Early Childhood Mathematics: Building a Sense of Number PK - 1

Melissa Hosten, mhosten@math.arizona.edu crr.math.arizona.edu
Center for Recruitment and Retention of Mathematics Teachers, University of Arizona

Learning Target

I CAN HELP STUDENTS BUILD A ROBUST SENSE OF NUMBER

NUMBER TALK NORMS

When you have an idea use a silent thumb.

While you wait, think of more and more ways.

When I ask for volunteers raise your hand and wait.

You can only share ONE idea.

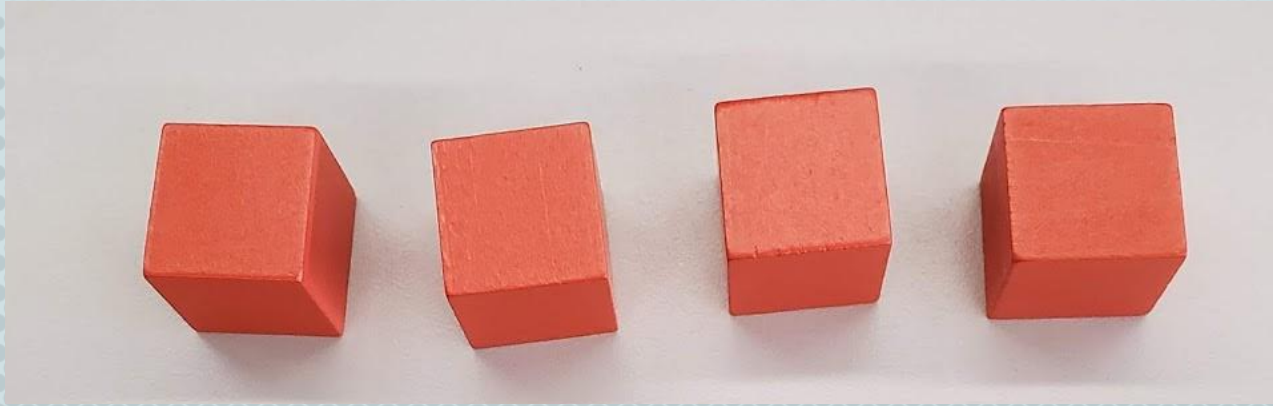
"COMMITMENT UNLOCKS THE DOORS OF IMAGINATION, ALLOWS VISION, AND GIVES US THE RIGHT STUFF TO TURN OUR DREAM INTO REALITY"

JAMES WOMACK

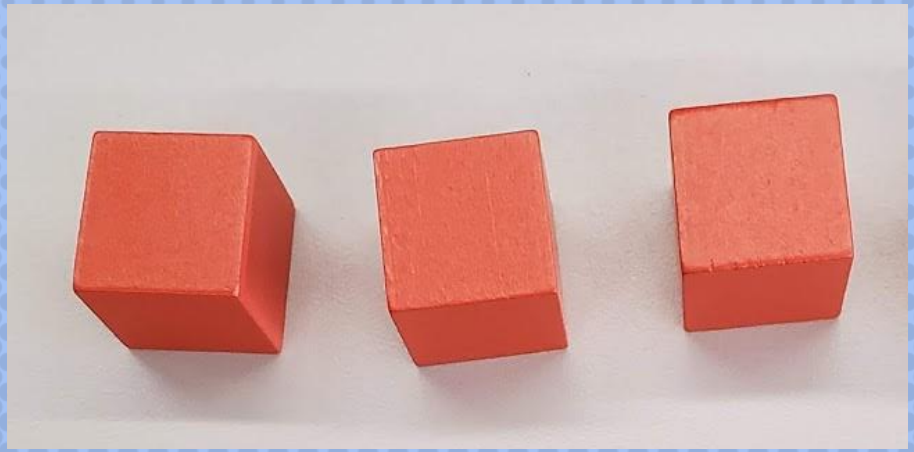
How many do you see? How do you see them?

Now how many do you see?
How do you see them?

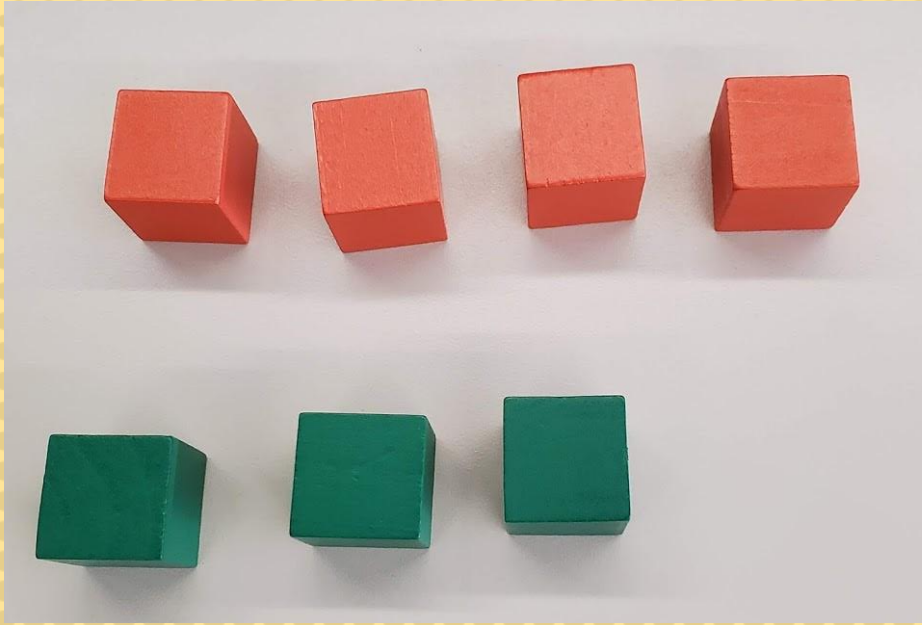
How many do you see? How do you see them?



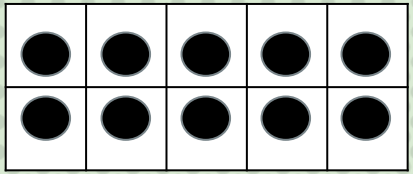
Now how many do you see?
How do you see them?

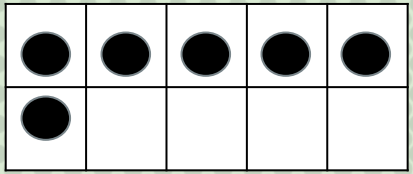


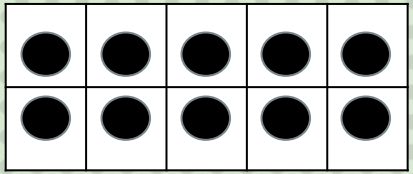
What do you notice about the amount of orange cubes and the amount of green cubes?

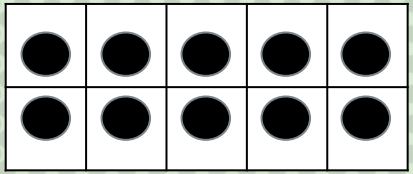


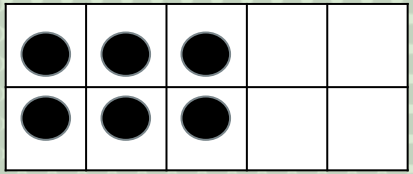
What is the one more or one less for each?

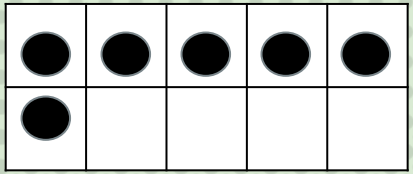




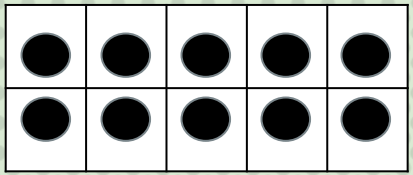


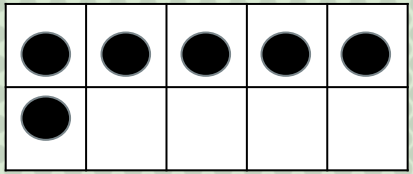


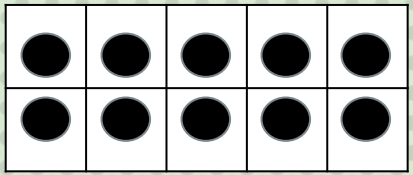


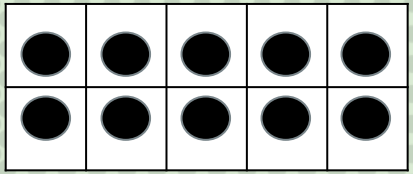


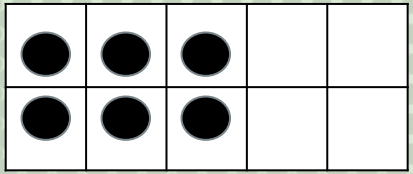
How can you organize these to show a ten more or ten less relationship all the way across?

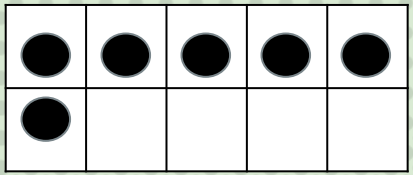












WHAT IS THE DIFFERENCE?

Pre-K

Demonstrates the ability to match object to object in a group (One-to-one correspondence).
Counts a collection of up to ten items using the last counting word to tell, “How many?” (Cardinality)

Kindergarten

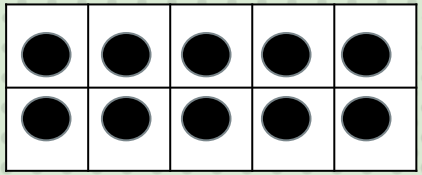
Compose and decompose numbers from 11 to 19 as ten ones and some further ones.

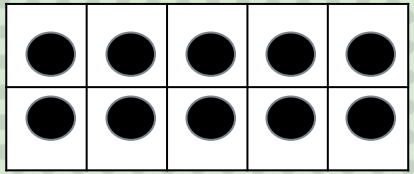
First Grade

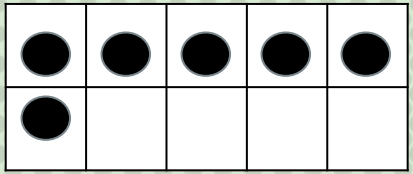
Understand that a two-digit number represents amounts of tens and ones.

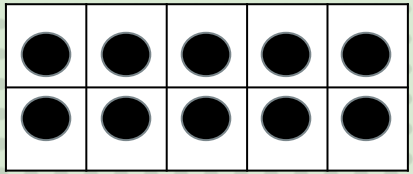
..strategies such as counting on, making a ten,

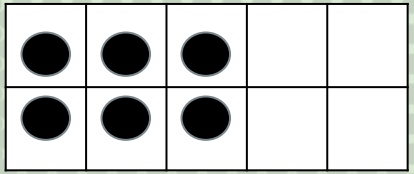
Group 5: How can you organize these to show a ten more or ten less relationship <u>all the way across</u>?

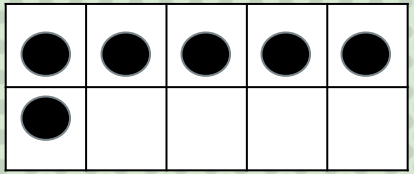




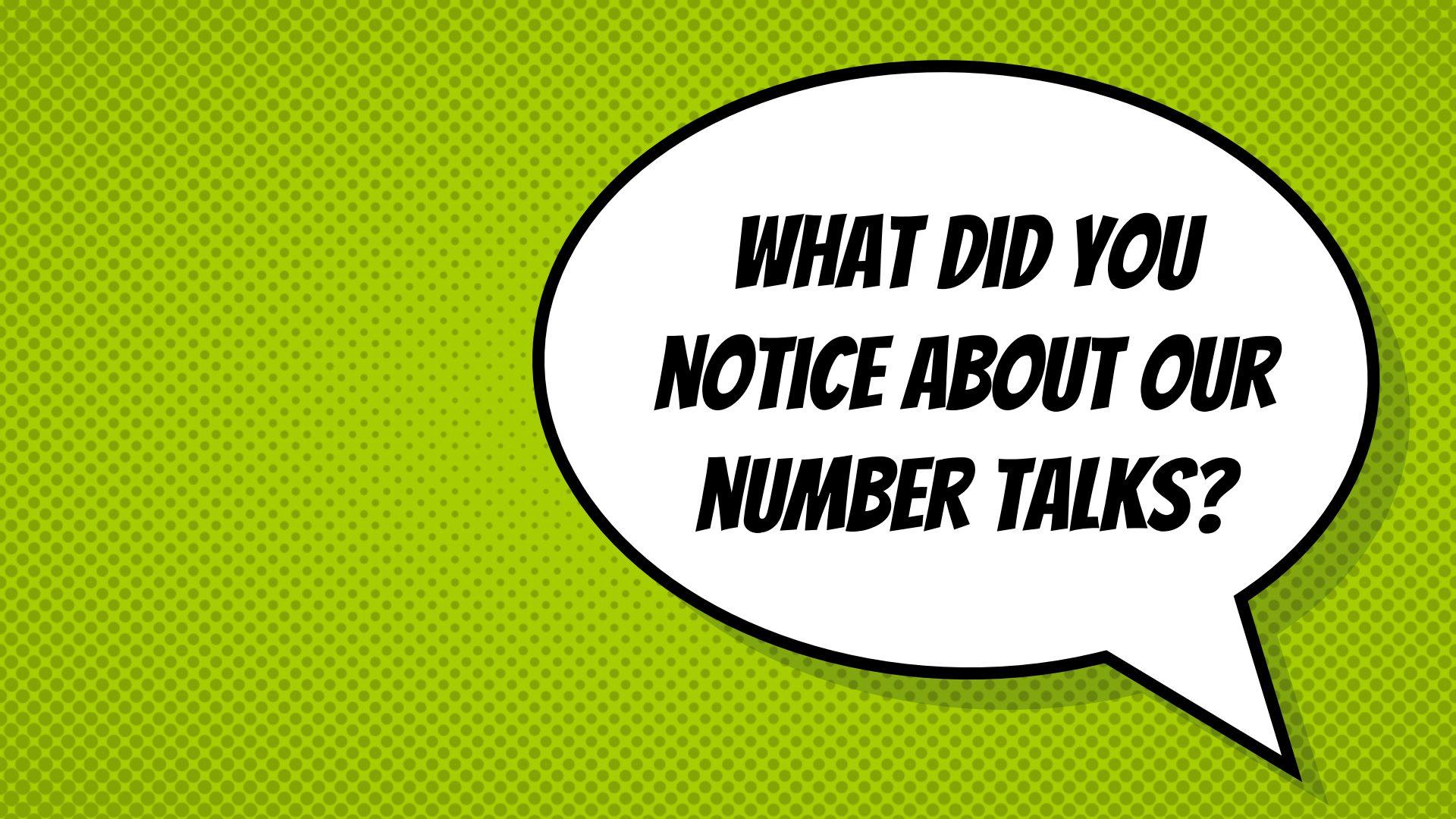








WHAT DID WE ROLL?


WHAT DID YOU NOTICE ABOUT OUR NUMBER TALKS?

TODAY'S NUMBER

Would each person who has on socks roll 2 dice but

DO NOT say the dice total.

Tell me how many dots are on each dice.

Let's verify the totals.

Our number is ...ten-six
When we counted it we found it was 16.

Let's make today's number using

Ten frames

A rekenrek (number rack)

A part-part-whole mat

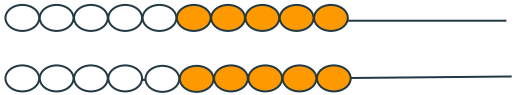
A number track

or using your own tool

Slide 24

Slide 29

Slide 36



WHAT AMOUNTS/QUANTITIES DO I SEE IN THE NUMBER OF THE DAY FOR EACH REPRESENTATION?

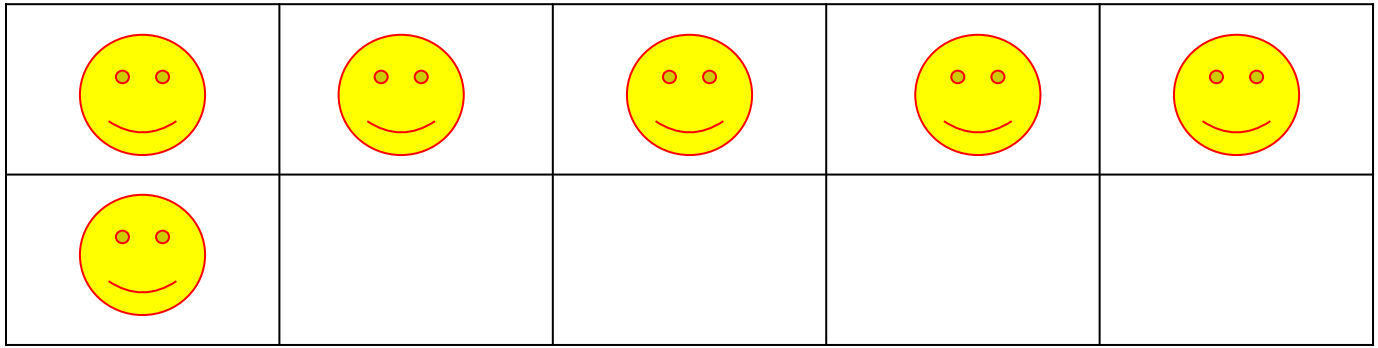
TEN-WISE COUNTING:

Ten	10
Ten One	11
Ten Two	12
Ten Three	13
Ten Four	**14**
Ten Five	15
Ten Six	16
Ten Seven	17
Ten Eight	18
Ten Nine	19

HOW MANY DO YOU SEE

HOW MANY DO YOU SEE

HOW MANY DO YOU SEE



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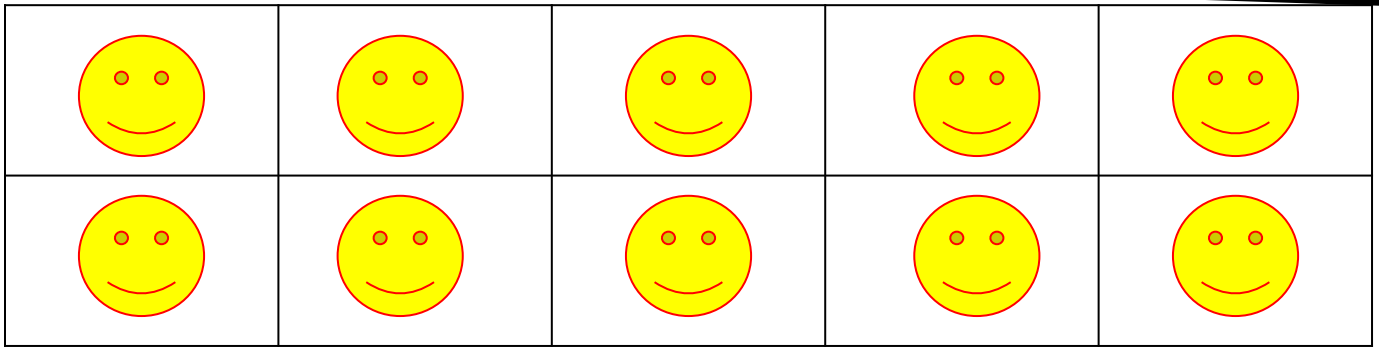
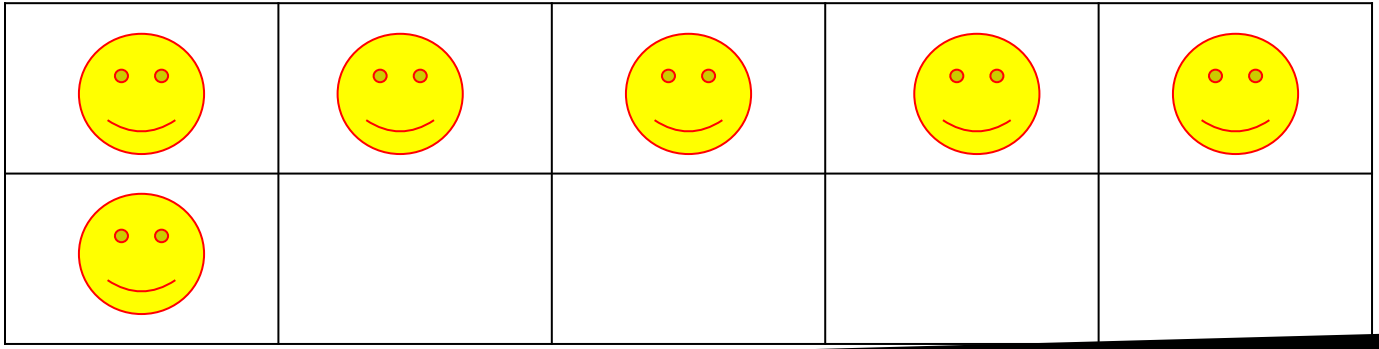
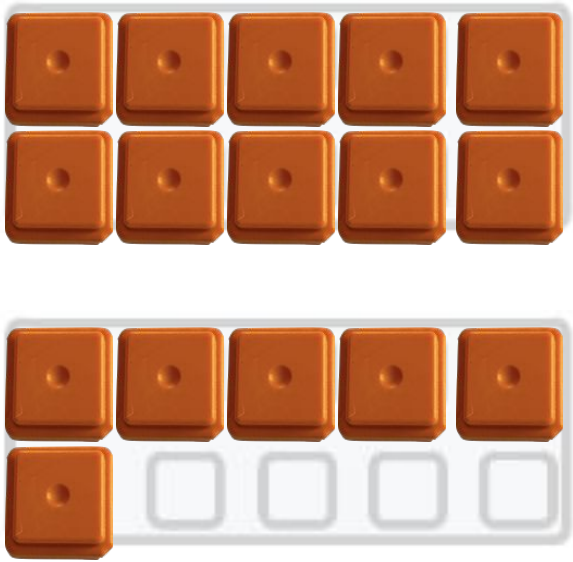
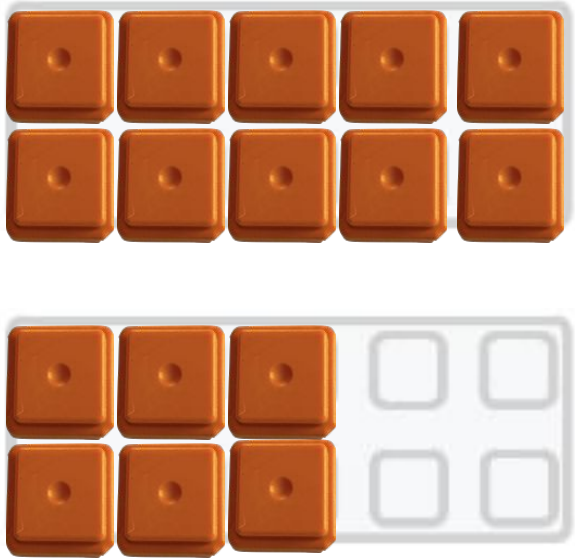
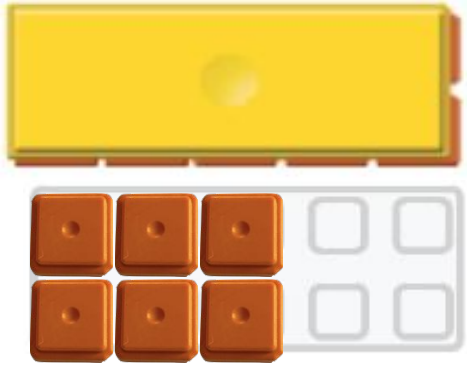


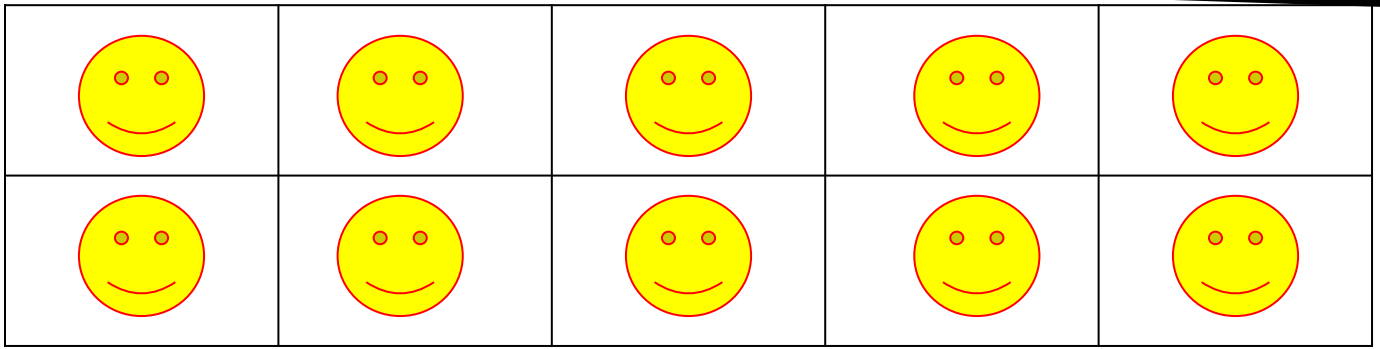


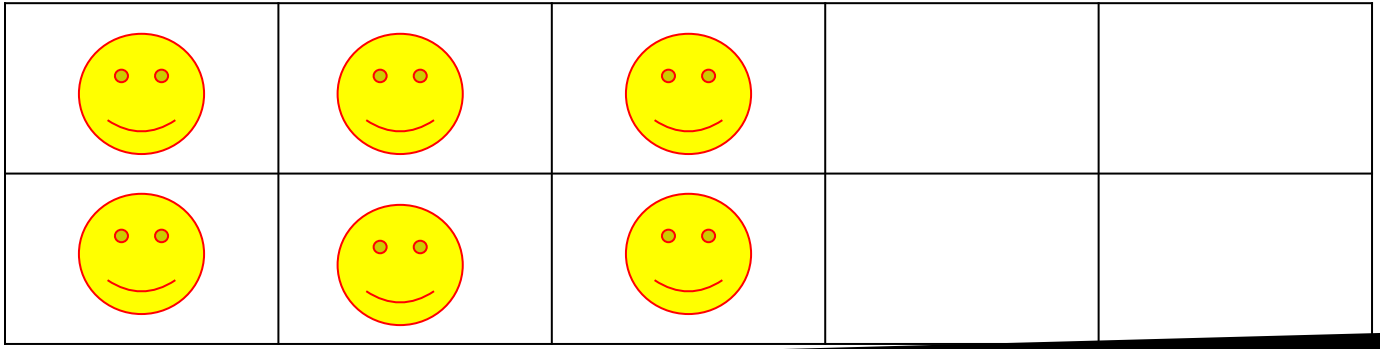






HOW MANY DO YOU SEE





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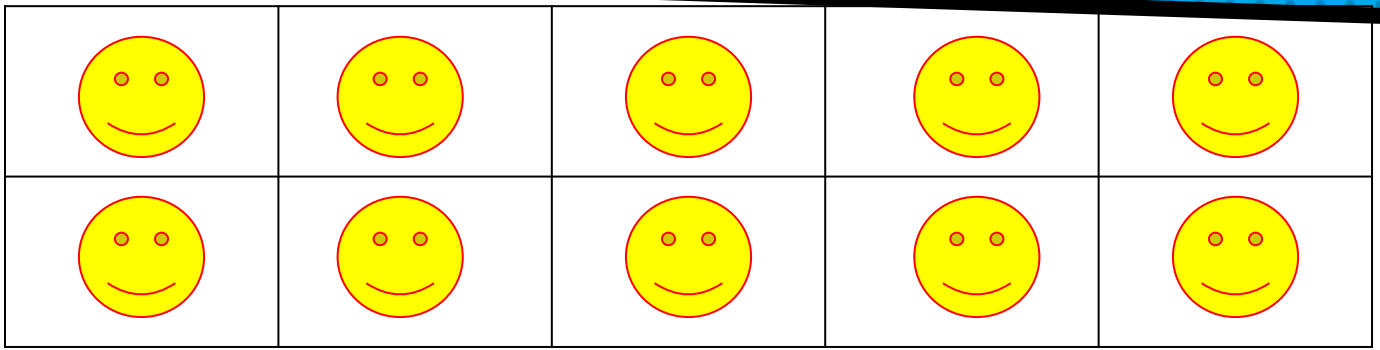
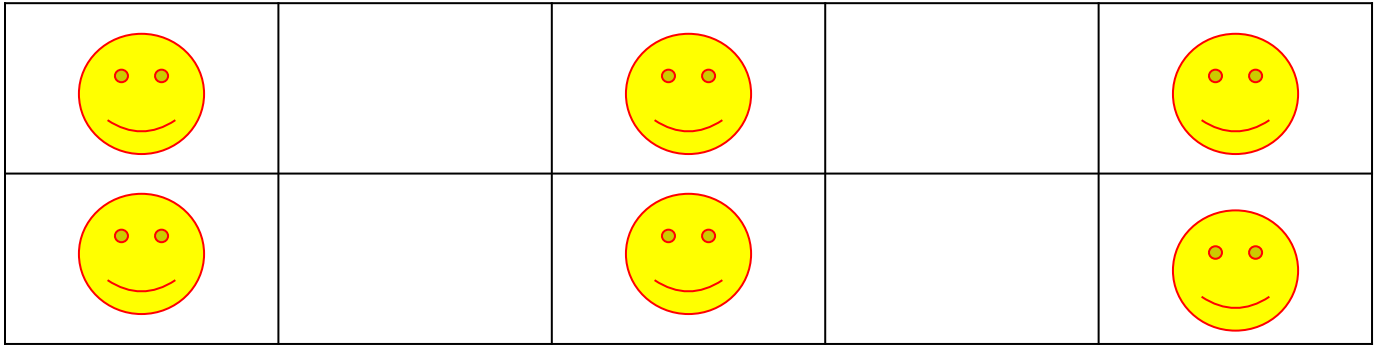
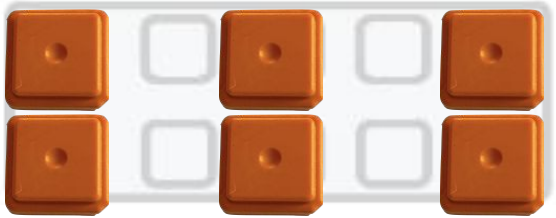


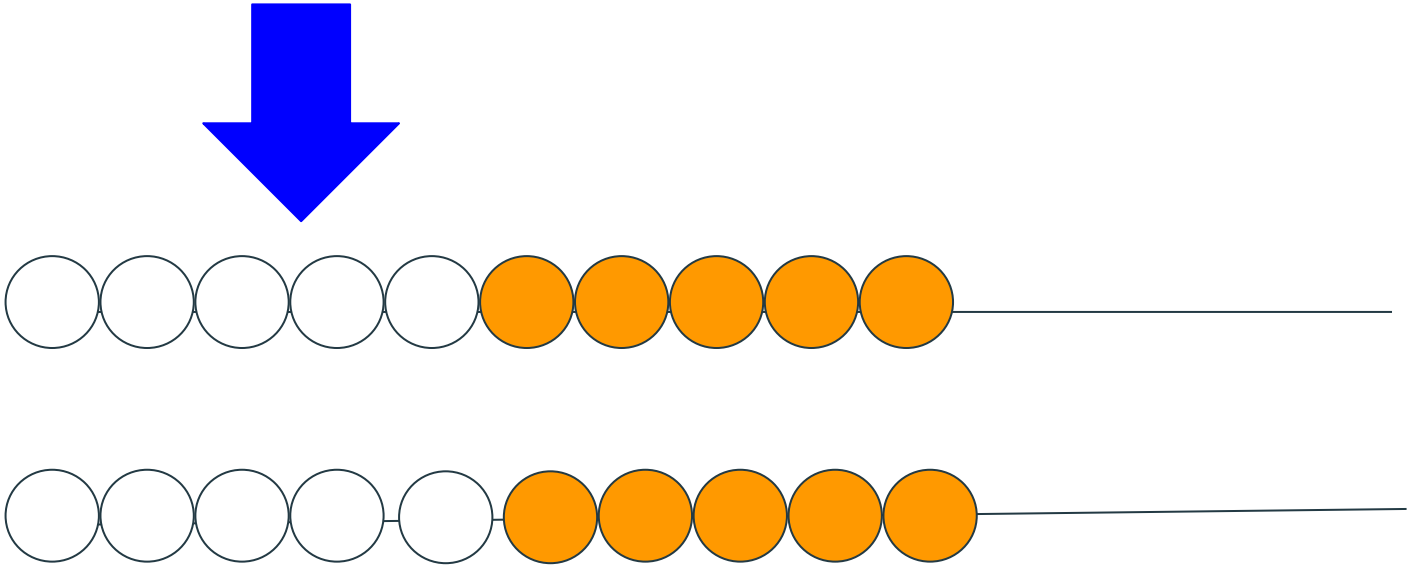


VS

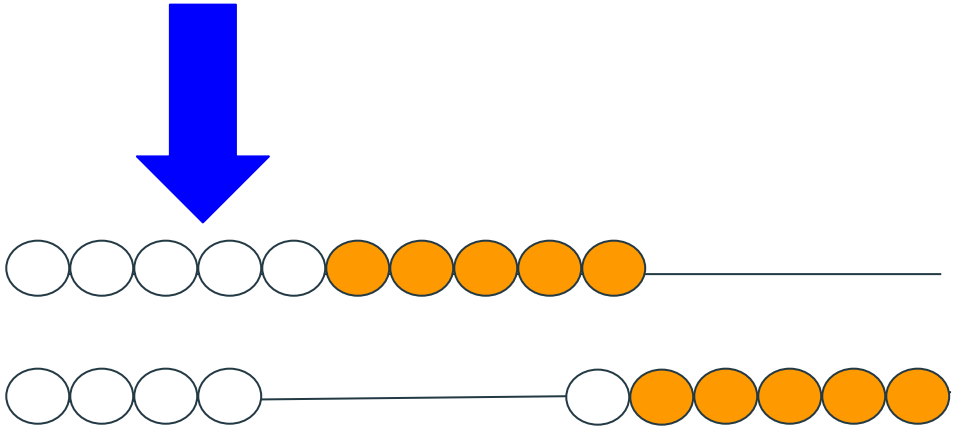


How did this organization on the ten frames differ?

EXPLORING NUMBER RACKS (REKENREKS)



HOW MANY DO YOU SEE ON THE LEFT?



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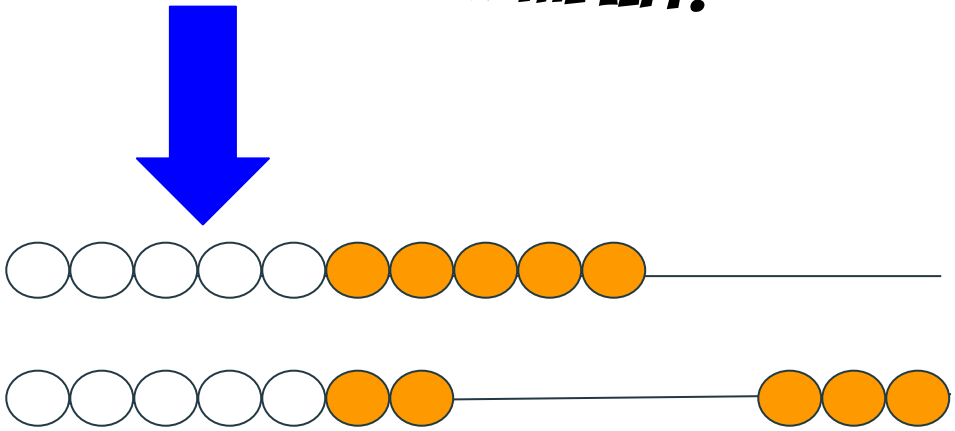

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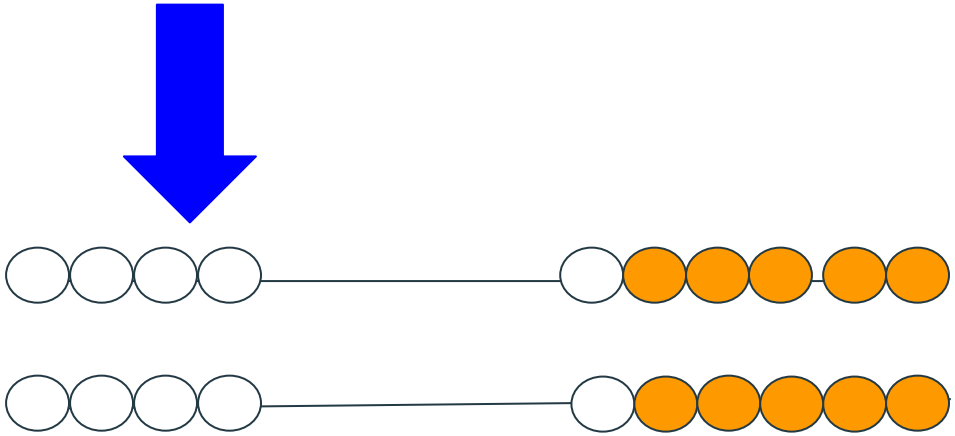
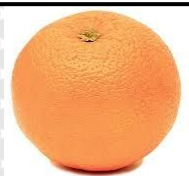
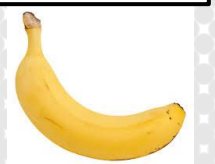


What did you notice about the way you saw the values?

5			●	
4		●	●	●
3	●	●	●	●
2	●	●	●	●
1	●	●	●	●

LET'S SORT THE FRUIT. LET'S COUNT IT USING OUR CHART AND OUR COUNTERS

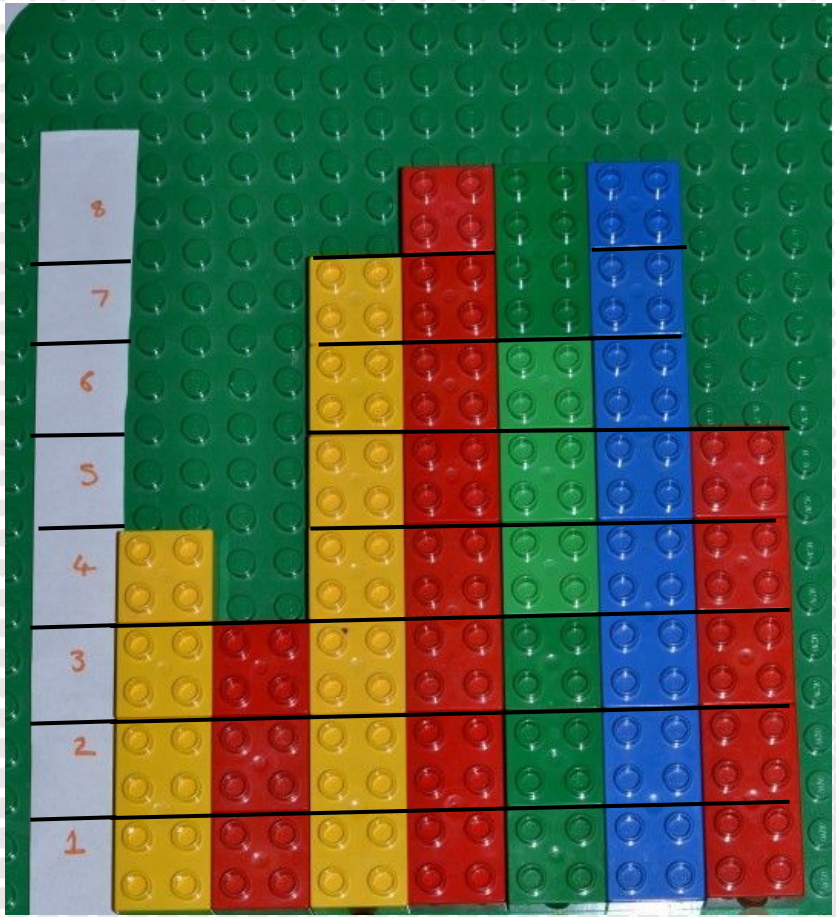
What are one-more relationships that you see?

What are one-less relationships that you see?

LET'S SORT THE LEGOS. LET'S COUNT THEM AND MAKE A CHART

What are one-more relationships that you see?

What are one-less relationships that you see?



Sam	●	●	●							
Chin	●									
Ali	●	●	●	●						
Jose'	●	●	●							
Isa	●	●								
	10	20	30	40	50	60	70	80	90	100

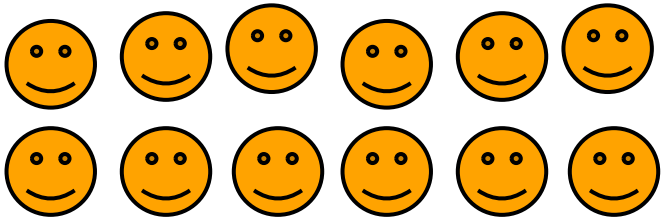
HOW MANY GROUPS OF TEN BEANS CAN WE HOLD IN OUR HAND?

LET'S PUT THEM IN SMALL CUPS. LET'S PUT TEN BEANS IN EACH CUP TO HELP US COUNT. KEEP GOING UNTIL YOU CANNOT MAKE TEN MORE BEANS. PUT THE EXTRA BEANS BACK IN THE BAG.

HOW MANY CUPS DO YOU HAVE?

LET'S PUT THAT ON OUR CHART!

What do you notice about these photos?



BR1: What do you notice about these photos?

What do you notice about these photos?

What do you notice about these photos?

What do you notice about the patterns for ten frames?

Math Bear walked 8 steps, and then he walked 1 more step.
How many steps did he walk?

I ate 11 pieces of chocolate and then I ate 1 more.
How many did I eat?

I ate 13 pretzels. Eboney ate 1 less than I did.

How many did Eboney eat?

I found 19 painted rocks.

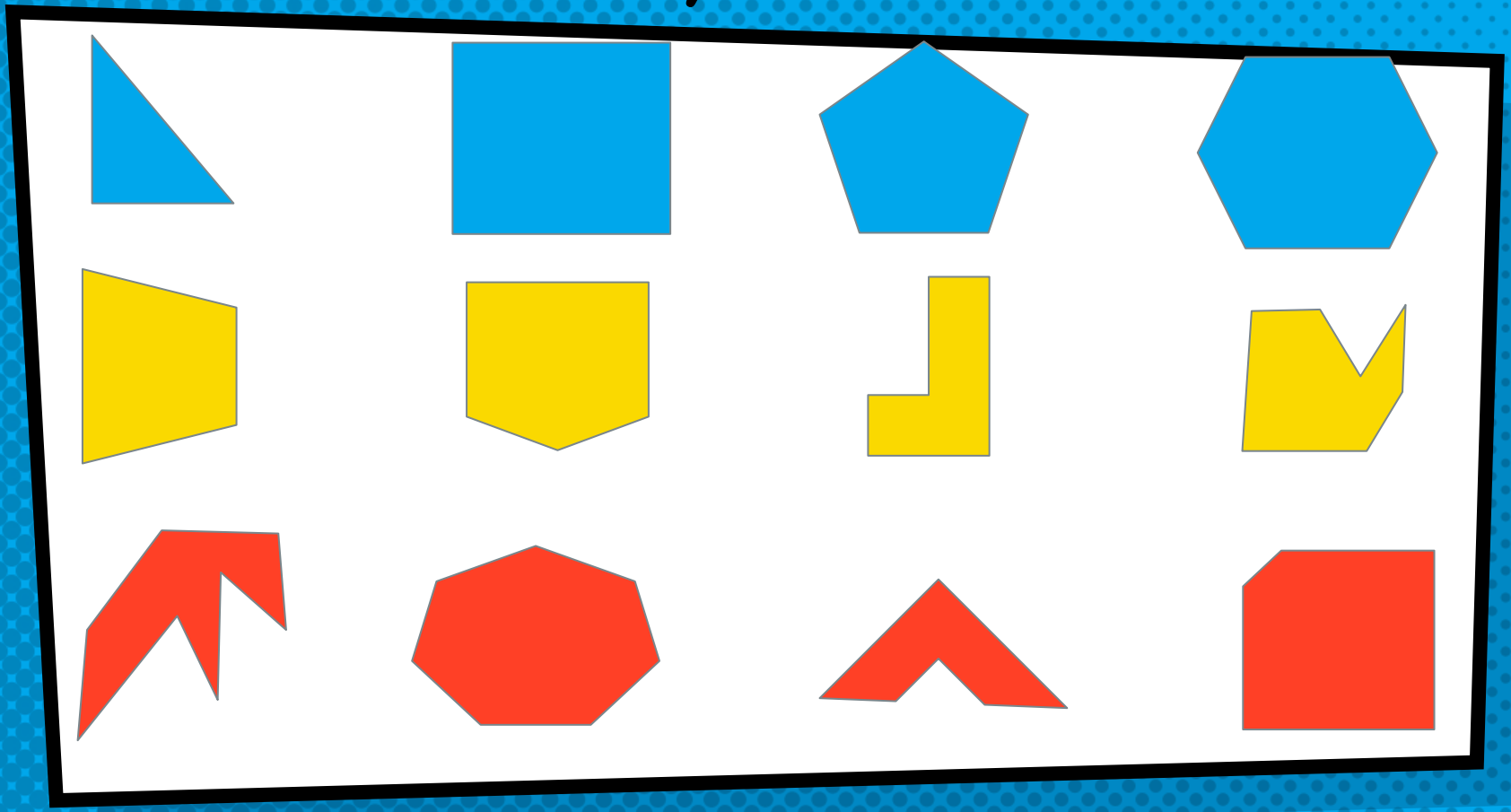
Kerie found 1 less rock than I did.

Jace found 1 more rock than I did.

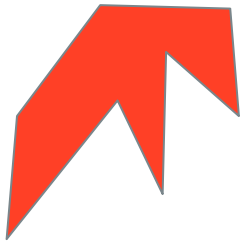
How many painted rocks did Kerie find and Jace find?

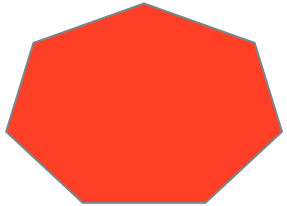
Geometry And Number Sense

What do you notice?



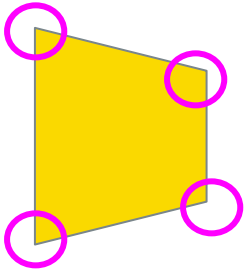
We can count the sides!

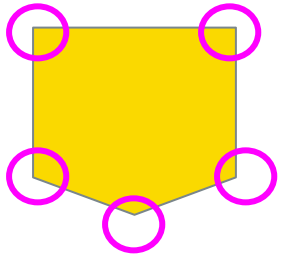


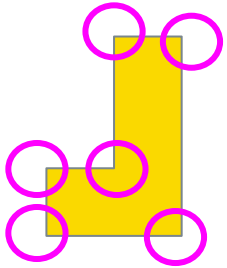


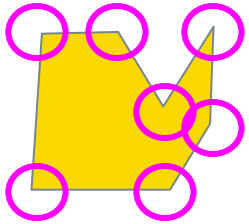
We can count the corners, we call those the “vertices”.

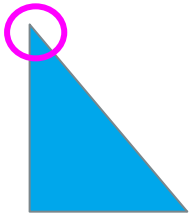
What is a vertex?

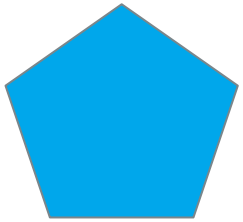


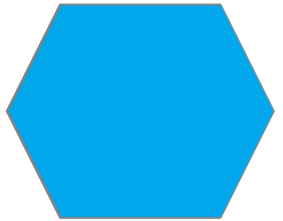






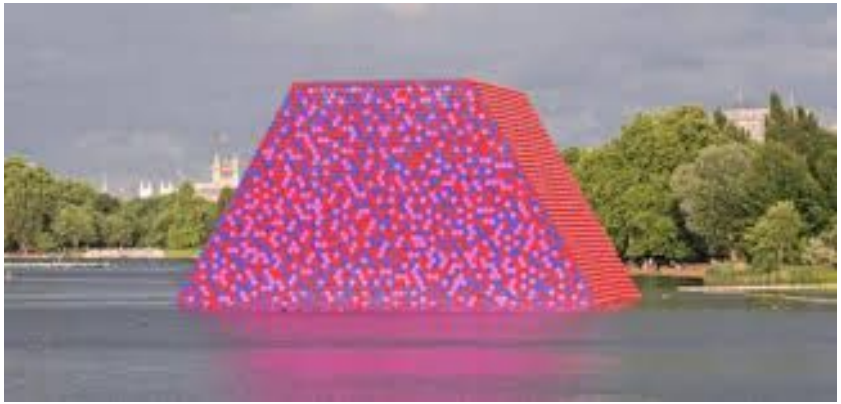


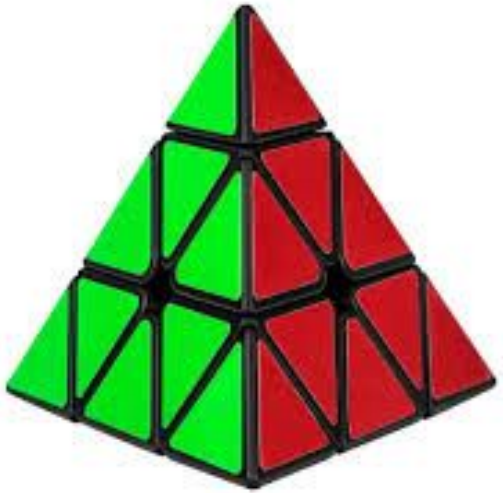




What can we count on each shape?
What do you notice about these shapes?

What can we count on each shape?
What do you notice about these shapes?





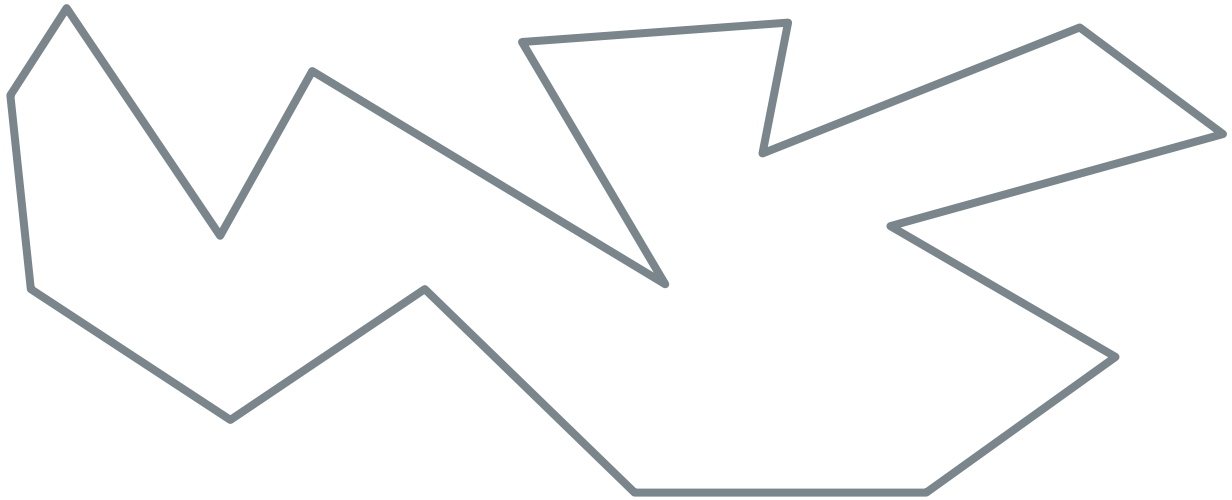
I drew the shape below.

Tia drew a shape with one side less than my shape.

Sita drew a shape with one more side than mine.

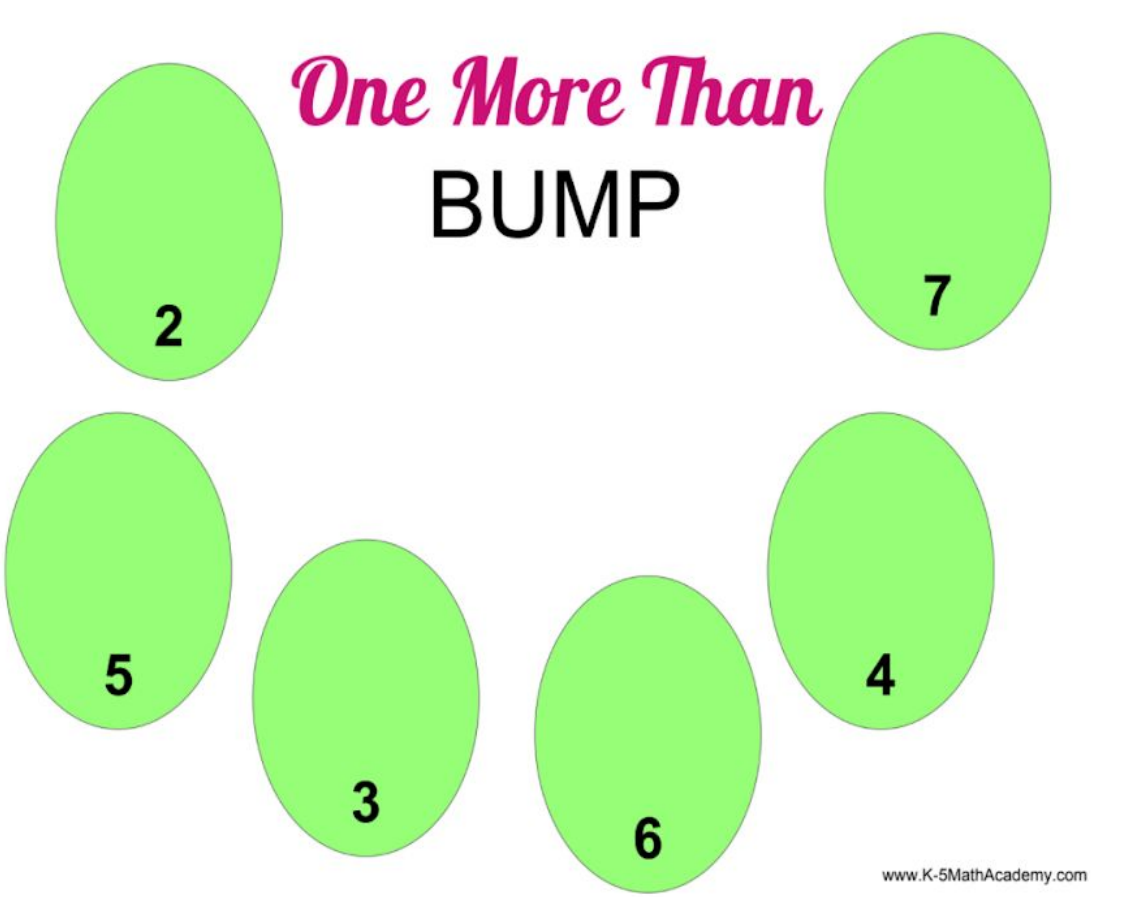
What might their shapes look like?

FIND A SHAPE THAT HAS ONE FEWER SIDES THAN MINE.

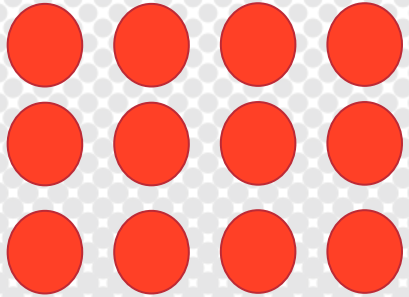


FIND A SHAPE THAT HAS TEN FEWER SIDES THAN MINE.

ONE MORE ONE LESS BUMP



Roll the number cube.
Put your marker on the spot that is one more or one less than the amount that you rolled.
If you land on a value that already has a marker on it, you can bump that marker off. When all of the spots are full, the player with the most markers on spots is the winner.



TEN MORE TEN LESS BUMP

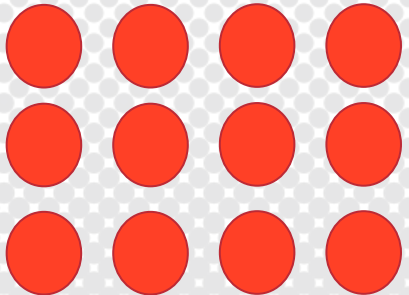
12 20 17 14

16 15

2 18

21 19 13

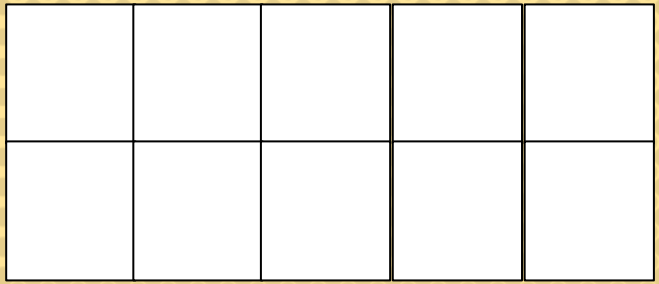
Roll the 2 number cubes.
Put your marker on the spot that is ten more or ten less than the amount that you rolled.
If you land on a value that already has a marker on it, you can bump that marker off.
When all of the spots are full, the player with the most markers on spots is the winner.

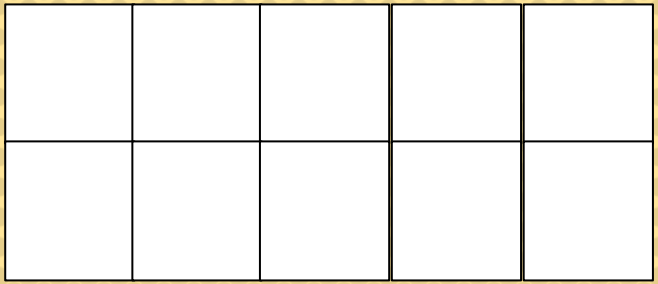


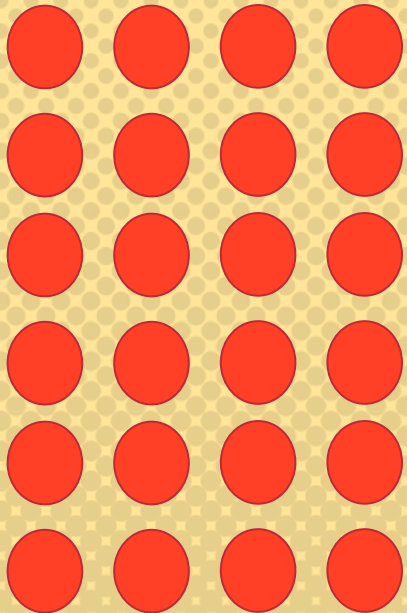
COLLABORATIVE DOT DICE GAMES FOR ONE MORE ONE LESS

Work together to say the number that is one more than what was rolled. Check the number track to see if the number track agrees. Each time you are both in agreement with the number track you earn 1 point. When you earn 10 points you both won the game. **Revise to say one less**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22



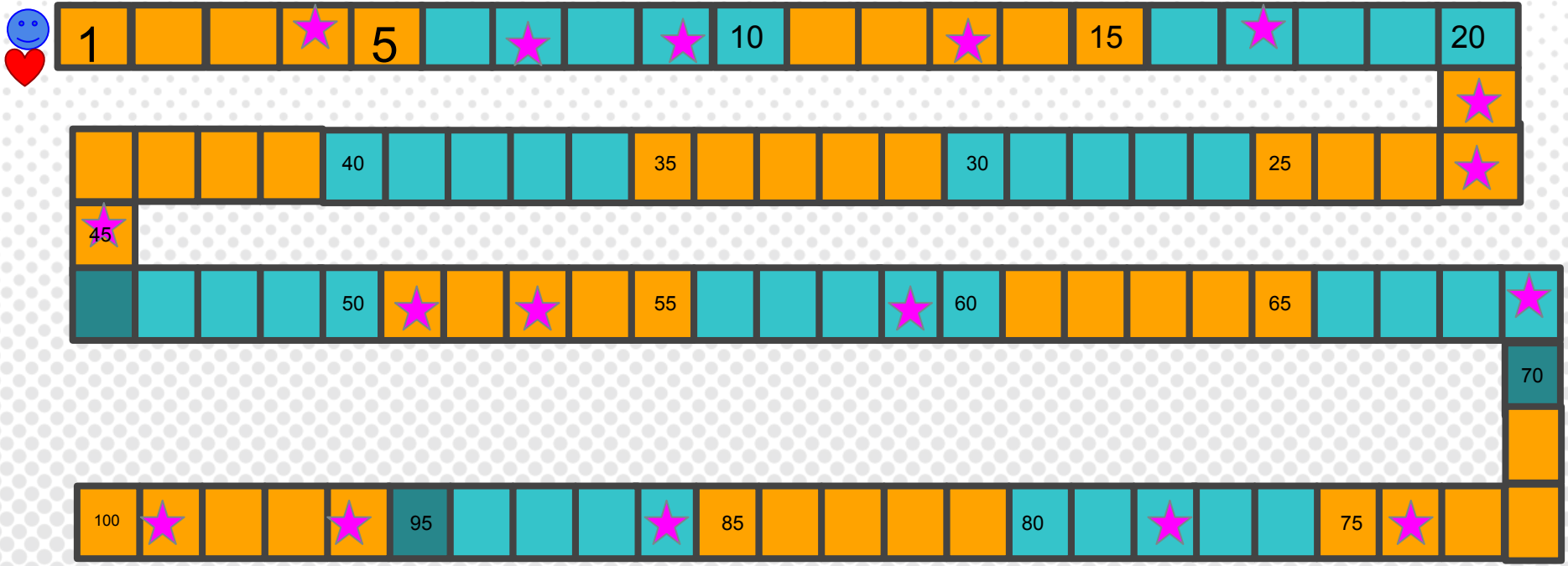




STARS COLLECTIONS

Students will roll one number cube and count the value. Using the number track, students will move their game piece either one more or one less than the amount rolled in order to reach the finish line, but also reach that finish line with the most STARS collected. Each time their game piece lands on a star they earn a star and can record it on their ten frame. Students CHOOSE to move one more or one less each roll. The game is over when they both reach the finish line.

START



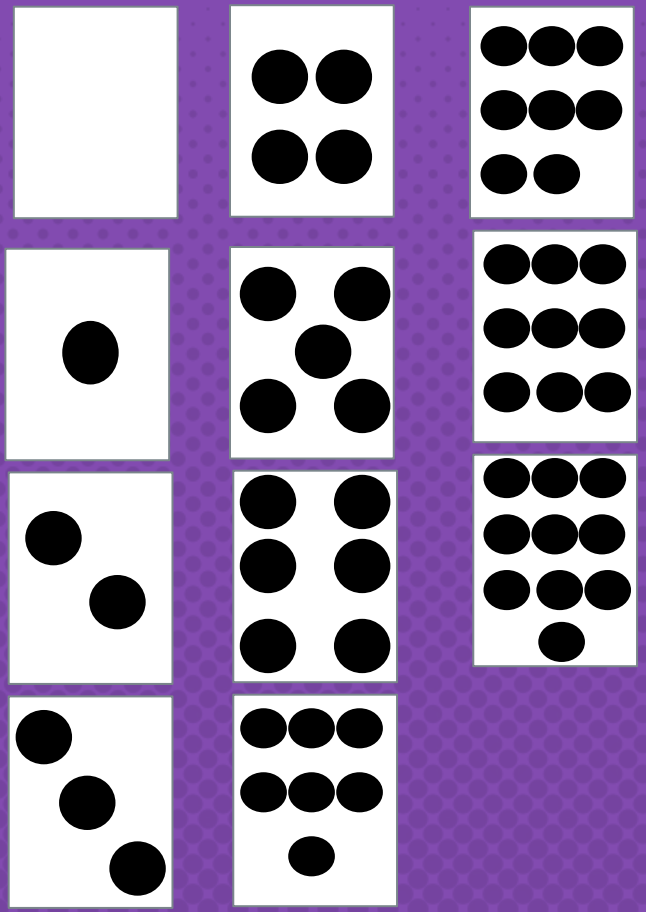
FINISH

ONE MORE ONE LESS WITH NUMERAL DOT CARDS

Using the numeral cards and dot cards Turn over a dot card. Find the numeral card that is one more. Count to check.

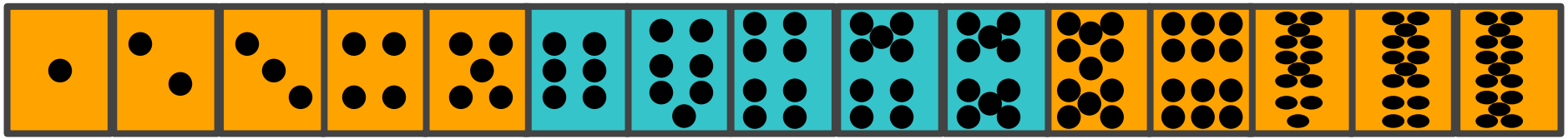
Using the numeral cards and dot cards Turn over a dot card. Find the numeral card that is one less. Count to check.

0	4	8
1	5	9
2	6	10
3	7	



EXTRA SCAFFOLD

one	two	three	four	five	six	seven	eight	nine	ten	ten one	ten two	ten three	ten four	ten five
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15



TEN MORE TEN LESS WITH NUMERAL DOT DICE

Using the numeral cards and dot dice (start with 2 but increase as desired) Roll the dice and total the value. Find the numeral card that is ten more. Count to check.

Using the numeral cards and dot dice (start with 2 but increase as desired) Roll the dice and total the value. Find the numeral card that is ten more. Count to check.

0	4	8	12	16	20	24	28	32	36
1	5	9	13	17	21	25	29	33	37
2	6	10	14	18	22	26	30	34	38
3	7	11	15	19	23	27	31	35	39
40	41	42	43	44	45	46	47	48	49

50	54	58	62	66	70	74	78	82	86
51	55	59	63	67	71	75	79	83	87
52	56	60	64	68	72	76	80	84	88
53	57	61	65	69	73	77	81	85	89
90	91	92	93	94	95	96	97	98	99

What questions do you have?
How will you implement this with your students/children right away?