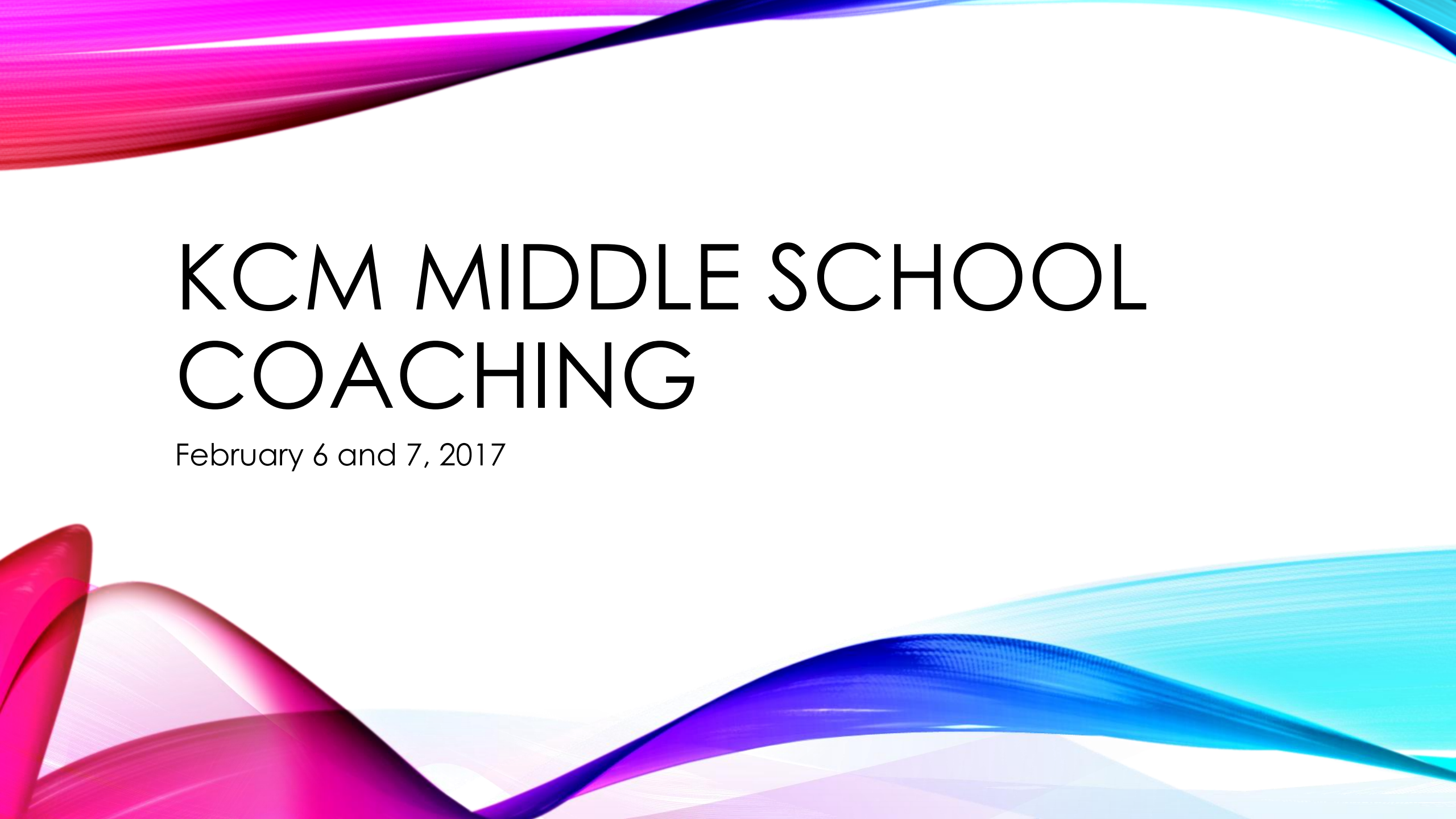




KCM MIDDLE SCHOOL COACHING

February 6 and 7, 2017

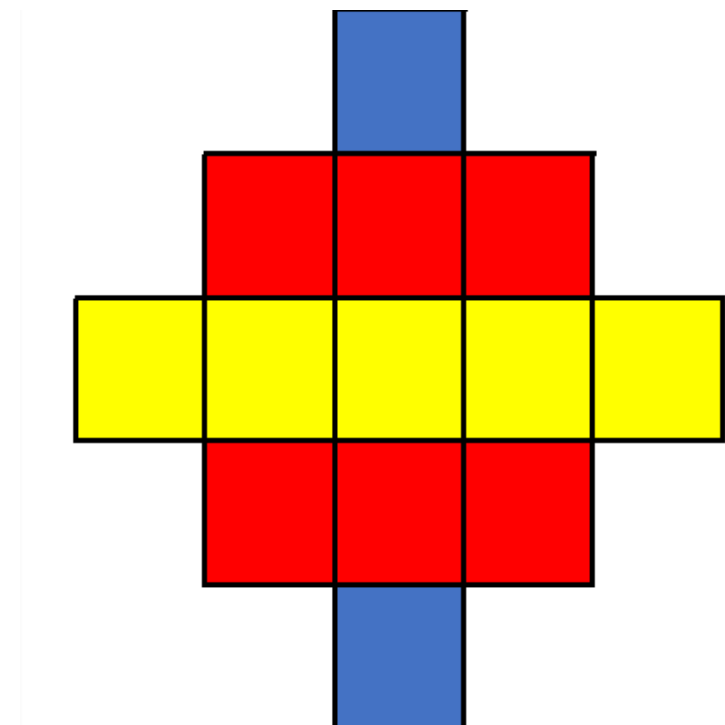
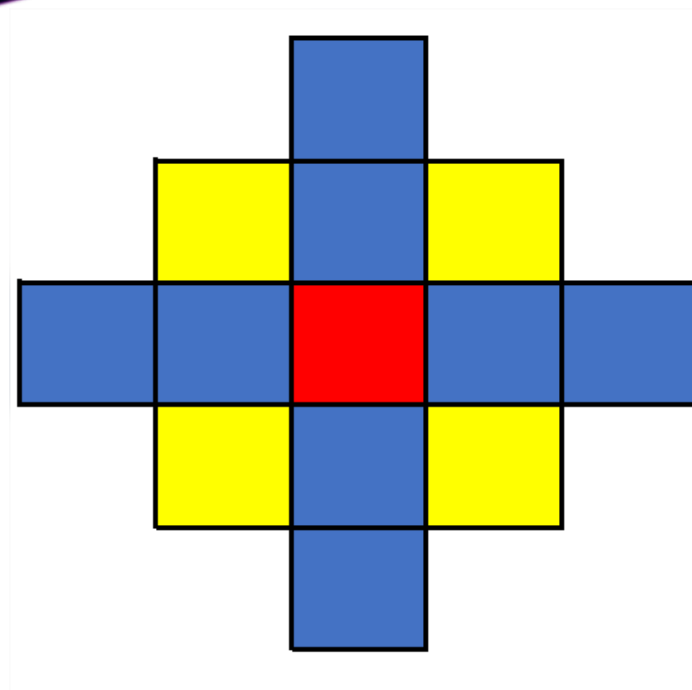
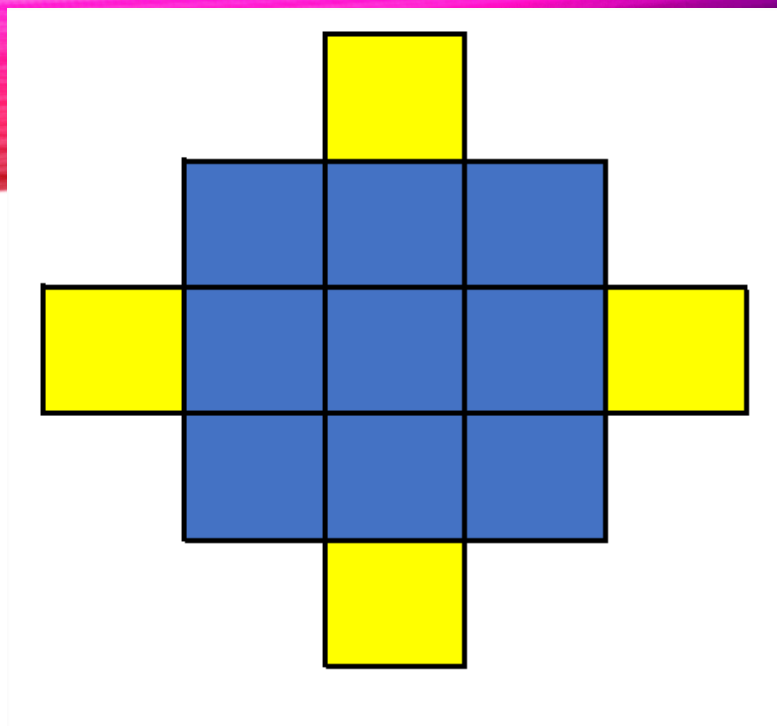
REDEFINING STUDENT AND TEACHER SUCCESS: HOW TO PROMOTE PRODUCTIVE STRUGGLE

- “Two Teachers’ Responses to Students’ Struggles to Solve a Multi-step Word Problem Involving Fractions”
- Chalk talk – Productive Struggle
- Robert Kaplinsky video
<http://robertkaplinsky.com/my-ignite-talk-on-productive-struggle/>
- “8 Teaching Habits that Block Productive Struggle in Math Students”

FOLLOW UP TO OUR WORK WITH JACKIE IN DECEMBER

- Jackie and her students were beginning a unit on functions where students would be connecting multiple representations including linear and non-linear patterns, rules, tables, and graphs. We planned lessons that asked students to look at visual patterns and explore how they “see” the pattern in different ways and then represent their thinking both in a colored pattern and expression.
- Video – Jackie’s follow up lesson, Math Congress; Using videos as a coaching tool
- Jackie’s share:
 - Congress
 - PLC
 - Other classes





$$1 + 3 + 5 + 3 + 1$$

$$1 + 4(2) + 4(1)$$

$$3(3) + 4(1)$$

$$5 + 2(3 + 1)$$

$$(5 + 5 - 1) + 4$$

Progressive Conversations

- What were Jackie's goals this year?
- Since we last met, in what ways have you and your students shown growth?
- Are there any new areas of strength or struggle?
- What content/standard will be working on?
- How have you normally taught this content in the past?
- Would you teach it the same way this year, why or why not?



Chapter 7 Slope and Association

In this chapter, you will learn how to:

- Create scatterplots that show the relationship between two variables.
- Identify associations between sets of data and represent the relationship with a trend line.
- Measure the steepness of a line by using slope.
- Find the slope of a line given its equation, its graph, or any two points on the line.
- Find the equation of a trend line to fit linear data.

Lesson 7.1.2 Is there a relationship?

Organizing Data in a Scatterplot

Lesson Objective:	Students will create scatterplots and identify whether there is a relationship between two sets of data. Students will draw a line of best fit and use it to make predictions.
CCS Standard(s):	8.SP.1
Mathematical Practices:	Students continue to model with mathematics today as they create scatterplots and draw lines of best fit. They will also begin to construct viable arguments (about association) and critique the reasoning of others .

Lesson 7.1.3 What is the relationship?

Identifying and Describing Association

Student lesson pages 285 – 292.

Lesson Objective:

Students will continue to develop their understanding of different associations and will consider the direction of an association. Students will create and use scatterplots to make predictions, if possible, and identify when it is not possible to make predictions.

CCS Standard(s):

8.SP.1, 8.SP.2

Mathematical Practices:

Again, students are **modeling with mathematics** and **constructing viable arguments** when describing associations. In this lesson they will need to **attend to precision** when creating their scatterplots, labeling and scaling the axes appropriately.

MAKING SENSE OF MATH

<http://robertkaplinsky.com/what-does-it-mean-to-understand-mathematics/>



How far apart are the exits for Junction 90 and Jefferson Blvd?

- Look at scatter plot power point, Cricket chirp activity, card sort activity, geoboard activity, CPM lesson, (Big Bang video clip)

https://www.youtube.com/watch?v=prafMmD_mx8



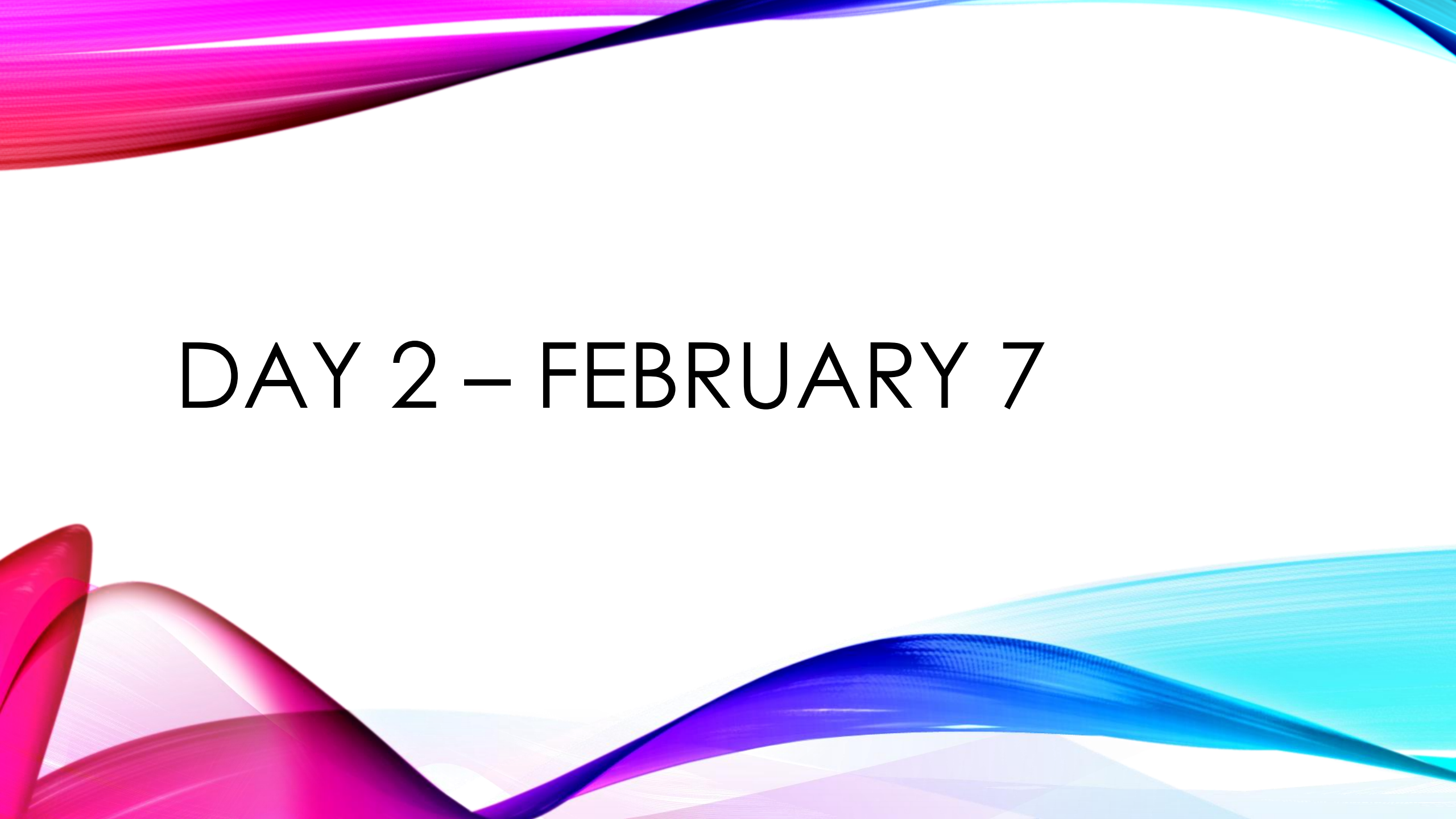
- What are pros and cons of these tasks?
- 8.SP.A.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
- 8.SP.A.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

WHAT'S THE GOAL?

- I can graph a scatter plot.
- I can determine the type of association of a bivariate set of data.
- I can analyze a scatter plot by looking for clusters and outliers and make predictions.
- I can interpret the relationship between two variables in context, when the data is represented in the form of a table and scatter plot.



- Content Coaching focuses on both the math as well as the pedagogy.
- In coaching we don't always have time to plan the perfect task for every lesson, but we can support teachers in making small changes to their instructional routines that encourage engagement and deeper thinking among students. These instructional moves can have a daily impact no matter what the activity.



DAY 2 – FEBRUARY 7

MAKING A DIFFERENCE

Tell us about a coaching success this year.



Tell us about a coaching challenge.

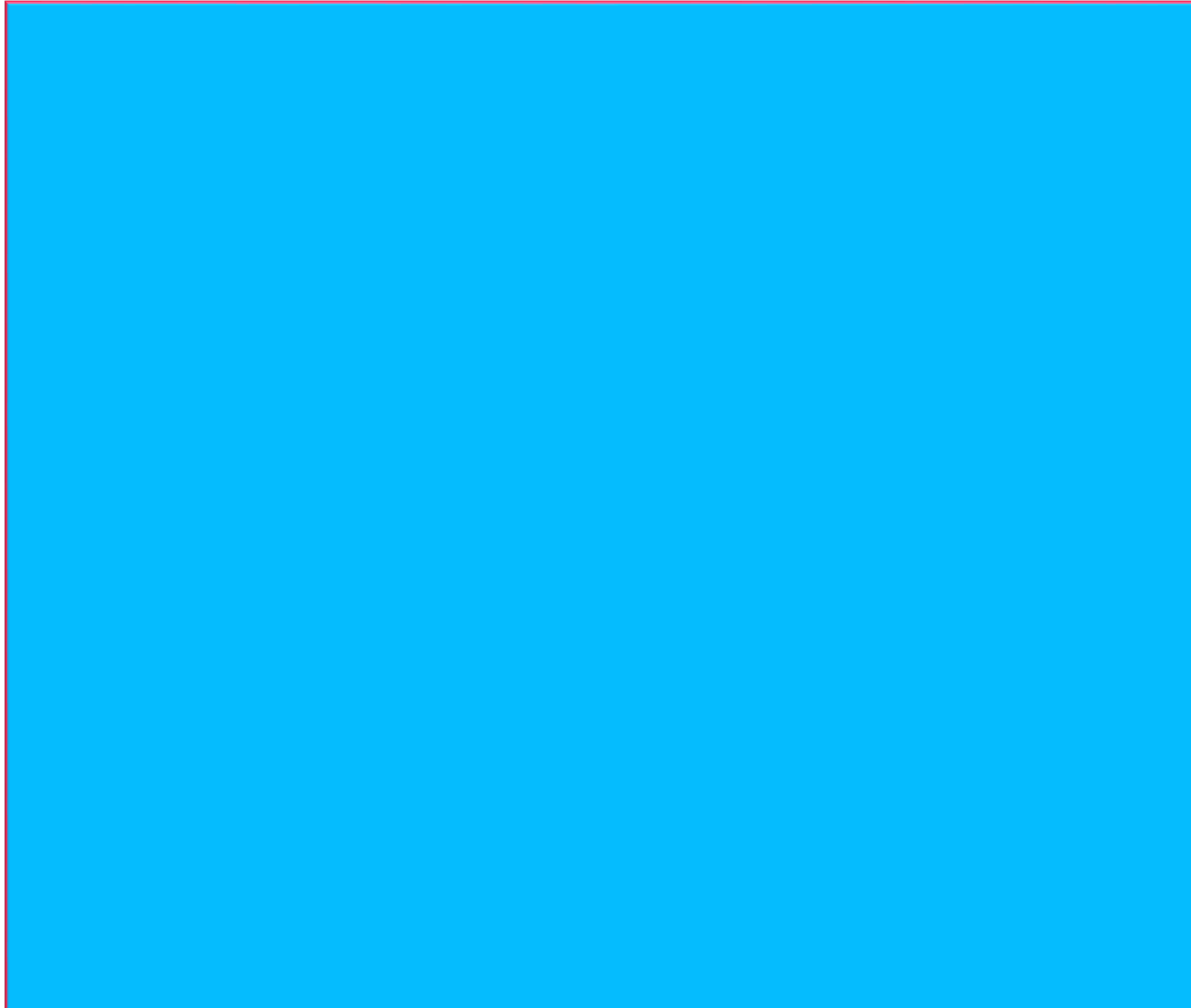
WEBEX TIME - DEBBIE



- Chapter 10: Adopting a New Math Program (adapted to meet our current needs)
- Strategy/Sharing Topic - Fawn Nguyen



NUMBER TALKS



NUMBER STRINGS

<https://mathsolutions.wistia.com/medias/kj0chno2v8>



KENKEN PUZZLES

$+$ $-$

2 $-$	3 $+$	2
		2 $-$
5 $+$		

14-1 www.kenken.com

$\times$ $\div$

4	12 $\times$	6 $\times$	
3 $\times$			2 $\div$
	12 $\times$	4 $\times$	

14-10 www.kenken.com

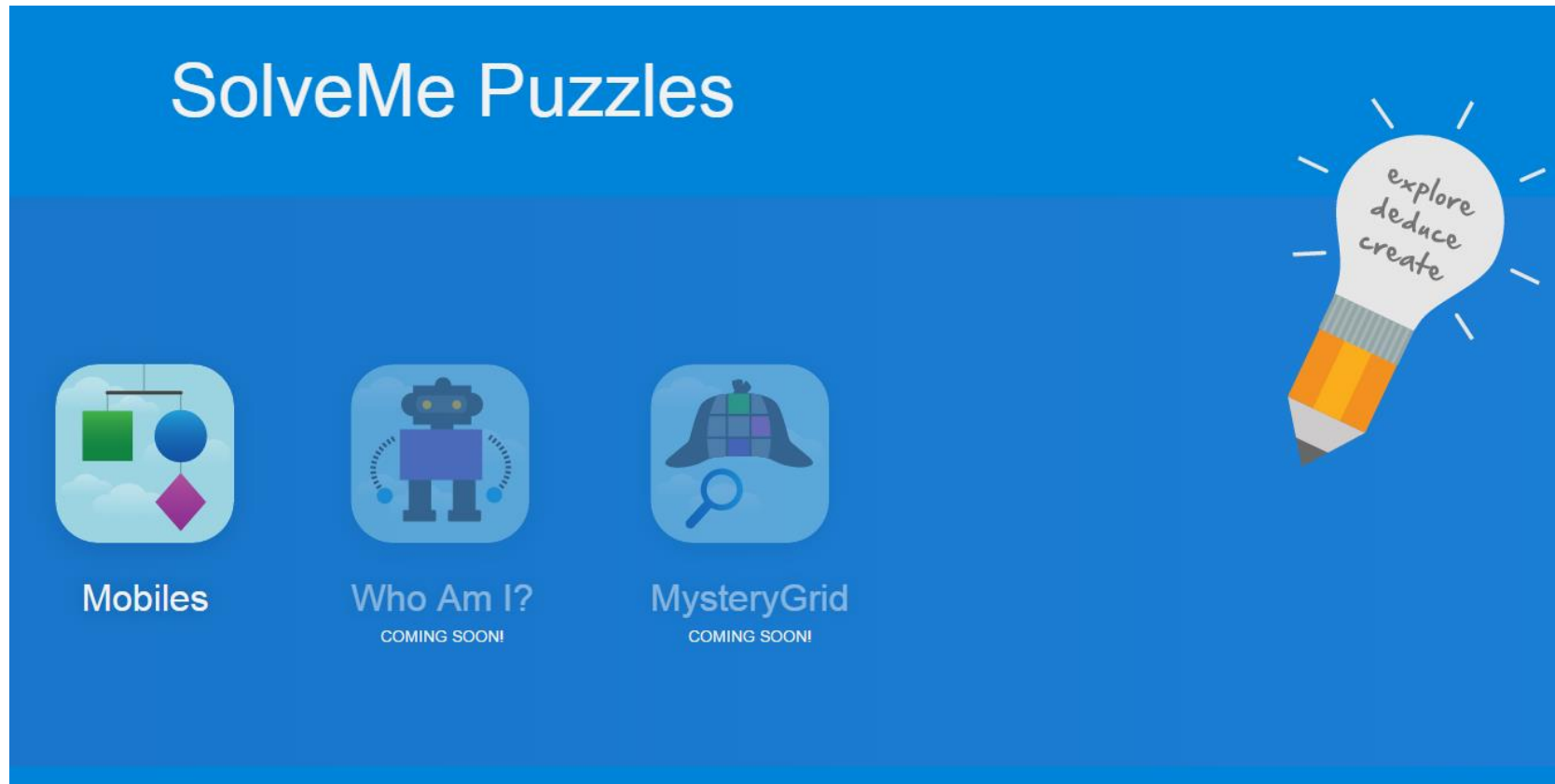
$+$ $-$ $\times$ $\div$ Challenging

24 $\times$			6 $+$	
6 $+$	2 $\div$		1 $-$	11 $+$
	15 $\times$	4 $-$		
			1	
20 $\times$			1 $-$	

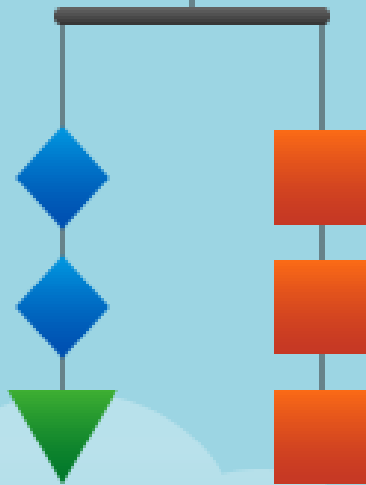
14-16 www.kenken.com

USING MOBILES TO SOLVE EQUATIONS

<https://solve.me.edc.org/>



42

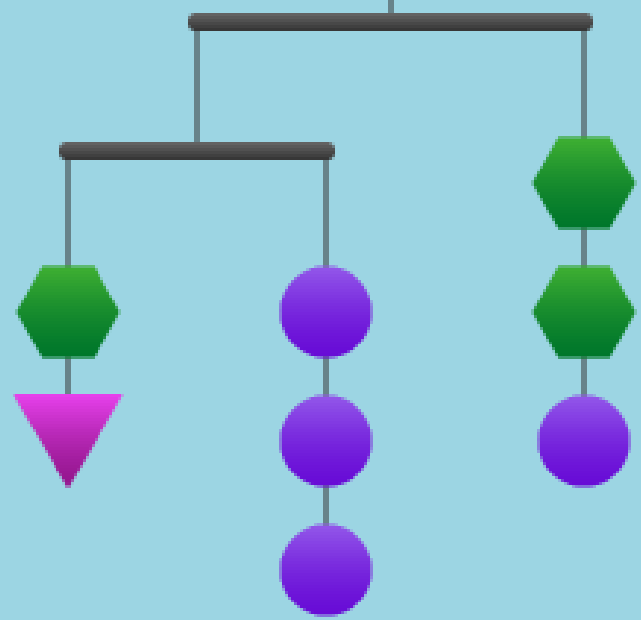


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24



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KCM PRESENTATION TOPICS?????

- Habits of Learning (not expectations of rules and procedures in class – behavior management but shift that mindset to the academics the learning and what it looks like) – tied to how a teacher can use it in their classroom

Draw a picture of what learning looks like in your classroom (walk around to pick out the ones we want to share and that model this as something that they can do in their classroom – being observant of who is doing what and not just asking for cold volunteers)

- Open Tasks – get a closed task and come up with ways to open it up, so that students are encouraged to use the mathematical habits of mind
- Growth Mindset
- Coaching

Roles for Habits of Mind

Adapted from *Habits of Mind: An Organizing Principle for Mathematics Curriculum* Al Cuoco, E. Paul Goldenberg, and June Mark, 1996

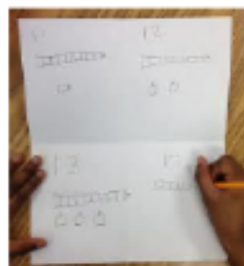


Pattern Sniffer

I look for patterns among a set of numbers or figures or letters.

Tinkerers

I “play around” and investigate. I can take ideas apart and put them back together. I stick with my work and try a different approach if needed.



Visualizer

I draw pictures or make diagrams to help me understand a problem.

I “see” math. I can understand drawings and diagrams.

Experimenter

I question and then experiment. I record and study results. I perform thought experiments.



Inventor

I can invent mathematics. I can model a situation. I use math for fun (in games) as well as for finding a solution to a problem.



Describer

I can describe clearly a problem, a process, or a strategy. I use language appropriate for the audience.



Conjecturer

I make conjectures and predictions about patterns in numbers, for example. I can explain and support my conjectures.



Guesser

I make clever guesses based on things I already known as well as new patterns and relationships I have observed.

