STEM is More Than an Acronym,

Especially in the Elementary Setting.

Tomika Altman-Lewis
A.I.G. Facilitator/Teacher
Fayetteville Street Elementary School
Durham Public Schools

Quick Write...
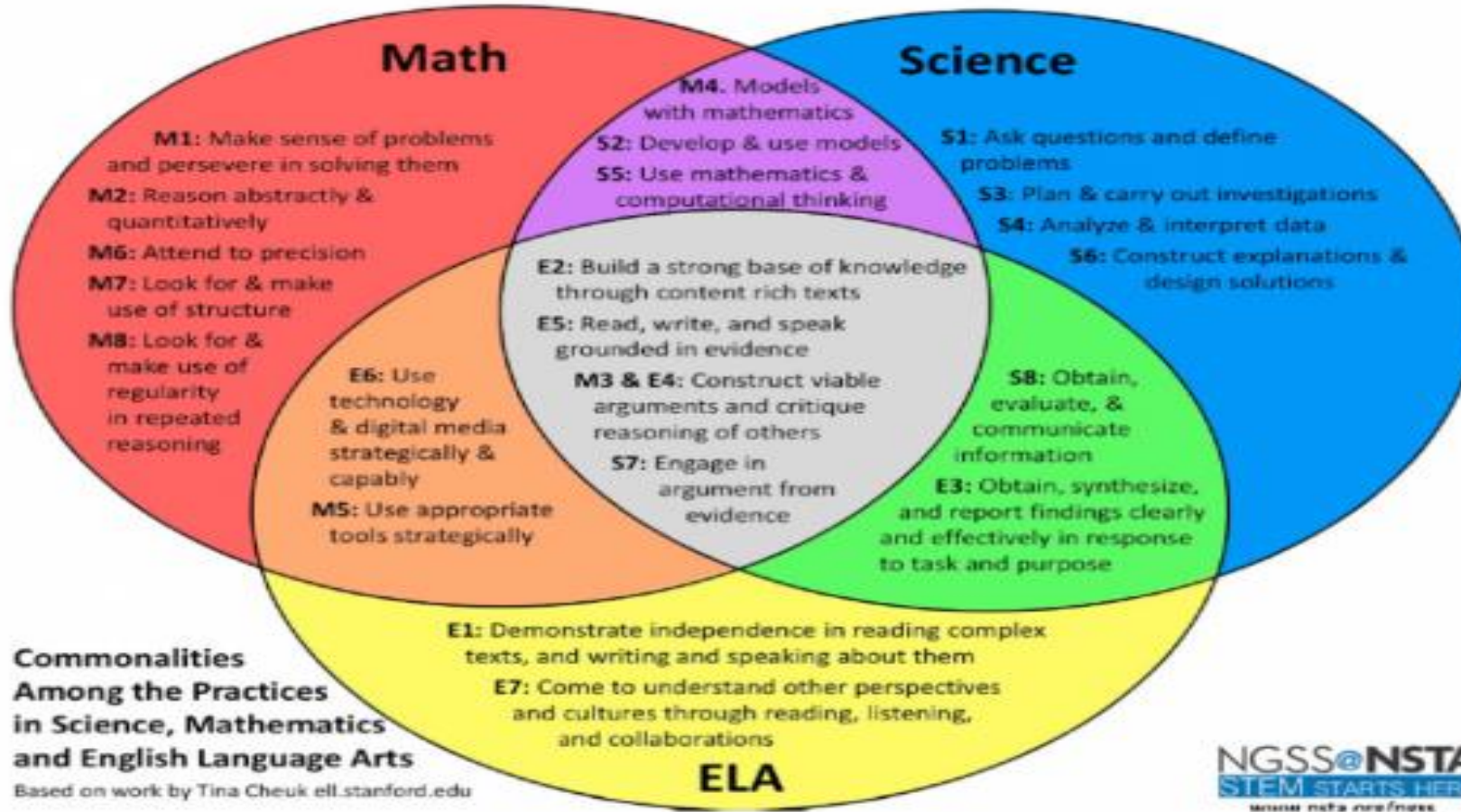
When you hear the word STEM what comes to mind?

Quick Write

- A quick write or fast write is a short written response.

- The teacher is trying to help students connect or show what they know about a topic by looking for evidence of their thinking.

- The focus is not on grammar, punctuation, and/or mechanics but on the content.

- Students will write for 3-5 minutes.

- Quick writes can be written on index cards, sticky notes, recycled paper or in journals/notebooks for any subject.

What is STEM?

- Science, Technology, Engineering, and Mathematics

- "Strategies that Engage Minds" Dr. Sam Houston

- It's interdisciplinary.

- It's a way to differentiate instruction.

- Allows students to develop a Growth Mindset.

- Fosters 21st Thinking Skills: Communication, Collaboration, Creativity, and Critical Thinking.

It's all Integrated

Five Overall Strategies for Today

- Collaboratively Speaking
- Writing Across the Curriculum
- The Power of LEGOs
- Getting the F.A.C.T.s
- The Engineering Design Process

Number Talk

1. Teacher presents the problem

2. Students figure out the answer.

3. Students share their answers.

4. Students share their thinking.

5. The class agrees on the "real" answer for the problem.

6. The steps are repeated for additional problems.

Number Talk

56 + 64 =

16 x 5 =

F.A.C.Ts – Fist to Five

- Students hold up their fist and/or fingers to show their level of understanding.

- A fist represents no understanding and five fingers represents full understanding

- Quick way to assess the entire class' level of understanding.

- Page Keeley

Open-Ended Responses

The answer is 24.

What is the question?

A rectangle has a perimeter of 24 units. What is the length and width?

What is the Math Problem?

Visible Thinking: See-Think-Wonder

- What do you see?

- What do you think is going on?

- What does it make you wonder?

Writing Across the Curriculum

- Anchor charts versus Posters

- R.A.F.T. (Role, Audience, Format, Topic)

- Journals

- Letters

- Learning Logs

  - I was surprised that I…

  - Two questions I still have are…

  - Something that stuck with me today…

Types of Science Writing

Types	Examples
Opinion (Argument Writing)	Arguments (claims based on evidence), persuasive essay, review
Information Writing	Science notebook entries, research report, blogs, informational poem, fact sheet, news article, how-to-book, directions, lab reports
Narratives	Stories of science: personal narrative, biography, nonfiction narrative, reflections (How did my thinking change? What did I learn?)

F.A.C.Ts – Agreement Circles

"Students form a circle in the classroom. The teacher gives a statement. They are asked to respond to the statement (Agree or Disagree). If they agree, they move to the center of the circle. Students who disagree stay on the outside of the circle. Groups/pairs discuss the statement and why they either agree or disagree. After they discuss, students are allowed to switch positions and move either to the outside or inside of the circle."

- Page Keeley

STEM in Action

Time to Explore.

Station 1 – STEM Mystery Bags

Station 2 – Write the Room

Station 3 – Exploring the Power of LEGOs

Station 4 – It's all Integrated – Literacy Exploration

Station 5 – Card Sorts

Wipe-Out for a Winner

You will need a 100's chart, a pair of dice, a piece of paper, and a pencil.

The object of the game is to completely cover your 100s board by creating equations.

How to Play:
- Roll your pair of dice twice so that you have four numbers.
- You will use these numbers to create equations.
- You can use any operation(s), but you can only use each number once for each equation.
    - Examples for 4, 6, 7, and 9
    - 4 + 6 = 10
    - 4 x 7 = 28
    - 4 + 4 = 8 (You cannot use four twice.)

    For accountability please write your equations on the piece of paper.

Smart

My dad gave me one dollar bill, 'Cause I'm his smartest son,
And I swapped it for two shiny quarters, 'Cause two is more than one!

And then I took the quarters and traded them to Lou,
For three dimes – I guess he don't know, that three is more than two!

Just then, along came old blind Bates and just 'cause he can't see,
He gave me four nickels for my three dimes, and four is more than three!

And then I took the nickels to Hiram Coombs down at the seed-feed store.
And the fool gave me five pennies for them, and five is more than four!

And then I went and showed my dad, and he got red in the cheeks
And closed his eyes and shook his head --- too proud of me to speak!

- Shel Silverstein

Opportunities for Teachers

- Kenan Fellows

- NC Science Leadership Association Fellows

- Burroughs Wellcome Fund PRISM and CASMT

- Mickelson Exxonmobil Teachers Academy

- SECME

- Raytheon EiE Teacher Scholarship Program

Thank You for Joining Me!

tomika.altman-lewis@dpsnc.net
http://integration-station.weebly.com