Building a Bridge Between Common Core and the Art and Science of Teaching Framework

Dr. Robert Marzano Webinar

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Building a Bridge Between Common Core and the Art and Science of Teaching Framework
Common Core Mission

“…The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills our young people need for success in college and careers.”
Common Core Purpose

A national curriculum to unite and focus our teaching and learning in order to increase achievement for US students and raise the academic performance level of our students in the global community.
Common Core Criteria

• Rigorous
• Clear and specific
• Teachable and learnable
• Measurable
• Coherent
• Grade by grade standards
• Internationally benchmarked
What is the Question?

COMMON CORE STATE STANDARDS

MARZANO 41 INSTRUCTIONAL STRATEGIES
The Correct Response:

“What” do we teach and learn?

COMMON CORE STATE STANDARDS

“How” do we teach and learn?

MARZANO 41 INSTRUCTIONAL STRATEGIES
The “What” and the “How”

Common Core Standards

The Art and Science of Teaching
Focus on Unpacking and Design Questions 1-5
Unpacking the CCSS
Marzano Teacher Evaluation Model

Domain 1: Classroom Strategies and Behaviors (41 Elements)
- Routine Segments (5 Elements)
- Content Segments (18 Elements)
- On the Spot Segments (18 Elements)

Domain 2: Planning and Preparing (8 Elements)
- Lesson and Units (3 Elements)
- Use of Materials and Technology (2 Elements)
- Special Needs of Students (3 Elements)

Domain 3: Reflecting on Teaching (5 Elements)
- Evaluating Personal Performance (3 Elements)
- Professional Growth Plan (2 Elements)

Domain 4: Collegiality and Professionalism (6 Elements)
- Promoting a Positive Environment (2 Elements)
- Promoting Exchange of Ideas (2 Elements)
- Promoting District and School Development (2 Elements)
The highest levels of learning occur when all teachers agree on the prioritized curriculum and when students are clear about what they’re trying to learn.

Kim Bailey
## Determining the Essential Standards - ELA

<table>
<thead>
<tr>
<th>Standard</th>
<th>Endurance</th>
<th>Leverage</th>
<th>Readiness</th>
<th>High Stakes Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI.1.7: Use illustrations and details in a text to describe its key ideas.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>RL.6.6: Explain how an author develops the point of view of the narrator or speaker in a text.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RI.9-10.1: Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Unwrapping the Common Core to Develop a Unit Map

A process for understanding the standards, and breaking them down into learning goals that fit within a unit “big idea” or theme.
Marzano Taxonomy - Cognitive
**Essential Standard: RI.1.7: Use the illustrations and details in a text to describe its key ideas.**

**Concepts, Skills, Level of Thinking:**

<table>
<thead>
<tr>
<th>Students will know:</th>
<th>Students will be able to:</th>
<th>Cognitive Process Level (Marzano Taxonomy)*</th>
</tr>
</thead>
<tbody>
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Essential Standard: *Rl.1.7: Use the illustrations and details in a text to describe its key ideas.*

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<tr>
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<td>use</td>
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<tr>
<td>key ideas</td>
<td>describe</td>
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</table>
DQ 1

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

- Marzano (2009)
The “How”

Design Question 1: What will I do to establish and communicate learning goals, track student progress, and celebrate success?

1. Identify essential standards (prioritize)
2. Unpack the standards – get a clear picture
3. Develop clear learning goals and scales
4. Determine formative and summative assessment tasks
5. Implement ways for students to track and celebrate growth
Goals

Common Core Standard
4.MD.3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

Learning Goal?
Students will be able to apply the area formula for rectangles in real world and mathematical problems.
Part of communicating the goal is in developing clear scales... and then letting students in on it.
Increase the rigor built into the scale and into assessments to help students master the higher thinking and processing demands of CCSS.
How do students know how they’re doing?

A variety of formal and informal assessments and check-ins that measure students’ ongoing learning achievement.

Pre-Assessment

A measure that addresses all the content (at 2, 3, and 4.0 levels) in the scale for each learning goal in the unit.

Assessments administered to measure students’ mastery of the learning goal at a given point in time.

Formative Assessments

Summative Assessments
What can I do to help students track their progress as I implement CCSS?

- Goal based on CCSS
- Multiple assessments to measure growth
CCSS 
Goal
Scale
Assess
Track
Celebrate

The Starting Point
Know and Do
Clearly Stated
- Formative
- Summative

Mastery
CCSS
Proficiency Scale Data Bank:
marzanoresearch.com
Welcome to Marzano Research Laboratory’s Proficiency Scale Bank. This database gives you access to sample standards scales, scales based on common core standards, and assessment items designed to assess each level of the scale. The scales and items in this database were developed by teachers, schools, and districts, as well as MRL. There is no charge for access to the Proficiency Scale Bank.

**Logging In:** The login page includes an opportunity for you to sign up for guest access. Click the Sign Up button, and you will be directed to a page to sign up. After signing up, you will be directed to the Search page. Guest access allows you to search, view sample scales and assessment items. Groups working with MRL will be given client access, which allows you to search scales and items, as well as add scales and items to the database.

**Searching:** The Search page allows you to search the database using a variety of criteria, including keywords, subject areas, strands, or measurement topic.

**Adding Scales:** The Documents page allows users with client access to upload scales or items to the database, as well as edit or delete scales they previously added.

Clicking on the MRL logo from any page will return you to the Search page.

The materials contained in this database are copyrighted, and the availability of these materials does not constitute a transfer of any intellectual property rights. Marzano Research Laboratory encourages users to download, customize, and use these materials to improve their classrooms and schools, but the materials and any derivatives created by users may not be sold or distributed without the written consent of Marzano Research Laboratory.
Marzano Research Laboratory Proficiency Scale Bank

- To search the Proficiency Scale Bank, use the options on the left to find the scales or items. You can enter as few or as many criteria as you like.

- Fewer criteria will return a greater number of results, while more criteria will focus the search so that you can find exactly what you want.

- To start a search, select either Scale or Item (Item is currently disabled/empty). You cannot search for both at once. The keyword search is optional. This is useful if you have an idea of what you are looking for and know some phrases that may occur in the scale or item. If the keyword search doesn’t return the results you want, you can use the guided search to find what you need.

- The guided search contains a series of drop-down menus with specific criteria. You can use as few or as many of these as you like to identify the scale or item. The criteria were written with a generic set of strands and topics. As you choose each criterion, a new drop-down menu will be generated specific to that criterion. Choose the description that most closely matches what you want to find.

- The grayed-out options in the drop-down menus have no items associated with them, and are automatically disabled to prevent searches with no results. As more items are uploaded to the database, these options will be enabled.

- You can search using both keywords and the drop-down menu criteria at the same time.

- When you have specified the search criteria, click the Search button and a set of results will be displayed.

- To view a scale or item from the search results, click the View button next to the description. The scale or item will be displayed in PDF format in a pop-up window.
<table>
<thead>
<tr>
<th>Name</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Similarities and Differences</td>
<td>Grade/Level (K) Math Number - Base Ten (Adding and Subtracting in Base Ten)</td>
</tr>
<tr>
<td>Proportions</td>
<td>Grade/Level (8) Math Ratios and Proportional Relationships (Proportions)</td>
</tr>
<tr>
<td>Proportions (duplicate)</td>
<td>Grade/Level (8) Math Ratios and Proportional Relationships (Proportions)</td>
</tr>
<tr>
<td>Mathematics-K-4-Final 26.pdf</td>
<td>Grade/Level (1) Math Number - Operations and the Problems They Solve (Composing and Decomposing Numbers)</td>
</tr>
<tr>
<td>Laws of Exponents</td>
<td>Grade/Level (8) Math Number - Operations and the Problems They Solve (Properties of Multiplication and Division)</td>
</tr>
<tr>
<td>Proportions</td>
<td>Grade/Level (8) Math Ratios and Proportional Relationships (Proportions)</td>
</tr>
<tr>
<td>Parallel and Perpendicular Lines</td>
<td>Grade/Level (9) Math Algebra - Expressions and Equations (Systems of Linear Equations)</td>
</tr>
<tr>
<td>Parallel and Perpendicular Lines#2</td>
<td>Grade/Level (9) Math Algebra - Expressions and Equations (Systems of Linear Equations)</td>
</tr>
<tr>
<td>Mathematics-K-4-Final 12.pdf</td>
<td>Grade/Level (K) Math Algebra - Expressions and Equations (Expressions)</td>
</tr>
</tbody>
</table>
CCSS
Proficiency Scale Examples . . .
### Common Core Standards for English Language Arts

**Strand: Reading**

**Main Ideas and Details (RL.6.2, RI.6.2)**

#### Grade 6

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
<th>Example Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Score 4.0</strong></td>
<td>In addition to Score 3.0, in-depth inferences and applications that go beyond instruction to the standard. The student will:</td>
<td>The student will locate additional information on the topic of the text and elaborate or provide additional relevant supporting details. The student will analyze how this information may be applied to a real world situation.</td>
</tr>
<tr>
<td><strong>Score 3.0</strong></td>
<td>The student will:</td>
<td>The student will write a summary of a grade level text with an appropriate main idea and relevant objective supporting details.</td>
</tr>
<tr>
<td>-</td>
<td>provide a summary of a grade level appropriate text distinct from personal opinions or judgments (RL.6.2, RI.6.2)</td>
<td></td>
</tr>
<tr>
<td><strong>Score 2.0</strong></td>
<td>There are no major errors or omissions regarding the simpler details and processes as the student will:</td>
<td>Given a list of details pertaining to a grade level text, the student will identify which are personal opinions or judgments and which are relevant support of the main idea.</td>
</tr>
<tr>
<td>-</td>
<td>recognize or recall specific vocabulary, such as:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>summary, paraphrase, topic sentence, generalize, main idea, supporting details</td>
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<tr>
<td>-</td>
<td>perform basic processes, such as:</td>
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<td></td>
<td></td>
<td>identify the main idea and details that support the main idea in grade level appropriate text</td>
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<tr>
<td></td>
<td></td>
<td>given a main idea statement for a text, the student identifies details that support it</td>
</tr>
<tr>
<td></td>
<td></td>
<td>given a list of details from the text, the student determines which are relevant support for the main idea</td>
</tr>
<tr>
<td><strong>Score 1.0</strong></td>
<td>With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.</td>
<td></td>
</tr>
<tr>
<td><strong>Score 0.5</strong></td>
<td>With help, a partial understanding of the 2.0 content, but not the 3.0 content.</td>
<td></td>
</tr>
<tr>
<td><strong>Score 0.0</strong></td>
<td>Even with help, no understanding or skill demonstrated.</td>
<td></td>
</tr>
</tbody>
</table>
# Common Core State Standards for Mathematics

## Domain: Geometry

### Area and Surface Area (solve real life and mathematical problems involving two and three-dimensional figures) (7.G.1, 4, 6)

<table>
<thead>
<tr>
<th>Grade 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Score 4.0</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Score 3.0</strong></td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td><strong>Score 2.0</strong></td>
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<tr>
<td><strong>Score 1.0</strong></td>
</tr>
<tr>
<td><strong>Score 0.5</strong></td>
</tr>
<tr>
<td><strong>Score 0.0</strong></td>
</tr>
</tbody>
</table>

### Example Activities

- Use peeling an orange to explore the relationship between the surface area of a sphere and the area of a circle with the same radius. The peel should fill approximately 4 circles.
- Investigate the relationship between surface area and volume. Does a figure with greater surface area have greater volume?
- Have students create all possible boxes with whole number dimensions using a specific surface area. Repeat for several different surface areas. Look for similarities in the characteristics of the box with the greatest volume. Repeat the activity with a set volume and vary the surface areas.
It all works together.....
Where It All Fits

DQ 1

What will I do to establish and communicate clear learning goals, track student progress, and celebrate success?

DQ 2

How do I help students interact with new knowledge?

DQ 3

How do I help students deepen and practice new knowledge?
## Identifying Critical Information

### CCSS

### Critical Skills and Knowledge

<table>
<thead>
<tr>
<th>Work with time and money (2.MD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7.</strong> Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.</td>
</tr>
<tr>
<td>• Define analog, digital, a.m., p.m.</td>
</tr>
<tr>
<td>• Count by fives to sixty</td>
</tr>
<tr>
<td>• Tell time to the hour and half-hour</td>
</tr>
<tr>
<td>• Write time using correct format</td>
</tr>
</tbody>
</table>
To build a foundation for college and career readiness, students must have ample opportunities to take part in a variety of rich, structured conversations—as part of a whole class, in small groups, and with a partner. Being productive members of these conversations requires that students contribute accurate, relevant information; respond to and develop what others have said; make comparisons and contrasts; and analyze and synthesize a multitude of ideas in various domains.
Design Question 2: What will I do to help students effectively interact with the new knowledge?

- Identifying Critical Information
- Previewing New Content
- Organizing Students to Interact with New Knowledge
- Chunking Content into “Digestible Bites”
- Processing New Information
- Elaborating on New Information
- Recording and Representing Knowledge
- Reflecting on Learning
College and Career Readiness Anchor Standards for Reading:

Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
Grade 4 Reading Standard:

Determine a theme of a story, drama, or poem from details in the text; summarize the text.
Design Question 3: Practicing and Deepening Knowledge

Moving Up
Types of Knowledge

- **Procedural Skills, Strategies, Processes**
  - Fluently multiply and divide within 100....
  - 3.OA.7

- **Declarative Information**
  - Understand division as an unknown-factor problem.
  - (3.OA.6)
Common Core Standards Connection: Practicing Skills, Strategies, and Processes
3rd Grade Math   3.OA.7

Domain: Operations and Algebraic Thinking
Cluster: Multiply and divide within 100.

Standard 7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations. By the end of Grade 3, know from memory all products of two one digit numbers.
Common Core Standards Connection: Practicing Skills, Strategies, and Processes

1. Initially provide structured practice sessions spaced close together
2. Provide practice sessions that are gradually less structured and more varied
3. When appropriate, provide practice sessions that help develop fluency

Massed vs. Distributed Practice

Feedback
Common Core Standards Connection
Examining Similarities and Differences

Reading Anchor Standard #9

Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.
DQ 3

- Comparing
- Classifying
- Creating similes and metaphors
- Creating analogies
Some Verbs Found in the Common Core

- Synthesize
- Verify
- Analyze
- Support
- Resolve
- Compare
- Prove
- Explain
- Generate
- Contrast
- Interpret
- Evaluate
- Integrate
- Derive
- Develop
- Represent
- Interpret

How will students practice them?
How will teachers assess them?
Ways that teachers have students Generate and Test Hypotheses...

- Problem-Based Learning
- End-of-Unit Projects
- Authentic Real World Tasks
- Cognitively Complex Tasks

Performance Assessment
Authentic Real World Tasks Need To:

1. Align to both the verb and the noun of the learning goal / standard.

2. Ask the student to make a prediction, then support the claim with grounds and backing as well as qualifiers.

3. Include guiding questions for students to reflect on their learning.
# Scaffolding Toward an Authentic Real World Task

<table>
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<tr>
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<td>Score 4.0</td>
<td>In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.</td>
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</table>
| Score 3.0 Essential Target Knowledge | Participants will be able to:  
Understand and apply the Pythagorean Theorem  
  • Explain a proof of the Pythagorean Theorem and its converse  
  • Apply the Pythagorean Theorem to determine unknown side lengths in right triangles  
  • Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. |
| Score 2.0 Essential Foundational Knowledge | There are no major errors or omissions regarding the simpler details and processes as the student:  
  • recognizes or recalls specific terminology such as:  
    • coordinate plane, theorem, leg, hypotenuse, point, and converse  
  • performs basic processes, such as:  
    • recognizes or recalls the Pythagorean Theorem and how it can be used  
However, the student exhibits major errors or omissions regarding the more complex ideas and processes. |
| Score 1.0            | With help, partial success at score 2.0 content, but not at score 3.0 content.                                                                                                                            |
Pacing for an Authentic Real World Task
Use the Pythagorean Theorem to determine the height of a tree and the distance on a map.

- **Day 1** - Introduce the task. Students learn terminology related to Pythagorean theorem and complete a graphic organizer with those words.
- **Day 2** - Students learn to calculate Pythagorean theorem and practice calculations.
- **Day 3** - Students work with a partner to practice more Pythagorean theorem calculations.
- **Day 4** - Students brainstorm and solve real world applications of the Pythagorean theorem.
- **Day 5** - Students complete their task and reflect in their journals on what they would do differently next time they work on a task.
This is our challenge...

- Content must be kept in a student’s working memory throughout a class period for it to be encoded, or learned.
- Sustained occupation of working memory is the teacher’s task.
  - If we do not capture their working memory, information from their permanent memories will occupy them.
Four ways to trigger and maintain interest

1. Using game-like activities
2. Initiating friendly controversy
3. Using unusual information
4. Using effective questioning strategies
9. Compare and contrast the most important points and key details presented in two texts on the same topic.

#25 Using Academic Games
RF3.3c

Phonics and Word Recognition

3. Know and apply grade-level phonics and word analysis skills in decoding words.

c. Decode multisyllable words.

#27 Using Physical Movement
How to use engagement activities to informally evaluate?

The part of the brain that processes movement is the same part of the brain that processes learning. Jenson 2005

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