

link: <https://mscastillosmath.wordpress.com/2016/04/19/3-act-color-cubes/>



Learning Intention: I can engage with others to share my math thinking.

Big Idea: Number represents and describes quantity

Analyzing data helps us to compare and interpret

Curricular Competencies: modelling through acting out, using concrete materials, drawing pictures

Content: collecting data, creating a graph and describing, comparing and discussing the results

Whole class number talks; mental math strategies

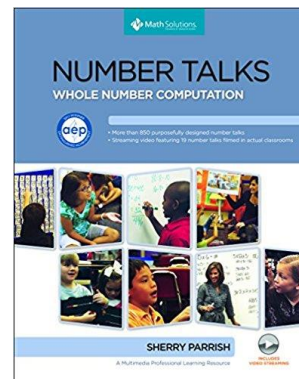
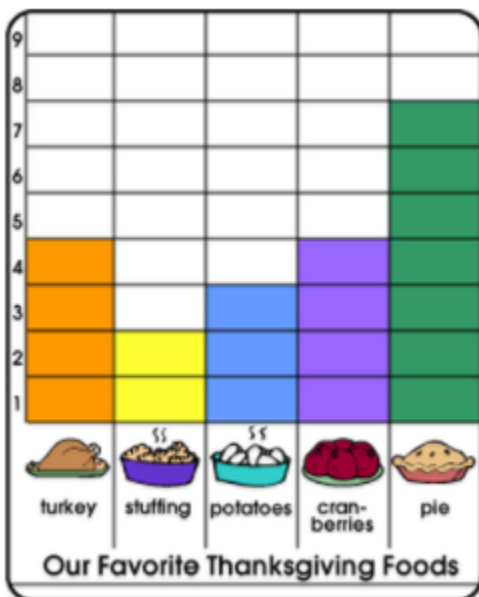
Inclusion	Numeracy
For ALL	I can work collaboratively with another student to engage in a problem solving connected to a story.
For Some	I can write my story as an equation using numbers and symbols.
For a Few	I can model different ways to represent my thinking.

Before

Number Talk: Graph Learning from the thinking of others. How could this graph bring about a conversation about subtraction?

Number string: $61 - 58 =$, $58 - 20$, $58 - 23$, $58 - 40$, $58 - 54$

Subtraction number talks: adding up strategy p. 145-149 ; removal strategy p. 150-154



During

ACT ONE:

Establishing a Need to Know: (view video 38 secs)

Basket of coloured cubes.

What did you notice?	What do you wonder?

Driving Question: How many of each color cube are in the basket?

Estimating:

Too high estimate	Too low estimate
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ACT TWO:

What information would be useful to know for solving this problem?
What information do you know? What information do you need?
Numbers of colours used and total number of blocks.

Work at tables with the graph. Use the back to show your thinking in pictures numbers and words.

After

ACT THREE: video 1:06

Extensions

Paying attention to **spatial reasoning** vocabulary:

Which colour has the **greatest** number of unifix cubes represented?

Move the red cube to the **opposite** side of the desk.

Place the blue cube **between** the two red cubes.

Add blue cubes so the number is the **exact** amount of the red cubes.

Move the green cube so it is **across from** the blue cubes.

Place the green cube on the **edge** of the desk.

See this group of cubes. Which cube is on the **edge**?

There are 6 yellow cubes. There are 2 more green cubes than yellow cubes.

There are the same number of orange cubes as red cubes. There is one more orange cube than green cube.

There are the same number of blue and purple cubes.

There are 4 more purple cubes than red cubes.

15						
14						
13						
12						
11						
10						
9						
8						
7						
6						
5						
4						
3						
2						
1						
	Yellow	Red	Blue	Purple	Green	Orange

Mathematician's names:

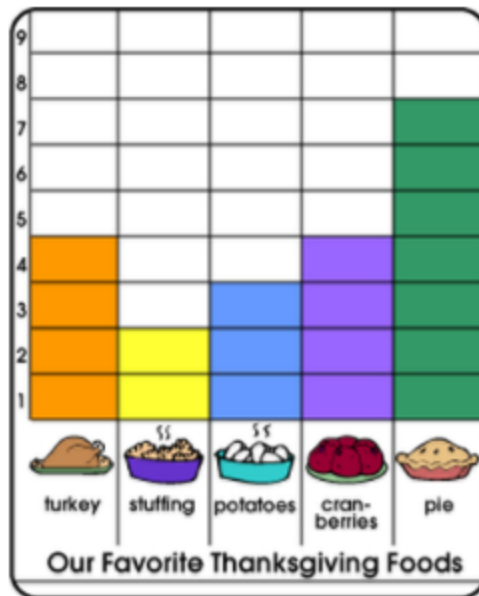
1. Spatial thinking is critical to mathematical thinking and achievement.

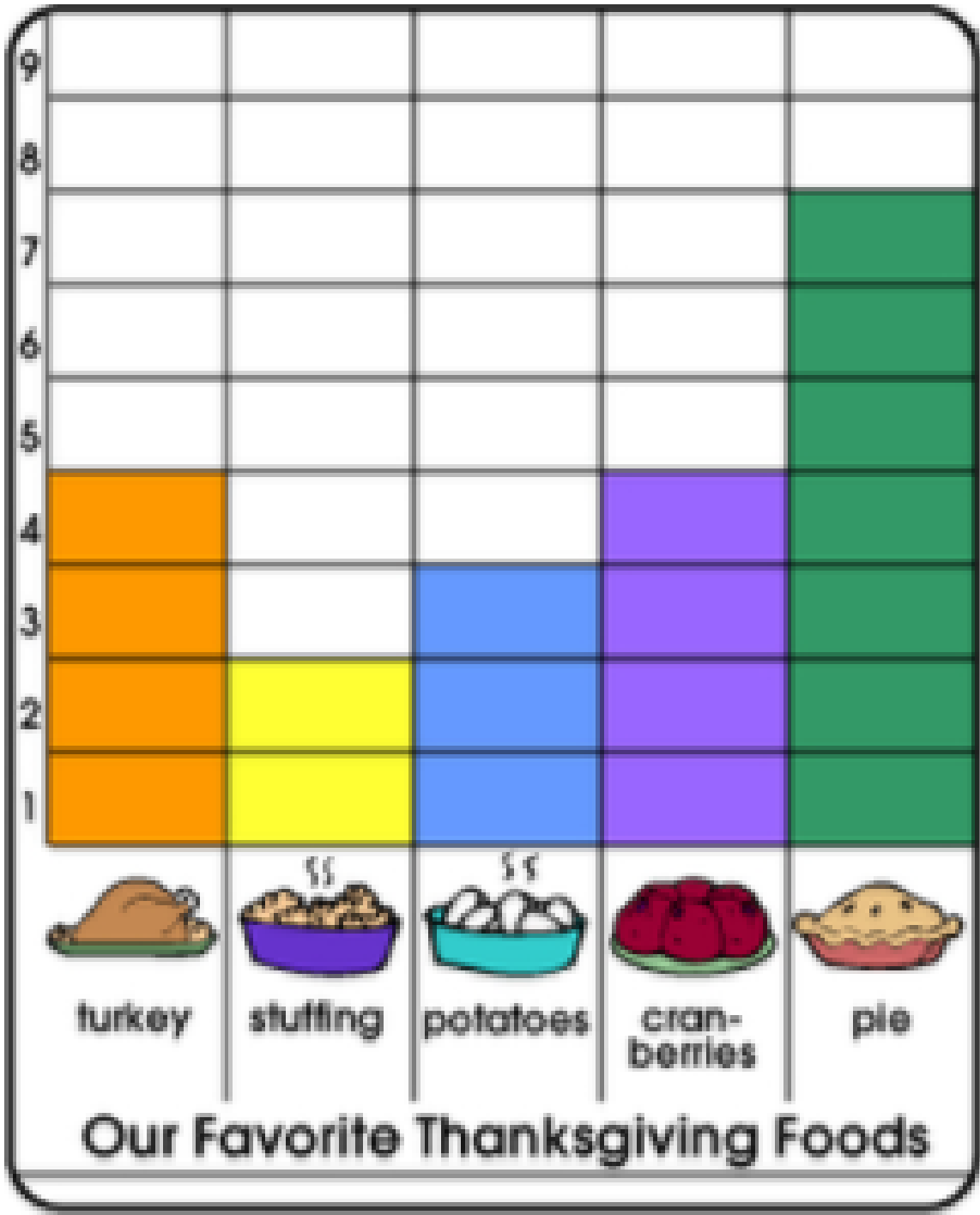
"The relation between spatial ability and mathematics is so well established that it no longer makes sense to ask whether they are related."

(Mix & Cheng, 2012, p. 206)

If our students come into our math classes with an intuitive understanding of the spatial relationships behind concepts, shouldn't we provide experiences that allows our students to access this form of reasoning BEFORE we start with formal rules, procedures, notations...?

For instance, how might a simple graph like this bring about a conversation of subtraction?





turkey



stuffing



potatoes



cranberries



pie

Our Favorite Thanksgiving Foods

58 Cubes



There are 6 yellow cubes. There are 2 more green cubes than yellow cubes.

There are the same number of orange cubes as red cubes. There is one more orange cube than green cube.

There are the same number of blue and purple cubes.

There are 4 more purple cubes than red cubes.