MSP STEM

February "Webinar"

Quick Write #1

Before we begin, let's do a Quick Write. We did this at Biology Boot Camp this past summer, but in case you forgot the rules:

- Write to the prompt
- Pencil must be writing the entire time
- If you have nothing to write, you must write "I have nothing else to write."
- Timer goes off=pencils down

Ok, get out your cell phone and set the timer for 3 minutes.

When you click to the next slide, start the timer.

Quick Write #1

List and describe various ways

to assess students

(you have 3 minutes)

Quick Write #1

When the timer has gone off,

- Count how many words you wrote.
- Cannot count "I have nothing else to write."
- Put number in top right corner.
- Graph your number (QW#1).

Today, we are going to take a closer look at:

- Assessment in Project-Based Learning
- Using video-based prompts
- The 3 main questions we ask when assessing
- Examples
  - Compare and Contrast
  - Ed Tech examples
  - Addendum books
- Your STEM video reflection
- Quick Write

Assessment in Project-Based Learning

https://www.edutopia.org/video/multifaceted-assessment-keys-pbl-series-5

Video-Based Prompts

It is important that our students not only know how to read closely with print, but also with digital media. You are going to be the "student" in this example.

Complete the questions in the Note-Taking Tracker.

You may go back and view the video as many times as needed.

Video-Based Prompts

As you know, the AzMERIT test has listening/viewing components. I created this "cheat sheet" of video-based (or audio-based) prompts to use when planning my lessons.

[Click here to download the "cheat sheet".](#) If you print it on card stock, it holds up pretty nicely all year long.

3 Main Questions

The introduction of *Tools for Thoughtful Assessment* shares these 3 main questions as the overall approach for assessing learning:

- Where am I going? (what learning targets am I trying to achieve?)
- Where am I now? (What is my current level of understanding or mastery?)
- What can I do to close the gap? (How can I use feedback, self-assessment data, and learning opportunities to reach my learning targets?)

3 Main Questions

As a teacher, we can be asking ourselves:

- Where are my students going? (what learning targets are they trying to achieve?)
- Where are they now? (What is their current level of understanding or mastery?)
- What can I do to close the gap? (How can I use feedback, self-assessment data, and learning opportunities to reach their learning targets?)

Essential Strategies

From the book, *The Core Six: Essential Strategies for Achieving Excellence with the Common Core*:

- Compare and Contrast
- Phase 1: Description
- Phase 2: Comparison
- Phase 3: Conclusion
- Phase 4: Application
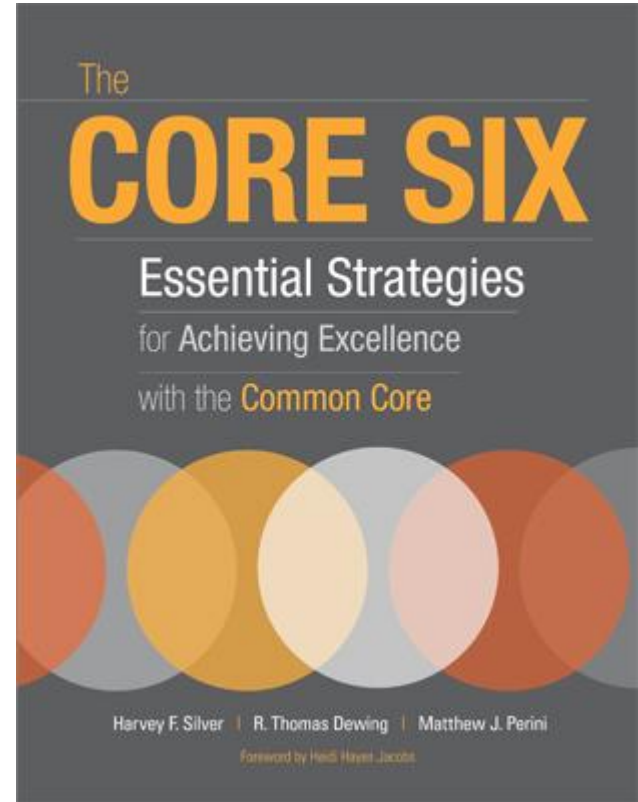
How do we teach compare and contrast?

Quick, think! Which graphic organizer do we typically use for compare and contrast?

What would you say are it's limitations?

There is a better way.

Compare and Contrast: Top Hat Organizer

- Can compare parallel items

- What is the first entry for both frogs and toads?
- Yeah, teeth!
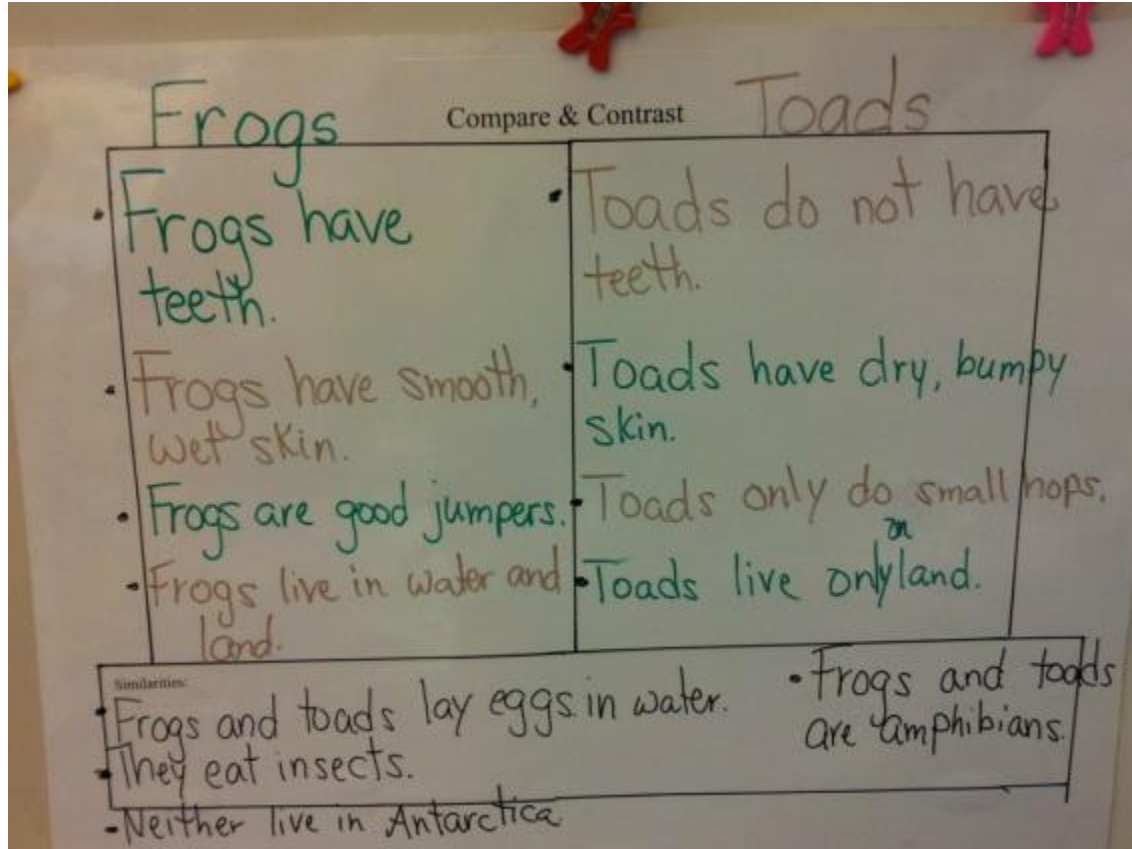- If you notice, each line is a parallel comparison.

Compare and Contrast: Top Hat Organizer

- More room for similarities

One thing I used to hate about Venn diagrams was that there was such limited space in that middle section.

You can make your Similarities section as big as you want with the Top Hat Graphic Organizer.

Compare and Contrast: Top Hat Organizer

Don't stop there!

- Extend the process!
  - Are they more alike or different? Defend your position.
  - What is the most important difference?
  - Based on your comparison, what conclusions can you draw?

Phase 1: Description

- Use a hook to tie to prior knowledge
- Provide criteria

Paul Bunyon	Criteria	Pecos Bill
	Character	
	Setting	
	Exaggerate	

Volume	Criteria	Square Area
	formula	
	definition	
	units	

Phase 2: Comparison

- Use criteria to compare
- Use top hat organizer

Volume	Surface Area
Volume is the measurement of space a three-dimensional figure occupies.	Surface area is the sum of all the surfaces of a three-dimensional figure.
Always involves multiplying area of the base by height of the figure.	Always involves adding up the areas of the individual surfaces.
Expressed in cubic units	Expressed in square units
Often used to figure out how much containers can hold (e.g. water in a swimming pool)	Often used to figure out how much covering is needed (e.g. paint or wrapping paper)

Similarities

Both apply to three-dimensional shapes.

Both require you to know how to find two-dimensional area

Phase 3: Conclusion

- Ask probing questions.
- Provide scaffolded sentence frames. I put these on construction paper, laminated them, and hung them on my walls for easy reference all year.
  - I am comparing and contrasting ___ and ___.
  - Although ___ and ___ are different, they are alike in some ways. For example, ___.
  - ___ and ___ are both ___.
  - There are some interesting differences between ___ and ___. For example, ___.

Phase 4: Application

- Create a product or complete a task
  - Reflect back to our 4 C's webinar.
  - Students want to be Producers, not Consumers.
  - Voice and Choice

- Write an "I think" essay

- Respond to current event with ___ perspective
  - For instance, what would Benjamin Franklin think of STEM in your classroom?

Phase 4: Application

- After students have created a product or completed a task
    - They can do a carousel or gallery walk
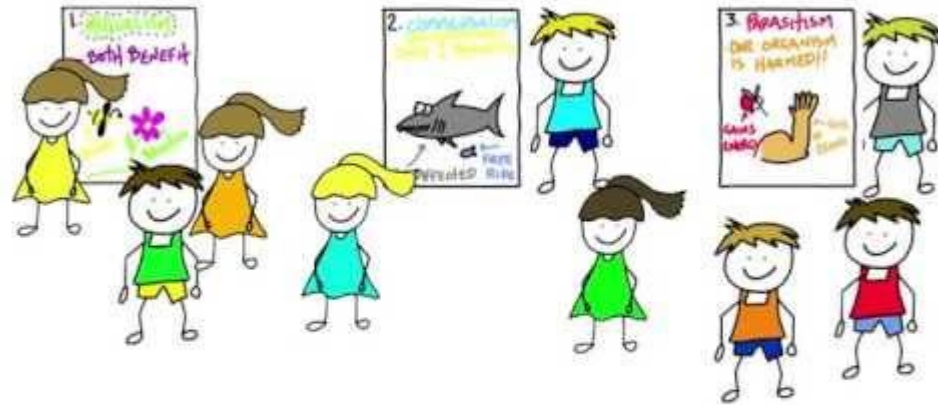
Phase 4: Application

Remember back to the video we watched at the beginning of this webinar. It suggested presenting work to an audience beyond the class.

I know many of you have "museums" or other presentations. Here is an example.

Go to the link, scroll down to the bullets.

Museum: http://zunal.com/process.php?w=180327

Ed Tech Examples

Over this course, I have embedded Ed Tech assessments. We did:

- **Kahoot**. This is the one we did this summer where everyone answered on their phones. Students can use phones, iPads, or laptops.
- **Google Forms**. This is the one you used for your Ticket to Leave for the Math weekend. Google Forms takes all the responses and makes graphs, etc. for you to see the data.
- **Poll Everywhere**. We tried to do this one for the December webinar but it really works best live.
- **Plickers**. Well, actually we didn't use this one but Kimberly Dugdale used it in her Math PD. The kids don't need technology, but you as the teacher need a smartphone or tablet.

Ed Tech Examples

The Ed Tech assessment tools are fun to use for the classroom and they make data collection super easy. I would also suggest you use them at PDs and staff meetings. I would love to hear how it goes. :)

Feedback Loop

Quick Writes

- You know how much I love Quick Writes.
- As a teacher, you can learn so much about where they are and can adjust your instruction to match.
- It also helps to activate prior knowledge.

Feedback Loop

Sticky Notes

- Can be used for ANYTHING! My kids would try to write the next great novel on sticky-notes. Especially if they were colored.
- Pretty cheap
- One of my faves: Ticket to Leave. Real quick, you can have them jot down what they learned, what they are still struggling with, a vocab definition, an equation, graphic organizers (venn, T-chart, etc.). You name it.
- You can spot misconceptions, safely
  - This is huge. The kids feel safe to answer honestly because their peers won't see what they wrote.
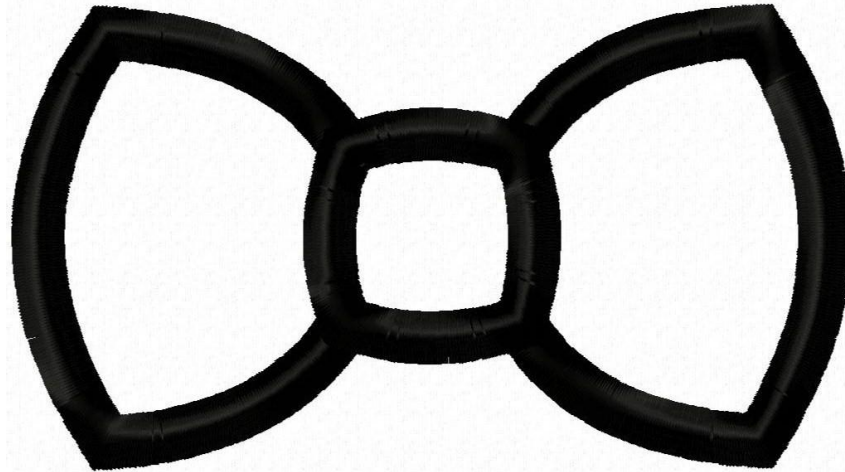
Feedback Loop

Cubes

- Literacy: story elements (character, plot, setting)
- Main idea/details
- Math: show me on a number line, picture, base ten
- TONS of pre-made templates online
- We used a cube in our engineering vocabulary lesson

Feedback Loop

Bow Tie

- Students solve problems on ends first (independently)
- Collaborate and write consensus in the middle

Feedback Loop

Sorts

- Categorizing (this is perfect for Depth of Knowledge)
- Sequencing (BIG in post-reading activities)
- Characters and traits
- True/False
- Agree/Disagree

Feedback Loop

Student Whiteboards

- Immediate feedback
- Again, you can use graphic organizers, like Venn diagrams and T-charts
- Can use sheet protector if you don't have a class set of whiteboards

GREAT Examples

Hopefully, you were able to read the 2 books I delivered to your school in December.

Uncovering Student Ideas in Science

and

Tools for Thoughtful Assessment

From the looks of your reflection sheets, it looks like you all chose a wide variety of probes and prompts. Those 2 books serve as GREAT reminders that assessment is not always a multiple choice quiz at the end of a unit. The books are yours to keep. I hope you will continue to find nuggets in their pages.

Video Reflection

No doubt, you are getting to the point where you will be video-taping yourself teaching a STEM lesson. Remember, no one sees it but you.

After you have taped a lesson, sit down with the RTOP and grade yourself, just like we did with the adobe lesson Steve taught us in January.

You do **not** need to turn in your video or your RTOP, but you **do** need to turn in your RTOP Reflection Sheet.

Quick Write #2

- Write to the prompt
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Ok, get out your cell phone and set the timer for 3 minutes.

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Quick Write #2

List and describe various ways

to assess students

(you have 3 minutes)

Quick Write #2

When the timer has gone off,

- Count how many words you wrote.
- Cannot count "I have nothing else to write."
- Put number in top right corner.
- Graph your number (QW#2).
- Look at the two Quick Writes. Did you write more the second time? Did you write deeper, with more examples and less "fluff"? Did writing the first time help to activate your prior knowledge?