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Toppings
Day 4

Introduction

This activity allows students to practice counting and to begin exploring the relationship between numbers. This problem draws on embodied cognition since students are connecting movement to the counting they are doing. This allows students to understand the content at a deeper level because their physical movements are connecting to the problem, strengthening their understanding of counting and number. Students also draw a visual representation of the problem which is a valuable tool for solving maths problems.

Agenda

Activity	Time	Description/Prompt	Materials
Mindset Message	10 min	Share the messages from the mindset video, ***Strategies for Learning Maths***, https://www.youcubed.org/weeks/week-4-grade-1-2/	
Introduce	10 min	• Project the picture. • Model a problem with 10 cups and 2 toppings • Record the findings on a hundred chart	• Toppings visual for display • 10 cups numbered 1 – 10 • 10 blue counters (snap cubes) and 10 yellow (snap cubes) counters • Hundred chart
Explore	20 min	• In groups of 2 ask students to try to work out the problem with 20 cups and 4 toppings. • Ask students to record their findings on a hundred chart • Ask students to draw a visual representation of what they discovered in the problem	• Colored counters or cubes for each pair of students (4 different colors, 10 of each) • 20 Clear cups or containers for each pair (or dixie cups). Cups should be ordered from 1 – 20. • Hundred chart • Colored pencils or pens

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Discuss	10 min	• Invite students to share their illustrations of the activity • Ask students how many bowls of yogurt don't have any topping. How many bowls have all four toppings? Ask students which bowl number(s) have the most toppings.	• Diagram representing the problem (projected or drawn on white board)
Debrief Mindset Message	5 min	Ask students to reflect on the struggles they had while they explored the activity. Invite them to share the moments when they were challenged the most and what they learned from going through that challenge. Remind them of the idea that they are learning the most when they are struggling at the edge of their understanding.	

Activity

Watch the mindset video before class. See if there are any clips from the video you want to share with your class. At the beginning of class share the mindset messages from the video with your students.

Introduce the problem by asking students what toppings they like to put on their yogurt. Put up the picture of the yogurt and explain the context of the problem. Let them know that they are going to build the situation using cups as their yogurt bowls and cubes (or counters) as their topping. It will be more intuitive for students if the color of the cubes or counters match the color of the fruit. For example, have red cubes to match the strawberries, green cubes to match the kiwi, and brown cubes to match the granola. Have students complete the activity with a partner. They can take turns counting out the cubes.

By having the students build the yogurt bowls, you are using embodied cognition since students are physically moving their bodies as they are counting out the toppings. This provides students deeper learning because their physical movements are connecting to the problem, strengthening their understanding of counting and number.

Ask students to put 10 cups in a line to represent their filled yogurt bowls. Each cup should be numbers 1 through 10. You may want to demonstrate this activity with 10 cups and putting a blue counter in each cup for blueberries and a yellow counter for bananas in every second cup. Ask students how many counters they think you need to place the blueberries in each cup. How many cubes for the bananas? As you place the cubes ask students to count out loud with you. In

the end ask students how many of each type of cube they think there are in each cup. Show on a hundred chart how you placed the strawberries. Put a red mark on each number, one through ten. Next use a yellow marker and put a mark on each of the numbers 2, 4, 6, 8 and 10. Explain to students that you just simulated the activity using cups and then a hundred chart.

Explain to students that they are now going to do this task with 20 cups and three toppings. Show students the handout and watch as they line up their 20 cups. As students are building their yogurt bowls with toppings, notice how they count out the toppings. It may be challenging for students to put a cube in every two cups or every three cups. If you notice students getting confused ask them questions about how they are counting the cups. Use this opportunity to highlight for students that struggle and challenge are good and it means their brains are growing. When something is hard and we struggle this means that synapses are firing in our brains and our brains are growing.

After students have completed the simulation and recorded their findings on the hundred chart ask them to draw a picture to show what they discovered in the activity. An important aspect of maths is to be able to draw a visual of a situation. These visuals are useful in solving maths problems as well as lighting up the visual part of the brain. Students will draw this in different ways and you can share those different ways of representing the problem with the class.

Bring students together for a discussion. Invite students to show different visual representations of the problem. Let students know that there are many different ways to visually represent a problem but that visuals are a powerful tool for solving maths problems and for growing our brains. Ask students to make connections between their drawings, the hundred chart and the yogurt bowls with toppings. How does this visual representation relate to the situation?

Ask students what they noticed about the bowls of yogurt and the toppings. Do they see any patterns? How many bowls have no toppings? Do any of the bowls have three toppings? How many?

Extensions

- What if you had a fourth and/or fifth topping? What is the greatest number of toppings in a bowl? How many bowls would have that number? Which numbered bowls would have the least?
- What if you had more bowls of yogurt? Can you predict which toppings would be in them?

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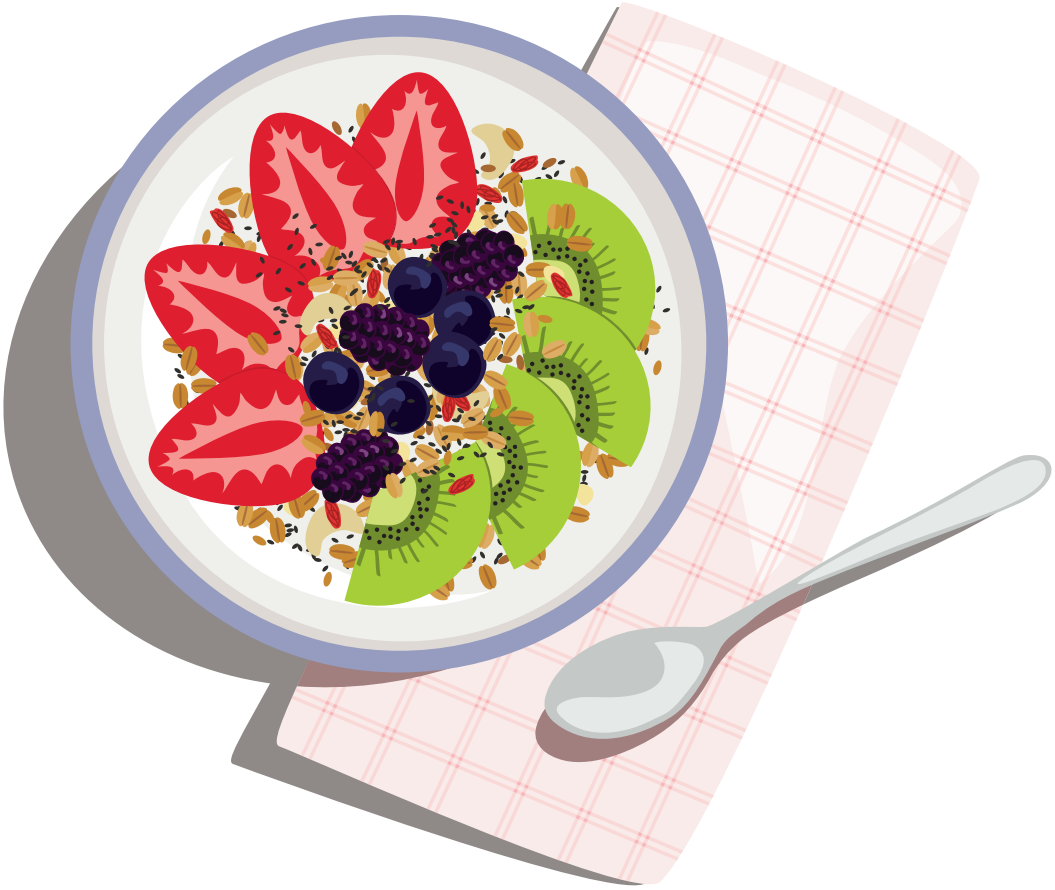
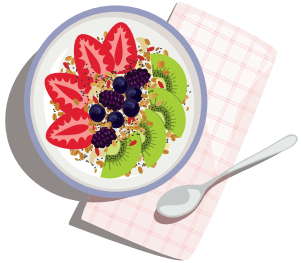
Toppings



Toppings



Directions:

- Strawberries are in every other bowl

- Kiwis are in every third bowl

- Granola is in every fourth bowl

Inspired by NRich.maths.org

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Hundred Chart

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