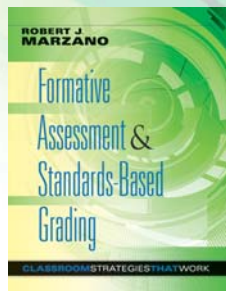
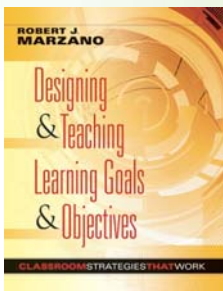


Formative Assessment & Standards-Based Grading

Hosted by Dr. Tammy Heflebower



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Formative assessment is a process.


It is not a specific type of "test."



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Some Useful Distinctions


Forms of assessment
vs.
Uses of assessments



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A Balanced Assessment System


Large Scale (Assessment of)	Mid-Scale (Assessment for)	Small-Scale (Assessment for)
<ul style="list-style-type: none"> • Summative • Norm referenced (ticket) • Aptitude • Achievement <p>Essential Question: What have students already learned?</p>	<ul style="list-style-type: none"> • Formative • Criterion referenced • Often teacher or district made • Achievement <p>Essential Question: How can we help students learn more?</p>	<ul style="list-style-type: none"> • Questioning • Day by day, minute by minute (William) • Achievement <p>Essential Question: How can we help students learn more?</p>



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Consider an assessment plan

Assessment name	Grade level (s)	Purpose	When given	Results provided	Results used to...
DRA II	K-3	Determine reading proficiency	3x year	To students, parents, school	Assist with student placement
ACT	11 or 12	College predictor	Spring	To student	College placement




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Forms of Assessment

Obtrusive

Unobtrusive


Student-Generated



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Assessments can come in many forms in a rigorous scale-based system.

- Paper and pencil (obtrusive)
- Projects (obtrusive)
- Probing discussion (obtrusive)
- Observations (unobtrusive)
- Examples shared by students in class discussions (unobtrusive)
- Re-working a problem with explanation (student generated)




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Uses of Assessments

Formative Scores

Summative Scores (Grades)

Instructional Feedback



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Formative Scores

- Can be derived from obtrusive, unobtrusive, and student-generated assessments
- Are scored and recorded in some fashion
- Can and should be used to track student progress over time



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Keeping Track of my Learning Student

Name: John

Learning Goal: Understand and use the relationship between variables.

My score at the beginning: 2 My goal to do this by: Nov 30th

Specific things I am going to do to improve: Work on math skills

at: MCB

1.0 2.0 3.0 4.0

1.0 2.0 3.0 4.0

1 2 3 4 5 6 7 8 9 10

1.0 2.0 3.0 4.0

1 2 3 4 5 6 7 8 9 10

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Having Students Chart Progress on Learning Goals


- 14 experimental/control studies conducted at Marzano Research Laboratory
- This practice is associated with a 32 percentile point gain in student achievement.



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All assessments have a measurement error


Observed score = true score + error



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250 studies with classroom assessments denoted...


- Classroom-based assessments have a reliability of .45.
 - Without careful assessment design and attention to quality criteria
- Compared to national and statewide assessments with reliability closer to .75
- The standard deviation was 12 points



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Why is this so difficult?

- Varied levels of difficulty...
 - On one test, items might be “easy” and students receive high scores.
 - On the next test, items may be more difficult and students receive lower scores.
 - Teachers often weigh assessment items differently from one another on identical content.



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Why is this so difficult?

- Simile: Using the 100-point scale is like measuring the physical growth of a student throughout the year with a measuring tape that changes how long an inch is from one measurement to the next.



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Instructional Feedback

- Can be derived from obtrusive or unobtrusive (but typically not student-generated) assessments
- Can be scored (but typically are not)
- Are not recorded
- Are used to provide students and teachers with information that should change their behavior



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You can't rely on the 100-point scale because it's used disproportionately.




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What helps?



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Creating a proficiency scale



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Scale

4	In addition to exhibiting level 3 performance, in-depth inferences and applications that go BEYOND what was taught in class
3	No major errors or omissions regarding any of the information and/or processes (SIMPLE OR COMPLEX) that were explicitly taught
2	No major errors or omissions regarding the SIMPLER details and processes BUT major errors or omissions regarding the more complex ideas and processes
1	With HELP, a partial knowledge of some of the simpler and complex details and processes
0	Even with help, no understanding or skill demonstrated



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Level 3.0 Items for Measuring Atmospheric Processes and Water Cycle

- Explain how evaporation affects the climatic pattern in areas around large bodies of water, like the shoreline communities of Lake Michigan.
- Assume that a weather balloon traveled up into the stratosphere. Explain what would happen as it progresses through the various layers of the atmosphere.



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Level 2.0 Items for Measuring Atmospheric Processes and Water Cycle

- Briefly define the following terms: climatic pattern, atmospheric layers, stratosphere
- Identify which of the following statements are true:
 - 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.



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Level 4.0 Item for Science Test on Atmospheric Processes and Water Cycle

Complete the following analogy and explain why it is accurate: Condensation is to evaporation as _____ is to _____.



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Response Patterns and Corresponding Scale Score

- Student answers L2 items correctly, but not L3 and L4 items.

(2.0)

- Student answers L2 and L3 items correctly, but not L4.

(3.0)

- Student misses all items, but with help can answer some correctly.

(1.0)

- Students misses all items even when helped.

(0.0)

Research Research Advancing
Powered by Evidence. Try.

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The complete scale allows for
half-point scores
(3.5, 2.5, 1.5, .5).



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Scale


4	In addition to exhibiting level 3 performance, in-depth inferences and applications that go beyond what was taught in class
	<i>3.5 In addition to exhibiting level 3 performance, partial success at in-depth inferences and applications that go beyond what was taught in class</i>
3	No major errors or omissions regarding any of the information and/or processes (SIMPLE OR COMPLEX) that were explicitly taught
	<i>2.5 No major errors or omissions regarding any of the simpler information and/or processes and partial knowledge of the more complex information and processes</i>
2	No major errors or omissions regarding the simpler details and processes BUT major errors or omissions regarding the more complex ideas and processes
	<i>1.5 Partial knowledge of the simpler details and processes, but major errors or omissions regarding the more complex ideas and processes</i>
1	With help, a partial knowledge of some of the simpler and complex details and processes
	<i>.5 With help, a partial knowledge of some of the simpler details and processes but not of the more complex ideas and processes</i>
0	Even with help, no understanding or skill demonstrated

Some interesting things we've learned along the way...




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Have students flesh out the meaning of the scale.




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4	
3	I know it just the way my teacher taught it.
2	
1	
0	




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4	
3	I know it just the way my teacher taught it.
2	I know some of the simpler stuff but can't do the harder parts.
1	
0	




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4	I know it even better than my teacher taught it.
3	I know it just the way my teacher taught it.
2	I know some of the simpler stuff but can't do the harder parts.
1	
0	



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4	I know it even better than my teacher taught it.
3	I know it just the way my teacher taught it.
2	I know some of the simpler stuff but can't do the harder parts.
1	With some help, I can do it.
0	



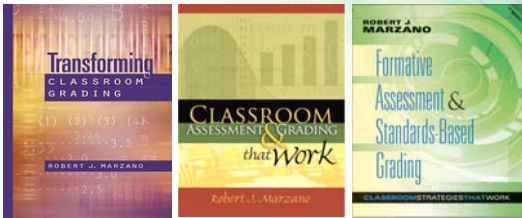
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4	I know it even better than my teacher taught it.
3	I know it just the way my teacher taught it.
2	I know some of the simpler stuff but can't do the harder parts.
1	With some help, I can do it.
0	Even with help, I can't do it.



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Connecting Assessment With Grading



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Grading and Feedback

- Successful feedback was task specific and descriptive.
- Unfortunately, the grade “trumps” the comments if used together.



Butler, D. L., & Nisan, M. (1986). Effects of no feedback, task-related comments, and grades on intrinsic motivation and performance. *Journal of Educational Psychology*, 78, 210-216.

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Please Consider

- Please think of a grading situation as a teacher, parent, or student that just didn't "feel" right.



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What We Know About Grading

- Feedback is essential to learning yet grading is not.
- Grading is complex.
- Grading is subjective.
- Grading sends messages to students about capabilities.



Adapted from O'Connor, (2009). *How to grade for Learning*, Thousand Oaks, CA

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Some questions to consider

- Are grades precise (valid)?
- Are grades consistent (reliable)?
- Do our grades engage students in the learning process?



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Are our grades precise?

- Grades based upon scales (identified knowledge and skills) rather than compared to other students



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Is it possible for all students to receive an A in your classes?

This is different than asking if they are all likely to get an A.



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The Scale

4	In addition to exhibiting level-3 performance, in-depth inferences and applications that go BEYOND what was taught in class
3	No major errors or omissions regarding any of the information and/or processes (SIMPLE OR COMPLEX) that were explicitly taught The Learning Goal: What you expect the student to know and be able to do
2	No major errors or omissions regarding the SIMPLER details and processes BUT major errors or omissions regarding the more complex ideas and processes The simpler or foundational knowledge that is necessary as a step to mastery of the score 3.0
1	With HELP, a partial knowledge of some of the simpler and complex details and processes
0	Even with help, no understanding or skill demonstrated

Are our grades precise?

- Grading information should assist in identifying and using instructional interventions

Proficiency Scale = Clearly stating what knowledge and skills students demonstrate for varying levels of understanding

Beginning	Developing	Proficient	Advanced
✗		✗	✗



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Are our grades precise?

- Grades separate behaviors from what students know and are able to do.



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Consider the same concept for behaviors

- Separate what students know and are able to do from how they behave
- Both are very important
- Accurately reflect them by reporting them separately



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Behavioral Skill of Organization

Strand: Skills for Success	
Topic: Organization	
Level: 2	
Score 4.0	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught, such as: <ul style="list-style-type: none"> • coming to each daily classroom event prepared to learn
Score 3.0	In addition to Score 2.0 performance, in-depth inferences and applications with partial success.
Score 3.0	While engaged in tasks regarding organization, the student: <ul style="list-style-type: none"> • explains classroom and academic time lines • explains each line item for each daily event The student exhibits no major errors or omissions.
Score 2.0	There are no major errors or omissions regarding the simpler details and processes as the student: <ul style="list-style-type: none"> • recognizes or recalls specific terminology such as: <ul style="list-style-type: none"> o timeline • performs basic processes such as: <ul style="list-style-type: none"> o recognizing or recalling the location of the daily time line in the classroom However, the student exhibits major errors or omissions regarding the more complex ideas and processes.
Score 1.0	Partial knowledge of the simpler details and processes but major errors or omissions regarding the more complex ideas and processes.
Score 0.5	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.
Score 0.5	With help, a partial understanding of some of the simpler details and processes but not the more complex ideas and processes.
Score 0.0	Even with help, no understanding or skill demonstrated.

Behavioral Skill of Community Involvement

Topic: Community Involvement		Alignment and Scope
33C: Contribute to the well-being of one's school and community		Bullets and Number
Level: 2		Borders and Shading
Sample Tasks		Document Margins
Document Theme		
Score 4.0	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.	
3.3	In addition to score 3.0 performance, in-depth inferences and applications with partial success.	
Score 3.0	The student: <ul style="list-style-type: none"> • participates in setting and following classroom expectations The student exhibits no major errors or omissions.	<ul style="list-style-type: none"> • Describes expectations that create a supportive learning environment. • Describe what one would do to demonstrate that classroom expectations are being followed.
Score 2.0	There are no major errors or omissions regarding the simpler details and processes as the student: <ul style="list-style-type: none"> • performs basic processes, such as: <ul style="list-style-type: none"> o recognizes or recalls the classroom expectations However, the student exhibits major errors or omissions regarding the more complex ideas and processes.	<ul style="list-style-type: none"> • When asked can tell what was expected in a specific class situation. • Can list the class expectations for given situations.
Score 1.0	Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content.	
Score 0.5	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.	
Score 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.	

Are our grades precise?

- Grades must be connected quality assessments

Helping to Ensure Quality Assessments: Six Quality Criteria

- Are matched to the standard
- Offer an opportunity to learn
- Are free from bias
- Are at appropriate levels
- Are reliable
- Provide appropriate mastery levels



— Nebraska Department of Education and Burros Center for Testing

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Are our grades reliable (consistent)?

- Consistent among colleagues
- Figured carefully and thoughtfully



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McREL Study

- Two teachers teach a course as a team.
- Class was 26 students
- Teachers assigned grades without consulting each other.
- They considered only achievement on tests, quizzes, and homework.
- No non-achievement skills



— Marzano, *Transforming Classroom Grading*, (2000)

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Results

- One student differed by three grades
- Two students differed by two grades
- Eight students differed by one grade
- Fifteen students had no difference: 57.7% agreement (15/26)



— Marzano, *Transforming Classroom Grading*, (2000)

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Do grades support learning and communication?

- Provide clear information to students and parents—no more, “So what’s a B mean?”



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Do grades re-engage students in the learning process?

- Provide clear information to students and parents...no more, "So what's a B mean?"



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Do our grades re-engage students in their learning?

- Re-teaching & retesting (student generated ideas)
- How are students involved in the process?



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Tracking My Own Learning

Student Name: S.H. Date: _____

Learning Goal: Math: Understand and use decimals

My score at beginning: 2 My goal: 3 by Nov 30th

Score	Date
2	Oct 5 (2)
2	Oct 12 (2)
2	Oct 19 (2)
2	Oct 20 (2)
2	Oct 22 (2)
3	Oct 27 (3)

- 4 I make no mistakes; I understand completely.
- 3 I make few major mistakes; maybe I still know but understand what is important.
- 2 I make some major mistakes; my errors show I don't understand some important ideas.
- 1 I make many major mistakes; I just don't understand yet.

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Student-Led Conferences



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Four Techniques


1. All assessments address the full range of the scale.
2. Current summative recorded throughout a unit or grading period—heavy use on student-generated assessments
3. Starting with level 2.0 assessments, address one level only until most mastered.
4. Pre-test that addresses the full range of the scale and then individualize from there



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Approach 1

Design all assessments so that they represent the full range of scores on the scale.



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Tracking My Own Learning

Student Name: JDH Date: _____

Learning Goal: Math: Understand decimals and percent - problem solving

a	Oct 10	2
b	Oct 17	3
c	Oct 21	2.5
d	Oct 30	3
e		
f		
g		
h		

Learning Goal: Math: Use calculations with decimals and percent

a	Oct 10	3
b	Oct 17	3.5
c	Oct 21	4
d	Oct 30	4.5
e		
f		
g		
h		

SUCCESS

Approach 2

Use a current summative score throughout a unit or grading period as opposed to constructing a summative score at the end.

Begin with a comprehensive pretest covering all values of the scale and then individualize after that.

In this system, you stop assessing at a specific scale value once you are **reasonably** sure that a student has attained that score value.

Student 1

1.0	

Student 1

1.0	
1.5	

Student 1

1.0	
1.5	
2.0	

Student 1

1.0	
1.5	
2.0	
2.5	

Student 1

1.0	
1.5	
2.0	
2.5	
3.0	

Student 1

1.0	
1.5	
2.0	
2.5	
3.0	

Student 1

1.0	3.5
1.5	3.5
2.0	
2.5	
3.0	

Student 2

2.5	

Student 2

2.5	
3.0	

Student 2

2.5	
3.0	
3.5	

Student 2

2.5	
3.0	
3.5	
4.0	

Student 3

3.5	

Student 3

3.5	
4.0	

Student 3

3.5	
4.0	
4.0	

For any given student, you use as many or as few assessments as are needed to make a valid and reliable judgment.

Student 1: 7 Assessments

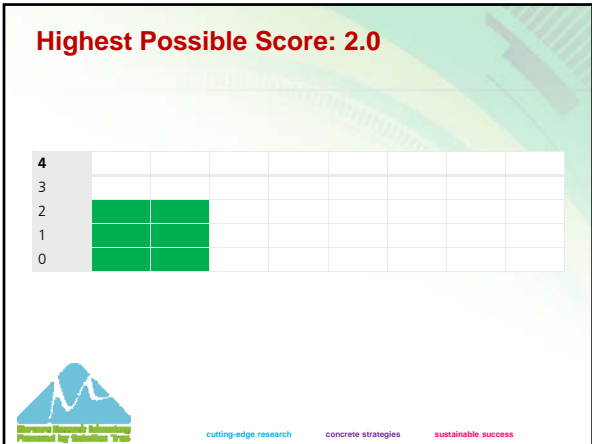
1.0	3.5
1.5	3.5
2.0	
2.5	
3.0	

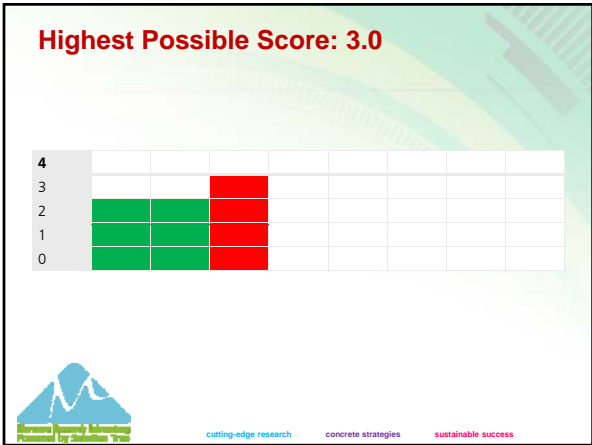
Student 2: 4 Assessments

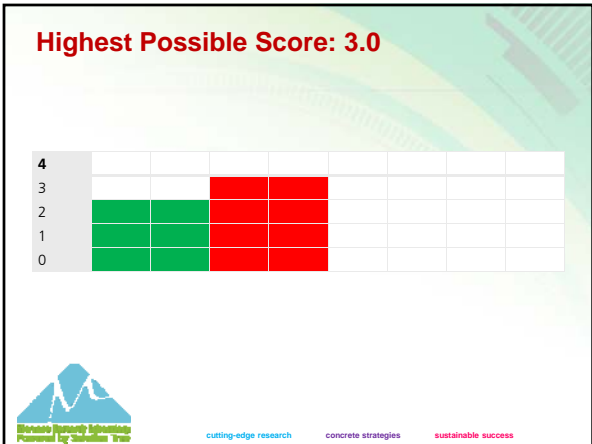
2.5	
3.0	
3.5	
4.0	

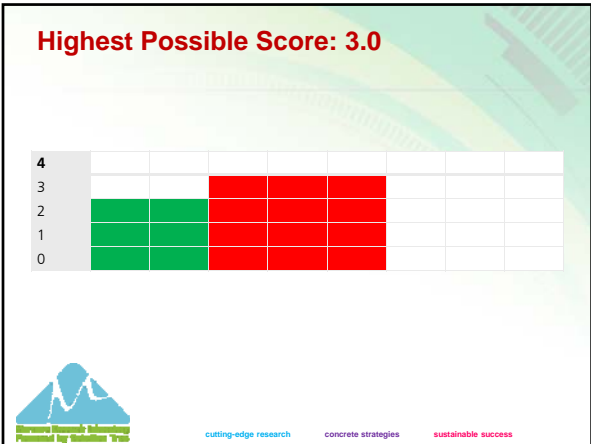
Student 3: 3 Assessments

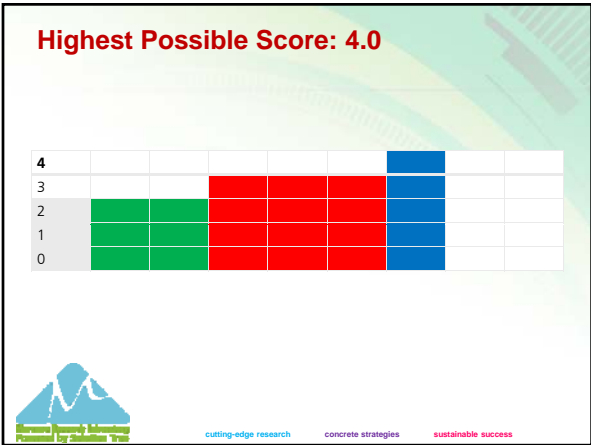
3.5	
4.0	
4.0	











Approach 4


Continual improvement Throughout the Year

- This approach allows students to increase their scores on any topic throughout the entire year.

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1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
2.5	3.0	3.0	3.5
2.5	3.0	3.0	3.5
3.0	3.0	3.0	4.0
1.5	2.5	2.5	3.0
2.5	3.0	3.0	4.0
2.0	2.5	2.5	3.0
	3.0	3.0	3.5
	2.5	2.5	3.5
	1.5	1.5	2.5
	3.0	3.0	3.0
	2.5	2.0	3.0
	2.5	2.5	3.5
		3.0	3.5
		2.5	3.0
		2.5	3.5
		2.5	3.0
		3.0	3.5
		3.0	3.0
			2.5
			3.0
			2.5
			3.0
			3.0
			2.5

Students track their progress the entire year.




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Change your report cards to be standards-based using a formative process.




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3.00 – 4.00 = **A**
 2.50 – 2.99 = **B**
 2.00 – 2.49 = **C**
 1.50 – 1.99 = **D**
 Below 1.50 = **F**




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3.50 – 4.00 = **Advanced**
 2.50 – 3.49 = **Proficient**
 1.50 – 2.49 = **Basic**
 Below 1.50 = **Below Basic**




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3.00 – 4.00 = **A = 95%**
 2.50 – 2.99 = **B = 85%**
 2.00 – 2.49 = **C = 75%**
 1.50 – 1.99 = **D = 65%**
 Below 1.50 = **F = 60%**



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If an individual teacher really wants to, he or she can be standards-based in the classroom, **even within the context of a traditional system.**



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MARZANO WORKSHOPS

Formative Assessment and Standards-Based Grading
Dr. Heflebower details research-based practices for using quality formative classroom and district-level assessments aligned to solid grading practices.



April 8-9 **Columbus, OH**
May 6-7 **Albuquerque, NM**

Register today! MarzanoResearch.com 888.849.0851



Question and Answer Session

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