

# Math Workshop/ Balanced Numeracy - Setting the Foundations Gr. K - 2



October 1st, 2018

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# Acknowledgement

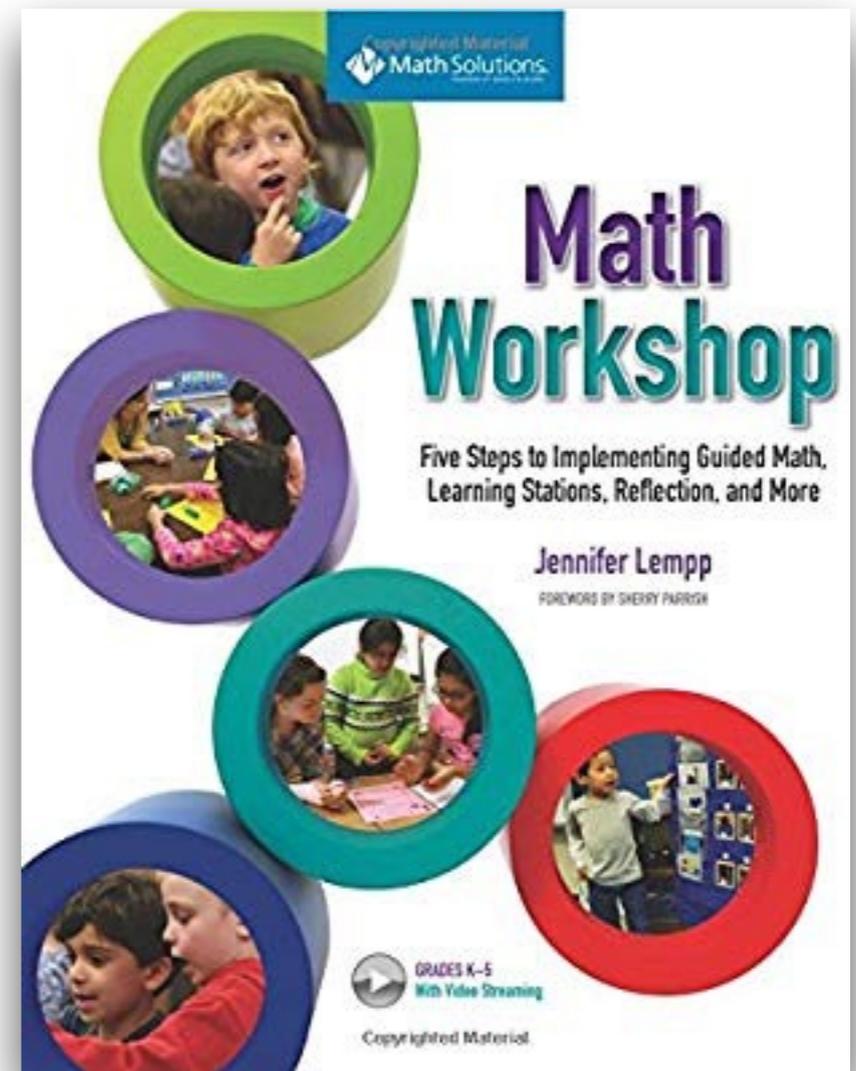


Before going any further, it is important that we recognize that we are here today on the unceded, shared territories of the Coast Salish people on which our schools are located. We are so grateful and honoured to be able to live, learn, and create on these beautiful lands.

# Learning Intentions

By the end of the session, I hope you will leave with answers to:

- What is Math Workshop?
- Why would you want to use this approach?
- What are the foundations needed for Math Workshop to work?
- How do you get started?

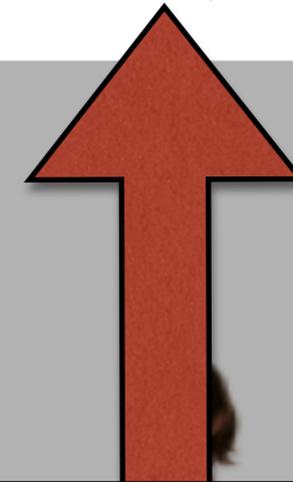


LRS #179550

# Where can you find this PPT?

[www.meaningfulmathmoments.com](http://www.meaningfulmathmoments.com)

HOME MUSINGS RESOURCES INSTRUCTIONAL IDEAS PRESENTATIONS/PUBLICATIONS



Click the  
Presentations tab

## Meaningful Moments in MATHEMATICS



Welcome! Thanks for stopping by my site. I was inspired to write down my [Mathematical musings](#) by several other Math educators who have generously shared their stories with me either through workshops, blogs, Twitter, or through publications and have inspired my love of Mathematics and shaped my practice.

I have taught Kindergarten through Grade Five in both Richmond and the Surrey School District. This year I am in a new role. I have joined the Numeracy Helping teachers and will be working primarily with K - 7

Search

Tweets by [@Barkerjbarker](#)

 **Jennifer Barker**  
[@Barkerjbarker](#)  
Check out all the amazing K - 7 sessions!  
Titles and descriptions are online  
[#sd36learn](#)

# Why Math Workshop/Balanced Numeracy?

$$242 - 196 =$$

No talking

Work independently

Be as quick as you can

Be prepared to prove your are correct

Could all students access  
this question?

$$\begin{array}{r} \overset{1}{\cancel{2}} \overset{3}{4} \overset{1}{\cancel{2}} \\ - 196 \\ \hline 46 \end{array}$$

Can you explain why  
you crossed the four out  
and moved over a one ?

Julie had many hockey cards. She put most of them into a binder.



Julie had 246 hockey cards. She put most of them into a binder.



Julie had 246 hockey cards. She put 196 of them into a binder.



Julie had 246 hockey cards. She put 196 of them into a binder. How many cards are not in the binder?



## A Naked Number Problem

$$246 - 196 =$$

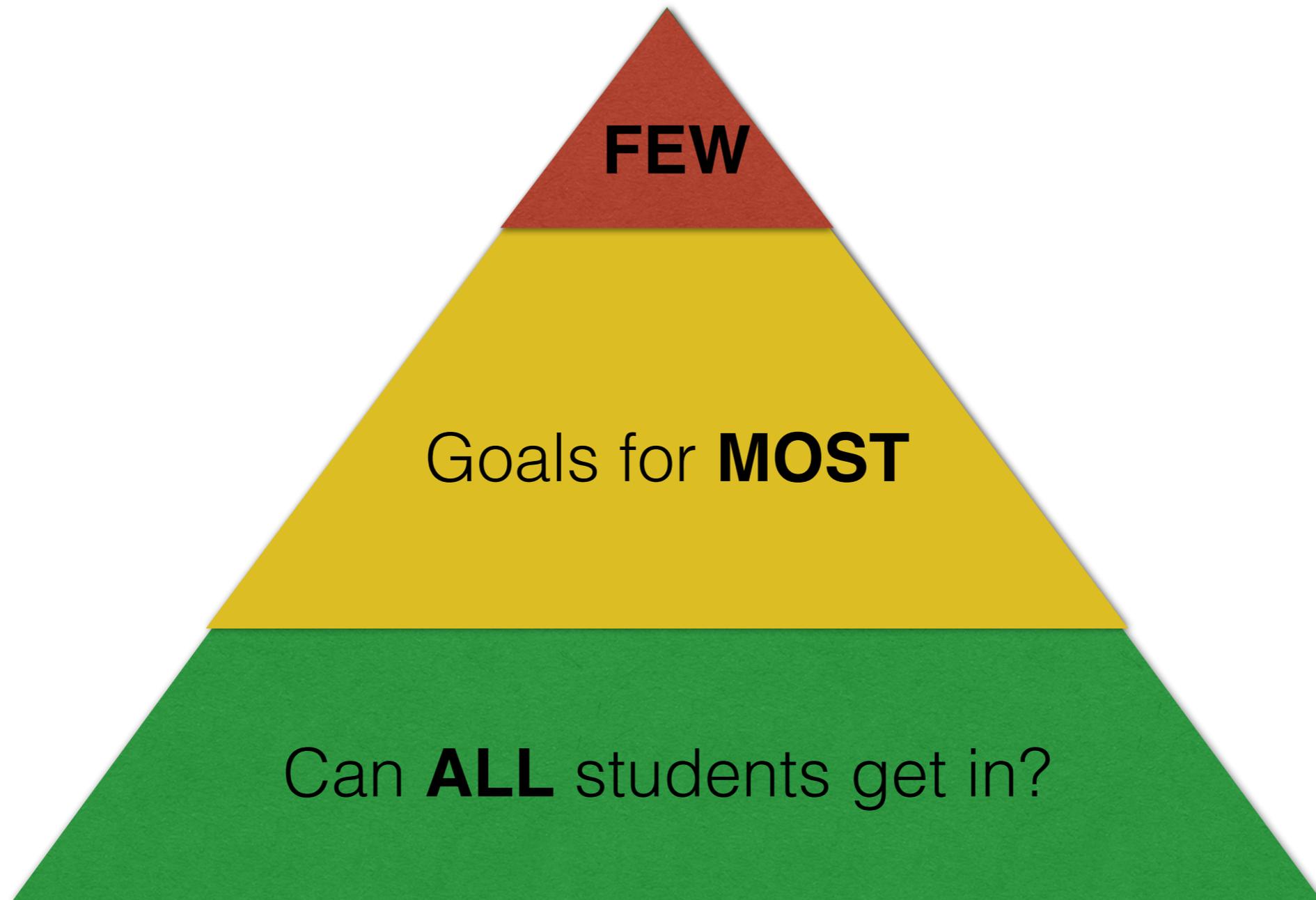
$$\begin{array}{r} 246 \\ -196 \\ \hline \end{array}$$

## Contextual Problem Solving

**Julie had 246 hockey cards. She placed 196 into a binder. How many cards were not in the binder?**

Which problem has different entry points for students who may not have prior knowledge of the traditional algorithm?

Math Workshop is about designing  
Learning for **ALL** our students!



I'm doing number sense routines. I am doing whole class problem solving and I have stations but I don't really know why or how they all fit together?

HELLO

I need

*HELP*

I've got a combined class and  
I am not sure how I can  
engage, challenge and  
support the needs of ALL my  
learners in my classroom?

HELLO  
I need

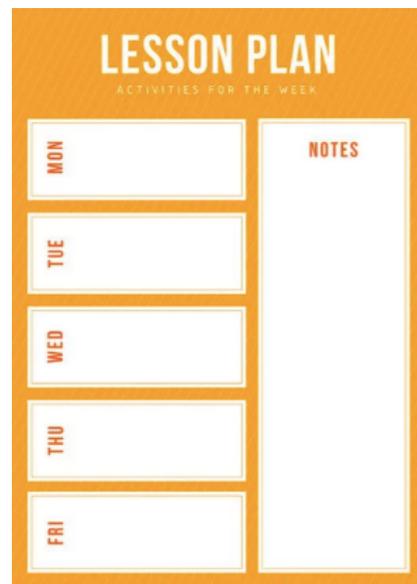
*HELP*

An average teacher may be reaching 50 - 70% of their students. A great teacher may be reaching at any time 50 - 70% of their students, but a different 50 - 70% each time. They use a variety of strategies, instructional methods to differentiate.

– Eric Jenson (2003)



# Traditional Math Lesson Structure

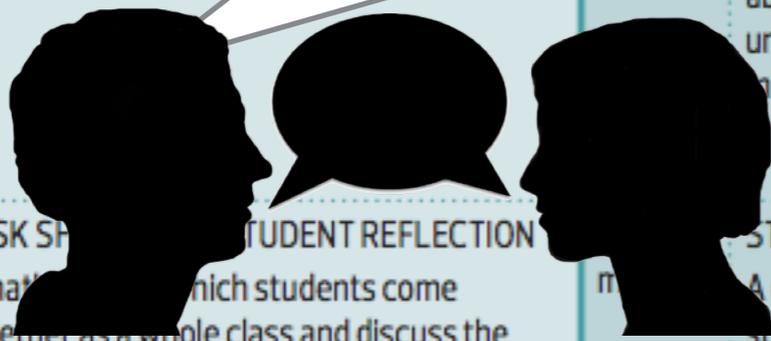


|            |   |
|------------|---|
| 5 minutes  | <b>Warm Up</b>  |
| 15 minutes | <b>Homework Check</b>   |
| 30 minutes | <b>Teacher Model/Guided Practice</b><br><p>Teacher stands at the board showing the steps/procedures of how to solve a problem. The teacher models problems until they feel the students comprehend the procedure.</p> |
| 10 minutes | <b>Student Independent Practice</b><br><p>Students spend time completing a worksheet or pages in a textbook.</p>  |
| 2 minutes  | <b>Assign Homework</b>  |

# Math Workshop Structures

| TASK AND SHARE |   | FOCUS LESSON, GUIDED MATH, AND LEARNING STATIONS |  | GUIDED MATH AND LEARNING STATIONS |  |
|----------------|---|--|--|-----------------------------------|--|
| 5–10 minutes   | <b>NUMBER SENSE ROUTINE</b><br>An engaging, accessible, purposeful routine to begin your math class that promotes a community of positive mathematics discussion and thinking.  | 5–10 minutes                                     | <b>NUMBER SENSE ROUTINE</b><br>An engaging, accessible, purposeful routine to begin your math class that promotes a community of positive mathematics discussion and thinking. | 5–10 minutes                      | <b>NUMBER SENSE ROUTINE</b><br>An engaging, accessible, purposeful routine to begin your math class that promotes a community of positive mathematics discussion and thinking. |
| 30 minutes     | <b>MATH TASK</b><br>A problem-solving activity in small groups that probes students' understanding of a concept. The task typically allows for all students to solve the problem.   |  |  |                                   | <b>LEARNING STATIONS</b><br>Activities in which students engage in meaningful mathematics and are provided with purposeful choices.  |
| 20–25 minutes  | <b>TASK SHARE AND STUDENT REFLECTION</b><br>A math task in which students come together as a whole class and discuss the various strategies they used to solve the problem. Students ask questions, clarify their thinking, modify their work, and add to their collection of strategies. |  | <b>STUDENT REFLECTION</b><br>A deliberate and meaningful time for students to consider new learning.   |                                   | <b>STUDENT REFLECTION</b><br>A deliberate and meaningful time for students to consider new learning.   |

How is your current structure similar to math workshop? How is it different?



# Math Workshop IS...

- students doing most of the math
- students making choices
- students enthusiastically talking about their mathematical thinking and reasoning with each other
- teachers facilitating, clarifying, connecting, monitoring, and collecting data as students solve problems
- students working collaboratively
- teachers allowing students to struggle with challenging mathematics
- teachers working with small groups and/or individual students



“Math Workshop is simply good mathematics instruction... It is more of a philosophy than a lesson plan template.... [it] includes accessible mathematical tasks, open-ended problem solving, small-group instruction, student choice, and time for practice of important concepts throughout the year. It can and should look different in the hands of different teachers working in different schools.”

– Jennifer Lempp (2017)



# Setting the Foundation for Math Workshop - The 3 Buckets

A red bucket with a matching red handle, positioned on the left side of the image.

Classroom  
Arrangement

A green bucket with a matching green handle, positioned in the middle of the image.

Mathematics  
Community

A blue bucket with a matching blue handle, positioned on the right side of the image.

Routines &  
Procedures

# **CLASSROOM ARRANGEMENT**

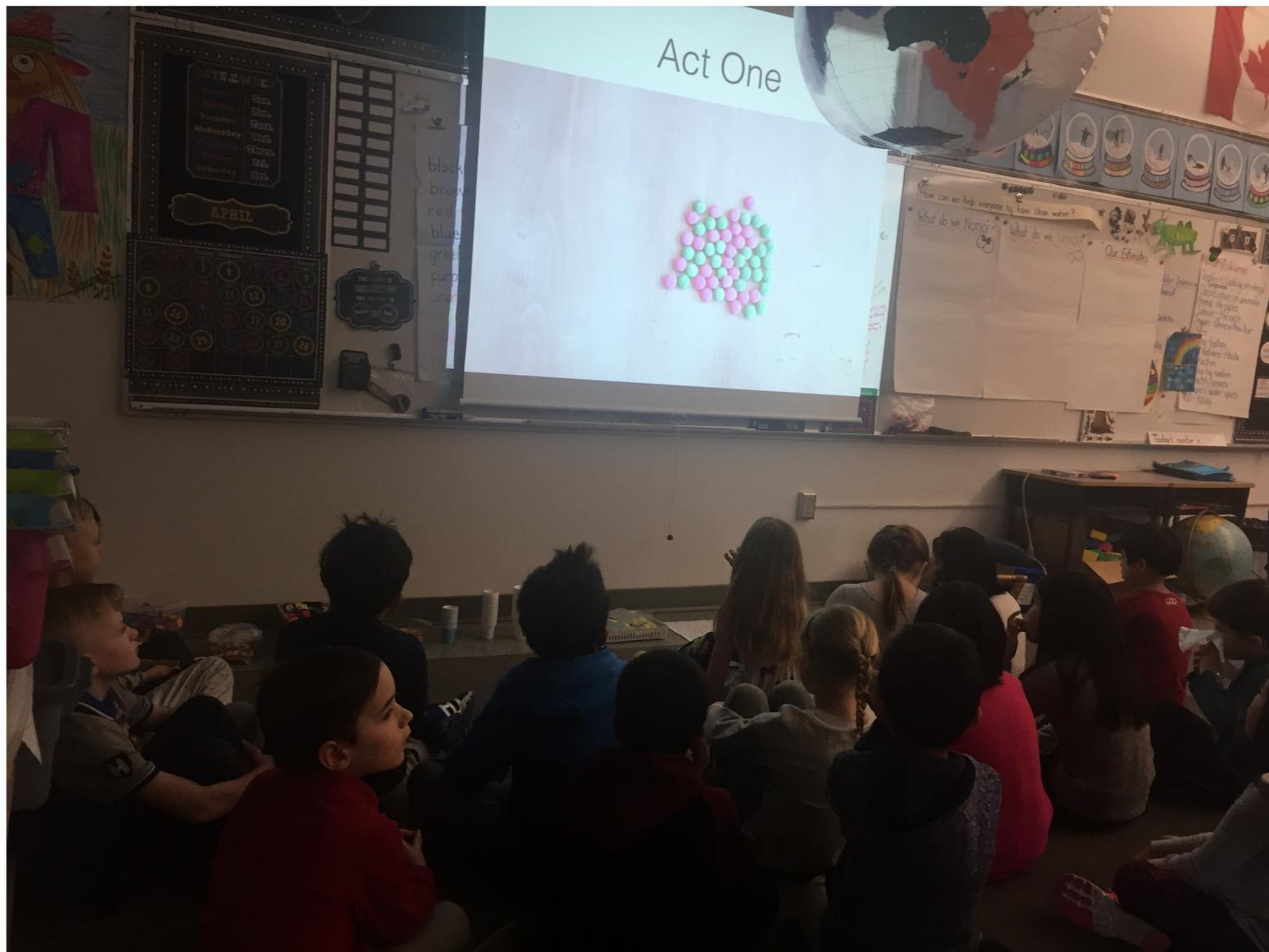


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**Setting the Stage for Math Workshop Success**

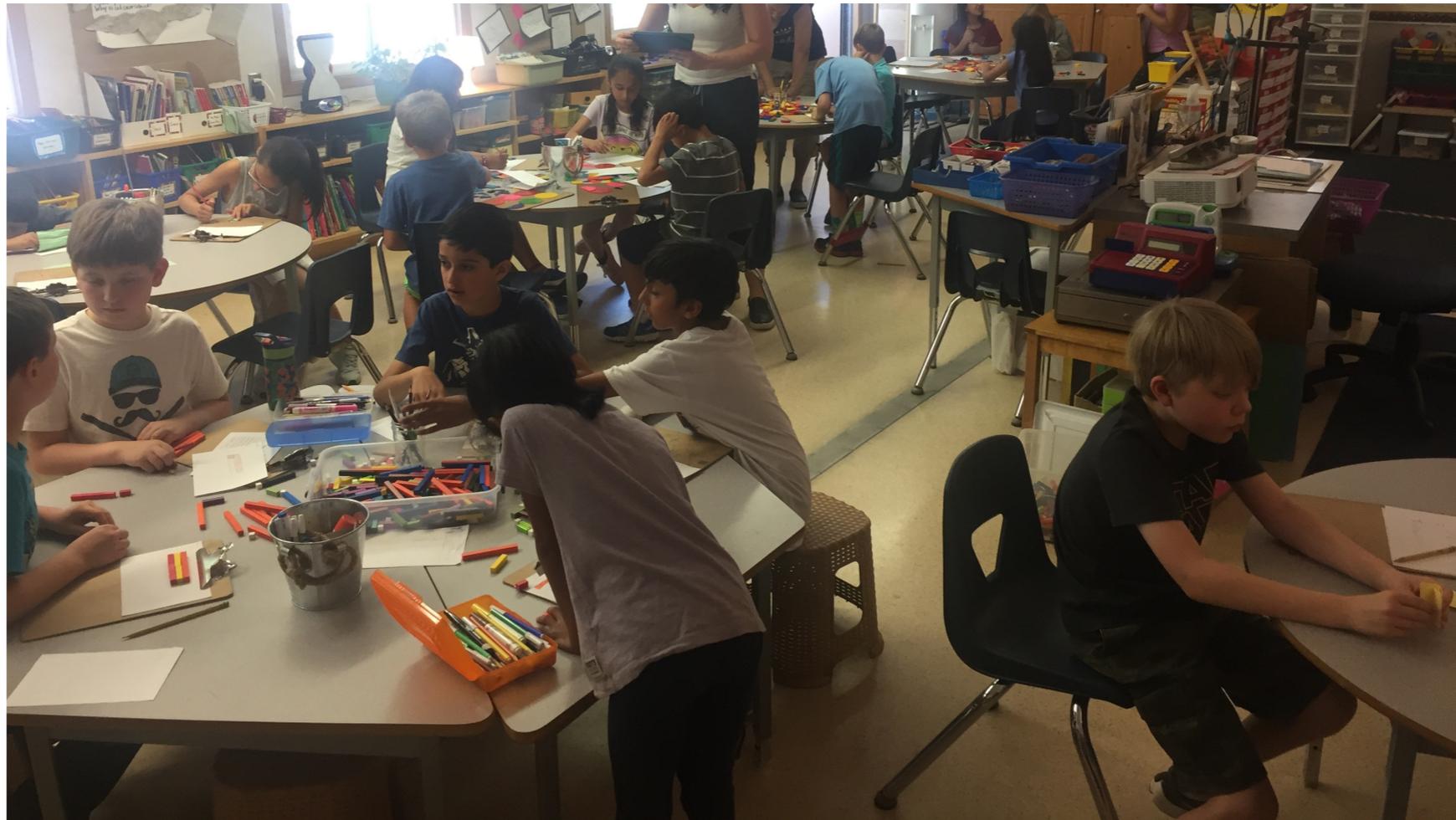
# A Place to Start Together

- Start your class with a Number Sense Routine such as a Number Talk, Choral Count, Clothesline Math, Estimation Clipboard
- This is the students' first impression of the class



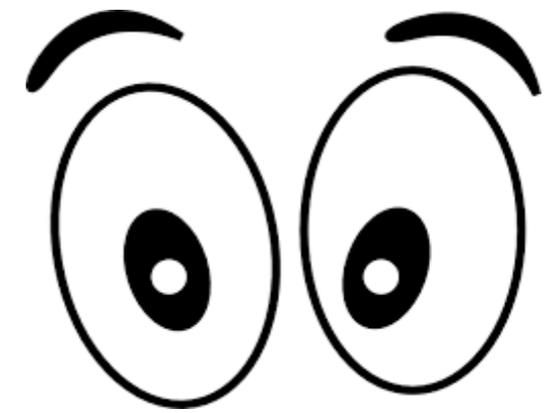
# A Place for Learning Stations

- Engaging and Meaningful
- Accessible for all
- Provide choice
- Space and opportunities for collaboration
- Quality over quantity
- Clear expectations



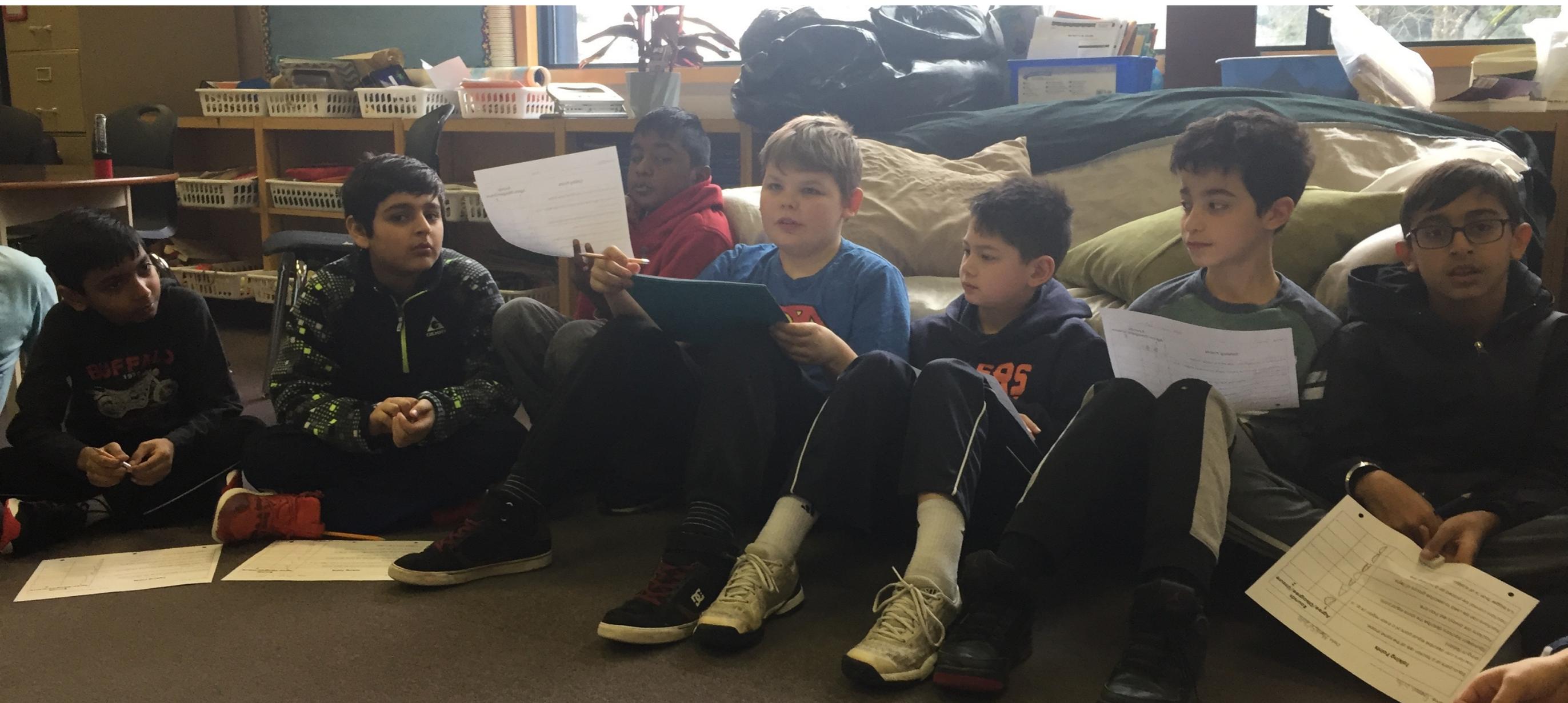
# A Place for Guided Math

- Small Group Instruction
- Conferences
- Meeting students where they are at “just right”
- Deep listening
- Flexible

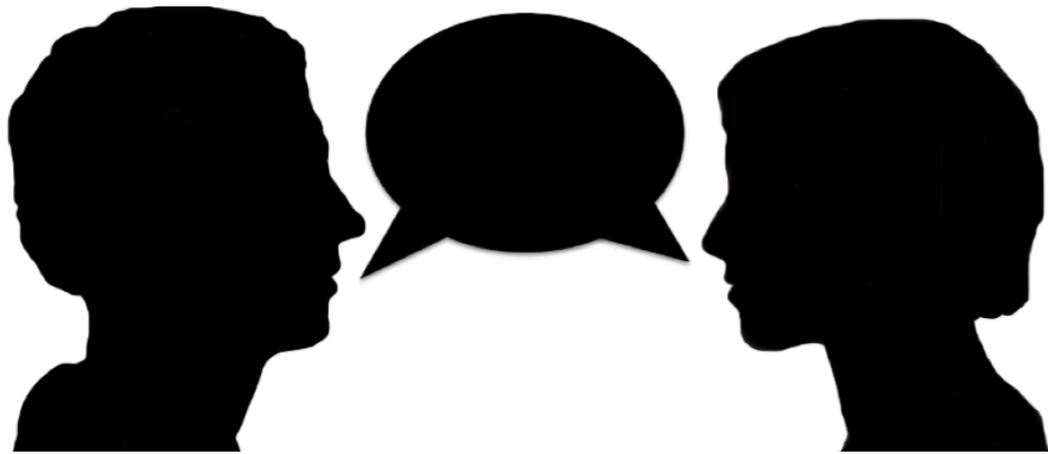


# A Place to End Together

- Share strategies
- Ask questions
- Connect
- Reflect



What needs to change in your classroom arrangement to accommodate the three types of places for math workshop?



# **MATHEMATICS COMMUNITY**

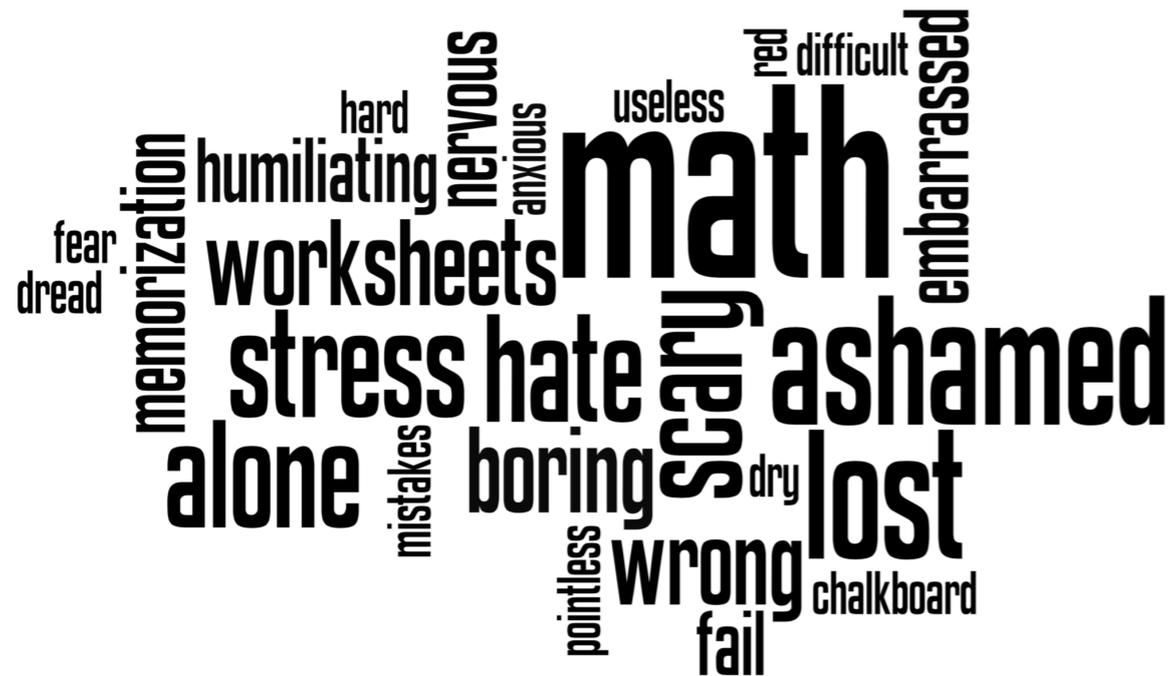


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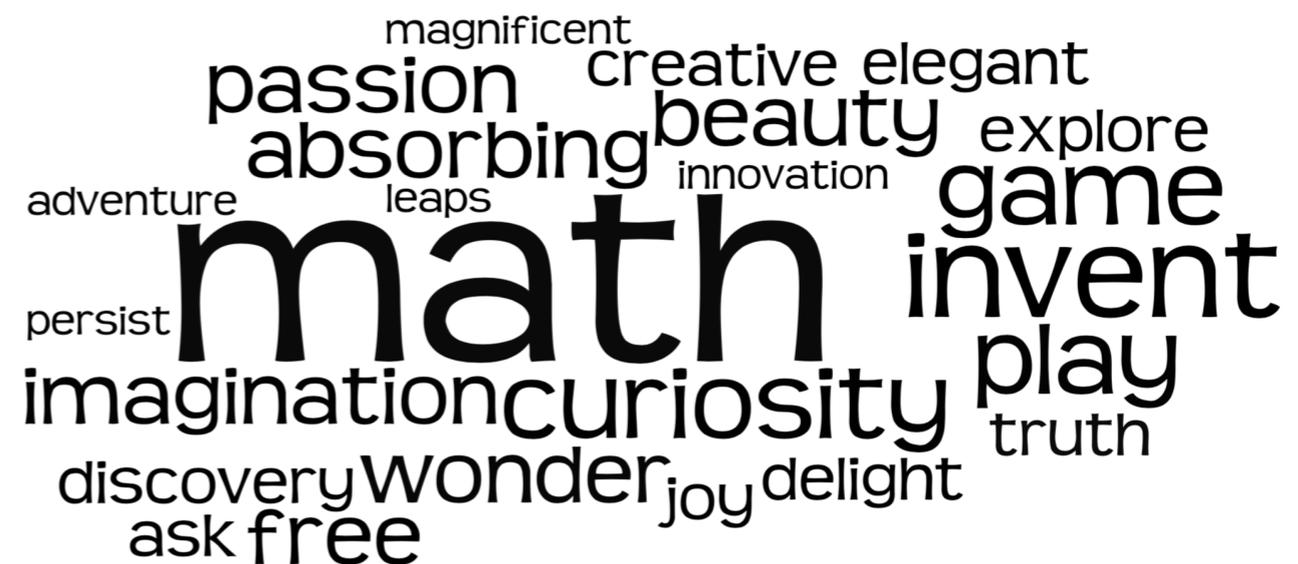
**Creating Opportunities for Student Discourse**

# What narrative do we want for our students?

Descriptions from  
teachers and students



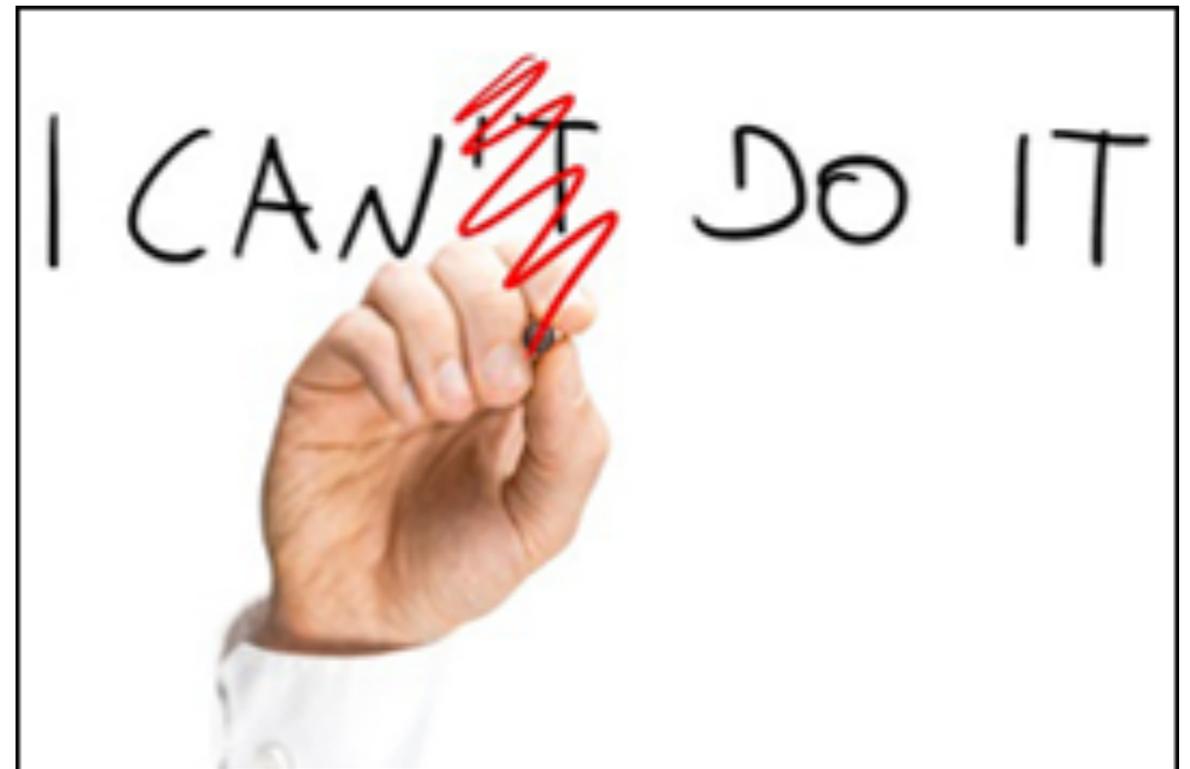
Descriptions from Real  
Mathematicians



Wordles from Zager (2017), p.g. 5.

“Student self-efficacy, or a student’s beliefs in perceptions of his or her ability to perform a mathematical task is a strong predictor of student success in mathematics... As teachers of mathematics, we need to plan engaging activities that allow for many entry points, so all students can experience success and feel motivated to learn mathematics.”

– Krpan in Teaching Math With Meaning (2018) p.g., 14



What messages are implied in this?

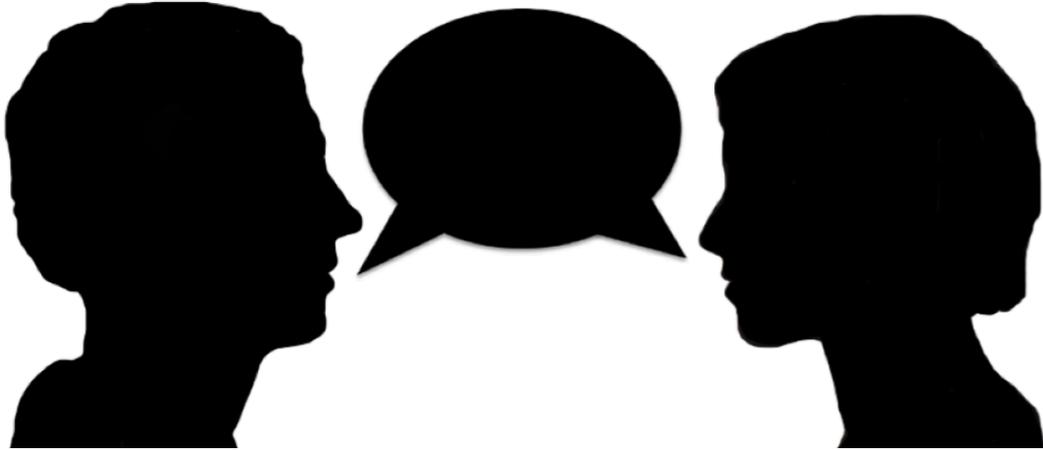
52  
64

### Adding with Some Regrouping (A)

Find each sum.

|                      |                      |                      |                      |                      |                      |                      |                      |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 5<br>+1<br>—<br>6 ✓  | 7<br>+4<br>—<br>9 ✓  | 1<br>+4<br>—<br>5 ✓  | 1<br>+9<br>—<br>10 ✓ | 7<br>+9<br>—<br>16 ✓ | 1<br>+7<br>—<br>8 ✓  | 7<br>+6<br>—<br>13 ✗ | 4<br>+5<br>—<br>9 ✓  |
| 3<br>+1<br>—<br>4 ✓  | 9<br>+2<br>—<br>11 ✓ | 1<br>+7<br>—<br>8 ✓  | 4<br>+3<br>—<br>7 ✓  | 2<br>+2<br>—<br>4 ✓  | 2<br>+5<br>—<br>7 ✓  | 9<br>+6<br>—<br>15 ✓ | 5<br>+6<br>—<br>11 ✓ |
| 1<br>+2<br>—<br>3 ✓  | 6<br>+8<br>—<br>14 ✓ | 7<br>+7<br>—<br>14 ✓ | 2<br>+4<br>—<br>6 ✓  | 6<br>+2<br>—<br>8 ✓  | 4<br>+4<br>—<br>8 ✓  | 2<br>+5<br>—<br>7 ✓  | 9<br>+3<br>—<br>12 ✓ |
| 5<br>+9<br>—<br>14 ✓ | 5<br>+1<br>—<br>6 ✓  | 9<br>+6<br>—<br>15 ✓ | 3<br>+7<br>—<br>10 ✓ | 3<br>+9<br>—<br>12 ✗ | 3<br>+3<br>—<br>6 ✓  | 5<br>+6<br>—<br>11 ✓ | 6<br>+1<br>—<br>7 ✓  |
| 9<br>+4<br>—<br>13 ✓ | 6<br>+1<br>—<br>7 ✓  | 1<br>+2<br>—<br>3 ✓  | 9<br>+8<br>—<br>17 ✗ | 9<br>+9<br>—<br>18 ✓ | 6<br>+7<br>—<br>13 ✓ | 8<br>+2<br>—<br>10 ✓ | 4<br>+2<br>—<br>6 ✓  |
| 6<br>+3<br>—<br>9 ✓  | 8<br>+9<br>—<br>17 ✗ | 1<br>+1<br>—<br>2 ✓  | 4<br>+8<br>—<br>12 ✓ | 8<br>+5<br>—<br>13 ✓ | 3<br>+5<br>—<br>8 ✓  | 4<br>+6<br>—<br>10 ✓ | 7<br>+1<br>—<br>8 ✓  |
| 1<br>+2<br>—<br>3 ✓  | 4<br>+4<br>—<br>8 ✓  | 4<br>+1<br>—<br>5 ✓  | 7<br>+1<br>—<br>8 ✓  | 9<br>+1<br>—<br>10 ✓ | 2<br>+9<br>—<br>11 ✓ | 9<br>+5<br>—<br>14 ✓ | 8<br>+8<br>—<br>16 ✓ |
| 1<br>+6<br>—<br>7 ✓  | 3<br>+4<br>—<br>7 ✓  | 9<br>+7<br>—<br>16 ✗ | 9<br>+9<br>—<br>18 ✓ | 3<br>+7<br>—<br>10 ✓ | 4<br>+6<br>—<br>10 ✓ | 6<br>+5<br>—<br>11 ✓ | 5<br>+9<br>—<br>14 ✓ |

Math-Drills.Com



## A Strong Classroom Community has...

Students **talk** to one another; they explain and clarify their thinking to each other.

Students see working together as learning; they **collaborate**, ask each other **questions**, and **respectfully challenge ideas**.

Students **believe they are all capable** of being successful in math - they exhibit a **growth mindset**.

Students **constructively struggle** together and hold all members of the group **accountable** for learning.

Students **respect their peers' ideas** and view one another as knowledgeable.

Students **share their work** with each other.

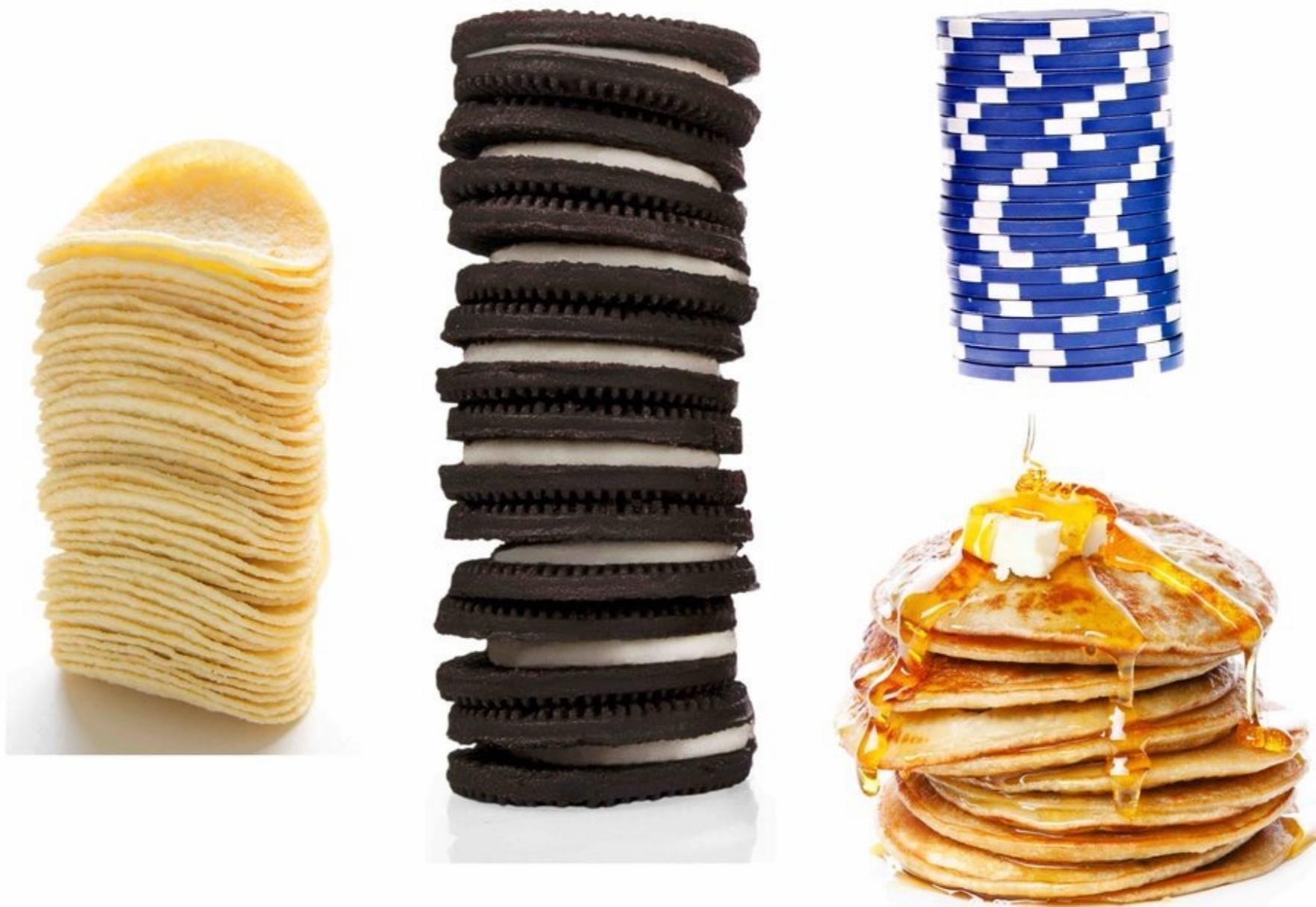
Students feel their opinions and ideas do matter - it is worth the **risk!**

What learning opportunities can we provide that encourage?

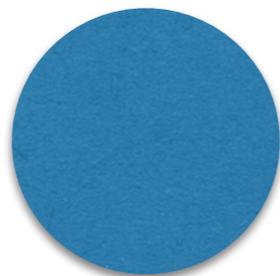
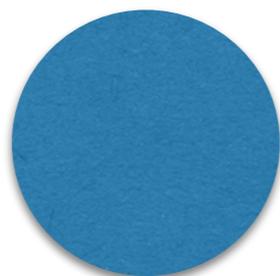


# Number Routines: WODB

**Which one doesn't belong?**



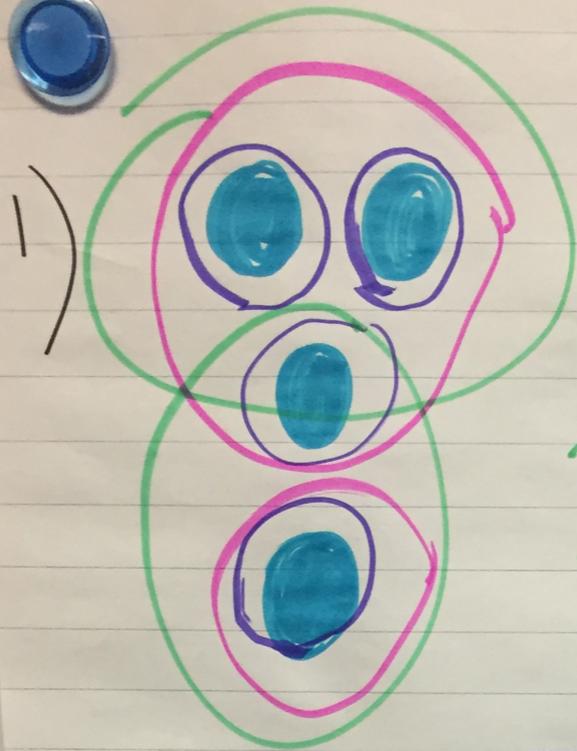
# Number Routines: Quick Images



# Subitizing

- Perceptual Subitizing - Instantly seeing how many
- Conceptual Subitizing - involves the ability to see the smaller groups and being able to combine them together to compose the whole/total.

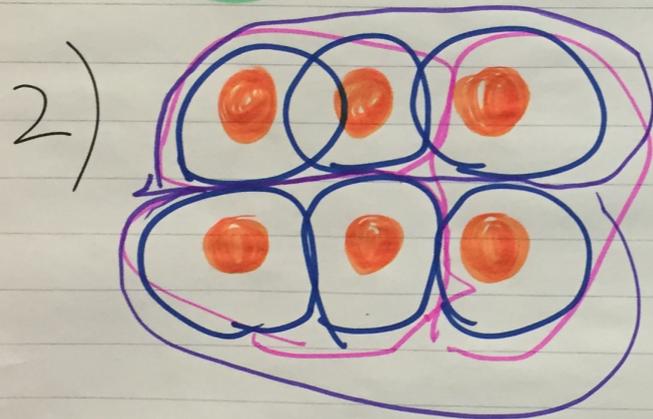
It helps students move from counting by ones, and assists them in seeing how numbers can be taken apart and put back together (decomposing). This will help students to develop derived facts.



$$3 \text{ and } 1 = 4$$

$$1 \text{ and } 1 \text{ and } 1 \text{ and } 1 = 4$$

$$2 \text{ and } 2 \text{ is } 4$$

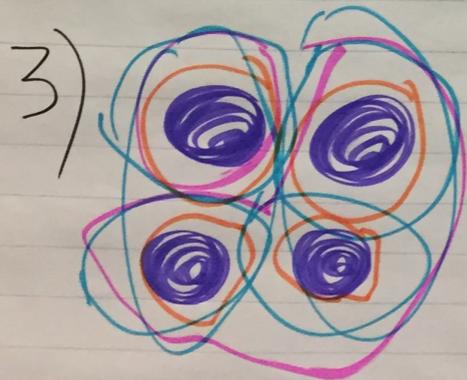


$$1 + 1 + 1 + 1 + 1 + 1 = 6$$

$$3 \text{ and } 3 = 6$$

$$2 \text{ and } 2 \text{ and } 2 = 6$$

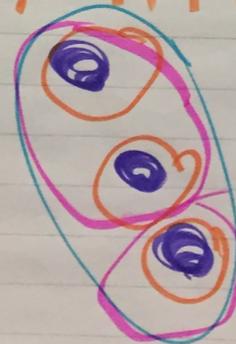
$$1, 2, 3, 4, 5, 6 \Rightarrow 6$$



$$7 = 1 + 1 + 1 + 1 + 1 + 1 + 1$$

$$2 + 2 + 3 = 7$$

$$1 + 3 + 2 + 1 = 7$$

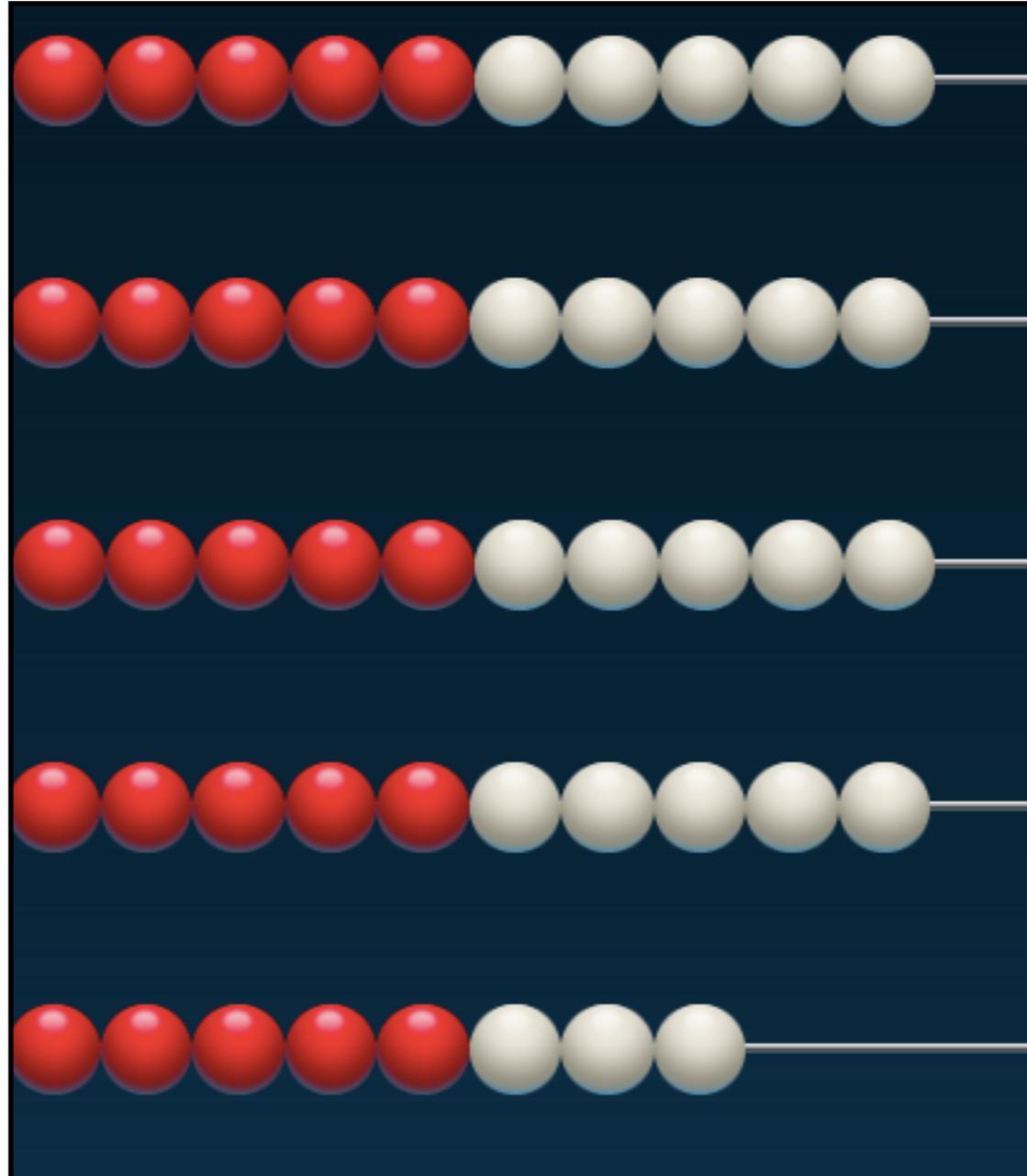




“How many do you see?”

“How did you know so quickly?”

“How did you see them?”



# Number Routines: How Many?



Turn and talk to a partner about what you see!

“Open mathematical tasks... promote deep mathematical learning while helping students develop creative and critical thinking. Because such tasks support a variety of approaches, they also create an opportunity to share and compare mathematical ideas and explain their mathematical thinking to others... It also empowers students to understand that to do mathematics, we need diverse strategies and different mathematical perspectives.”

– Krpan in Teaching Math With Meaning (2018) p.g., 187



# **ROUTINES & PROCEDURES**



---

**Structuring the Classroom So It Runs Smoothly**

# Routines and Procedures

- Organize your materials
- Create a structure
  - Must Do - Can Do List
  - Think - Tac - Toe
  - Math Menu
- Explain the structure
- Practice the structure - begin with one learning station everyone engages in
- Provide feedback



**SOMETIMES YOU HAVE TO GO**

**SLOW**

**IN ORDER TO GO**

**FAST**

# Routines and Procedures

## Where do students go?

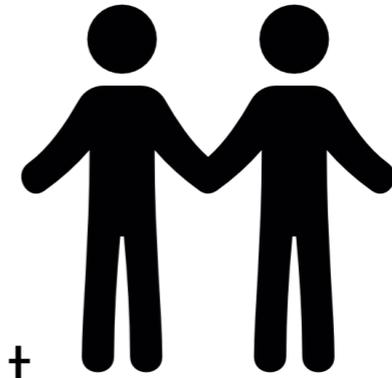
- Do they need to stay where the station is located, or can they take the materials to another place in the room?
- Where can they get the materials they need
- How do they clean up?





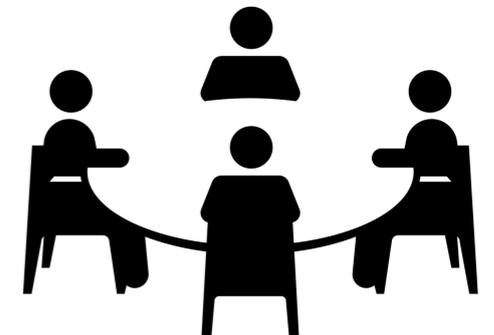


# Routines and Procedures



## Who can students work with?

Knowing your students and their needs, what options will work best? Partners or small groups and their choice or yours? Or both?



## Working with a partner

- Option One: They choose partners or work by themselves
- Option Two: Teacher selects their learning partner but make changes from day to day, or weekly

## Working with a small group

- Option One: Teacher determines the groups
- Option Two: groups are determined by individual student station selection



Learning Station groups are **NOT** ability based but heterogeneous!

Guided Math small group names are **NEVER** posted anywhere visible in your room. Additionally the Guided Math groups should be **FLEXIBLE.**

# Types of Groupings

## Readiness Groupings

- students who have a similar strength or need
- groups based on collected formative assessment

## Heterogeneous Groupings

- combines strengths, struggles, learning styles, interests
- everyone benefits
- we are more likely to get a variety of strategies
- students learn from each other

## Random Groupings:

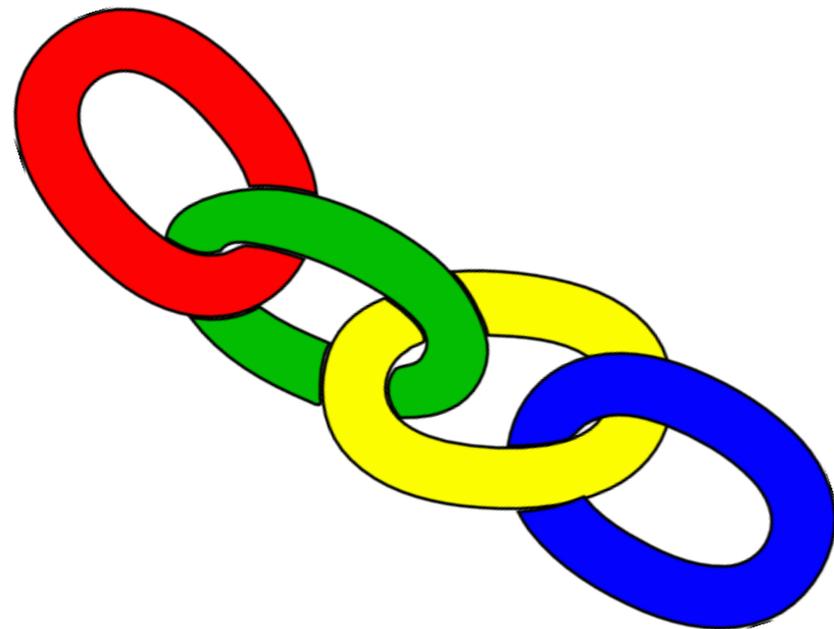
- call the table playing “Make Ten”
- great for data collection.



# Routines and Procedures

## What can students do?

- What are the options for learning stations?
- Use a system (e.g., Menu)
- Can students choose their station?
- What are the benefits of choice?
- If needed, where do students record their work?



**Working independently**  
**Working with a partner**  
**Working with a small group**

# Math Menu: List It

1234567890

## Math Menu: List It Template

Name: \_\_\_\_\_

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|--|--|--|--|--|

 My favorite learning station: \_\_\_\_\_

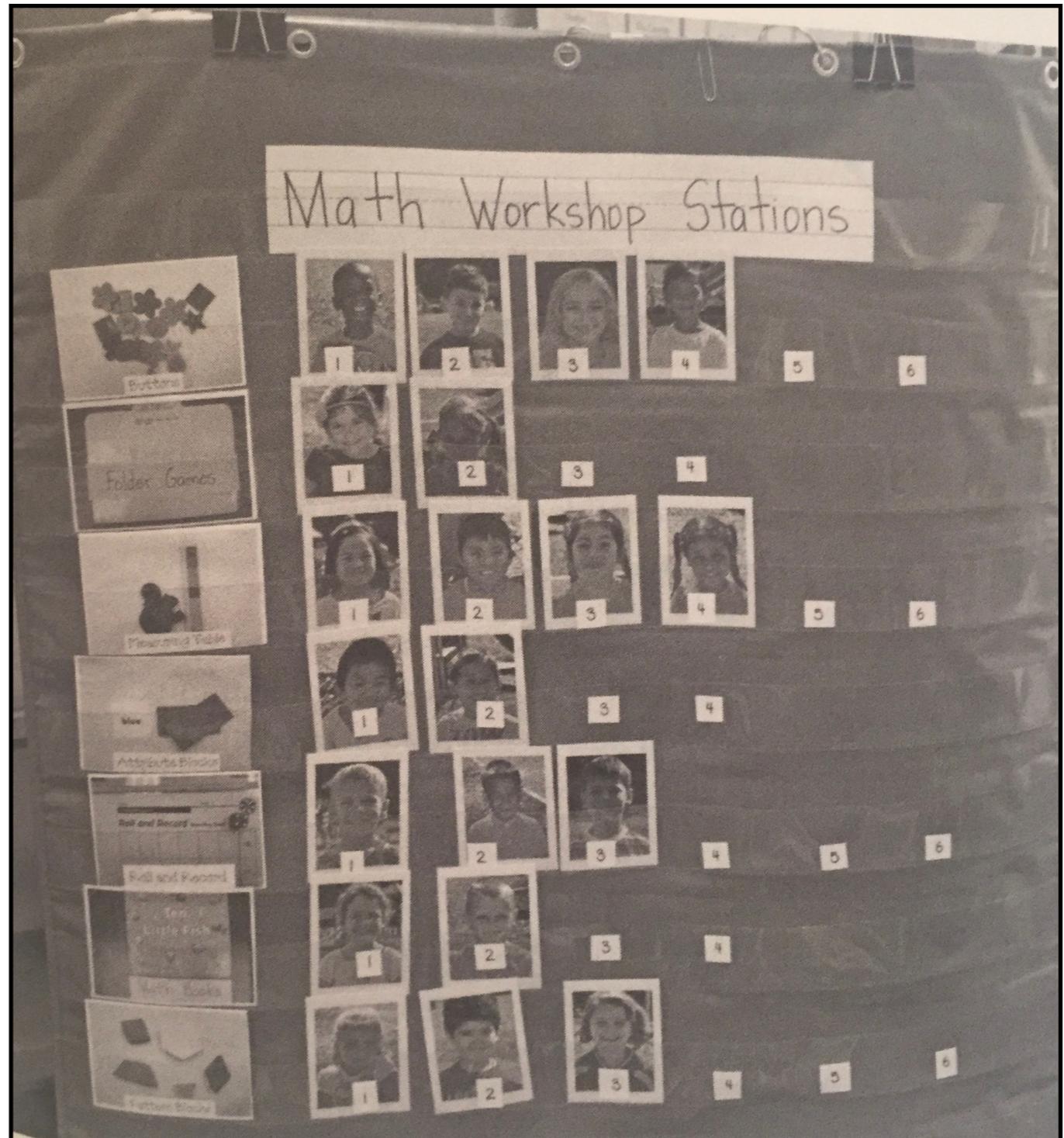
 My least favorite learning station: \_\_\_\_\_

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## Working with a small group

- Option Two: groups are determined by individual student station selection

# Math Menu: Pocket Chart



## Working with a small group

- Option One: Initially teacher determines the groups
- Option Two: Then groups are determined by individual student station selection.

# Math Menu: Must Do /Can Do

**Math Menu: Must Do/Can Do Template**

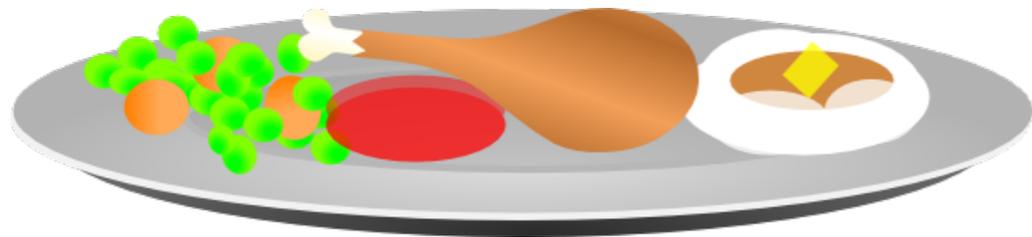
|   |  |            |
|---|--|------------|
| Student Name: _____   |  | Due: _____ |
| <b>Must Do:</b><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/> | <b>Can Do:</b><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/> |            |
| Something that I really enjoyed doing this week:  |  |            |
| Something that I struggled with this week:  |  |            |
| Something that made me think differently this week:   |  |            |

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## Working with a small group

- Option Two: groups are determined by individual student station selection

# Math Menu: Dining Out



## Math Menu: Dining Out Template

|  |                 |
|--|-----------------|
| Appetizers<br>(choose 2)<br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/> | Write about it: |
| Entrée<br>(choose 1)<br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/>                                 | Write about it: |
| Side Dish<br>(choose 2)<br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/>                              | Write about it: |
| Dessert<br>(choose 1)<br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/>                                | Write about it: |

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## Working with a partner

- Option One: They choose partners or work by themselves
- Option Two: Teacher selects students' learning partner but makes changes from day to day, or weekly

# Math Menu: Tic-Tac-Toe

**Math Menu: Think-Tac-Toe Template**

|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |
|  |  |  |

My favorite activity this week was \_\_\_\_\_  
because \_\_\_\_\_  
\_\_\_\_\_

The most challenging activity this week was \_\_\_\_\_  
because \_\_\_\_\_  
\_\_\_\_\_

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## Working with a small group

- Option Two: groups are determined by individual student station selection

## Video Clip 7.7: Math Menu: Pocket Chart



0:00 / 2:46



# Routines and Procedures

## How long do I do it?

- Some learning stations may take less time than others... how will you plan for this?
- What is a reasonable amount of time for one rotation? 15 minutes or ?

Timed Rotations



OR

Open Station Choice



|      | Timed Rotations   | Open Station Choice  |
|------|---|--|
| PROS | <ul style="list-style-type: none"> <li>• You are in control of the movement of the classroom; if you see a student moving around before the timer goes off, you know they are not on task</li> <li>• Students are exposed to all the learning stations</li> <li>• Ideal for when you have a number of activities that all take a short (and equal) amount of time to complete.</li> <li>• You can chose who works with who</li> </ul> | <ul style="list-style-type: none"> <li>• Students work on the learning station activity for as long as they need (which provides differentiation)</li> <li>• Students don't feel any pressure of time</li> <li>• Students can work any of their classmates</li> <li>• choice can be a motivator</li> </ul> |
| CONS | <ul style="list-style-type: none"> <li>• For timed rotations to succeed, learning stations need to be about the same amount of time which takes a lot of planning and work.</li> </ul>  | <ul style="list-style-type: none"> <li>• Students may choose to stay for the entire time at a learning station they enjoy and miss out on experiencing other stations.</li> <li>• Movement could be happening, which could be disruptive to other students</li> </ul>                                      |

# Routines and Procedures

## What do I do if I have a question?

- When can you ask the teacher?
- What do you do when the teacher is busy?



# Routines and Procedures

## What do I do when I am finished?

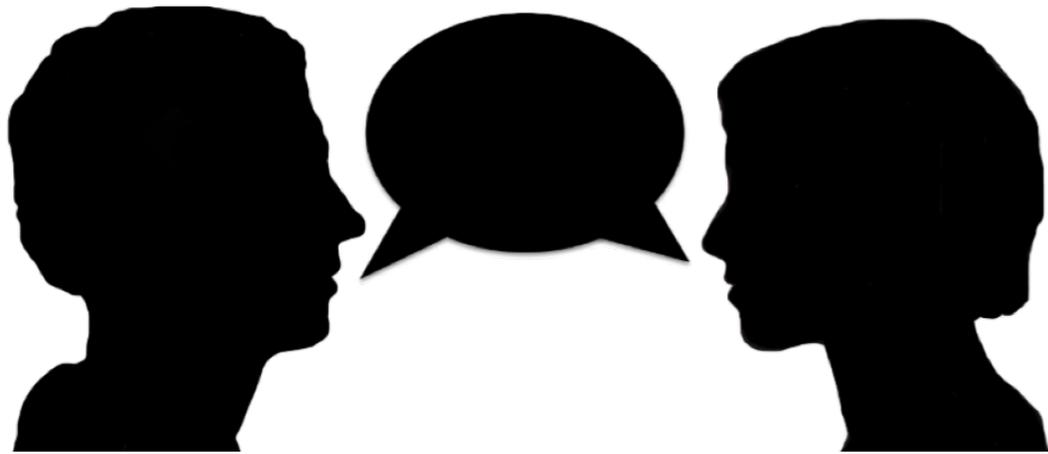
- Are there extensions for each activity?
- How can they clean up?
- How do you move to another station?
- What will transitions will look and sound like?



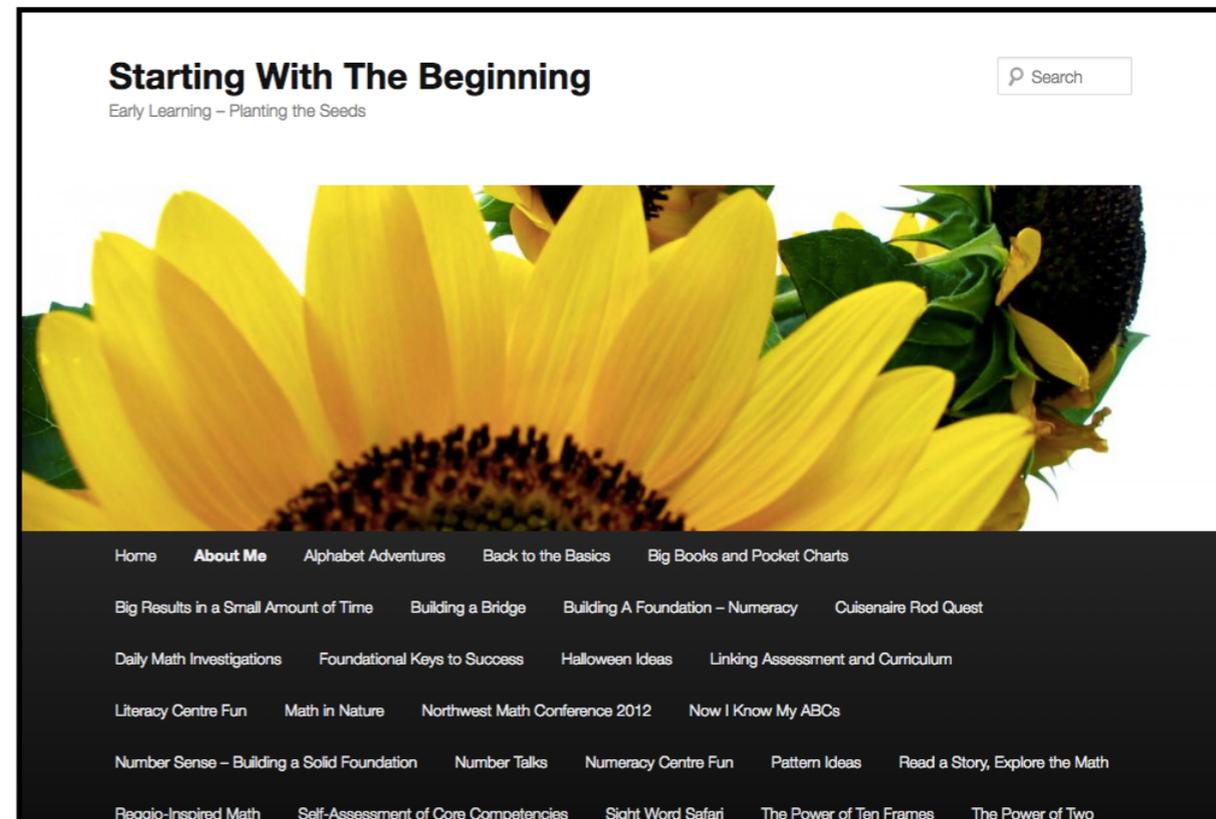
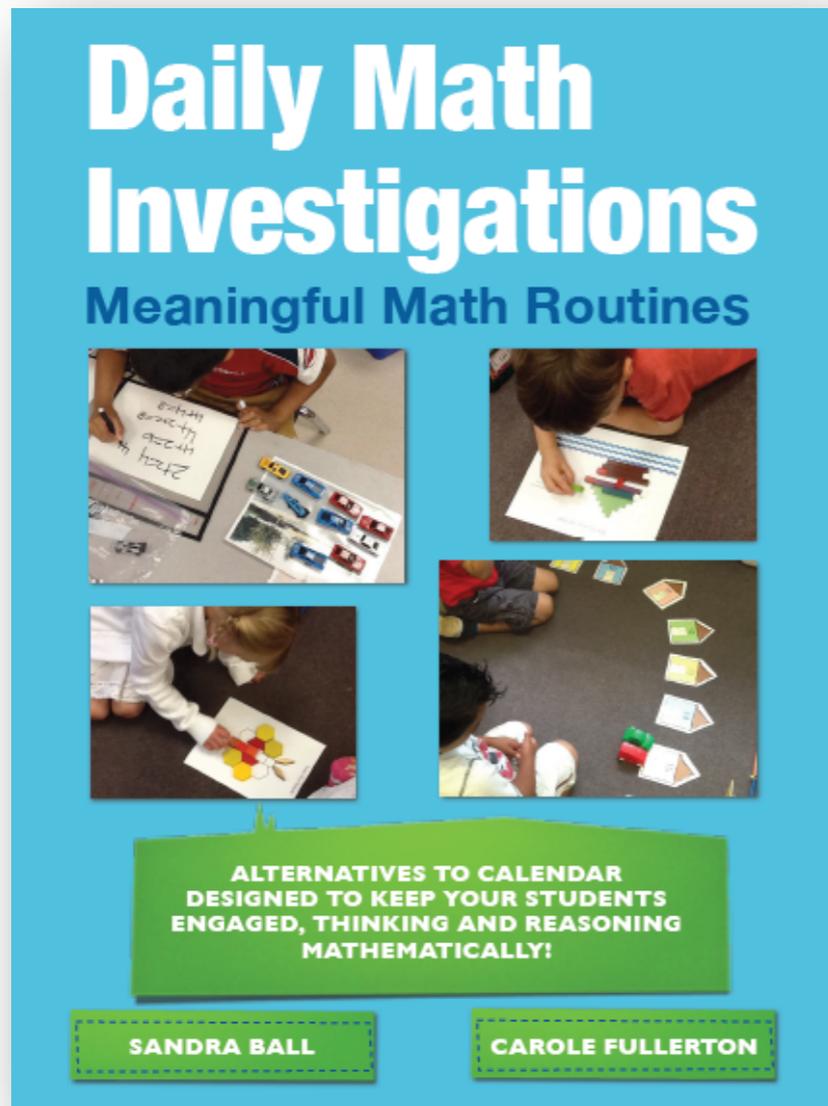
Video Clip 7.2: Introducing an Activity for a Learning Station

## Video Clip 7.2 Introducing an Activity for a Learning Station

What routines and procedures do you already have in place? Which do you think are the most challenging for students to learn?



# Where do I find ideas for Learning Stations?



Sandra Ball's website has a TON of ideas!!!  
See handout for link

# Independent and/or Partner Games

## Let it Snow

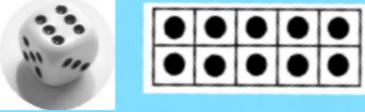
Materials: game board, 3 dice, 8 chips for each player

Directions: Players take turns rolling the dice and finding the sum. Cover the sum. Be the first to cover all your boxes to win the game.

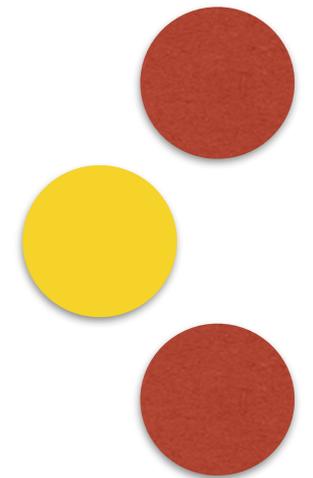
|    |    |
|----|----|
| 4  | 3  |
| 17 | 16 |
| 8  | 11 |
| 12 | 7  |
| 15 | 14 |
| 9  | 10 |
| 10 | 9  |
| 6  | 18 |



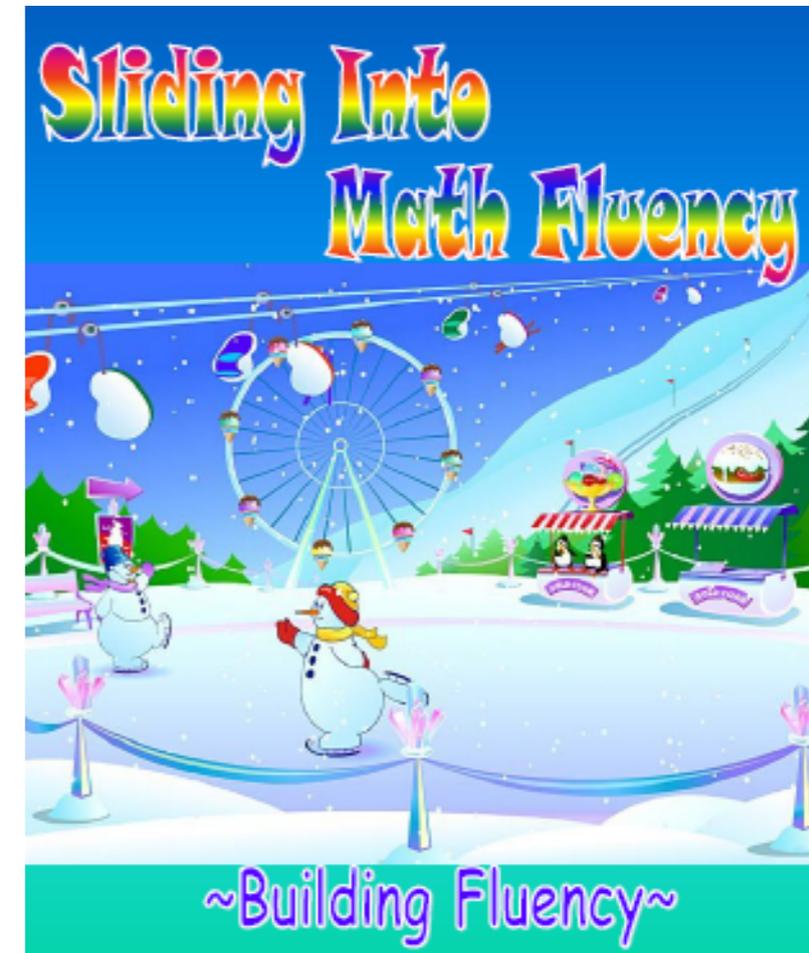
## Ten More



|    |    |    |    |    |    |
|----|----|----|----|----|----|
| 12 | 16 | 13 | 14 | 11 | 13 |
| 15 | 11 | 16 | 12 | 16 | 14 |
| 14 | 15 | 12 | 16 | 15 | 11 |
| 13 | 14 | 16 | 12 | 15 | 13 |
| 11 | 13 | 11 | 16 | 12 | 14 |
| 15 | 11 | 16 | 12 | 14 | 11 |



# Numeracy Centres



# What's Included?

## Penguin Package

### What's Inside?

#### 1. Domino Penguin Match - Matching Activity - 1 set

- students match quantities on a penguin with the numerals on a matching penguin



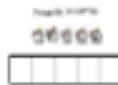
#### 2. Feed Me - Individual - BLMs

- reinforce partitioning of numbers into 2 parts.
- students use 2 sided counters and sort them into 2 parts



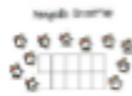
#### 3. Penguin Cover Up Five Frame - Individual

- roll the 1 - 6 sided die
- cover the rolled quantity on to the five frame
- students could record on a blank five frame the quantity (using bingo dabbers or felts)
- ask "How many more/less to get to 5?"



#### 4. Penguin Cover Up 0-10 - Individual

- player #1 needs to roll die (0 - 9 sided)
- build quantity on a ten frame and cover up the numeral
- students could record on a blank ten frame the quantity (using bingo dabbers or felts)
- ask "How many more/less to get to 10?"



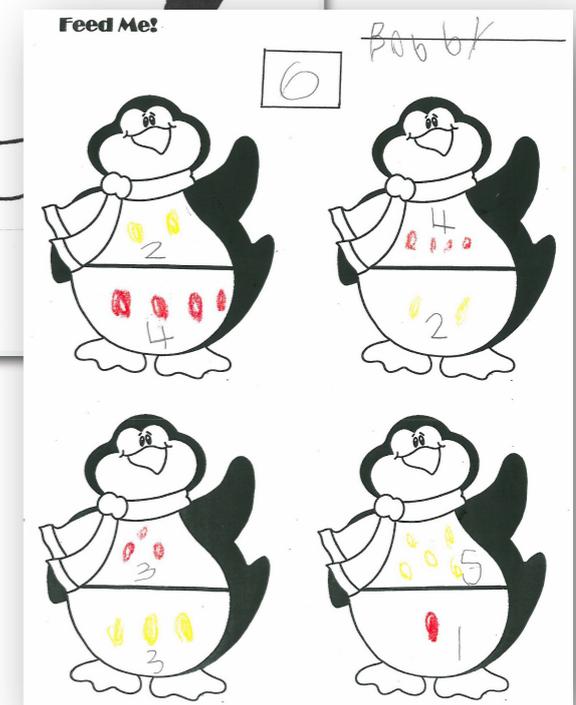
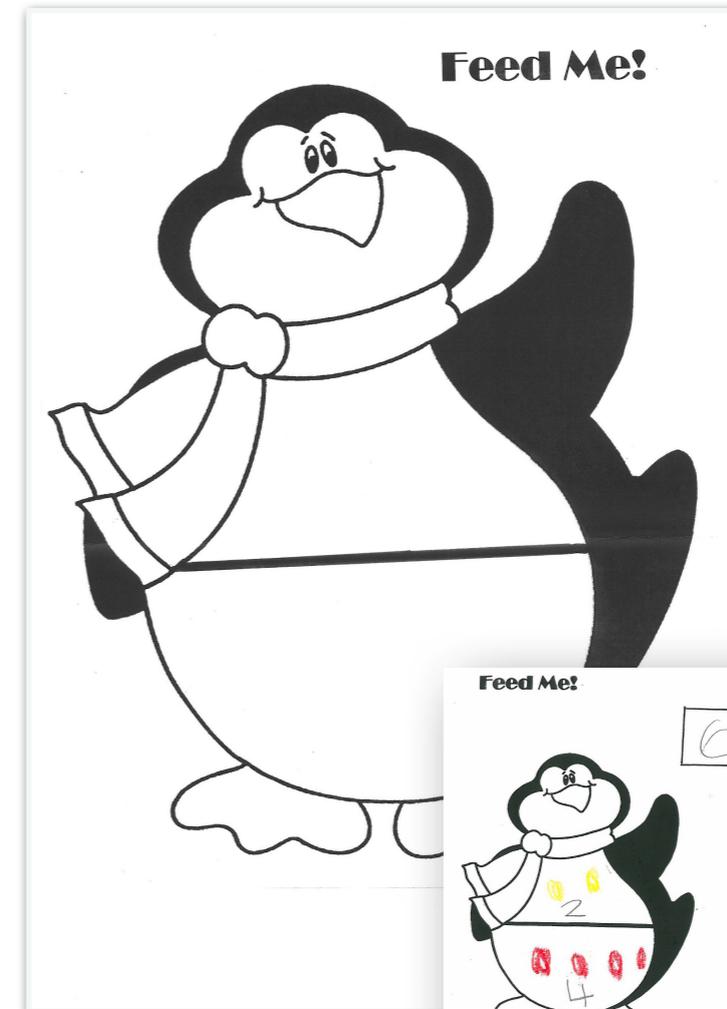
#### 5. Penguin Cover Up 1-10 - Partner Game - BLM

- player #1 needs to roll 2 (1 - 10 sided) die
- build quantity on the ten frames and cover up the numeral
- players take turns rolling the die, building the quantity and covering the numeral
- first one to cover all the numerals wins



#### 6. Penguin Cover Up 2-12 - Partner Game - BLM

- player #1 needs to roll 2 (1 - 6 sided) dice and find the sum
- build the sum on the ten frames and cover up the numeral
- players take turns rolling the die, building the quantity and covering the numeral
- first one to cover all the numerals wins



## COVER UP!

Doubles!



|    |    |    |    |    |    |
|----|----|----|----|----|----|
| 12 | 6  | 10 | 12 | 4  | 8  |
| 14 | 18 | 8  | 16 | 8  | 6  |
| 6  | 10 | 14 | 12 | 10 | 14 |
| 12 | 4  | 8  | 18 | 16 | 10 |
| 14 | 16 | 18 | 14 | 4  | 14 |
| 2  | 8  | 4  | 10 | 16 | 18 |

Roll the die. Double the number.  
Find it on the grid and cover it in your counter.  
Give your partner a turn.  
First one to have 4 in a row wins!

## Chips Ahoy!



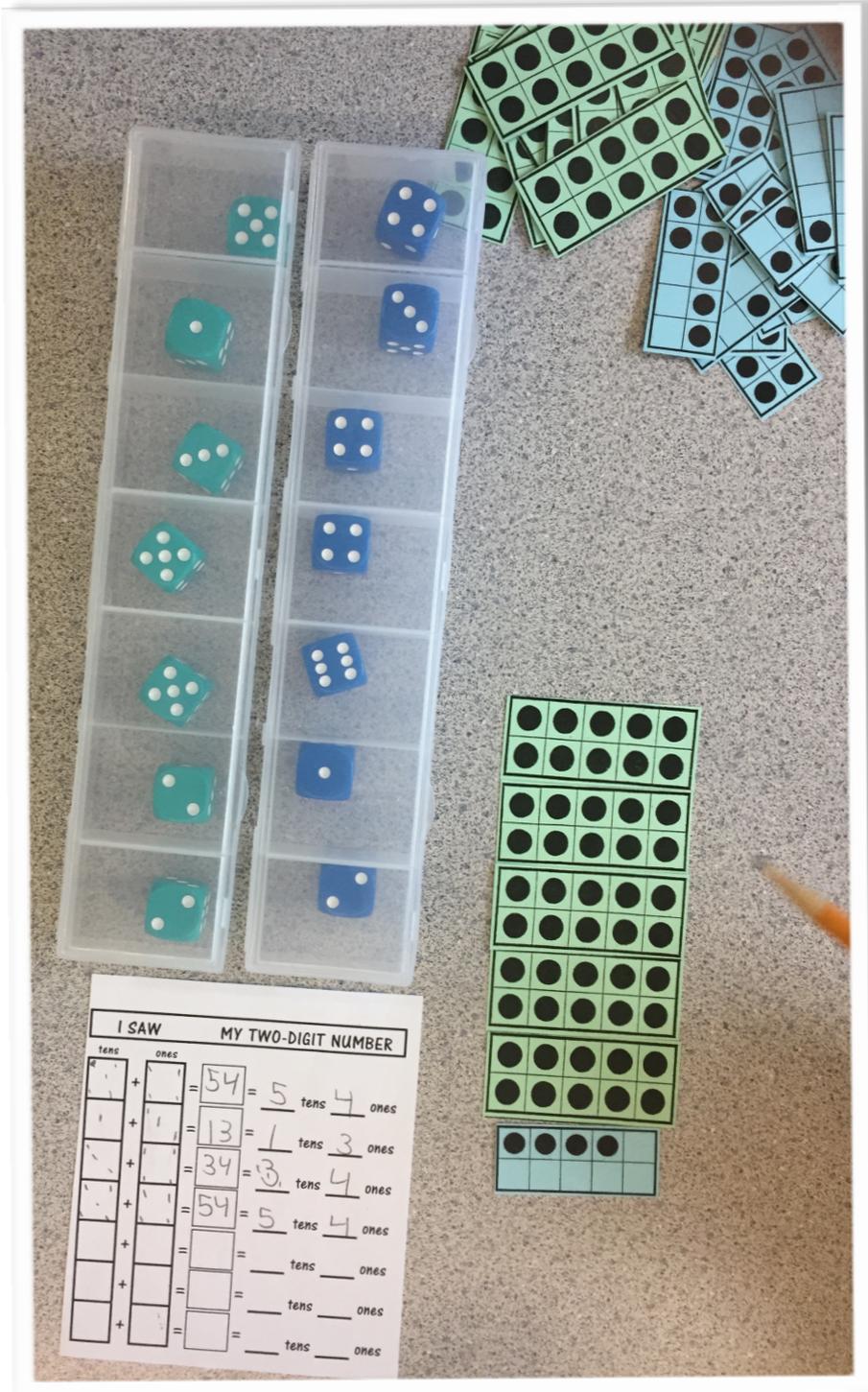
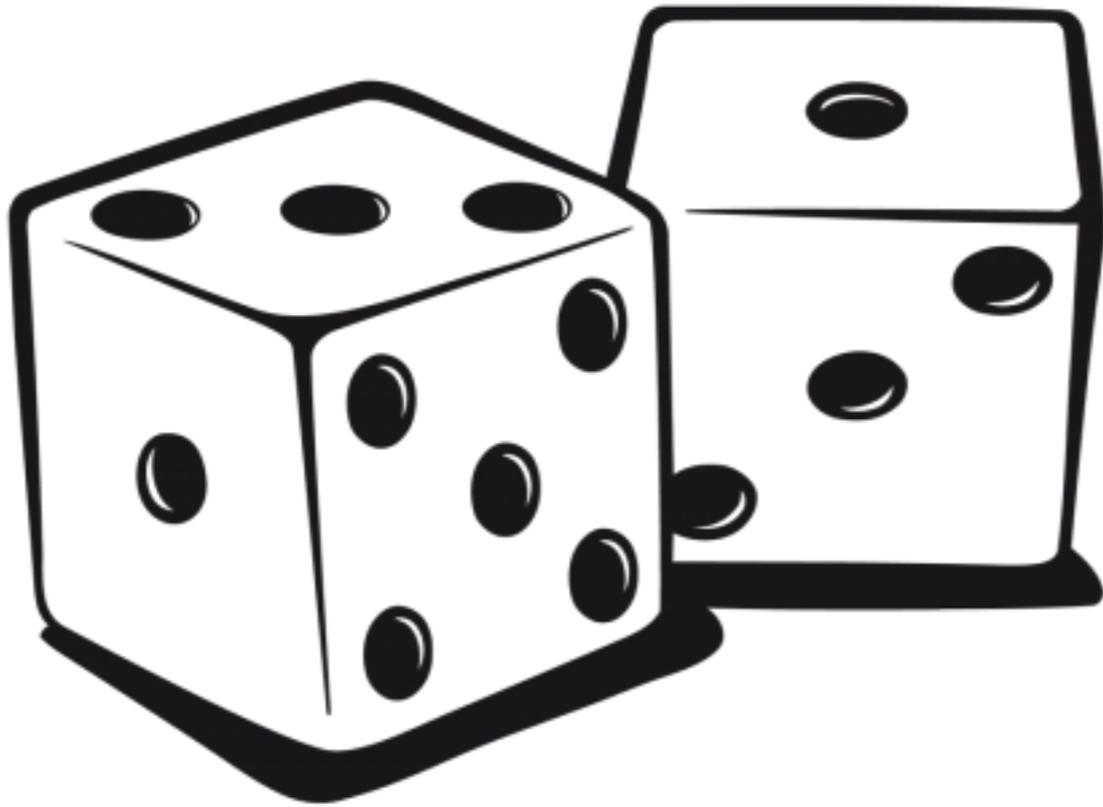
|    |    |    |
|----|----|----|
| 3  | 7  | 5  |
| 19 | 15 | 13 |
| 11 | 17 | 9  |

- ★ Place 15 chips on the game board. Chips can be placed anywhere, and doubles on a space are OK.
- ★ Roll a 10 sided die (0-9).
- ★ Double and add 1 to the number rolled, then remove a chip from the space that shows the sum.  
For example: Player A rolls a 2, say the near double fact ( $2 + 2 + 1$  is 5 or  $2 + 3 = 5$ ) and takes a chip off the 5 space.
- ★ Roll a zero and take a chip from any space!
- ★ Players take turns until one player has collected 8 chips. This person is the winner!

Available on Sandra Ball's website

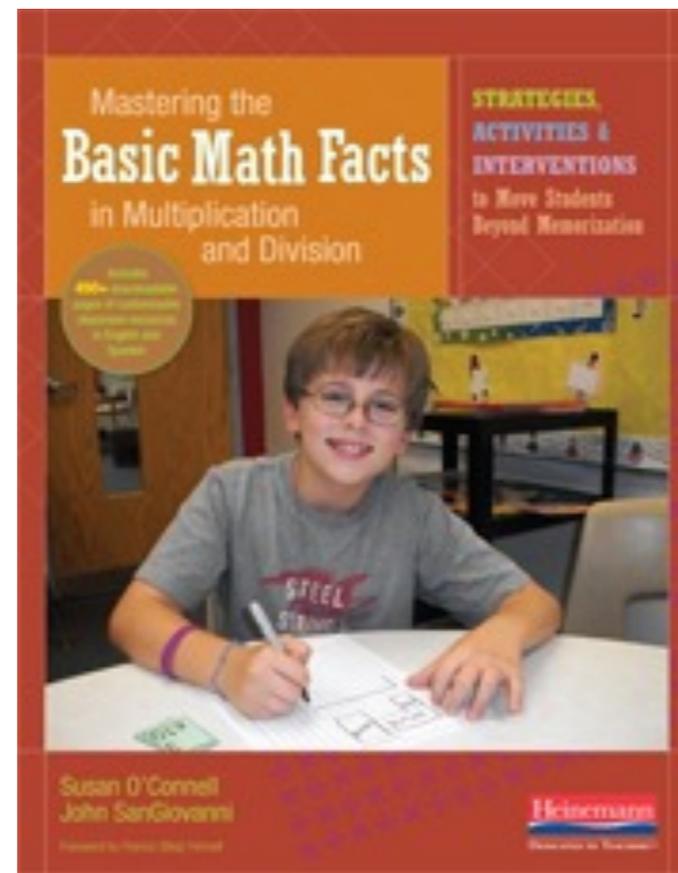
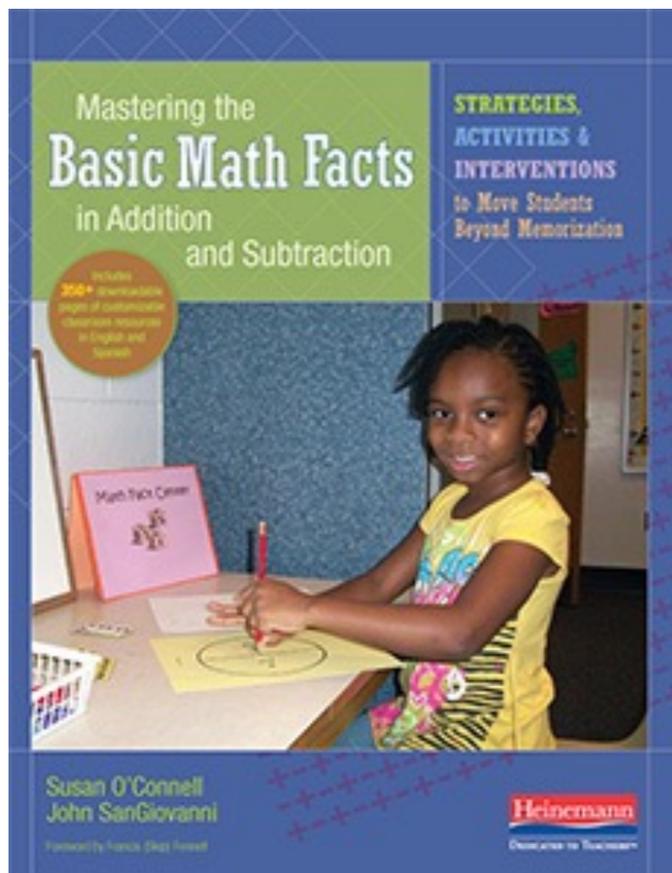
“How can thinking about ‘doubles’  
help you solve  $6 + 7 =$  “

# Box Cars and One Eyed Jacks



| I SAW |      | MY TWO-DIGIT NUMBER |                 |
|-------|------|---------------------|-----------------|
| tens  | ones |                     |                 |
| 5     | 4    | = 54                | = 5 tens 4 ones |
| 1     | 3    | = 13                | = 1 tens 3 ones |
| 3     | 4    | = 34                | = 3 tens 4 ones |
| 5     | 4    | = 54                | = 5 tens 4 ones |
|       |      | =                   | = tens ones     |
|       |      | =                   | = tens ones     |
|       |      | =                   | = tens ones     |

# Consider joining the Developing Computational Fluency Series



Session One  
3:30 - 5:00 p.m.  
Tuesday, Nov. 20th

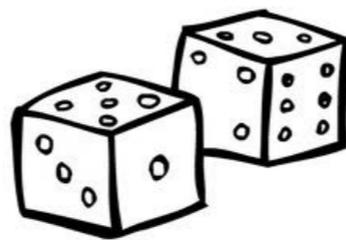
Session Two  
4:00 - 7:00 p.m.  
Tuesday, Jan. 15th

LRS #178984

LRS #178985

Session Three  
3:30 - 5:00 p.m.  
March 12th

box cars  
and  
one-eyed jacks®



# Follow Jennifer Barker's DMI Pinterest Board curated with Jennifer Tammen, Barb Matson and Kristen Pennington

The image shows a screenshot of a Pinterest board named "DMI". At the top, there is a search bar and navigation tabs for "Home", "Following", and "Jennifer". The board header includes the name "DMI", 380 pins, and 350 followers. Below the header, there are tabs for "Your Pins", "More ideas", and "Activity".

On the left side, there is a section titled "Ideas you might love" with several suggested pins:

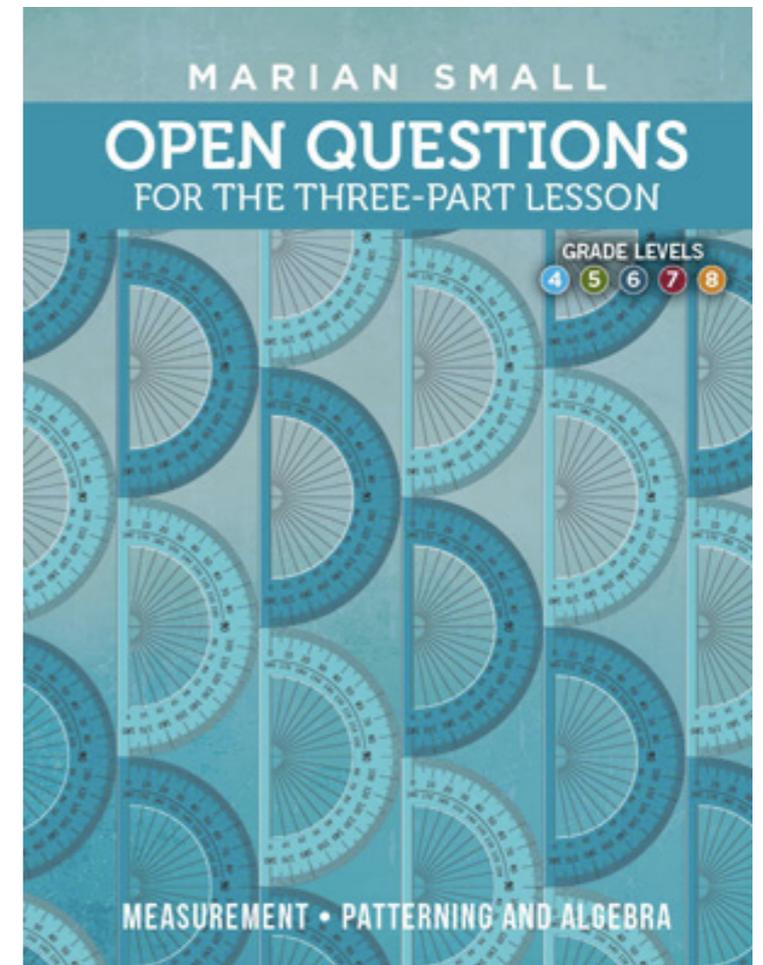
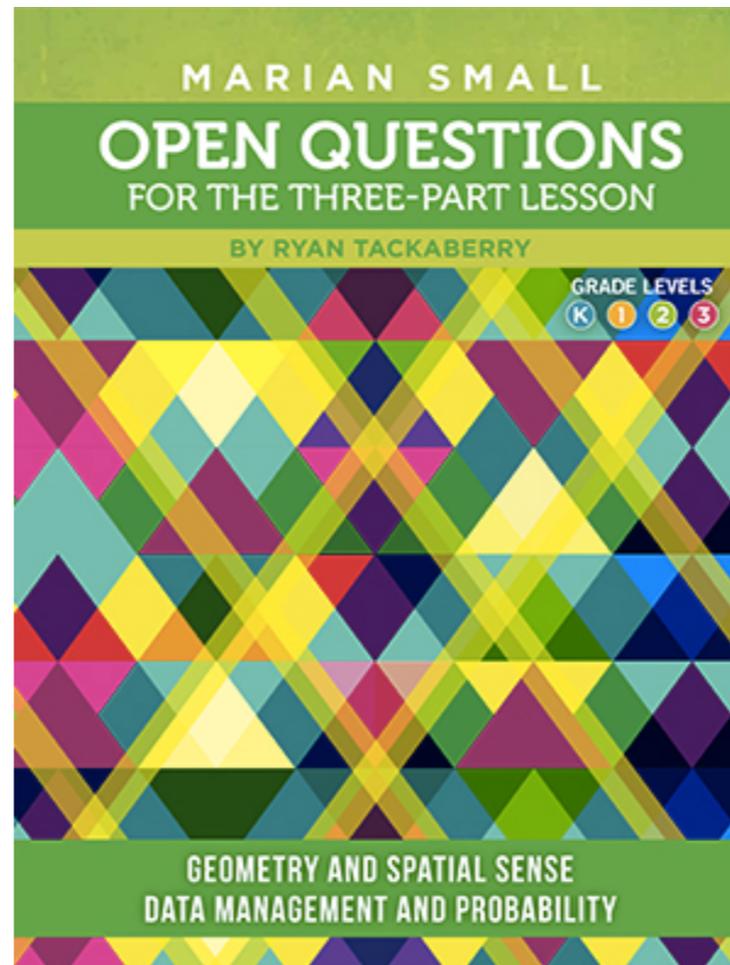
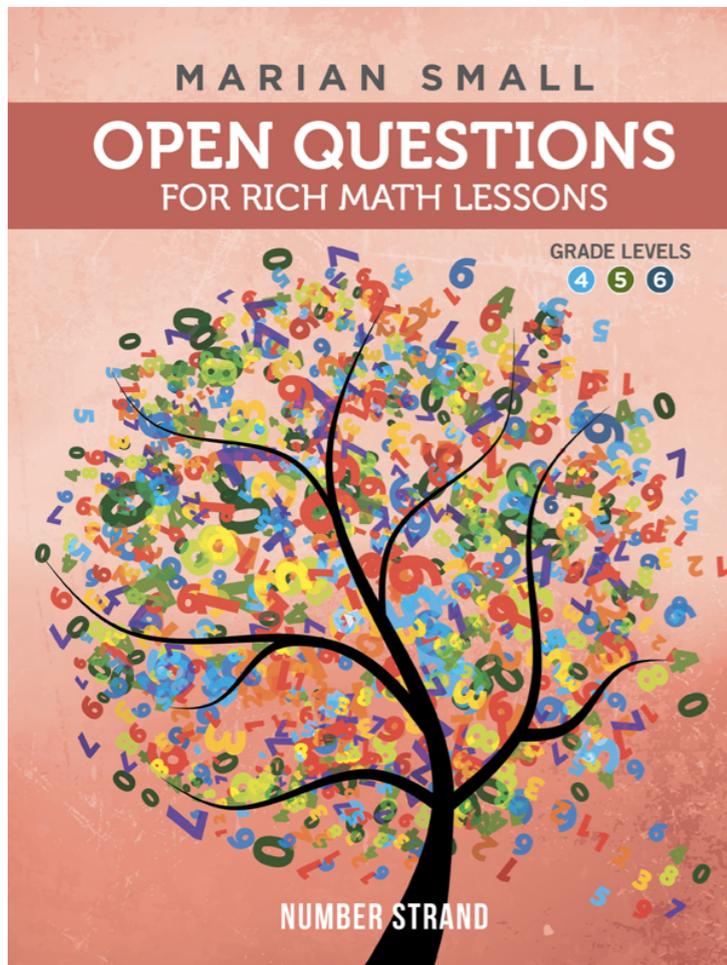
- Number sense game
- Math grade 2 dice games
- Grade 2 and 3 math number sense
- Grade 3 number sense activities
- After school games for kids
- Counting on grade 3

The main content area displays several pins. One prominent pin is an Instagram post from "thelearningloftpreschool" showing a table with various math manipulatives like beads, sticks, and dice. Another pin shows a worksheet titled "Fish One More & One Less" with a "My Number" section and a "free printable one more one less" label. A third pin shows a worksheet for subtraction bowling with the text "paperwork to accompany subtraction bowling..." and a reply from "Markova Design (Barbara Mare...)".

A large, semi-transparent red Pinterest logo is overlaid on the right side of the board.

# Open Questions

What resources are available?



Each book spans several Grades (e.g., K - 3, 4 - 6, and 7 - 9.)  
Currently only the Number Strand is aligned to our BC Curriculum.  
The other strands are coming in Spring 2018.

# What should I consider when designing Learning Stations?

- Is this experience going to **ACTIVELY ENGAGE** your students?
- Are there entry points for **ALL** students?
- Can the experience be **DIFFERENTIATED** so each student can work to their fullest potential?
- Are there opportunities for the students to make **CHOICES**?
- Are they activities **PURPOSEFUL**, as well as **PLAYFUL**?
- What **QUESTIONS** will I ask to move the learning forward

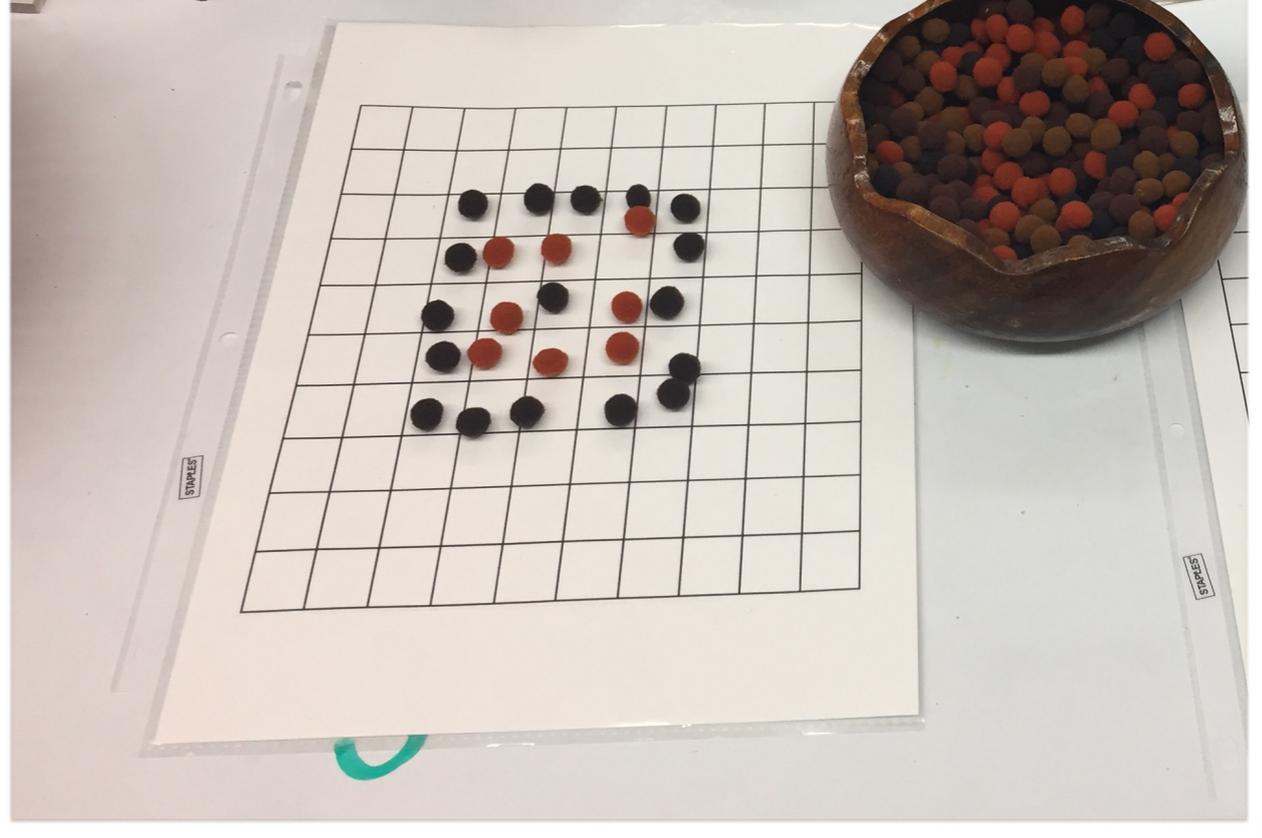
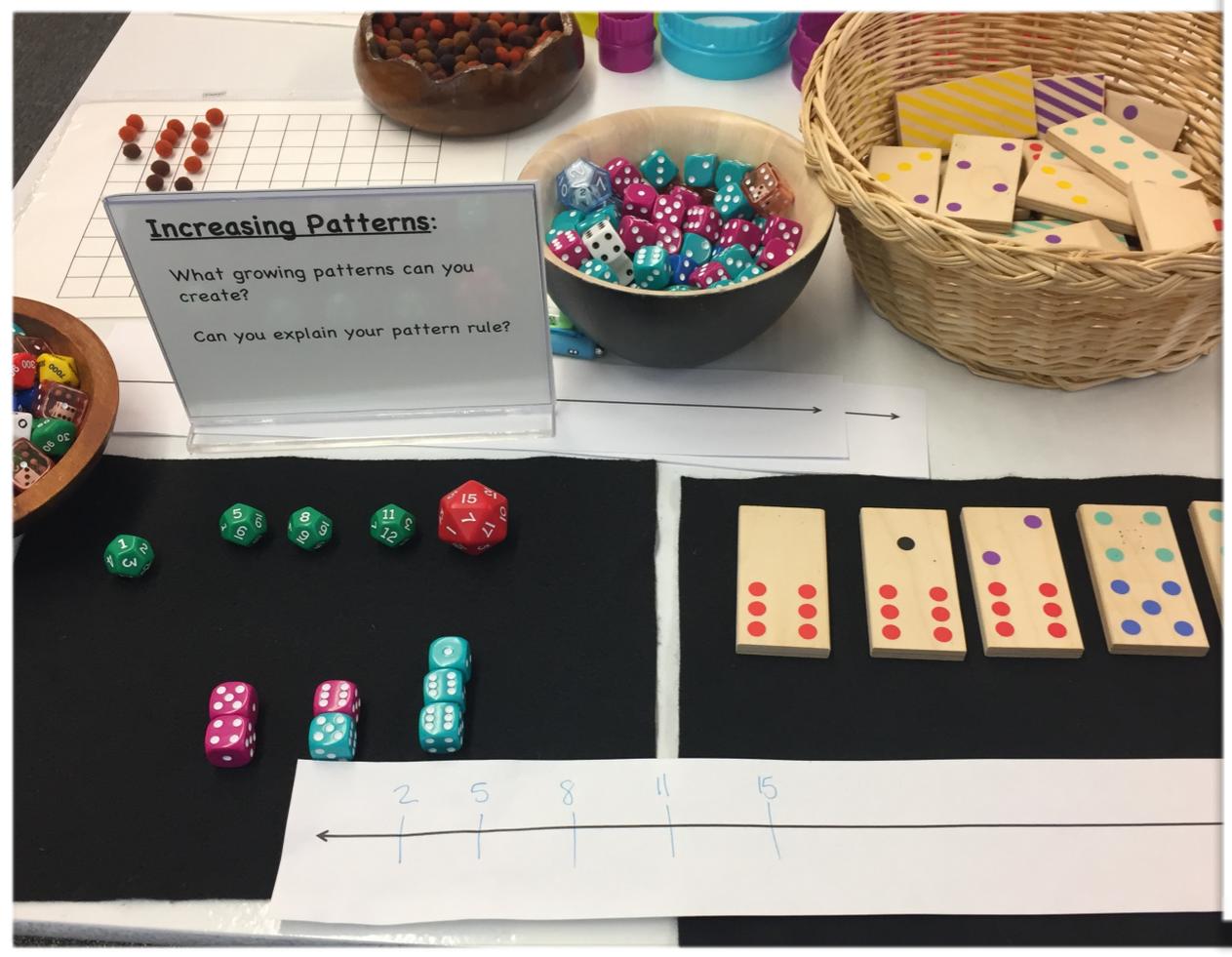
- Are there opportunities for **COLLABORATION**?
- Have you woven in your students' **INTERESTS**?
- Are you providing opportunities for students to revisit/  
**SPRIAL** concepts throughout the year
- How will I be **RESPONSIVE** to misconception  
and gaps of understanding?
- How will I **RECORD OBSERVATIONS**?
- How will I provide opportunities for  
**STUDENT REFLECTION**?
- How will I **COMMUNICATE**  
**STUDENT LEARNING**?



**Patterning Ideas**







You skip count forward by a number and you say 40. What might you be skip counting by?  
What were you NOT skip counting by?

|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20  |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30  |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40  |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50  |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60  |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70  |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80  |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90  |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

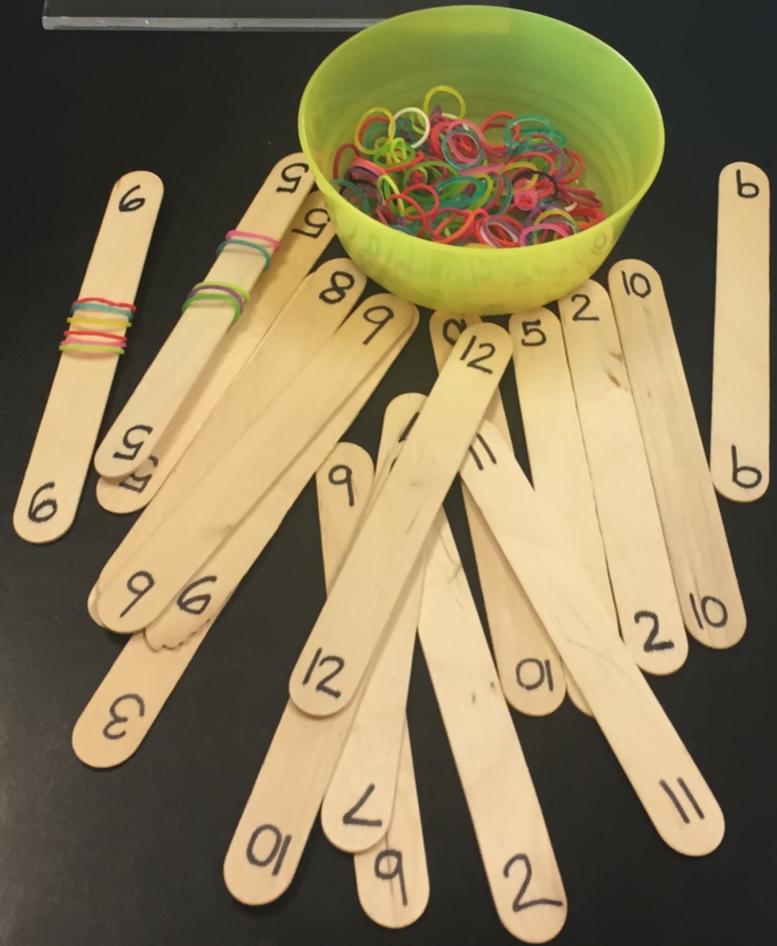


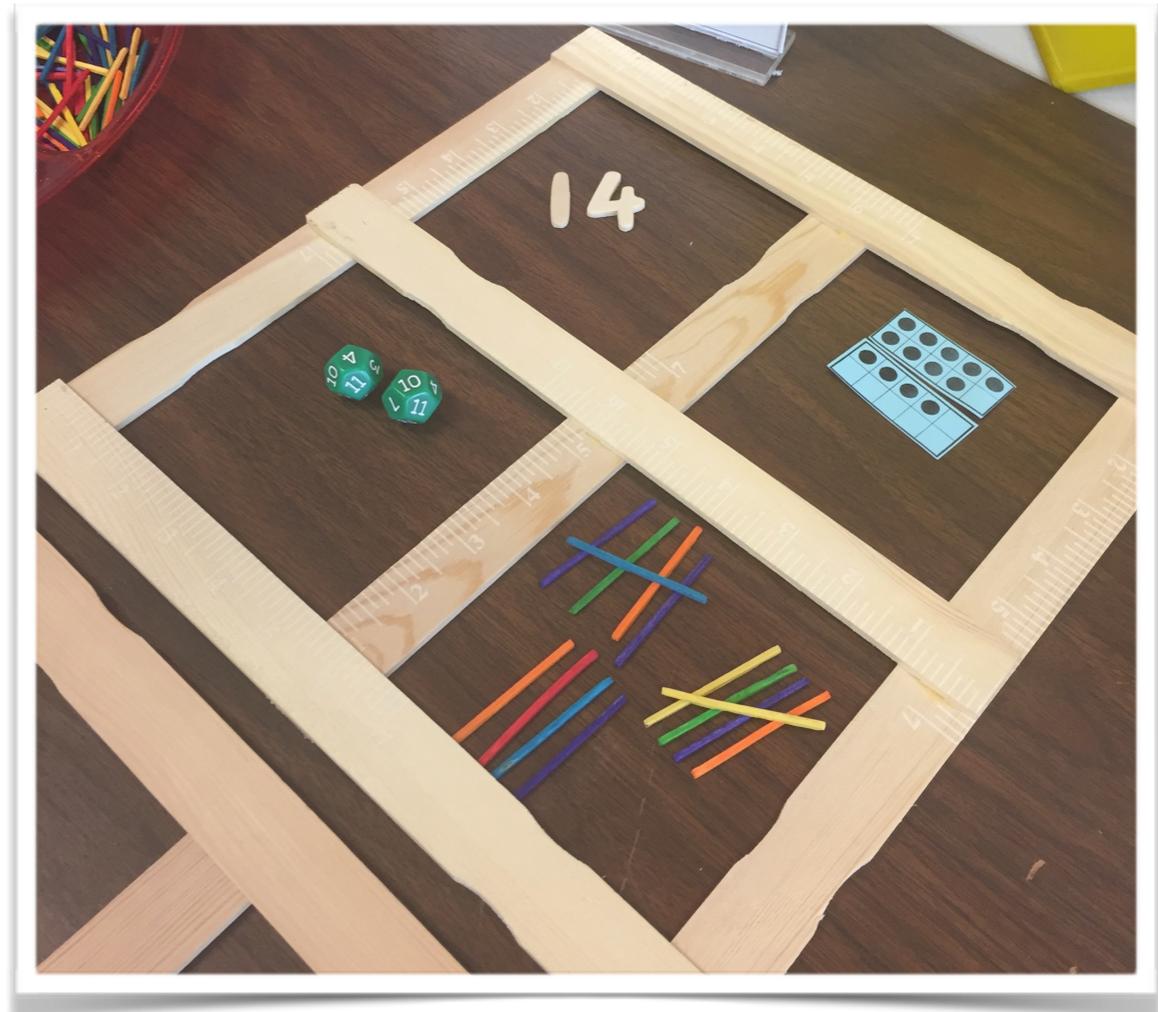
**What growing patterns can you make?**

# Number Concepts

**Recognize Numeral and  
Build Quantity:**

What number do you see?  
Can you build that quantity?  
How could you order your numbers?





How many different ways can you represent your number?







Choose a 2 or 3 digit number. What numbers can you make? Compare and order the numbers.

# The Role of the Teacher

## 1. Teacher as *Facilitator*

- talking less and asking more
- asking effective questions to make thinking visible

## 2. Teacher as *Clarifier and Connector*

- providing appropriate vocabulary
- anticipate and sequence student solutions to foster connections
- assisting students in making connections between concrete, pictorial, and symbolic representations
- ask thoughtful questions

## 3. Teacher as *Monitor*

- *observe and note who is engaged/passive*
- *use active participation strategies to hear more voices*

## 4. Teacher as *Data Collector*

- *work to find out our students' strengths, challenges and interests*
- *record anecdotal notes and use these to inform instruction*
- *collect and share photos, videos, and other documentation*



Begin by developing  
*expectations* with your students:

## MINI LESSONS:

- I will be an active listener.
- I will talk about my thinking.
- I will use different strategies to solve problems.
- I will do my best whether working independently or collaboratively.
- I use math tools and manipulatives responsibly to help my thinking.
- I will represent by thinking visually.
- I will give my best effort and be respectful to my classmates.
- I will persevere through challenges.
- I will reflect on my learning.

**MINI LESSON:**

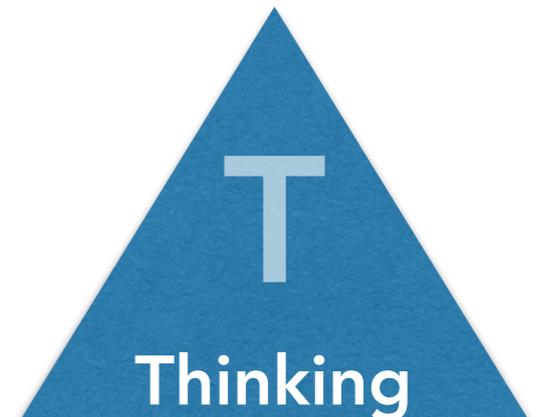
# Talking About Your Thinking

It is important we take time to learn from each other. We must remember to give each other time to think, followed by times to talk. We are always respectful of each other's ideas.

- Pose problem. Give independent thinking time. Take turns in your group sharing how you solved the problem.
- Add to anchor chart **I will talk about my math thinking.**

**I have \$36 in my pocket. What coins or bills might I have?**

Can you explain \_\_\_\_\_'s strategy?  
I agree with \_\_\_\_\_.  
I thought about it a different way.

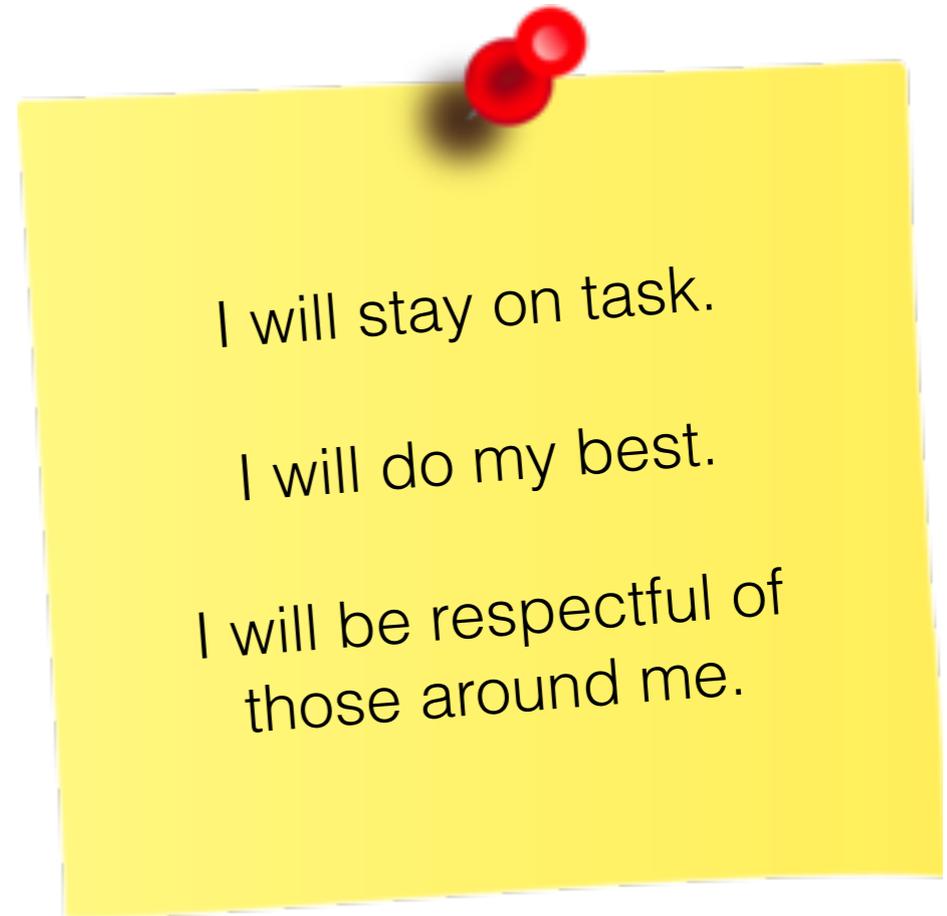


# MINI LESSON:

## Working Independently

**Through practiced independent work, students gain confidence in their own math ability.**

- Think about a time that you worked independently. What did it look like? What are some ways you represented your thinking? How were your classmates acting that helped you to work independently?
- Have students brainstorm ideas, then share ideas with a partner. Have the partner share each other's ideas, not their own.
- Add to anchor chart **I will do my best work whether working collaboratively or independently.**



# MINI LESSON:

## Being an Active Listener

It is important not just to listen to the teacher but also to each other.

- What is an “active listener”? Brainstorm what it looks and sounds like?
- Ask for someone to volunteer to share aloud in front of the class a favourite thing they like to do. Using talk moves have ensure that the students have actively listened to their classmate.
- Begin an anchor chart called “Guidelines for Math Workshop” and add **I will be an active listener.**

| Math Talk Moves |  |
|-----------------|--|
|                 | <b>Revoicing</b><br>"So you're saying that _____. Do I have that right?" |
|                 | <b>Repeating</b><br>"Can you restate or rephrase what _____ just said?"  |
|                 | <b>Reasoning</b><br>"Do you agree or disagree, and why?"                 |
|                 | <b>Adding On</b><br>"Would someone like to add on?"                      |
|                 | <b>Waiting</b><br>"Take your time...we'll wait..."                       |
|                 | <b>Turn &amp; Talk</b><br>"Partner turn and talk or think-pair-share"    |

**T** Thinking

**C** Communication

\*Summary Tables of Productive Talk Moves\* from Classroom Discussions in Math: A Teacher's Guide for Using Talk Moves to Support the Common Core and More, Grades K-6 by Suzanne H. Chapin, Catherine O'Connor, and Nancy Canavan Anderson. Copyright © 2013 by Scholastic Inc. All rights reserved. Item # 584882.

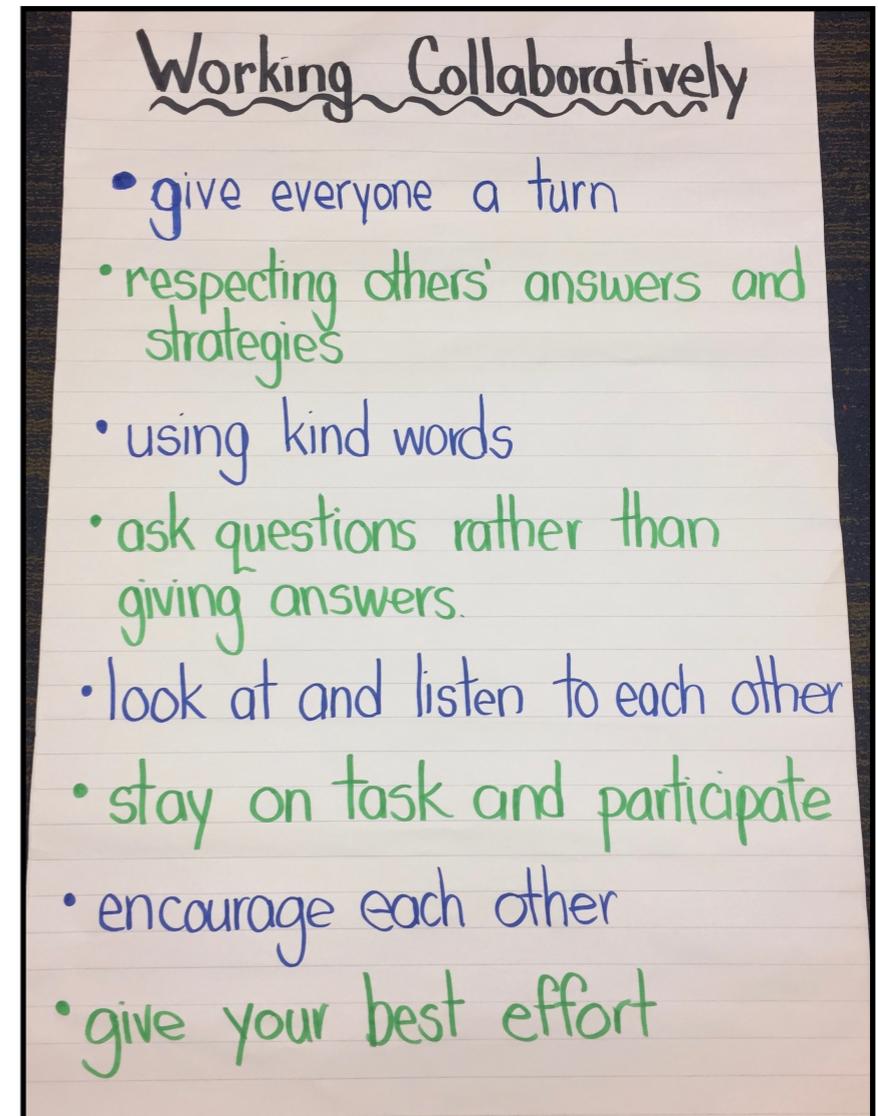
Math Solutions. | matholutions.com

# MINI LESSON:

## Working Collaboratively

**Working together helps students clarify their thinking, share their thought process, respect others' thinking, deepen their understanding, stay focused, and justify math solutions.**

- Provide stickies for students to brainstorm what it looks and sounds like.
- Create an anchor chart called "Working Collaboratively"
- Provide a problem for students to work on in collaborative groups and have them practice expectations and reflect on how it went.



# MINI LESSON:

## Using Manipulatives

Manipulatives are items that help children construct understanding. They also assist children in representing their thinking. It is tempting to play with manipulatives but when used responsibly they can help you learn.

- Provide students with a manipulative and ask them to take 5 min to explore. Ask them what they notice, what they wonder, and how they think they could use the manipulative.
- Add to anchor chart **I will use tools and manipulatives responsibly to help my thinking.**

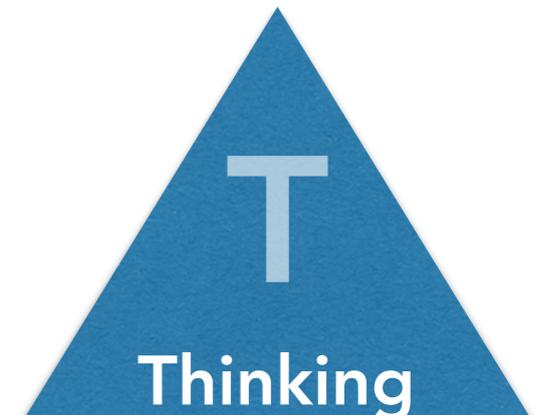
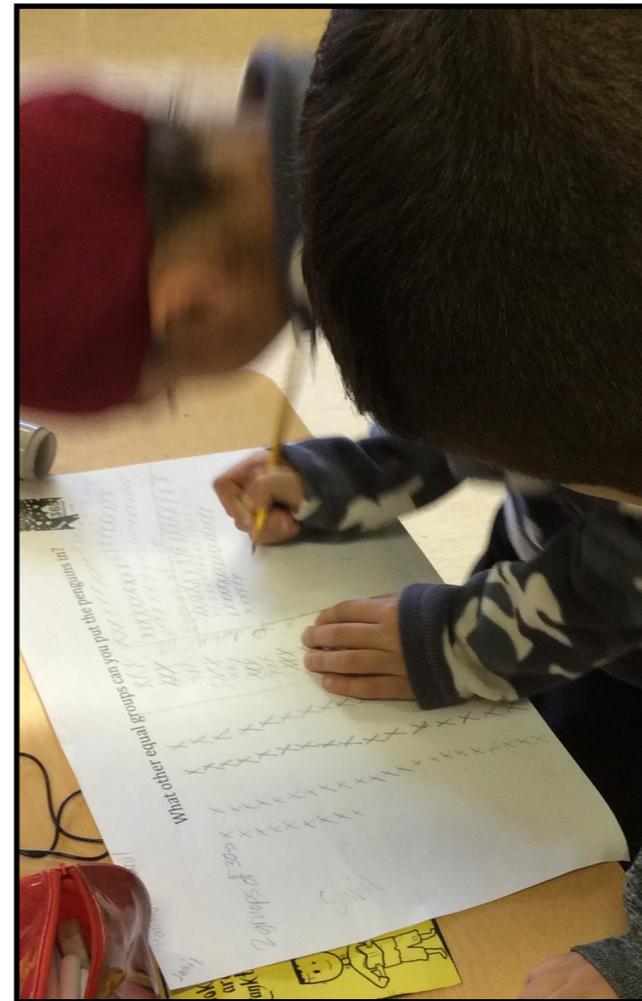


# MINI LESSON:

## Representing Your Thinking

**Drawing pictures is a problem solving strategy. Sometimes drawing pictures helps us to represent our math thinking and make sense of the question. Pictures help us visualize and can represent numbers.**

- Today, as we learn about \_\_\_\_\_, practice drawing pictures to represent your math thinking. Share a problem with students and have them draw pictures to represent their mathematical thinking .
- Add to anchor chart **I will represent my thinking visually when it is helpful.**



# MINI LESSON:

## Asking Questions

We want to promote an environment where students feel free to ask questions, challenge one another, and look for justification for answers. We also want to promote perseverance and avoid asking for help before giving our best effort.

- Provide students with a problem. Ask them to solve it themselves. Use sticky notes to write down any questions you have. “Park” your questions on the corner of your desk for now. In the end, check your questions to see if you answered them on your own. For the unanswered questions, check with a friend. Walk around the room and review the questions. Select and share strong examples of good questions.
- Add to anchor chart **I will persevere through challenges and believe in myself.**

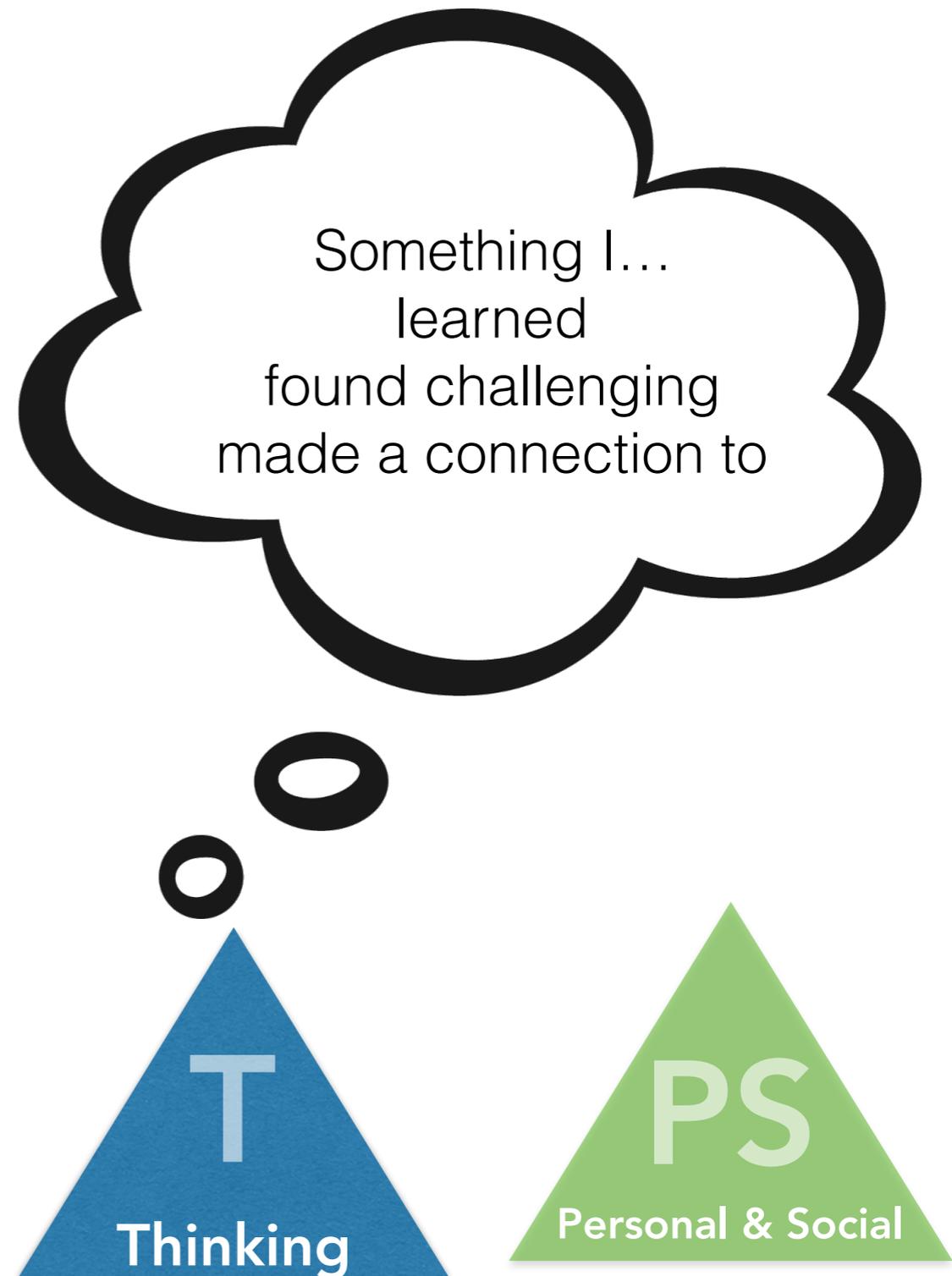


# MINI LESSON:

## Reflecting and Sharing

**Reflecting on what we've learned is key in everything we do. It can be done formally and informally.**

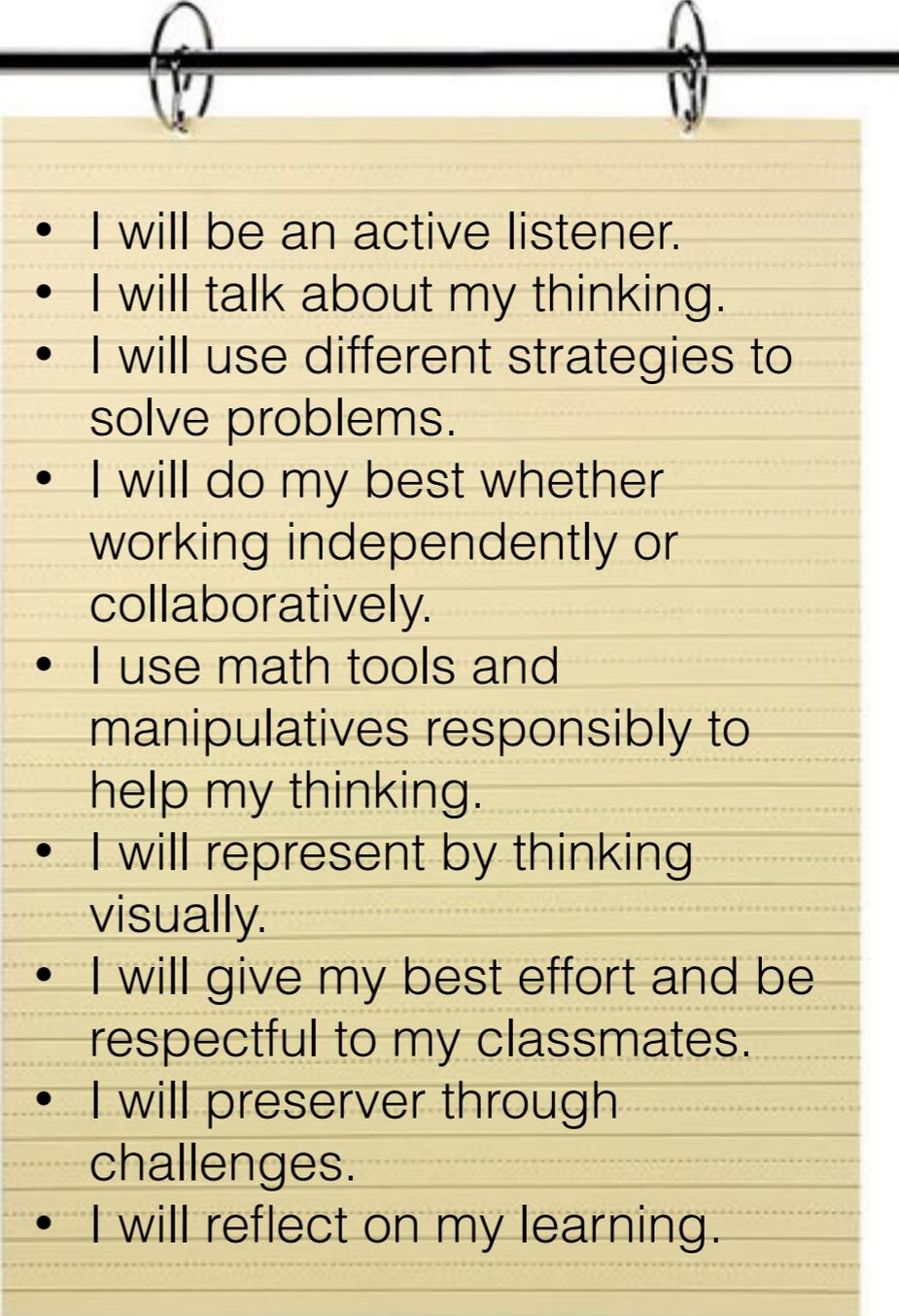
- Provide an open ended problem. Anticipate the ways students will solve. Monitor and determine a sequence you will ask students to share. The sequencing you determine is intentional so that you can assist students in making connections between strategies, etc.
- Ask students to reflect upon the learning experience.
- Begin an anchor chart called Guidelines for Math Workshop. Add **I will reflect on my learning.**



# MINI LESSON:

## Understanding Guidelines for Math Workshop

- Give students time to discuss with each other and share with the whole class what they understand about each of the guidelines on the anchor chart.
- Anytime you find students are struggling with these guidelines, return to the chart and corresponding mini-lesson.

- 
- I will be an active listener.
  - I will talk about my thinking.
  - I will use different strategies to solve problems.
  - I will do my best whether working independently or collaboratively.
  - I use math tools and manipulatives responsibly to help my thinking.
  - I will represent by thinking visually.
  - I will give my best effort and be respectful to my classmates.
  - I will persevere through challenges.
  - I will reflect on my learning.

# The next few weeks:

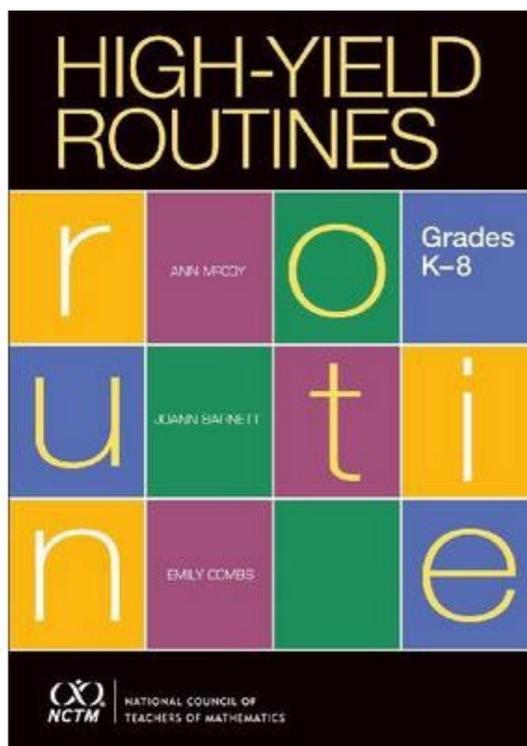
- Establish and practice routines and procedures
  - Where do I go?
  - What can I do?
  - Who can I work with?
  - How long do I do it?
  - What do I do if I have a question?
  - What do I do when I am finished?
- Begin with one learning station
  - Move to two stations
  - As students are comfortable with the learning stations, begin to pull one small group per day. Watch and intently listen. Find out what they know.
- Teach one Number Routine - then a second
- **Go SLOW to go fast!!!**

| SEPTEMBER 2018 |     |     |     |     |     |     |
|----------------|-----|-----|-----|-----|-----|-----|
| Sun            | Mon | Tue | Wed | Thu | Fri | Sat |
|                |     |     |     |     |     | 1   |
| 2              | 3   | 4   | 5   | 6   | 7   | 8   |
| 9              | 10  | 11  | 12  | 13  | 14  | 15  |
| 16             | 17  | 18  | 19  | 20  | 21  | 22  |
| 23             | 24  | 25  | 26  | 27  | 28  | 29  |
| 30             |     |     |     |     |     |     |

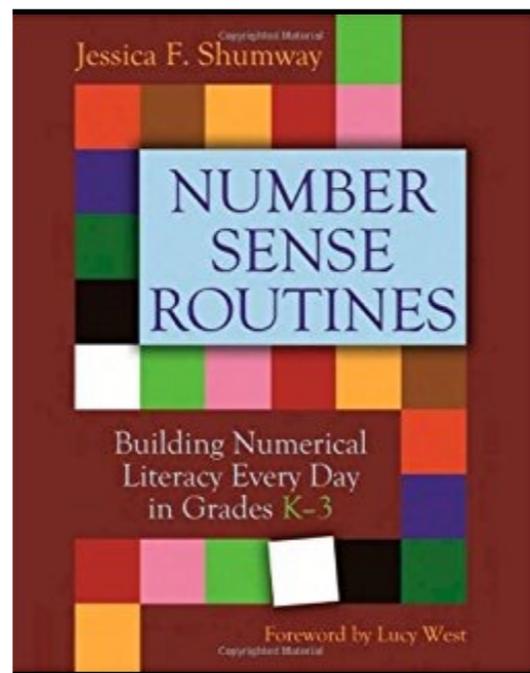
Video Clip 10.1: Go Slow to Go Fast

# Video Clip 10.1 Go Slow to Go Fast!

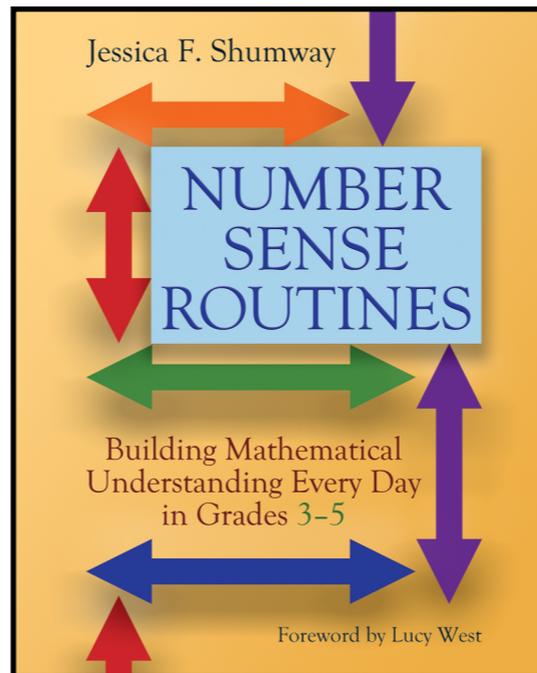
# Recommended Resources:



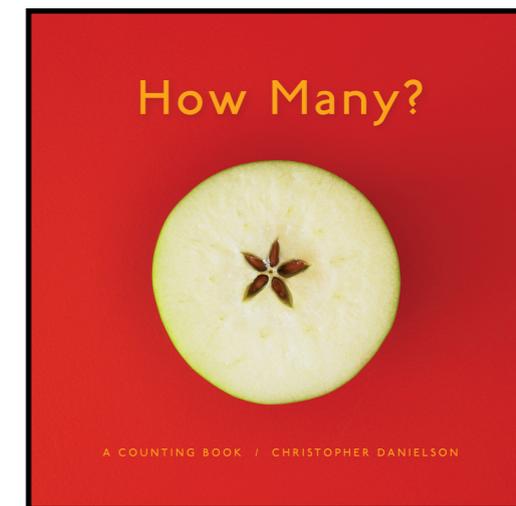
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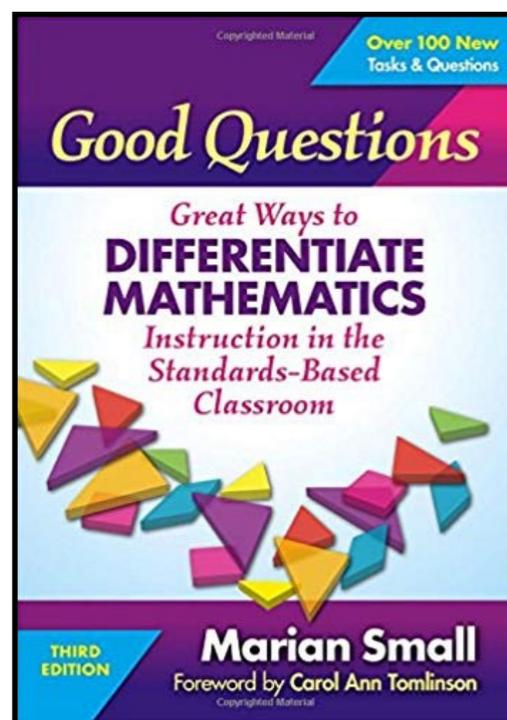
LRS #164962



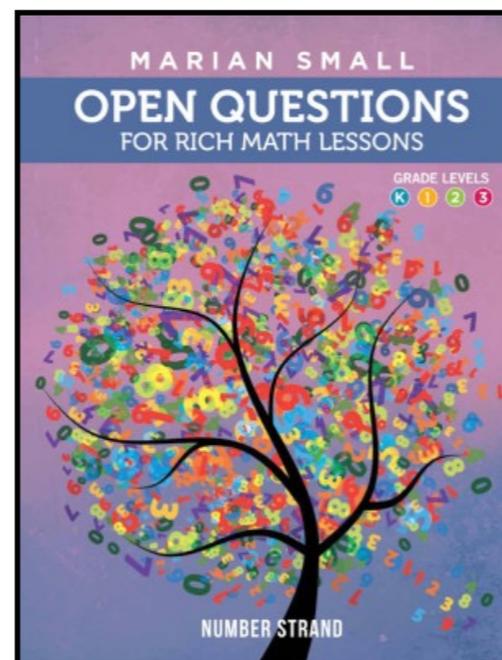
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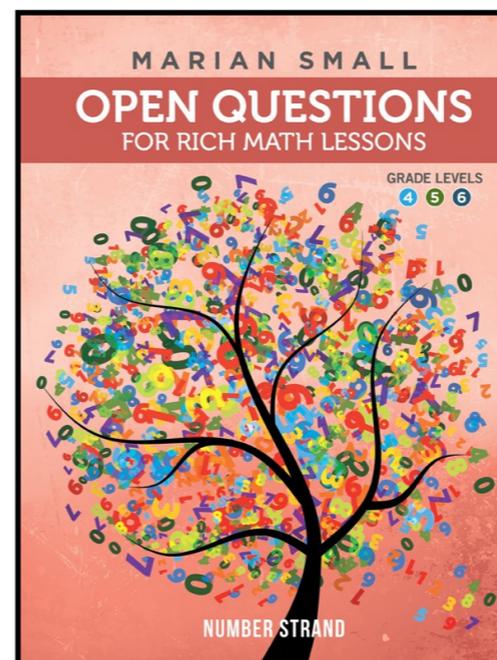
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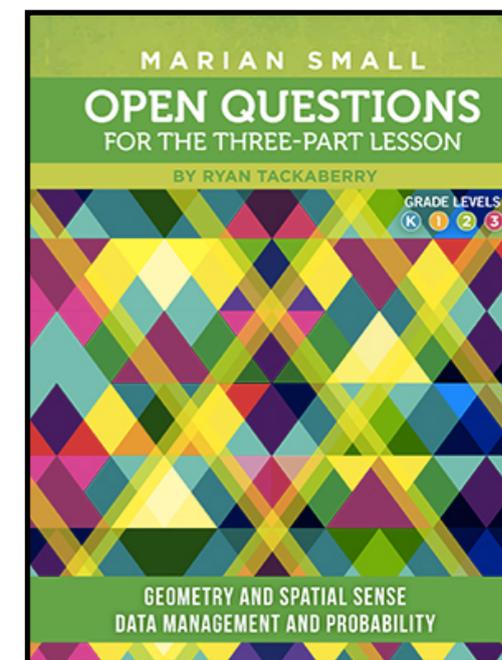
LRS #177529



LRS #173627



LRS #173628



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