
 - I need to involve my students often in analyzing their own work and that of their peers according to specified criteria for success. Then I need to teach them how to plan to improve their performance.
 - I need to regularly—relentlessly—show students the connection between the quality of their habits of mind and their work, their progress toward performance goals, and their achievement of those goals—and beyond. In other words, I need to help them exercise their capacity to determine their own success.
- Embracing these conclusions has made me a better teacher and made my students more thoughtful, engaged, and self-confident learners. These principles are a compass to guide and stretch me as a teacher. Think about them. Question them. In the end, what matters is not that teachers have identical approaches to grading, but that we all have approaches that stem from and reinforce what we know about teaching and learning.



Three Critical Interventions (COMMITMENTS)

- **A system of individual clear learning goals connected to student feedback and evaluation at the classroom, school, and district levels.**
- Ensuring effective teaching in every classroom.
- Building background knowledge for all students.

Assessment Process

- First, prioritize essential learning goals from existing work or Common Core State Standards.
- Then, develop a proficiency scale for each essential learning goal.
- Next, create common assessments aligned to one or more proficiency scales.
- Finally, design and adopt a standards-based reporting system.
- Throughout the process, make sure there is horizontal and vertical alignment.

Learning Goals

A statement of what students will know and be able to do. Dr. Marzano suggests two formats, one for declarative knowledge or information (represented as: "Students will understand..." and one for procedural knowledge or strategies, skills, and processes (represented as: "Students will be able to...").

Declarative Knowledge

Informational knowledge; Declarative knowledge is developed through review, revision, error analysis, and identification of similarities and differences.

Procedural Knowledge

Knowledge that is oriented towards skills, strategies, or processes; over time, this knowledge is shaped by the learner. When fully developed, it can be performed at the level of automaticity or controlled processing. This is developed through practice over time.

What the Research Says about Learning Goals...

Learning targets convey to students the **destination for the lesson** – what to learn, how deeply to learn it, and exactly how to demonstrate their new learning. In our estimation (Moss & Brookhart, 2009) and that of others (Seidle, Rimmele, & Prenzel, 2005; Stiggins, Arter, Chappuis, & Chappuis 2009), the intention for the lesson is one of the most important things students should learn. **Without a precise description of where they are headed, too many students are “flying blind.”**

Moss, Brookhart, Long (2011). Knowing Your Learning Target. Educational Leadership. 68 (6). Pp. 66-69

The starting place for all effective instruction is designing and communicating clear learning goals.

Marzano (2009)

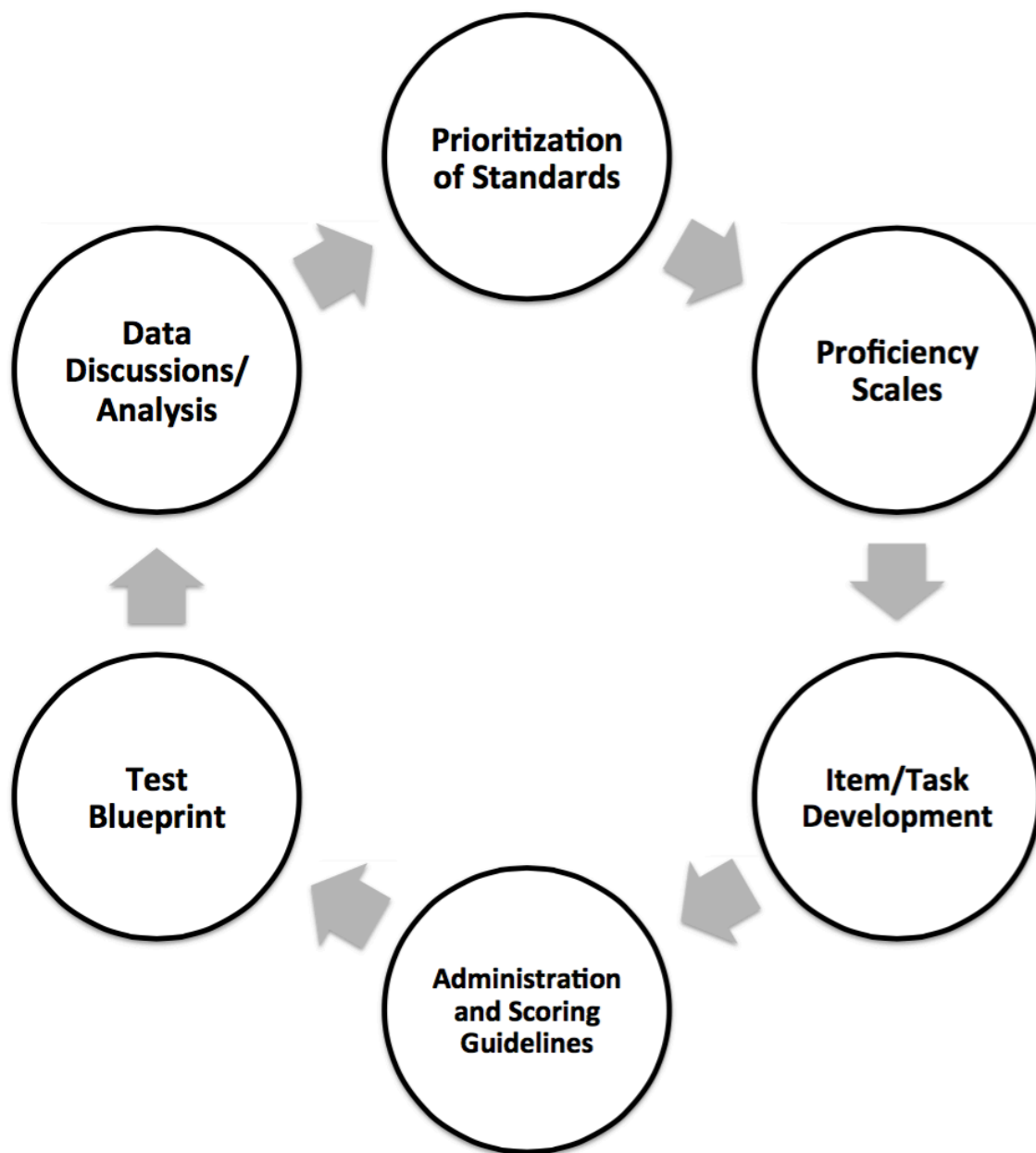
Our collective goal is that the largest possible percentage of our students get there. To reach that goal we must define for ourselves and for them where “there” is. **Any energy you invest in becoming clear about your targets will pay dividends...**

Stiggins (1994)

If teachers aren't sure of instructional goals, their instructional activities will not be focused, and unfocused instructional activities do not engender student learning.

Marzano (2009)

Common Assessment Development Cycle



Exercise 2.1

Obtrusive, Unobtrusive, and Student-Generated Assessments

After reading each of the following classroom assessment scenarios, determine whether it is best classified as an example of obtrusive, unobtrusive, or student-generated assessment.

1. Mona is very close to receiving an A on the content that has been covered in her art class this quarter. She approaches the teacher and proposes that she provide a sketch to show she has mastered the techniques presented during the quarter.
2. After teaching the concept of a thesis statement, discussing examples of successful thesis statements, and providing the students with opportunities for practice, Mr. Grace gives his students a topic and asks them to write a corresponding thesis statement. He scores the effectiveness of the thesis statements using a rubric and records the scores for each student.
3. After teaching a unit on editing and revising, Ms. Minturn asks her students to pull out a hard copy of an essay they composed earlier in the year. She breaks the class into pairs and asks them to read and suggest edits and revisions on their partners' essays. She collects the revisions and grades each student according to a rubric on the effectiveness of his or her editing.
4. Mr. Davis is teaching a unit on shading. He takes his class to an outside garden, and while the students are creating compositions focusing on the shadows and colors they see, he walks around and observes their progress. Without interrupting, he records an assessment score for each student in his gradebook.
5. Ms. Lewis has been working with her students on a cooperative learning goal. While she is monitoring recess, she notices four of them working together to complete a double-dutch jump rope game. Because all four students have to cooperate to reach their goal, Ms. Lewis decides these students have fulfilled the requirement for score 3.0 on the rubric she has designed for cooperative skills.

Three Types of Assessment		
Assessment Type	Definition	Examples
<i>Formative Assessment and Standards-Based Grading</i> Marzano, 2010		



Assessment Review Checklist

Content Area _____

Grade Level/Course and Standard(s) _____

Assessment Review Checklist				
Review Criteria	Yes	No	Item #s Needing Revision	Comments
The assessment measures the knowledge and skills described in the standard.				
The assessment is free from bias.				
The assessment is written at the developmentally appropriate level and correct readability level.				
Assessment items follow guidelines and are clearly written.				
The Answer Key is accurate and matches the assessment.				
EVERY item has an answer. "Answers may vary" is typically not acceptable.				
A rubric or checklist is provided, if needed.				
Directions are present, and are clear and concise.				
The "Materials Needed" list is accurate and complete.				

Important Idea #1...

Proficiency scales
provide clear focus for
instruction to essential
learning goals.



888.849.0851 marzanoresearch.com

MARZANO Research

Important Idea #2...

Proficiency scales serve
as the framework for a
high-quality classroom
assessment.



888.849.0851 marzanoresearch.com

MARZANO Research

Important Idea #3...

Proficiency scales ensure
alignment of curriculum,
instruction, assessment,
and feedback.



888.849.0851 marzanoresearch.com

MARZANO Research

Notes:

Steps in Common Assessment Development

1. Identify the learning goal(s) to be assessed.
2. Determine the number and type of items for each target.
3. Write the assessment items.
4. Administer the assessment and discuss the results.
5. Revise the assessment based on the data.

Scale Worksheet

<p>Score 4.0 – more complex Demonstrations of learning that go above and beyond what was explicitly taught</p> <p>The student will:</p> <ul style="list-style-type: none"> • Solve real-world problems involving elapsed time • Write correct digital time from an analog clock and the reverse
<p>Score 3.0 – the learning goal or expectation</p> <p>The student will:</p> <ul style="list-style-type: none"> • Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
<p>Score 2.0 – the simpler stuff Foundational knowledge, simpler procedures, isolated details, vocabulary</p> <p>The student will:</p> <ul style="list-style-type: none"> • Define analog, digital, a.m., p.m. • Identify the hands on an analog clock • Count by 5s to 60 • Tell time to the hour, half-hour, and quarter-hour • Write time using the correct format
<p>Score 1.0 With help, the student can perform Score 2.0 and 3.0 expectations</p>
<p>Score 0.0 Even with help, the student cannot perform expectations</p>

Strand:		
Topic:		
Grade:		
Score	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.	Sample Activities
4.0	3.5 In addition to score 3.0 performance, in-depth inferences and applications with partial success.	
Score 3.0	<p>The student:</p> <ul style="list-style-type: none"> • <p>The student exhibits no major errors or omissions.</p>	•
	2.5 No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content.	
Score 2.0	<p>There are no major errors or omissions regarding the simpler details and processes as the student:</p> <ul style="list-style-type: none"> • recognizes or recalls specific terminology, such as: ○ • performs basic processes, such as: ○ <p>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</p>	•
	1.5 Partial knowledge of the 2.0 content, but major errors or omissions regarding the 3.0 content.	
Score 1.0	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.	
	0.5 With help, a partial understanding of the 2.0 content, but not the 3.0 content.	
Score 0.0	Even with help, no understanding or skill demonstrated.	

Kindergarten Mathematics Scale

Grade/Content: Kindergarten / Mathematics

Learning Goal:

Students will solve addition problems and complete addition sentences.

SCORE 4.0	<p>Students will create/solve their own addition story problems:</p> <ul style="list-style-type: none"> ▪ with sums to 10 ▪ using pictures and/or acting out <p>No major errors regarding the score 4.0 content</p>
SCORE 3.0	<p>Students will solve addition problems and complete addition sentences:</p> <ul style="list-style-type: none"> ▪ with sums to 10 ▪ using pictures <p>No major errors regarding the score 3.0 content</p>
SCORE 2.0	<p>Students will:</p> <ul style="list-style-type: none"> ▪ understand addition as putting together and adding to ▪ represent addition with objects, fingers, mental images, drawings, sounds (e.g., clapping), acting out and using manipulatives ▪ understand that addition is joining together ▪ use pictures to solve joining problems ▪ use symbols (+, =) to join groups of objects (manipulatives or pictures) <p>No major errors regarding the score 2.0 content</p>
SCORE 1.0	With help, partial success at score 2.0 content and score 3.0 content
SCORE 0.0	Even with help, no success

Elementary School Learning Goal Scale

Example

Grade/Content: 4th- Reading

Learning Goal: The student will identify and explain the elements of plot structure, including exposition, setting, character development, problem/resolution, and theme in a variety of fiction.

SCORE 4.0	<p>The student will analyze the impact of the _____ (elements of the story) on the outcome of the story.</p> <p>Elements of the story: plot structure, including exposition, setting, character development, problem/resolution, theme</p> <p>No major errors regarding the score 4.0 content</p>
SCORE 3.0	<p>The student will identify and explain:</p> <ul style="list-style-type: none"> • plot, including exposition • setting • character • problem/resolution • theme <p>in a specific story.</p> <p>No major errors regarding the score 3.0 content</p>
SCORE 2.0	<p>The student will define and understand the purpose for:</p> <ul style="list-style-type: none"> • plot, including exposition • setting • character • problem/resolution • theme <p>No major errors regarding the score 2.0 content</p>
SCORE 1.0	<p>With help, partial success at score 2.0 content and score 3.0 content</p>
SCORE 0.0	<p>Even with help, no success</p>

Middle School Learning Goal Scale

Example

Grade/Content: 7th Grade – Civics and Government

Learning Goal:

Students will evaluate the roles, rights and responsibilities of United States citizens, and determine methods of active participation in society, government, and the political system.

SCORE 4.0	<p>Students will:</p> <ul style="list-style-type: none"> ▪ Generate an action plan for increasing active participation in society, government or the political system. <p>No major errors regarding the score 4.0 content</p>
SCORE 3.0	<p>Students will:</p> <ul style="list-style-type: none"> ▪ Analyze the impact of dutiful citizenship on society and correlate the findings to non-participatory citizenship. ▪ Evaluate the adverse affects of persons not exhibiting dutiful citizenship on society. <p>No major errors regarding the score 3.0 content</p>
SCORE 2.0	<p>Students will:</p> <ul style="list-style-type: none"> ▪ Define and understand the following: roles, rights, responsibilities, citizenship, society, government, political systems, laws, taxes, jury, voting, volunteering, perspectives, influence, and election ▪ Understand the purpose of the Bill of Rights and Constitution ▪ Understand that citizens have certain rights and obligations ▪ Identify the current political parties in America ▪ Understand that people have varying perspectives on governmental issues <p>No major errors regarding the score 2.0 content</p>
SCORE 1.0	With help, partial success at score 2.0 content and score 3.0 content
SCORE 0.0	Even with help, no success

High School Learning Goal Scale

Example

Grade/Content: 9-12 - Biology

Learning Goal: The student will be able to **describe** the scientific theory of cells, as well as **relate** the history of its discovery to the process of science

SCORE 4.0	<p>The student will be able to evaluate and rank the importance of contributions to cell theory of several preeminent scientists (i.e., Van Leeuwenhoek, Hooke, Schwann, Schleiden, Virchow).</p> <p>No major errors regarding the score 4.0 content</p>
SCORE 3.0	<p>The student will be able to analyze the relationship between the evolution of cell theory and its contributions to the process of science</p> <p>No major errors regarding the score 3.0 content</p>
SCORE 2.0	<p>The student will be able define the following terms/phrases:</p> <ul style="list-style-type: none"> • <i>Theory, law, cell, science, scientific claim, scientific argumentation, critical/logical thinking (in science), data, alternative scientific explanations, investigation, evidence, phenomena</i> <p>The students will be able to recall the contributions to cell theory of the following scientists:</p> <ul style="list-style-type: none"> • <i>Van Leeuwenhoek, Hooke, Schwann, Schleiden, Virchow</i> <p>The student will be able to explain cell theory, including how continuous investigations have influenced its development over time.</p> <p>The student understands the ways in which a scientific claim is evaluated.</p> <p>Students can identify the necessary criteria for being scientific.</p> <p>The students will be able to explain the development of a theory.</p> <p>The students understand the differences between theories and laws.</p> <p>No major errors regarding the score 2.0 content</p>
SCORE 1.0	With help, partial success at score 2.0 content and score 3.0 content
SCORE 0.0	Even with help, no success

Marzano's Taxonomy – Useful Verbs	
Recognize • recognize (from a list) • select (from a list) • identify (from a list) • determine (true / false)	Retrieval
Recall • name • list • describe • state • identify who, where, or when • describe what	
Executing • use • demonstrate • show • make • draft • complete	
Integrating • summarize • paraphrase • describe the key parts of • describe the relationship between • Explain the ways in which • describe how or why • describe the effects	Comprehension
Symbolizing • use models • symbolize • depict • represent • draw • illustrate • show • diagram • chart	
Matching • compare and contrast • categorize • sort • differentiate • discriminate • distinguish • create an analogy or metaphor	Analysis
Classifying • classify • organize • sort • identify different types or categories • Identify a broader category	
Analyzing Errors • edit • revise • identify errors or problems • evaluate • identify issues or misunderstandings • assess • critique • diagnose	
Generalizing • form conclusions • Create a principle, generalization, or rule • trace the development of • generalize • what conclusions can drawn • what inferences can be made	
Specifying • make & defend • predict • what would have to happen • develop an argument for • judge • under what conditions • deduce	
Decision-Making • select the best among the following alternatives • which of the following would best • what is the best way • decide • which of these is most suitable	Knowledge Utilization
Problem-Solving • solve • adapt • develop a strategy • figure out a way • how would you overcome • how will you reach your goal under these conditions	
Experimenting • experiment • generate & test • test the idea that • what would happen if • how would you test that • how can this be explained • how would you determine if • based on the experiment, what can be predicted	
Investigating • investigate • research • find out about • take a position on • how & why did this happen • what would happen if • what are differing features of	

- **Level 2 items:** Simpler details and processes that have been explicitly taught
- **Level 3 items:** Complex ideas and processes that have been explicitly taught
- **Level 4 items:** Inferences and applications that go beyond what was taught

M.5.1: Students will solve addition and subtraction problems using whole numbers that apply to real-world situations

L 2

1. A sum is _____
2. A difference is _____

L 2

L 2 Write the standard form for each.

4. $7,000,000 + 40,000 + 3,000 + 20 + 7$

L3

L 3	6.	5,342,752	5,384,982,762	5,825,701	5,827,902,872
-----	----	-----------	---------------	-----------	---------------

7. Round 342,287,976 to the nearest million. _____

L3

L 4

[illegible]



Proficiency Scale Review Checklist

Content Area _____

Grade Level and Standard(s) _____

Criteria	Yes	No	Comments
Specificity The language of each level on the scale is clear and specific.			
Progression Verbs are present and these verbs and corresponding context represent a progression of complexity.			
Comprehensiveness The proficiency scale is doable. It has enough depth, yet not so much to warrant an additional scale. Each level on the scale includes one to three related learner expectations.			
Measurability Each expectation is observable and quantifiable.			
Format Each expectation is written with the verb first to provide focus on what the student should know or be able to do.			
Vocabulary Key vocabulary has been identified at the score 2.0 level.			
Alignment Aligned vertically with previous and/or subsequent grade levels/courses.			

Proficiency Scales and Assessment Alignment

	Atmospheric Processes and Water Cycle
4	Infer relationships regarding atmospheric processes and the water cycle.
3	An explanation of: <ul style="list-style-type: none"> • How the water cycle processes impact climate changes • The effects of temperature and pressure in different layers of Earth's atmosphere
2	<ul style="list-style-type: none"> • Recognize and recall basic terms such as: climatic patterns, atmospheric layers, stratosphere, troposphere. • Recognize or recall isolated details such as: <ul style="list-style-type: none"> • Precipitation is one of the processes of the water cycle. • The troposphere is one of the lowest portions of the Earth's atmosphere.

Three types of assessment items to measure the knowledge and skills defined

- **Level 2 items:** Simpler details and processes that have been explicitly taught
- **Level 3 items:** Complex ideas and processes that have been explicitly taught
- **Level 4 items:** Inferences and applications that go beyond what was taught

Level 3.0 Items

Measuring Atmospheric Processes and Water Cycle

- **Explain** how evaporation affects the climatic pattern in areas around large bodies of water, such as the shoreline communities of Lake Michigan.
- A weather balloon travels up into the stratosphere. **Explain** what would happen to it as it progressed through the various layers of the atmosphere.

Level 2.0 Items

Measuring Atmospheric Processes and Water Cycle

- Define the following terms.
 - Climatic pattern
 - Atmospheric layers
 - Stratosphere
- Identify the true statements with the letter T.
 - _____ The atmosphere is between the troposphere and the stratosphere.
 - _____ The Earth's atmosphere helps protect life on Earth by absorbing ultraviolet radiation.
 - _____ The temperature of the Earth's atmosphere varies with altitude.

Level 4.0 Items

Measuring Atmospheric Processes and Water Cycle

Complete the following analogy.

Condensation is to evaporation as _____ is to _____.

Why is this analogy accurate?

Types of Bias

- Offensive content
- Stereotyping
- Unfair representation
- Use of situations that may be unfamiliar to subgroups
- Poorly written items
- Literacy bias (using too sophisticated of language for the nature of the content)—David Meisner.



Quality Criteria for Classroom Assessments

1. Assessments are *valid*.

The assessment measures what is intended to be measured. It produces accurate and truthful results.

2. Scoring is consistent or *reliable*.

The assessment produces believable results that mirror the learning that has occurred. Consistent results are gleaned across multiple users of the tool.

3. Assessments and surrounding processes are *fair*.

- The level of the assessment is appropriate.*
- Students have received adequate opportunity to learn.*
- The assessment is free from bias and the format does not interfere with students engaging in the assessment.*

Process for Backmapping an Existing Assessment

1. Teachers identify the proficiency scale or scales that need to be measured by the existing assessment.
2. Teachers examine each assessment item to determine the level of the proficiency scale that it corresponds with and label it appropriately.
3. Teachers identify assessment items that do not correspond to any levels of the proficiency scale and remove them.
4. Teachers add items for levels of the proficiency scale not represented by items already on the assessment.

Writing Quality Assessment Items

Selected Response Items

- True/False
- Matching
- Multiple Choice

True/False

- Related to a single idea
- Absolutely true OR absolutely false
- Avoid using qualifiers, opinions, and negatives
- Use sparingly, as students have a 50-50 chance of guessing the correct answer

Matching

- Homogeneous in content
- Keep the matching set short
- Uneven number of items to be matched OR items may be used more than once
- Longer reading on the left, matching items on the right

Multiple-choice

- Problem clear in the item stem
- Stem stated in the positive when possible
- Emphasize qualifiers in the stem
- All answer choices plausible
- Answer choices parallel in grammar and length
- Avoid "all" or "none of the above"
- Answer choices in a logical order
- Avoid clues in answer choices
- One correct response possible

Constructed Response Items

- Fill-in-the-blank
- Short Answer
- Essay

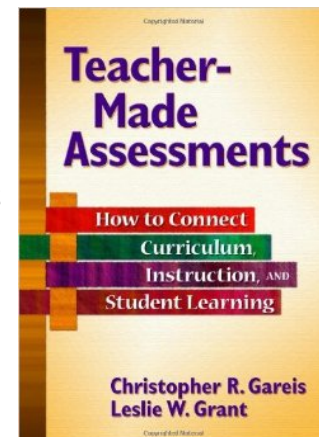
Fill-in-the blank

- Position the blank at the end of the sentence, if possible
- Limit the number of blanks in an item
- Blanks should be same length
- Be sure information prior to/surrounding the blank is adequate
- May use a word bank

Short Answer and Essay Items

- Make the nature of the response desired clear to the reader
- Develop and communicate scoring criteria for the question
- Provide adequate space for responses.

RESOURCE:



When Students Track Their Progress

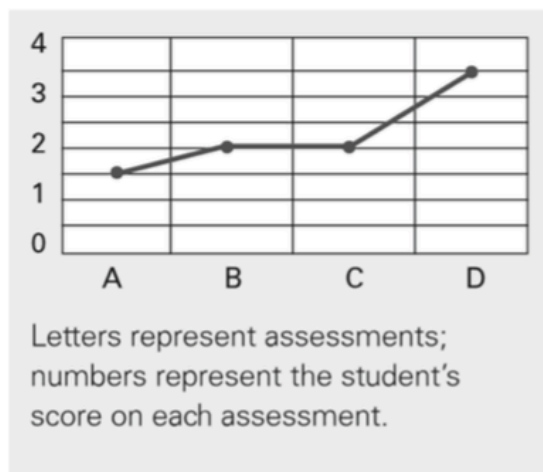
Robert J. Marzano

The strategy of tracking student progress on specific learning goals is well supported. For example, Fuchs and Fuchs¹ found that providing teachers with graphic displays of students' scores on formative assessments was associated with a 26 percentile point gain in achievement. Unfortunately, this strategy has not received the attention it deserves.

When students track their own progress on assessments using graphic displays, the gains are even higher. Over my many years of working with teachers, I have had the opportunity to examine the effects of such an approach. In 14 different studies, teachers had students in one class track their progress on assessments; in a second class, these teachers taught the same content for the same length of time without having students track their progress (see www.marzanoresearch.com/research/strategy20_trackingprogress.aspx). On average, the practice of having students track their own progress was associated with a 32 percentile point gain in their achievement.

In the studies, students recorded their scores on a chart after taking each assessment. Figure 1 shows how a student tracked her progress on the topic of habitats using her scores on four different assessments. Using a rubric with a rating scale of 0 to 4 to score the assessments, this student began with a score of 1.5 on the first assessment and ended with a score of 3.5 on the fourth assessment.

Figure 1. Student Progress Chart



This approach provides two kinds of information for students and teachers. First, the rubric provides a description of the levels of performance that the teacher expects of the students. Second, the graph provides a representation of each student's progression of learning. The combination of these two types of information produces the powerful effect.

What Produces the Best Results?

Given the expected 32 percentile point gain, one might assume that this strategy is a sure thing in terms of enhancing student achievement. As is often the case, however, the details of the studies clarify the circumstances under which the strategy produces strong, as opposed to mediocre, results.

- **Address a single goal in all the assessments.** To track student progress in the manner depicted in Figure 1, all assessments must address the same learning goal. For example, assume that a teacher has two learning goals that relate to the topic of habitats. One learning goal might be, "The student will understand that habitats provide plants and animals with the things they need to survive." A second learning goal for this same topic might be, "The student will understand how a local habitat of his or her choice supports specific local animals." The assessments should clearly differentiate between these two goals. One assessment can address both goals, but only if the teacher assigns two scores to the assessment—one for each learning goal.
- **Use rubrics instead of points.** Across the 14 studies, teachers obtained the best results when they scored assessments using a rubric instead of points. Teachers typically assign a certain number of points to each answer on a test and then convert the total points to a percentage score. When teachers use this approach, they tend to change the type and difficulty of items from test to test, even when those tests measure the same topic. The first test might include all easy items, but the second test might include all difficult items. Consequently, a student might receive fewer points on the second test even though he now knows more than he did when he took the first test. A graph of his test scores would make it look as though he had decreased in knowledge when he had actually gained in knowledge. In fact, in the two studies that did *not* show positive effects for students tracking their own progress, the teachers used points instead of rubric scores. A rubric I have found useful involves five values, 0 through 4, with the score of 3 meaning the learner has mastered the content that is the target of instruction—the specific learning goal that the teacher wishes to assess and track. The teacher would state the learning goal in a form that describes what he or she expects students to do to demonstrate their understanding: "Students will explain and illustrate how habitats provide plants and animals with the things they need to survive." A score of 4 indicates that students have mastered score 3 content and can also use that content to make inferences. For example, to earn a score of 4 on the habitat learning goal, students might be required to explain what would happen if the number of animals that the habitat typically supported increased dramatically over a short period of time. A score of 2 indicates that students know simple details and processes that relate to the learning goal (score 3 content) but not the more complex information and processes that the learning goal involves. In this case, a score of 2 might indicate that students recognize some basic facts and terminology associated with habitats even though they cannot explain and illustrate how habitats provide plants and animals with the things they need to survive. A score of 1 indicates that students cannot produce any of the content on their own but can do so with some help from the teacher. Finally, a score of 0 indicates that

even with help, students cannot produce any of the content.

- **Use different types of assessments.** The paper-and-pencil test is only one of many options that teachers can use with rubrics. Other types of assessments include demonstrations, probing discussions, unobtrusive observations, and student-generated assessments. A well-constructed rubric allows for a relatively accurate measure of a student's level of understanding through both a demonstration, in which students demonstrate their skill at a procedure or their understanding of information, and a probing discussion, in which the teacher asks individual students to explain their understanding. Unobtrusive observations involve a teacher observing a student demonstrating a procedure without the student being aware of the observation. For example, a physical education teacher might observe a student demonstrating the overhand throw on the playground. If the teacher has designed an appropriate rubric for this process, he or she can assign a score to the student without interrupting the student's play. Finally, student-generated assessments are those that students have designed to demonstrate that they have met the requirements of a specific score on a rubric. For example, to show that she has attained score 3 status, a mathematics student might decide to explain how to solve a specific type of problem and demonstrate her explanation using selected problems from the end of a chapter in the textbook.

Benefits for All

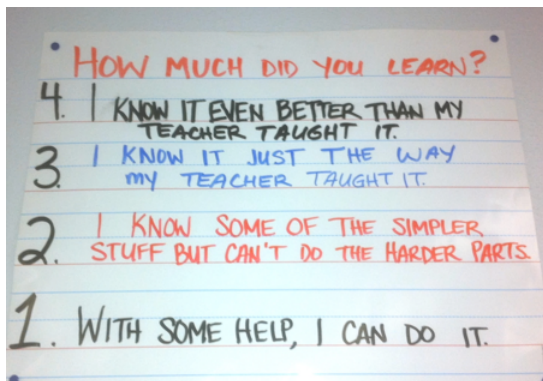
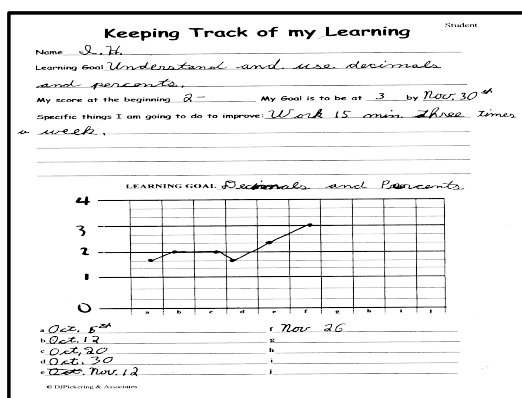
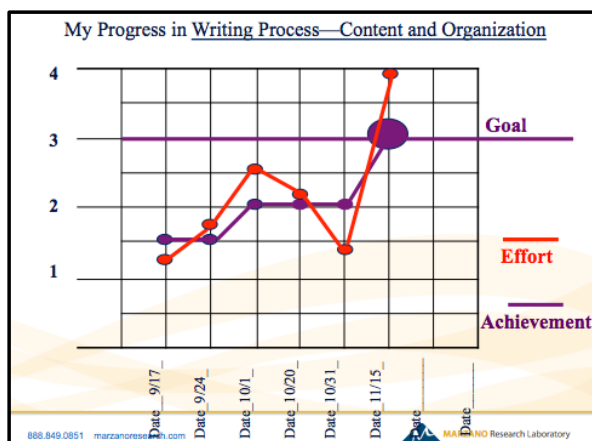
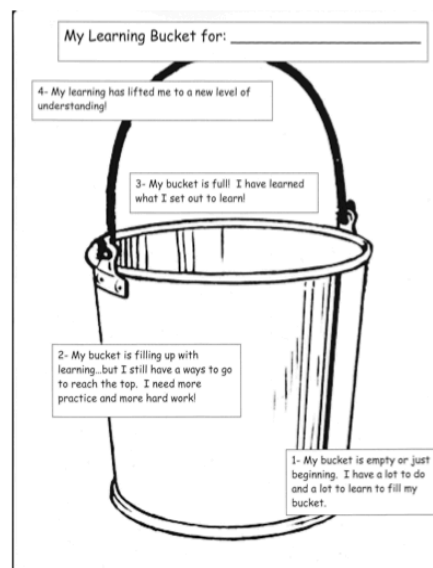
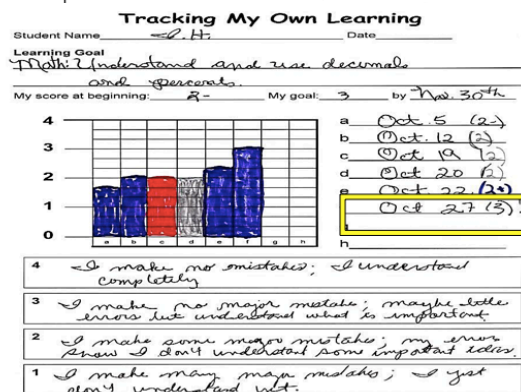
When it comes to using classroom assessment to enhance student achievement, having students track their progress using rubrics is a hidden gem. This strategy involves multiple types of assessments, increases interactions between teachers and students, and provides students with clear guidance on how to enhance their learning.

Endnote

¹ Fuchs, L. S., & Fuchs, D. (1986). Effects of systematic formative evaluation: A metaanalysis. *Exceptional Children*, 53(3), 199–208.

Robert J. Marzano is Cofounder and CEO of Marzano Research Laboratory in Denver, Colorado. He is the author of *The Art and Science of Teaching* (ASCD, 2007) and coauthor, with Mark W. Haystead, of *Making Standards Useful in the Classroom* (ASCD, 2008). To contact Marzano or participate in a study regarding a specific instructional strategy, visit www.marzanoresearch.com.

Tracking Student Progress



Examining Effort and Preparation

4	To be sure I accomplish my goal, I'm trying harder and preparing more than I think is necessary.
3	I'm trying hard enough and preparing well enough to accomplish my goal.
2	I'm trying hard but not preparing as well as I could.
1	I'm not trying very hard or preparing very well.
0	I'm not really trying or preparing at all.

Notes



Mike Ruyle, Ed.D, has served as a teacher, athletic coach, assistant principal, and program director in the San Francisco Bay Area and Bozeman, Montana for twenty-eight years. Additionally, he has been an adjunct professor and presenter at Montana State University. Amongst his accomplishments is the creation and implementation of the first fully functional, performance-based model of education in Montana at Bozeman High School's alternative program. Mike's visionary ideas also allowed him to create and lead a district task force on the Best Practices in Alternative Education. His leadership in performance-based education has made him a sought after presenter for the Office of Public Instruction, The Mass Customized Learning Summit, and numerous schools and districts throughout the country. He earned Bachelor of Arts degrees in history and English from the University of San Francisco, as well as masters and doctoral degrees in educational leadership from Montana State University.

