

# 2016 NCTM Regional Conference

## Wacky & Wild Workstations for K-2



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# Goals of Session

- Provide workstation ideas and activities for **place value, number operations, and algebraic reasoning** that can easily be incorporated into classrooms
- Meet the needs of **ALL** students while incorporating higher level thinking skills, problem solving, student accountability, and fun!

# That's True About Me!

- I flew to Philadelphia!
- I'm a 1<sup>st</sup> Grade teacher!
- I enjoyed Halloween last night!
- I'm a Pre-K/Kindergarten teacher!
- I'm a football fan!
- I'm a 2<sup>nd</sup> Grade teacher!
- This is my first NCTM conference!
- I'm an instructional coach or specialist!

# Research States Games...

- Provide rich contexts for mathematical learning and thinking (Fosnot, 2001)
- Explore certain mathematical ideas (Fosnot, 2001)
- Help students use strategies to construct an understanding of numbers
- Learn to apply computational skills to problem-solving situations (Burns, 2007)

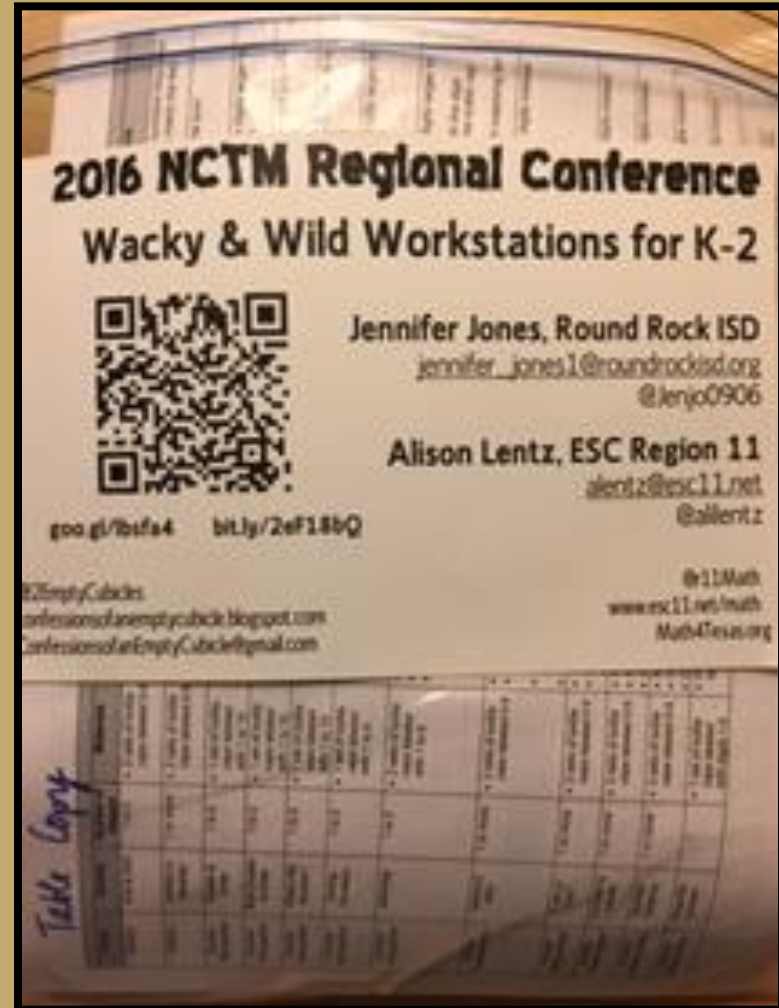


# Research States Practice...

- Provides opportunities to develop conceptual ideas and more elaborate and useful connections
- Provides opportunities to develop alternative and flexible strategies
- Provides greater chance for ALL students to understand
- Sends the message that math is about figuring things out and making sense

# Manipulatives & Handouts

- Table Bags



# Manipulatives & Handouts

- Table Bags
  - 1 Table Copy of Games

Hand & Sticky Worksheets for 4.0 Classrooms

Name	Activity	Number of Players	Materials	Directions	Variations
Number Manipulation	Pick & Add	1 or 2	• 2 sets of bottle caps labeled 0-9	• Draw two digits from the bag and add. • If two players, compare numbers and the highest number wins.	• Write the fact family for numbers that add to 10. • Write a word problem to match the fact given.
Number Manipulation	Addition In Reverse	1 or more	• 2 sets of bottle caps labeled 0-9	• Draw a digit. • Use this number as the sum in a number sentence and find all the combinations of numbers that make up the given number.	• Use two digits to make the sum.
Number Manipulation	Subtract & Order	1 to 2	• 1 set of bottle caps labeled with 1 to 10	• Lay out or scatter all the digits number side up. • Each player will order the digits from 0-10 and then 10-0.	• Make the numbers on the digits larger include two-digit numbers.
Number Manipulation	Mixed Subtract & Order	1 to 2	• 1 set of bottle caps labeled with 1 to 10	• Turn all the digits number side down and have each player flip one number over at a time and put both in order from 0-10 and 10-0.	• Make the numbers on the digits larger include two-digit numbers.
Number Manipulation	What's the Number?	1 to 2	• 1 set of bottle caps labeled with 1 to 10	• Turn all the digits number side up in order from 0-10 then turn a few face down. • Have each player determine which digits are turned over.	• Make the numbers on the digits larger include two-digit numbers.
Number Manipulation	Sorting Numbers	1 to 2	• 1 set of bottle caps labeled with 1 to 9	• Make two columns and sort the digits into the appropriate columns (odd and even and greater than number and less than a number). • Also, students could sort numbers that are odd and straight or numbers (know/doesn't know).	• Make the numbers on the digits larger include two-digit numbers.
Number Manipulation	Matching	1 to 2	• 2 sets of bottle caps labeled with 1 to 9	• Flip over all the lids and take turns trying to make matches. • If a player gets a match, they get another turn. • Whoever all the lids are gone, the person who made the most matches wins.	• Make the numbers on the digits larger include two-digit numbers. • Add a set of number cards with the digit number words to match to the bottle cap digit. • Add a set of number cards with matching phrases to match to the digit. • Write larger numbers on the digits from 0-9.
Number Manipulation	Before & After	1 or more	• 2 sets of bottle caps labeled 0-9	• Draw a digit. • Write the digit before the drawn digit and the number after the drawn digit. • Write how many more or less the number is from the before and after numbers. • Write 10 more or 10 less than the drawn digit.	• Write larger numbers on the digits from 0-9.
Number Manipulation	Even or Odd?	1 or more	• 2 sets of bottle caps labeled 0-9	• Draw 2 digits. • Make a number and decide if that number is odd or even by drawing a penny "front".	• Write larger numbers on the digits from 0-9.
Number Manipulation	Comparing Values	1 or more	• 2 sets of bottle caps labeled 0-9	• Draw 4 digits. • Make 2 numbers and draw a penny model of each number. • Compare the 2 numbers by writing a comparison statement.	• Write larger numbers on the digits from 0-9.
Number Manipulation	Number Ordering	1 or more	• 2 sets of bottle caps labeled 0-9	• Make 4 numbers using 4 digits. • Draw a penny model of each number. • Order the numbers from greatest to least and then least to greatest.	• Write larger numbers on the digits from 0-9.
Number Manipulation	Know My Number	1	• 1 set of bottle caps labeled with digits 1-9	• Draw 2 digits. Use the number to fill in the three fly number templates.	• Write larger numbers on the digits from 0-9.



# Manipulatives & Handouts

- Table Bags
  - 1 Table Copy of
  - 10 Half Sheets

**Know My Number**

My Number is \_\_\_\_\_ Is it odd or even? \_\_\_\_\_

1 More	1 Less	10 More	10 Less	100 More	100 Less

Word Form

Number	Word

Ways to Make with Addition

With Tally Marks

Greater Than and Less Than

**Build & Make**

My Number	In Picture Form
In Word Form	In Expanded Form
With Money	Represent It a Different Way
Make a Comparison Statement with a Number Greater than Your Number	Make a Comparison Statement with a Number Less than Your Number
Show Your Number as a Number Bond	
Show Your Number on a Number Line	
Show Your Number as a Strip Diagram	



# Manipulatives & Handouts

- Table Bags
  - 1 Table Copy of Games
  - 10 Half Sheets
  - 5 sets of Bottle Caps



# Manipulatives & Handouts

- Table Bags
  - 1 Table Copy of Games
  - 10 Half Sheets
  - 5 sets of Bottle Caps
  - 5 sets of 3 Suits of Cards



# Manipulatives & Handouts

- Table Bags
  - 1 Table Copy of Games
  - 10 Half Sheets
  - 5 sets of Bottle Cap
  - 5 sets of 3 Suits of
  - 5 sets of 2 Dice





# Bottle Caps

- Addition in Reverse
- Know My Number



# Addition in Reverse

Players	Materials	Directions
1+	2 sets of bottle caps labeled 0-9	<ul style="list-style-type: none"><li>• Draw a digit.</li><li>• Use this number as the sum in a number sentence and find all the combinations of numbers that make up the drawn number.</li></ul>

## Variations

- Use two digits to make the sum.
- The drawn number becomes the difference (Subtraction in Reverse).

# Know My Number

Know My Number					
My Number is _____			Is it odd or even? _____		
1 More	1 Less	10 More	10 Less	100 More	100 Less
Word Form			Expanded Form		
			Picture Form		
Hundreds	Tens	Ones			
Ways to Make with Addition			Ways to Make with Subtraction		
With Tally Marks			Skip Count to Me		
Greater Than and Less Than			Strip Diagram		
Show on a Number Line					

Players	Materials
1	1 set of bottle caps labeled with digits 1-9
Directions	
<ul style="list-style-type: none"> <li>• Draw 2 digits.</li> <li>• Use the number to fill in the Know My Number template.</li> </ul>	
Variations	
?	





2

# Make a Number

K.2B

1. Pull a bottle cap from the bag and say the number written on the bottle cap.
2. Write the number and the word that represent the number written on the bottle cap.
3. Use counters to show the quantity of the bottle cap number.
4. Draw tally marks to represent the quantity of the bottle

# Deck of Cards

- 15
- 31
- Salute
- Snap
- Pyramid



# 15

<b>Players</b>	<b>Materials</b>	<b>Directions</b>
2 to 4	2 decks of cards per pair of players	<ul style="list-style-type: none"><li>• Pass out cards evenly and flip over 3 cards.</li><li>• Players take turns to show their 3 cards and add the value of the cards.</li><li>• If the total is 15, the player can keep their cards.</li><li>• If it is not 15 the cards are returned to the dealer and shuffled into the deck for the next round.</li><li>• Play continues for a set time. The winner is the player with the most cards when play finishes.</li></ul>

## Variations

?



# 31

<b>Players</b>	<b>Materials</b>	<b>Directions</b>
2 to 4	2 decks of cards per pair of players	<ul style="list-style-type: none"><li>• The cards are shuffled and each player will receive three cards face down.</li><li>• Once dealt, the players will look at their cards. They will then take a turn picking up a card from the pile in the middle and discarding a card.</li><li>• The object of the game is to have a sum of 31 in your hand before the other players.</li><li>• The card face value is used for counting; however Aces can be used as either 1 or 11.</li></ul>

## Variations

- Change 31 to a different number.

# Salute

Players	Materials	Directions
3	1 deck of cards (Jacks represent 11, Queens represent 12, Kings represent 13, and Aces represent 14)	<ul style="list-style-type: none"><li>• Two players will face each other and the cards are dealt evenly to them. The third person will sit where they can see the other two players.</li><li>• The third player will say "Salute" and the two players will turn over the top card, holding it to their forehead so the other person can see.</li><li>• The third player announces the sum and the other two players try to be the first one to guess their own number.</li><li>• The winner takes both cards. Players will rotate positions so everyone plays every position.</li></ul>

## Variations

- Students can write their own word problem using a set of numbers from the game. These could be put in another workstation for students to solve or be used as a warm up.
- Change operation to multiplication, subtraction, or division.

# Snap

<b>Players</b>	<b>Materials</b>	<b>Directions</b>
2	1 deck of cards with face cards removed	<ul style="list-style-type: none"><li>• Two players sit side-by-side and divide the cards evenly between themselves.</li><li>• The player on the left will deal the cards for the tens place, and the other player will deal the cards for the ones place.</li><li>• Players will turn over one card from their stack and the same time.</li><li>• The first player to call out the correct number gets to keep both cards.</li><li>• If both players call out the number at the same time, players leave their cards in the tie pile.</li><li>• The tie pile builds until one player gives a correct answer before the other. That player will take the two cards just turned over plus all of the cards in the tie pile.</li><li>• Play continues until one player has collected all of the cards.</li></ul>

## Variations

?



2

# SNAP

## 1.2B

1. Two players sit side-by-side and divide the cards evenly between themselves.
2. The player on the left will deal the cards to the tens place, and the other player will deal the cards for the ones place.
3. Players will turn over one card from their hand at the same time.
4. The first player to call out the correct sum will get to keep both cards.

# Pyramid

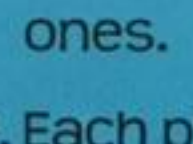
Players	Materials	Directions
2-3	1 deck of cards with 10s and face cards removed	<ul style="list-style-type: none"><li>• Remove the 10s and face cards from the deck. Jokers will count as zeros and Aces will count as ones.</li><li>• Each player will lay out ten cards face down making a pyramid. One card should be in the top row, two cards in the second row, three cards in the third row, and four cards in the fourth row like a pyramid.</li><li>• Players begin by turning over the top card. The player with the highest card wins a point. If there is a tie, players each win a point.</li><li>• Players then turn over their second row of two cards.</li><li>• These cards represent two-digit numbers. The player with the highest two-digit number wins two points.</li><li>• Turn over the third row of cards. The player with the highest three-digit number wins three points.</li><li>• Turn over the last row of cards. The player with the highest four-digit number wins four points.</li><li>• Shuffle the cards and play another round.</li><li>• The first player to reach 25 points wins the game.</li></ul>



2+

## Pyramid

2.2B

1. Remove the 10s and face cards from the deck. Jokers will count as zeros and Aces will count as ones.
2. Each player will lay out ten face down cards in a pyramid. One card should be in the top row, two cards in the second row, three cards in the third row, and four cards in the fourth row like this:  
  
pyramid.



# Dice

- Create a Problem
- Roll & Make
- Battle of the Facts



# Create a Problem

_____ □ _____ . _____	
_____	
_____	
_____	
UPS ✓	
1) Question	
2) Understand	3) Plan
4) Solve	5) Check

Players	Materials
1	Decahedron dice
Directions	
<ul style="list-style-type: none"> <li>• Roll to make 2 or 3 digit number.</li> <li>• Use the digits and one symbol to create a number sentence and word problem.</li> </ul>	
Variations	
?	

# Roll & Make

Roll & Make	
My Number	In Picture Form
In Word Form	In Expanded Form
With Money	Represent It a Different Way
Make a Comparison Statement with a Number Greater than Your Number	Make a Comparison Statement with a Number Less than Your Number
Show Your Number as a Number Bond	
Show Your Number on a Number Line	
Show Your Number as a Strip Diagram	

Players	Materials
1	6 Ones (0-9) Place Value Dice or regular dice

## Directions

- Each player will roll the dice to make a number.
- Each player will use that number to complete the Roll & Make activity sheet.

## Variations

Change the number of dice rolled to make a larger or smaller number.



# Battle of the Facts

Players	Materials
2	<ul style="list-style-type: none"><li>• 2 regular dice or 2 place value dice</li><li>• Paper</li><li>• Pencil</li></ul>

## Directions

- Each player will roll to make a two-digit number and then roll again to make another two-digit number.
- Each player will add their numbers and the largest sum wins and receives a point.
- The player to get 15 points wins.

## Variations

- Change the number of digits rolled.
- Change the operation to subtraction.
- Have students make a word problem using one of the sets of dice rolled.

# Egg Cartons

- Number Shake (Shake It!)
- Shake & Subtract



# Number Shake

Players	Materials	Directions
1	<ul style="list-style-type: none"><li>• Number Generator (Spinner, Digit Cards, Die, etc.)</li><li>• 6 dimple Egg Carton</li><li>• Token (Chip, Bean, Counter, etc.)</li></ul>	<ul style="list-style-type: none"><li>• Label each dimple with the words: word, picture, ten frame, number line, number bond, and tally marks.</li><li>• Students generate number using the number generator.</li><li>• Place the token in the egg carton and shake to determine the representation that will be used.</li><li>• Continue shaking until the number has been shown with all the representations OR</li><li>• Generate a new number and make one representation.</li></ul>

## Variations

- Place three tokens in the egg carton to randomly select three multiple representations at one time.
- After generating a representation for 3 to 4 numbers, have students order and/or compare using the representations.
- Make two or three digit numbers.
- Draw representations on index cards to make Memory, Matching, or Concentration game.



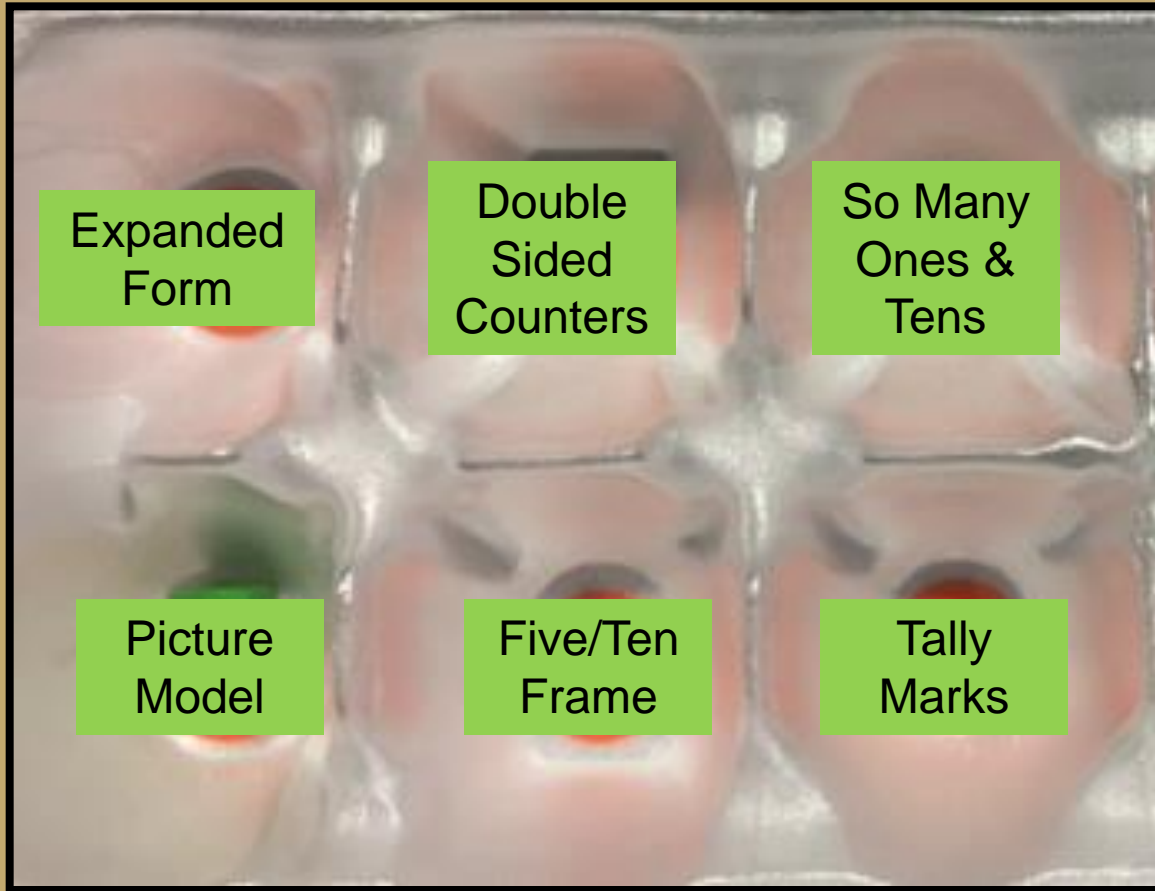
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# Shake It!

## K.2B

1. Pick a number card from the bag.
2. Shake the egg carton to determine the representation of the number card by where your token lands. Write it on your paper if it says to do so.
3. Repeat step 2 three times by shaking the carton for three more representations of your number card.
4. Pick a new number card and repeat steps 2 and 3.
5. Pick a new number card and repeat steps 2 and 3.



Expanded  
Form

Double  
Sided  
Counters

So Many  
Ones &  
Tens

Picture  
Model

Five/Ten  
Frame

Tally  
Marks

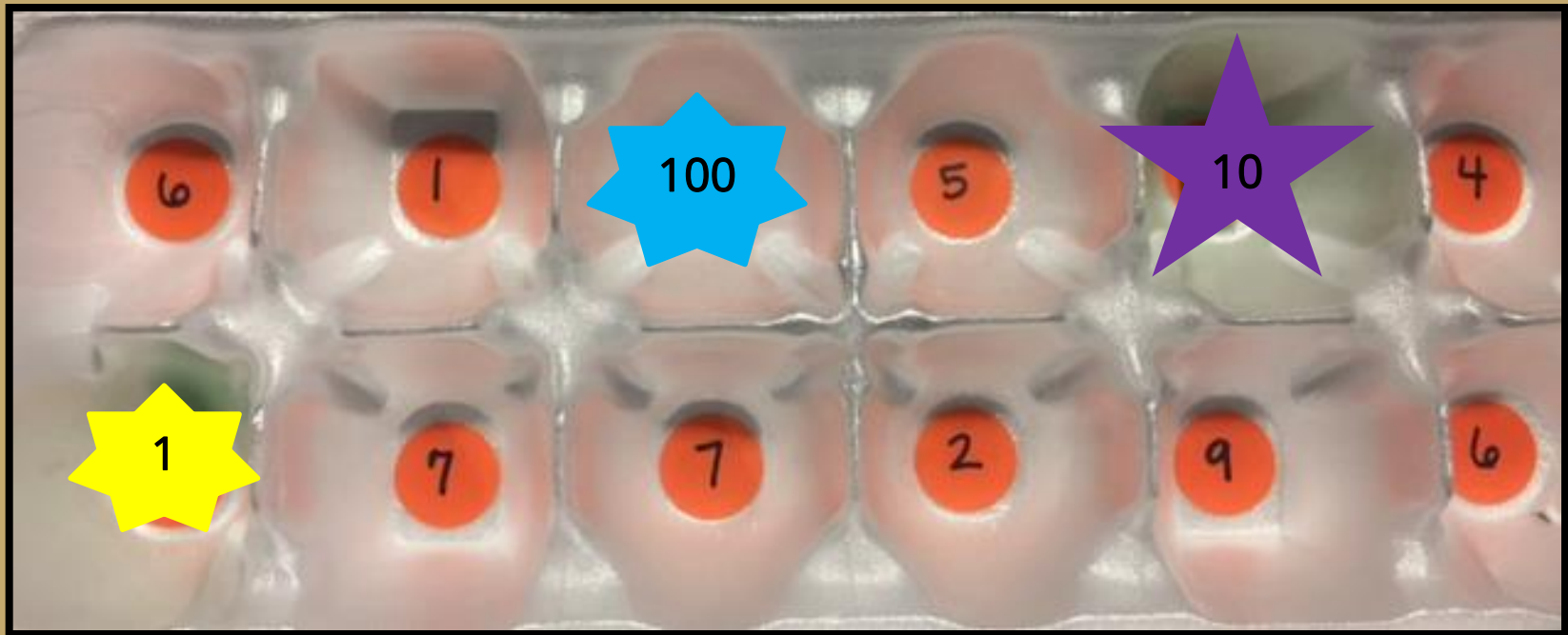
# Shake & Subtract

Players	Materials	Directions
1	<ul style="list-style-type: none"><li>• Egg carton</li><li>• Pencil</li><li>• Paper</li></ul>	<ul style="list-style-type: none"><li>• Place 3 coins labeled with a "10", "100" and "1,000" (one each in the egg carton).</li><li>• Shake carton, open, and record the number.</li><li>• Repeat, and subtract the digits.</li></ul>

## Variations

- Change the place value to two places.
- Write a real life problem situation.





1 landed in the 3 = 3

10 landed in the 8 = 80

100 landed in the 2 = 200

283



1 landed in the 9 = 9  
10 landed in the 8 = 80  
100 landed in the 0 = 0  
89

$$\begin{array}{r} 283 \\ - 89 \\ \hline \end{array}$$



# Look for us at the 2017 NCTM Annual Conference & Exposition in San Antonio!



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