

As we wait...

Do the “*Four-Color Square*” Activity:

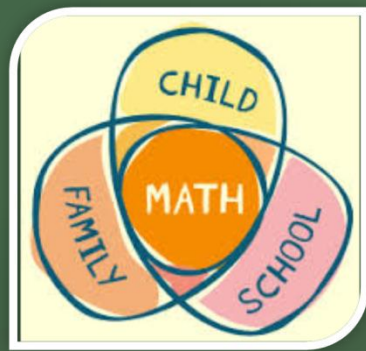
Make a square using sixteen tiles, four of each color. Arrange the tiles so there is exactly one of each color in each row and column. See if you can do this so that the diagonals also have one of each color.

Creating & Implementing
CCSS-Based Family Math Nights:
Scaffolding Success in Grades 3-5

If you have conducted a Family Math Night or other parent involvement event in the past, what was your **GREATEST CHALLENGE**?



“Families have a major influence on their children’s achievement in school and through life. When schools, families and community groups work together to support learning, children tend to do better in school, stay in school longer and like school more.”



~The Impact of School and Family

Agenda

- 1) Organizing a FMN (Opening)
- 2) “Hands-On” Activities/Stations (Worktime)
- 3) FMN Implementation (Closing)
- 4) Q & A...then DOOR PRIZES 😊



The Book Club Task

The book club earns 10 points for each box of oranges it sells. So far, the club has sold 26 boxes. The points can be used to buy books. Each book costs 20 points. How many books can the club buy? Explain your answer by drawing a picture of each step.



Why should YOU organize a Family Math Night?

- It gives parent and child a risk free environment in which to experience math activities
- Allows parents to see how something fun can also be concept building and educational
- Promote math dialogue
- Gives children opportunity to see that their parents value mathematics
- It helps parents gain insight into Common Core State Standards (“The goal is not for the parents to teach the standards but to support them & help them build their toolbox.” - Bon Crowder)
- Helps parents realize that enjoying mathematics and being good in mathematics is not “genetic”
- Title 1 requirement (School-wide or targeted grades)

Write a Plan

- Create a time line and stick to it
- Choose a night that does not conflict with other events
- Choose a time that is convenient for most families
- Plan the event around a theme or holiday
- Decide on the range of grade levels to be included
- Begin generating a list of activities and gathering materials
- Use inexpensive games with easily obtained materials
- Where is the best place to hold this type of event (location)?

Get Help

- It is suggested that you team with someone else when conducting a Curriculum Night (involve others such as teachers, parents, high school students, community members, local school council and PTA in the planning)
- Contact the community college professors – field hours for students
- Offer a training session (if applicable) on overseeing the games for the helpers
- Call local businesses to donate door prizes
- If wanted, bring in community workers that use math in their careers such as the nurses, postal workers, store owners, etc.

Generate Interest

- Post flyers around school & community
- Visit classrooms and talk to the students about the family night
 - Play a sample game with the students
 - Show or display prizes that can be won at the event
- Give free homework passes to all students who attend
- Make announcements on the intercom everyday for a week prior to the event

Prepare in Advance

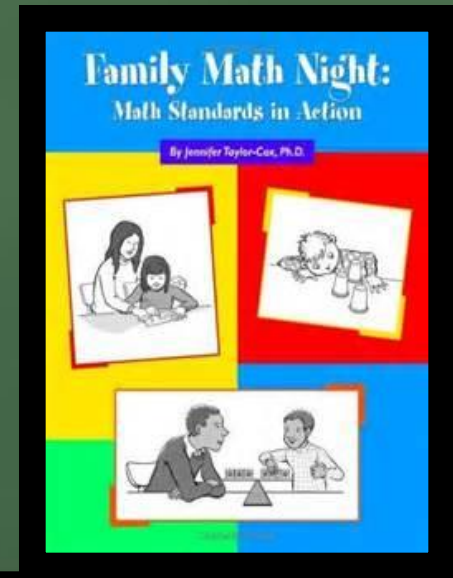
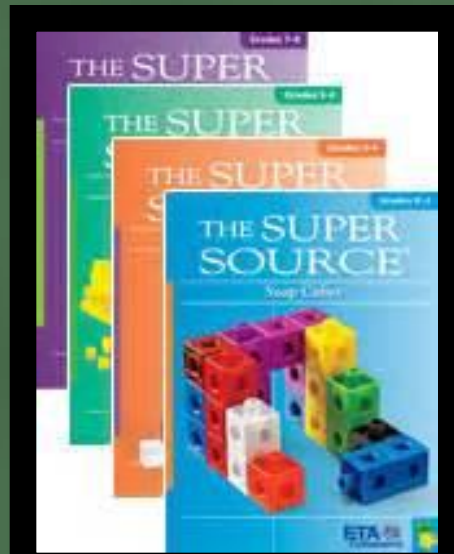
- Create, send & gather flyers/response cards
- Collect parent resources, sign-in sheet, pens/pencils, etc.
- Compile all needed items for easy set-up
- Begin purchasing snacks and gathering door prizes
- Select an anchor activity & evaluation process
- Tie the evaluation to the door prize in some fashion (to ensure that participants stay until the end)
- Assign someone to be the photographer
- Make copies & create packets or stations
- Plan (if needed) for Non-English Speaking Families...

Support other Cultures



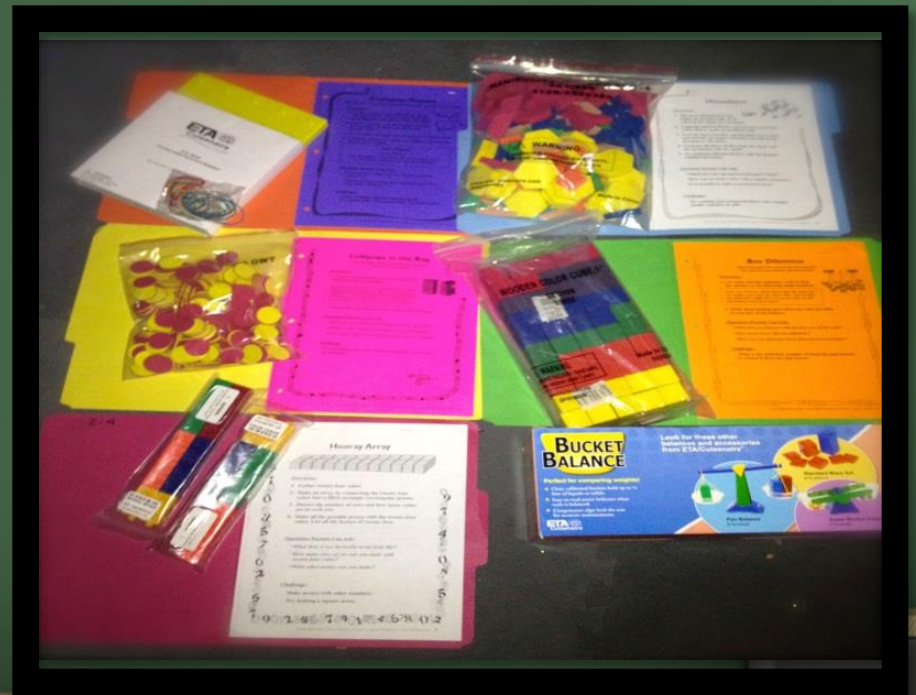
- These events can be an excellent way to reach families that do not speak English
- It provides a comfortable way for them to become involved with school culture.
- A translator will be needed, but make sure you allow time for these conversational transitions to be completed before moving on too quickly.
- Important to provide translations of the flyers & handouts to make sure all questions are answered. (Google Translator/ESOL Coordinator)
- Your explanations will be important in encouraging families to return.

Preparing CCSS-Based Stations



Sample CCSS Stations/Centers:

- Measurement & Data = Green
- Numbers & Operations/Fractions = Red
- Numbers & Operations/Base Ten= Orange
- Operations & Algebraic Thinking= Blue
- Geometry= Yellow



Making Rectangles

Materials: 1 Decahedra Die, Color Tiles, Paper

1. Player 1 rolls the number die once to determine how many Color Tiles will be in each row.
2. Player 1 rolls the number die a second time to determine the number of rows of Color Tiles.
3. Player 1 uses the two numbers and the Color Tiles to build a rectangular array of rows and columns. Player 1 uses the terms *row* and *column* to explain the array to Player 2.
4. Player 1 writes a multiplication sentence to model the array. Player 2 checks it.
5. Player 2 repeats Steps 1–4.
6. Both players compare answers. The player with the greater product earns one point. The first person to earn four points wins the game.



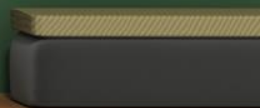
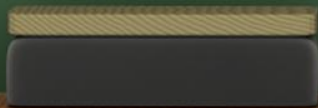
Write/Draw Extension Activity

Make rectangle arrays using 12, 17 and 24 tiles. Write multiplication sentences for each array. Which number has the fewest number of multiplication sentences? Describe its array(s). Explain.

“Loose Links” Game

Here are the rules.

- This is a game for 2 players. The object is to be the player who has the greater number of Color Tiles when the game ends.
- Players make a pile of 37 Color Tiles. They decide who will go first.
- The first player writes the beginning of a division problem, 37, and rolls the die
- to find out how many chains of equal length to make from the 37 tiles.
- The first player makes chains that are as long as possible, and says how many “loose link” tiles are left, then completes the division problem.
- Now, the first player takes and keeps any loose links.
- The second player begins a turn using the tiles that are left. Since there were 2 loose links in the example above, the second player would begin with 35 tiles and would write 35.
- Players keep on playing until all the Color Tiles have been taken. Whoever ends up with more tiles is the winner.
- Play at least 2 full games of Loose Links.
- Look for patterns in the division problems.



Thinking & Sharing

- What patterns did you notice in the division problems?
- For which numbers could you make two chains with no loose links? For which could you make three chains with no loose links? How about four chains? five? six?
- What happened when a 1 was rolled?
- Which numbers always had loose links unless a 1 was rolled?
- Which numbers had the greatest number of ways to get chains with no loose links?
- What happened in the game when these numbers were rolled?

Writing

- Ask children to tell how they knew what division problem to write at the beginning of one of their turns.

“The Last Survivor” Game

Play Last Survivor!

Here are the rules.

1. This game is for 2 players. The object is to be the player who takes the last tile.
 2. Players lay out 13 Color Tiles.
 3. Players take turns removing 1 or 2 tiles at a time. No player may skip a turn.
 4. The player who takes the last tile is the Last Survivor and wins the game.
- Play several games of Last Survivor.
 - Be ready to talk about good moves and bad moves.



Thinking & Sharing

- How did you decide what moves to make?
- Did you find any strategies that worked? Explain.
- Does it matter who goes first? Explain.
- Is there a way to win every time?
- What would happen if you changed the number of tiles you started with?

Drawing and Writing

- Use pictures and words to show a strategy for winning Last Survivor.

Extending the Activity

1. Repeat the activity but change the number of tiles you start with.
2. Repeat the activity but change the number of tiles a person may take in a turn.
3. Play the game again, only this time the person left with the last tile loses the game.

Line Up Four



“Fraction Bars” Task

Can you make a Color Tile fraction bar and then write a set of clues so that someone else could build it?

- Work with a partner. Choose 6, 8, 10, or 12 Color Tiles and arrange them in any way to form a fraction bar.
- Decide what fractional part of the whole bar is represented by each color you used.

For example: B B Y R R R

Blue: $\frac{2}{6}$ or $\frac{1}{3}$ Yellow: $\frac{1}{6}$ Red: $\frac{3}{6}$ or $\frac{1}{2}$

- Record your fraction bar on grid paper. On the back of the paper, write a list of at least 3 clues that describe the fractional parts of your bar. Write each clue in this form:

Our fraction bar is — — — blue.

- Exchange lists with another pair. Be careful not to peek at the back of the list! Follow the clues to try to build the other pair’s fraction bar.
- When you have finished making the fraction bar, turn the list of clues over and compare what you built to the recording.
- Discuss your results with the other pair.



Thinking & Sharing

- What clue did you write to describe the part of your own fraction bar that was blue? the part that was red? the green part? the yellow part?
- Did you need to read all the clues to build the other pair's fraction bar? Explain.
- If you could not build a matching fraction bar by following the other pair's clues, why do you think this happened?
- Is it possible for one set of clues to describe more than one fraction bar? Explain.
- Do you think that any of the clues you wrote should be changed? Why? How could you change them?

Writing

- Have children make a fraction bar and write as many different fraction clues as they can about the colors in the bar.

Extending the Activity

- Have two pairs work as a group to combine the tiles they used in their two fraction bars and then list five clues that describe this combined bar.



Estimating & Measuring

Mr. Johnson asked his students to measure objects in inches. Charles is a new student in Mr. Johnson's class. He is from England. Charles told Mr. Johnson that people used centimeters to measure in England. Mr. Johnson told Charles to measure objects with Centimeter Cubes while his partner measured with 1-inch Color Tiles. Who used more units to measure?

- Estimate then measure 3 items in this room in both inches and centimeters.



BOOM!

Goal: To capture the most tongue depressors

Strand: Mixed Operations

Skill Objective: Basic Facts Practice



- 1) Players take turns drawing tongue depressors and giving the answers to the problems written on them.
- 2) If the player answers correctly, he may keep the tongue depressor. If he answers incorrectly, he must return the tongue depressor to the container and play continues.
- 3) When a tongue depressor with "Boom" is drawn, the player must return all of his tongue depressors to the container and play continues.
- 4) The winner will be the player with the most tongue depressors either after a set period of time or after all the tongue depressors have been captured.

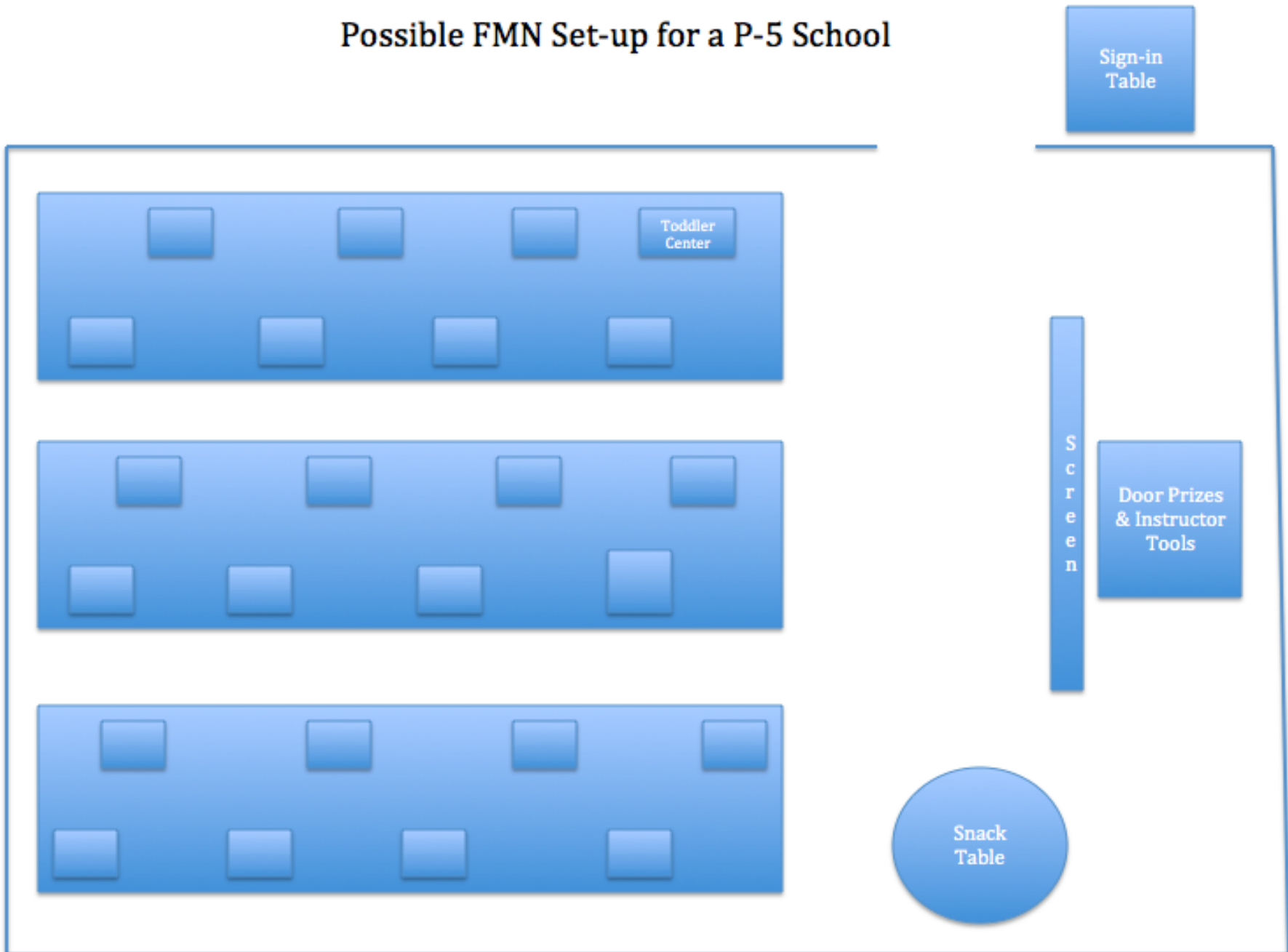
Construction Directions:

- A) On as many tongue depressors or Popsicle sticks as you wish, write basic facts problems that need to be worked on.
- B) On one or more of the tongue depressors or Popsicle sticks write the word "BOOM".

The Day of...

- Dress professionally
- Place needed items at stations (manipulatives, paper, directions, etc.)
- Arrange furniture the way you like it (so all participants can see and hear)
- Make sure you have enough materials and/or handouts for everyone
- Set up resource and snack tables
- Remember to have sign-in sheet, hand out evaluations @ the end and have a photographer...important (documentation)

Possible FMN Set-up for a P-5 School

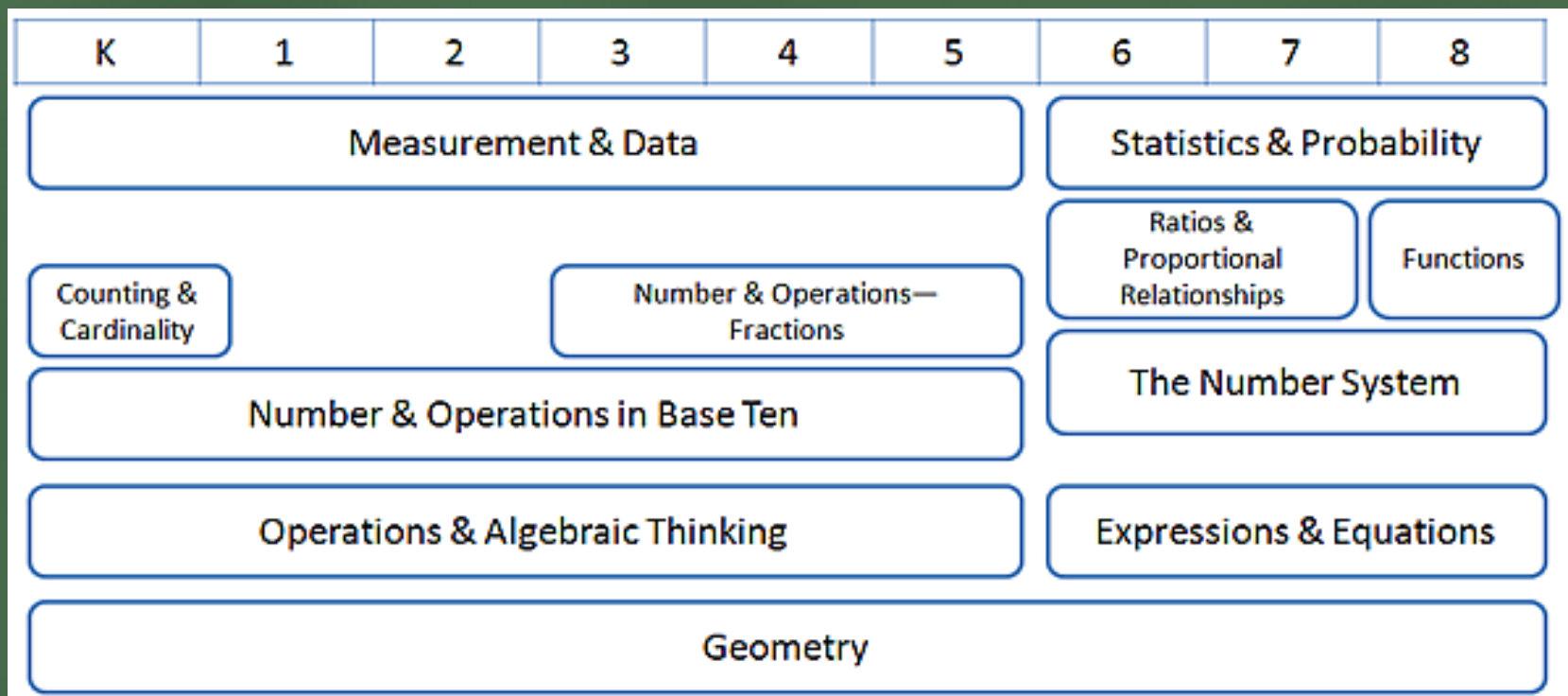


Reflection

- What went well? Why?
- What did not go well? Why?
- What would you do differently?
- Send a follow up letter or email home to those who attended.
- Post a sample station or packet to the school website and/or social sites.



CCSS Domains



CCSS Mathematical Practices

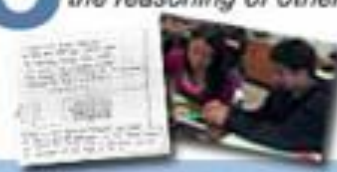
1 *Make sense of problems and persevere in solving them.*



2 *Reason abstractly and quantitatively.*



3 *Construct viable arguments and critique the reasoning of others.*



4 *Model with mathematics.*



5 *Use appropriate tools strategically.*



6 *Attend to precision.*



7 *Look for and make use of structure.*



8 *Look for and express regularity in repeated reasoning.*



“The only requirements in implementing a Family Math Night is the belief in the importance of family involvement in education and the desire to share mathematics in a non-threatening and enthusiastic way.”

Thompson, Virginia and Mayfield-Ingram, Karen. *Family Math The Middle School Years*. 1998. EQUALS. Lawrence Hall of Science. University of California. Berkeley, CA

Door Prize Time!

3-2-1 strategy:

3- Things you learned today

2- Items you want to try

1- Question you still may have

Thank you for your time!

~Stephanie Shultz ☺

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