WELCOME BACK 2015-2016

**"Engineering The Heroes of Tomorrow"
To Proficiency and Beyond!**
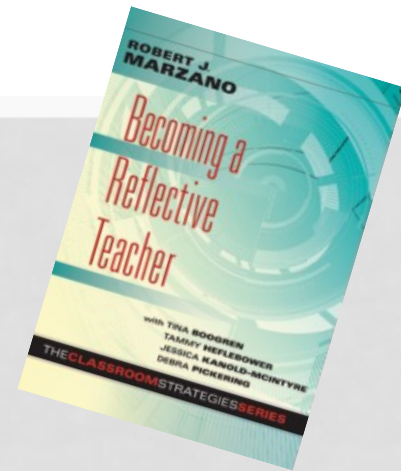
MARGATE STEM MAGNET MIDDLE SCHOOL

http://www.olympic.org/videos/rowing

MARGATE PLC FOCUS
2015-2016

- **Marzano's "Super 7"**

- **Cognitive Rigor & Quality Assessments**

- **PBS (Positive Behavior Support)**
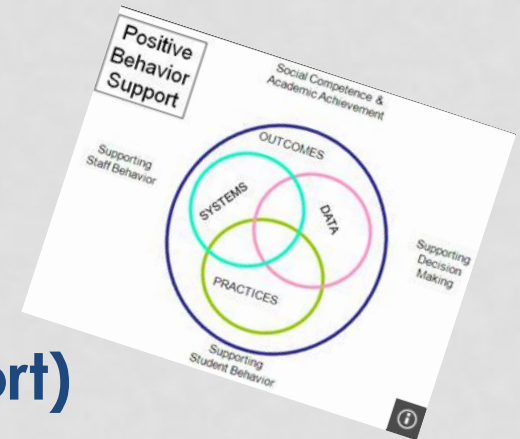
MARZANO "SUPER 7"

- **Marzano research has shown that the following 7 elements from DQ #2,3,4, have the greatest impact on student achievement.**

- **CCSS and college and career readiness standards require:**
    - More clarity in the progressions of knowledge being addressed in class,
    - More application of knowledge by students
    - More and deeper inferential thinking
    - Creation of sound evidence for conclusions and claims
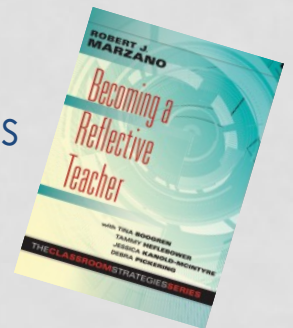
7 FOCUS ELEMENTS FOR CLASSROOM INSTRUCTION:

- **Element 6** *Identifying Critical Content*
- *Element 11 Elaborating on New Information*
- *Element 12 Recording and Representing Knowledge*
- *Element 17 Examining Similarities and Differences*
- *Element 18 Examining Errors in Reasoning*
- *Element 20 Revising Knowledge*
- *Element 22 Engaging Students in Cognitively Complex Tasks Involving Hypothesis Generation and Testing*
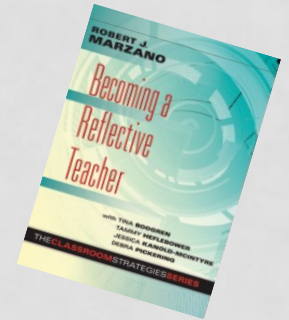
OUR FOCUS FOR FIRST SEMESTER:

- ***Element 12 Recording and Representing Knowledge***
  - Points to the need for students to create representations of the information and processes with which they are interacting. CCSS highlight the need to expand the types of representations elicited from students to include mental models, mathematical models, and other more abstract representations of content.

- ***Element 17 Examining Similarities and Differences***
  - Is a strategy that can be applied to all types of information and processes to help students create distinctions regarding their defining characteristics.

- ***Element 18 Examining Errors in Reasoning***
  - Is at the core of instructional changes explicit in the more rigorous standards. Students must continually be provided the opportunity and guidance to examine their own reasoning as well as that of others.
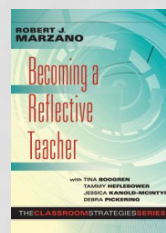
ELEMENT 17
EXAMINING SIMILARITIES & DIFFERENCES

- **Learning Goal & Scale / before (see handout)**

- **Digging Deeper into the Protocol**

- **Comparison Matrix Activity (see articles)**
  - **Natural Disasters**
  - **Man Made Disasters**

- **Learning Goal & Scale / after (see handout)**

SIMILARITIES AND DIFFERENCES

"UNDERSTANDING THE RELATIONSHIP BETWEEN TWO CONCEPTS IS LIKE DEVELOPING THE INSIGHT THAT SPARKS INSPIRATION." – ANTHONY SPARK
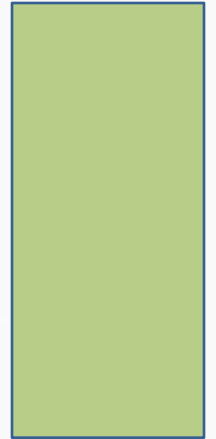
WHY USE STRATEGIES THAT EXAMINE SIMILARITIES AND DIFFERENCES?

- Being able to see similarities and differences between topics allows students to **discover patterns** and **make connections**, which is fundamental to cognitive processes.

- Strategies aimed at examining similarities and differences can **boost student achievement** by creating opportunities for students to **link**, **connect**, and **synthesize ideas** in order to **deepen** their **understanding** of the content.

- These strategies can lead to **engagemen**t of rich discussions, which link ideas and foster student construction of **new insights**.

HOW CAN I HELP STUDENTS EXAMINE SIMILARITIES AND DIFFERENCES?

- When planning lessons, look for topics that allow for **extended comparisons**.

- **Model** how to **create** and use comparisons, classifications, similes, metaphors, and analogies.

- Ask students to **explain** and **justify** their reasoning.

- Ask students to **revise** their comparisons and classifications after discussing them with peers.

DOUBLE-BUBBLE DIAGRAMS

- This strategy **compares** the **attributes** of two people, places, things, concepts, etc.
- Students write the two **topics** being compared in the large **gray circles**.
- **Common** attributes are listed in the **center** smaller circles connected to the topic bubbles.
- **Unique** attributes are written on the **outside** edge of the diagram connected to the appropriate topic bubble.
- Please look at example on handout.

DOUBLE BUBBLE
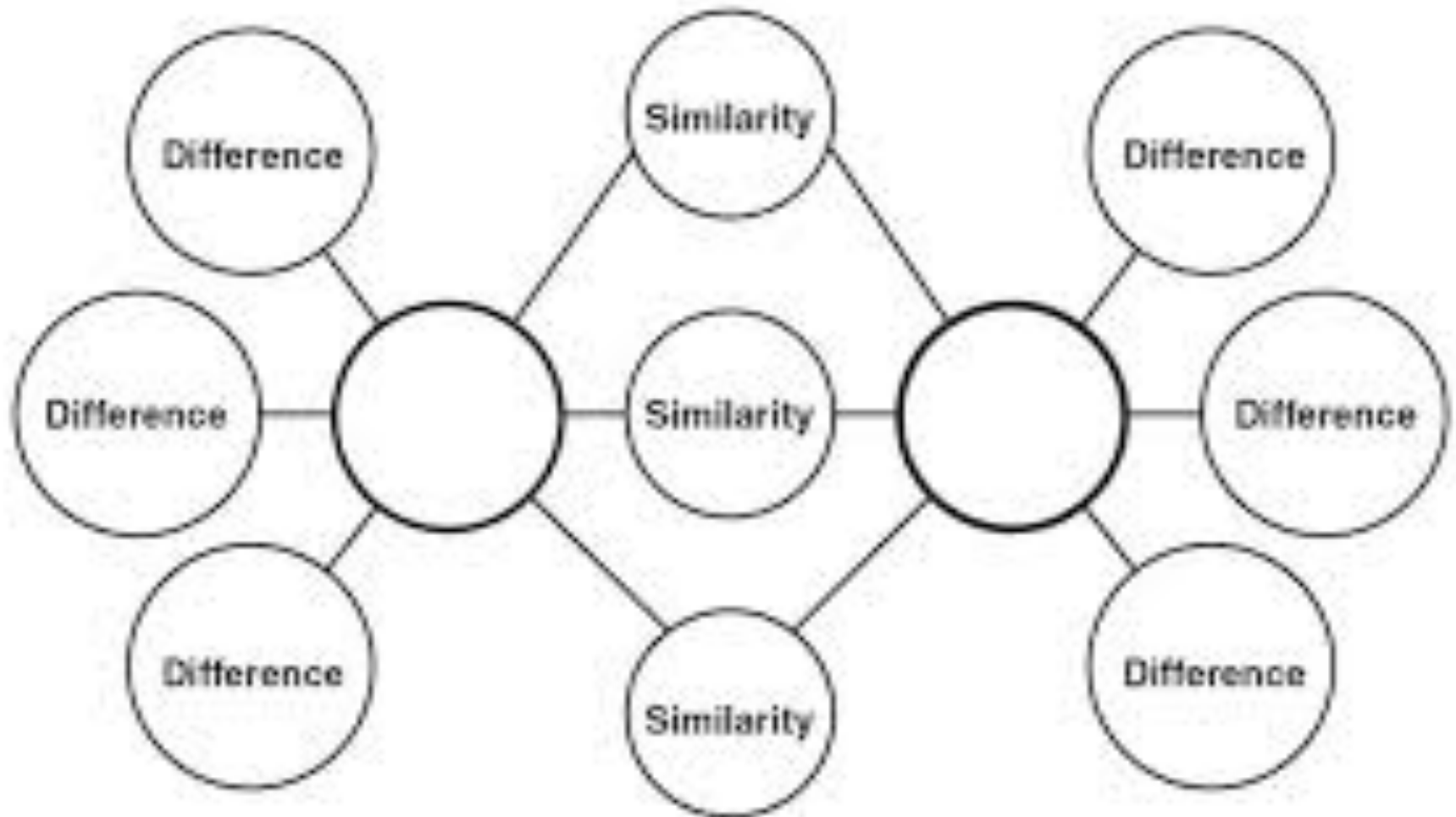
SPEED DATE

- **Create** a Double Bubble map with your date comparing and contrasting each other.
- Work with someone who is **not** in your department.
- You will have **5 minutes** to complete this activity.
- Be prepared to **share** out one interesting fact you learned about your date.

LET'S PRACTICE

- Get into groups by **department**.
- **Read** "The Whale Watch" and **create** a Double Bubble comparing the two accounts.
- You will have 10 minutes to complete this activity.
- Be prepared to **share**.
- Make **revisions** as necessary!

FOLLOW-UP

- Implement one of the strategies from Element 17:
  - Comparison Matrix
  - Double Bubble

TICKET OUT

- How could you use this strategy in your classroom?

SIMILARITIES AND DIFFERENCES

ELEMENT #17
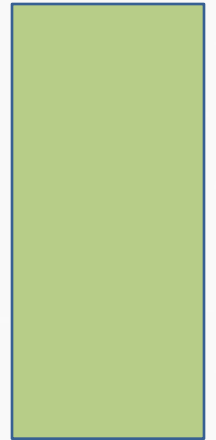
IDENTIFYING SIMILARITIES AND DIFFERENCES

- Identifying similarities and differences helps students **understand more complex problems** by analyzing them in a simpler way.

SIMILARITIES AND DIFFERENCES

- Teachers can either **directly present** similarities and differences, accompanied by deep discussion and inquiry, or simply ask students to identify similarities and differences on their own.

- While **teacher-directed** activities focus on identifying **specific** terms, **student-directed** activities encourage **variation** and **broaden understanding**, research shows.

- Research also notes that **graphic forms** are a good way to represent similarities and differences.

RECOMMENDATIONS FOR CLASSROOM PRACTICE ON
IDENTIFYING SIMILARITIES & DIFFERENCES

a. Use comparing, classifying, creating metaphors, and creating analogies
b. Give students a model
c. Use a *familiar context* to teach steps
d. Use graphic organizers
e. Guide students
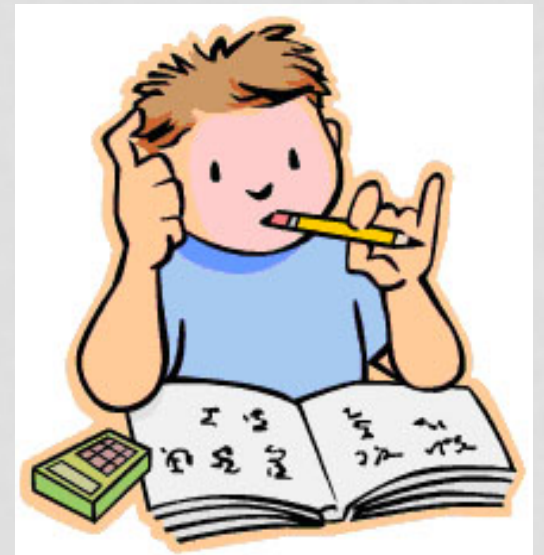
SENTENCE STEMS

ELEMENT 17

SENTENCE STEMS

_____ and _____ are *similar* because they both
_____
_____
_____

_____ and _____ are *different* because
_____ is _____, but _____ is _____.
_____ is _____, but _____ is _____.
_____ is _____, but _____ is _____.

SENTENCE STEM EXAMPLES

The sun and **moon** are similar because they both are in space.

Influence our lives and our moods

Shine

The sun and **moon** are different because the sun is about 93 million miles away from the Earth, but the moon is only about 250,000 miles away.

The sun is made of gases, but the moon is made of rocks.

The sun influences the temperature, but the moon influences ocean waves.

LET'S PRACTICE!

COMPARE & CONTRAST
at pppst.com

CANDY BAR COMPARISON
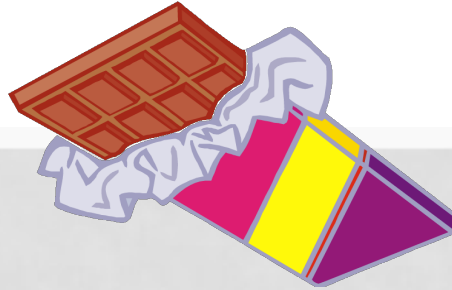
- Get into pairs
- Each pair will receive 2 candy bars
- Pairs will work cooperatively and compare and contrast the length, width, and calories of each candy bar
- Comparisons will completed on the Comparison Matrix
- Pairs will add an additional attribute on the Comparison Matrix
- Pairs will then transfer the information and complete the Sentence Stem Comparisons
- Be prepared to share your findings

QUESTIONS FOR REFLECTION

1. How can you begin to **incorporate** some aspect of this **strategy** in you instruction?

2. What are some ways you can **encourage** your **students** to become more **independent** in their examination of similarities and differences?

3. What are some ways you can check to see if most students are **accurately identifying** similarities and differences?

4. What are ways you can **adapt** and **create new techniques** for identifying similarities and differences that address unique student needs and situations?

5. What are you **learning about your students** as you adapt and create new techniques?

TICKET OUT

- How could you use this strategy in your classroom?

RECORDING AND REPRESENTING KNOWLEDGE

"YOU HAVE TO MAKE YOUR OWN CONDENSED NOTES. YOU LEARN FROM MAKING THEM. A LOT OF THINKING GOES INTO DECIDING WHAT TO INCLUDE AND EXCLUDE."– PETER ROGERS
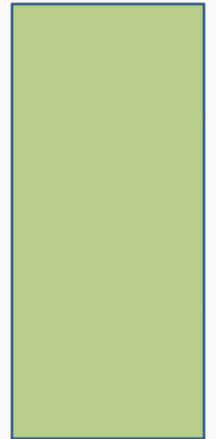
ELEMENT 12 RECORDING AND REPRESENTING KNOWLEDGE

Points to the need for students to **create representations** of the **information** and **processes** with which they are **interacting**. CCSS highlight **the need to expand** the types of representations elicited from students to include mental models, mathematical models, and other more **abstract representations of content**.

RECORDING AND REPRESENTING KNOWLEDGE

- It allows a student to **acquire, organize**, and **retain** content knowledge in both **linguistic** and **non-linguistic** (visual) forms.

- Effective recording and representing of new knowledge goes **beyond** merely **"copying" notes** or labeling a diagram.

RECORDING AND REPRESENTING KNOWLEDGE

- Recording knowledge is the first aspect of this instructional strategy.

  - When students record knowledge, they **write down** words or phrases about the **central ideas** and **important details** of content in their **own words**. These summaries are called **linguistic representations**.

- Representing knowledge is the second aspect of this instructional strategy.

  - This occurs when students **translate new information** into **nonlinguistic representations** such as graphic organizers, pictorial notes and pictographs, dramatic enactments, or mnemonics.

STRATEGIES FOR REPRESENTING AND RECORDING KNOWLEDGE

Free-flowing web	Cornell note-taking	Pictographs	Mnemonic devices
Interactive note-taking	Diagramming/	Illustrated timelines	Acrostics
Graphic thinking organizers	Brainstorming graphics	Storyboards	Column organizer
Summarization tickets	Comparison matrix	Anticipation guides	Chapter tour
Classification chart	Question-answer relationship (QAR)	Visualizing	Concept map
Semantic map	Entry-exit tickets	Flow chart	3-2-1 summarizers

HOW CAN I HELP STUDENTS RECORD AND REPRESENT KNOWLEDGE?

- Provide activities requiring students to:
  - **Summarize** the information they have learned
  - Generate notes that **identify critical information** in the content
  - Create **nonlinguistic representations** for new content

CORNELL NOTES

SAMEKA THOMPSON

NOTE TAKING

- Taking notes requires students to **differentiate** between information that is considered important and information that is considered supplemental to a topic.

- Students need to become **comfortable** recording their thoughts while processing new knowledge from critical-input experiences

TWO-COLUMN NOTES

- Two-column notes can take a variety of formats, depending on the subject area, instructional goals, and nature of the text.

- Notes can also be adapted for situations demanding higher levels of thinking. These include adaptations for developing opinions and persuasive papers, for analyzing problems, and for improving the processing skills.

TYPES OF TWO-COLUMN NOTES

- Main Idea – Detail Notes
  - Students organize main ideas from information structured around concepts and definitions
- Conclusion – Evidence Notes
  - Students develop and support arguments with evidence.
- Process Notes
  - Helps students work through steps and procedures for negotiating a multitude of tasks

Topic: Classroom Uses for Two-Column Notes

Main Idea	Supporting Details
Two-Column Note-taking	• Requires active reading
	• Processing of information must occur
	• Strengthens understanding and memory
	• Teachers need to show students how/why it works
Suggestions for Classroom Use:	
• Teachers	• Set the tone
	• Model for students
	• Class activities in two-column note form
	• Open note quizzes using two-column notes
	• Notes on board in two-columns
• Students	• Use as an outline for writing
	• Create a study guide with the notes
	• Engage in cooperative learning

LET'S PRACTICE

- Get into groups by **department**.
- **Read** "Keeping Exotic Animals".
- Write evidence supporting Conclusion 1
- Draw a picture in support of conclusion 2
- Write one conclusion of your own and supporting evidence
- Be prepared to **share**.

CREATING YOUR OWN

- As a department create a Main Idea- Detail two-column note taking activity for students. Choose any upcoming content

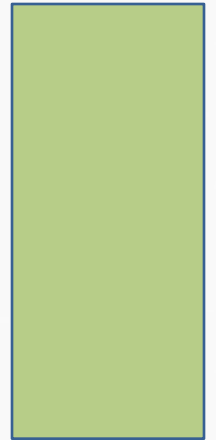| Main Idea	Details
1.	
2.	
3.	
4.	
In this box write one of the following; summary of what you read/lecture; the two most important points of the article; or questions you still need answered.	

FOLLOW-UP

- Implement one type of two column notes:
  - Main Idea – Detail
  - Conclusion – Evidence
  - Process Notes

RECORDING AND REPRESENTING KNOWLEDGE

ELEMENT 12

FIVE POINTS TO KEEP IN MIND ABOUT NONLINGUISTIC REPRESENTATIONS

- 1. **Nonlinguistic representations come in many forms.**
  - Choose the best one for the content you are teaching
- 2. **Nonlinguistic representations must identify critical information.**
  - If not it defeats the whole purpose
- 3. **Students should explain their nonlinguistic representations.**
  - Asking students to explain their representations promotes even greater understanding.
- 4. **Nonlinguistic representations can take a lot of time.**
  - Limit use to critical content
- 5. **Students should revise their representations when necessary.**
 - It is a form of understanding

PURPOSE OF PRIOR KNOWLEDGE

- Since new knowledge and skill is dependent on pre-existing knowledge and skill, knowing what students know and can do when they come into the classroom or before they begin a new topic of study, can help us craft instructional activities that build off of student strengths and acknowledge and address their weaknesses.

FREE FORM MAPS AND CAROUSEL WALK

ELEMENT 12
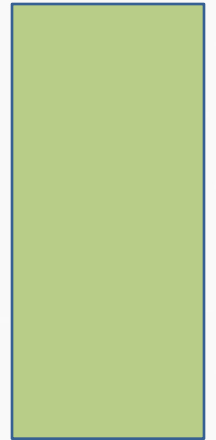
CAROUSEL WALK

- Get into groups by department
- Each group will receive a different color marker
- Groups will start at the chart paper with their subject
- Groups will have 2 minutes to write down what they know about each topic
- When the music starts groups will rotate clockwise to the next station and continue the process until they are back to their original station

*Groups cannot repeat what another group

SUBJECTS

- Social Studies: Three Branches of Government
- Science: Body System
- Math: Solving Equations
- Reading: Reading skills / strategies needed to comprehend text
- Language Arts: Writing skills / strategies needed to write an essay

FREE FORM MAPS

FREE FORM MAPS

FREE FORM MAPS

FREE FORM MAPS

FREE FORM MAPS

- Groups will have 10 minutes to create a Free Form Map
- Groups will post chart paper and share out
  - Be prepared to explain your visuals!

PEER REVIEW FEEDBACK

- Visit a station other than your department's and leave specific feedback on a post-it!