⅓ + ⅔ = Math Workshop

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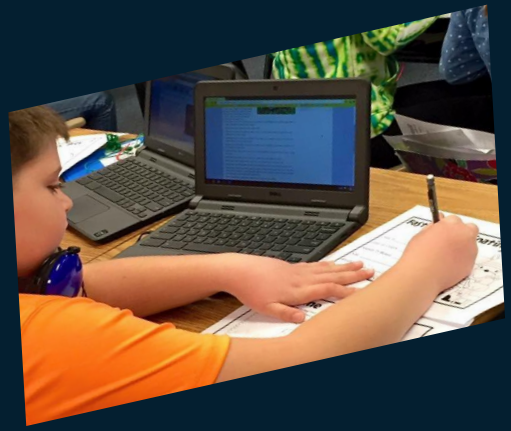


Welcome!

I am an Instructional Technology Coach

- I was 7th grade math teacher
- I was 6th grade math teacher
- I was 8th grade ELA teacher
- I was 8th grade math/science teacher
- I was 7th grade science teacher

Today's Learning Targets

- Make a connection between research/theory and classroom practice.
- Create flexible grouping based on readiness or interest.
- Connect skills and content to tiered learning activities.
- Apply workshop model to design a lesson with a current learning target.

My Beliefs...

"You have to be alert and detect moments about something you can affirm or question. You must be engaged and care about something enough to figure it out, and you must have the ability to do the thinking in question."

~Dr. David Perkins

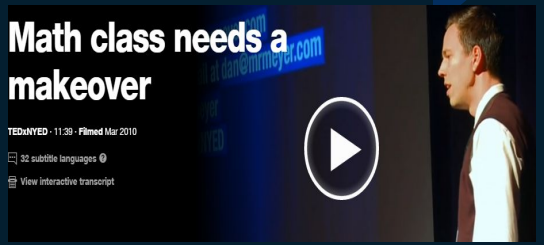
What Makes a Thinker

Project Zero
Harvard Graduate School of Education

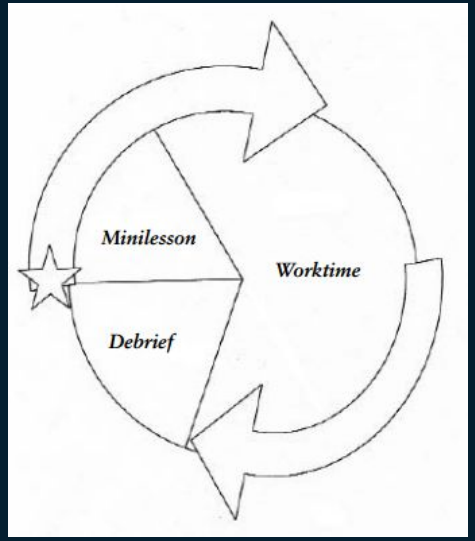
"I really hope you can see how what we're doing here is taking a compelling question, a compelling answer, but we're paving a smooth, straight path from one to the other and congratulating our students for how well they can step over the small cracks in the way. Students lack perseverance. They lack retention. This is really destructive. We need more patient problem solvers."

~Dan Meyer

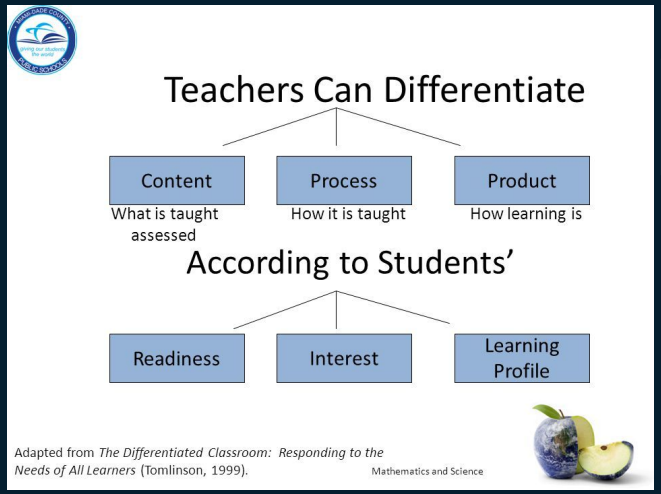
TED Talk March 2010



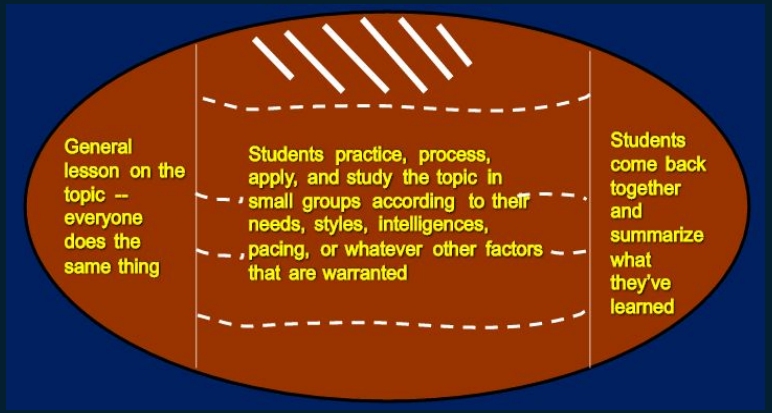
My Beliefs cont…



~Chris Tovani and
Sam Bennett
So What Do They Really Know?



~Carol Tomlinson
Expert in differentiation



~Rick Wormeli
Guru on grading and differentiation

1.
Teaching and Learning Differently

"If we have a mission to improve, we must allow students to struggle. A mission to improve with permission to struggle." ~Jason Markey

Where to begin...with the end!

- Identify your learning targets/objectives
- Create formatives and summative assessment
- Design and deliver any pre-assessment
- Design your learning experiences based on what you know about your students
  - collaborate to design an exploratory introduction(s) and your workshops

2.
The Dan Meyer Way

- Fold your paper into fourths and watch (Act I)
- In the upper left square, answer the following question:
  - How long should I set an alarm so I can take the longest possible nap without missing cousin Adarsh's graduation?

What's your best guess? What is an answer you know is too high/low? http://padlet.com/aallen21/math

Dan Meyer Cont...

- In the upper right square, what information would be useful to know?
- In the bottom left corner, collect the information you need as you watch the next clip (Act 2)
- In the bottom right corner, write the solution (Act 3) http://padlet.com/aallen21/math

(double click on a blank area to create a post-it)

Tillman the Skateboarding Dog

Research

- What have you seen or heard that aligns with research?
  - Choose an article (or two) to read and annotate

Workshop

H → A → T

M → H → A

FUNCTIONS		
Interpret Functions		
Grade 8		
Score 4.0	**In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught.**	
	Score 3.5	*In addition to score 3.0 performance, partial success at score 4.0 content*
Score 3.0	**The student will:** • Determine the rate of change and initial value of a function from a description of a relationship or from two (*x*, *y*) values (8.F.B.4) • Describe qualitatively the functional relationship between two quantities by analyzing a graph (for example, where the function is increasing or decreasing, linear or nonlinear) (8.F.B.5)	
	Score 2.5	*No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content*
Score 2.0	**The student will recognize or recall specific vocabulary, such as:** • *Analyze, decrease, function, functional relationship, graph, increase, initial, linear, model, nonlinear, qualitative, quantity, rate of change, relationship, sketch, value* **The student will perform basic processes, such as:** • Given the rate of change and initial value, determine the function that models the situation (8.F.B.4) • Sketch a graph that exhibits the qualitative features of a function (8.F.B.5)	
	Score 1.5	*Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content*
Score 1.0	**With help, partial success at score 2.0 content and score 3.0 content**	
	Score 0.5	*With help, partial success at score 2.0 content but not at score 3.0 content*
Score 0.0	**Even with help, no success**	

Interest, Skills, & Readiness

Essential Standard: Students use linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \cdot A$.

Learning Target: Students can compute unit rate, as the slope, and analyze proportional relationships using tables, graphs, and equations.

Students should be able to: Determine the appropriate function for the given graph/table and create a graph that models a qualitative relationship. Describe the relationship between two quantities by analyzing a graph.

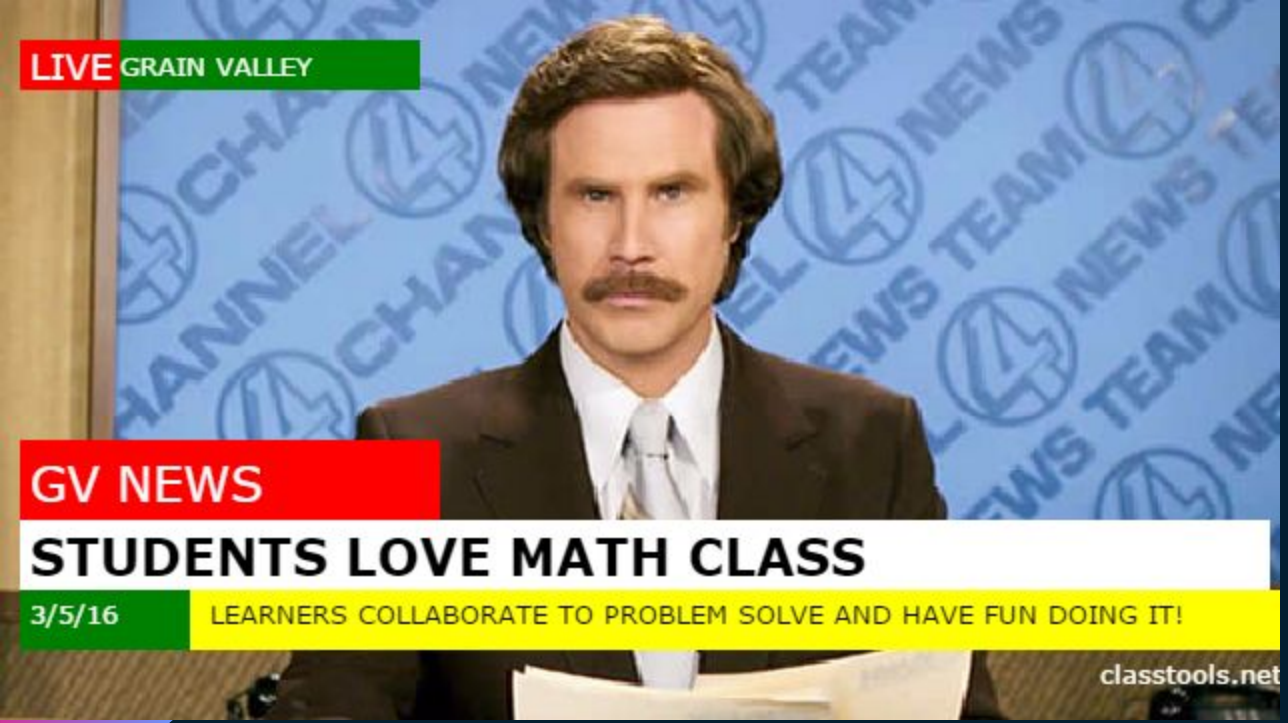
- **Using the learning profiles, determine which activity each student would start with? Why? Where would he/she go next?**

Your Turn

Choose a current learning target (objective). Using your planning sheet, create your own ⅓ , ⅔ plan. How could you alter your current approach?

Resources

- Dan Meyer Spreadsheet
- Robert Kaplinsky Lessons
- Math Mistakes
- Georgia Standards
- Illustrative Mathematics
- Yummy Math
- Engage NY
- Statistics K-12
- Pinterest



Any questions?

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Credits

Special thanks to all the people who made and released these awesome resources for free:

- Presentation template by SlidesCarnival
- Photographs by Startupstockphotos