Crayon Craze
Grades 3-5

The Big Idea

We're all crazy about crayons, but today we're not going to use them for coloring or drawing. Instead we're going to do colorful math to **count**, **sort** and size up the **hottest crayon colors**!

Supplies You Provide

- ★ Crayons: 10-12 per kid (at least 100, 200 or more is better)
- ★ Pencils: 1 per kid
- ★ Paper: 1 per kid
- ★ Ruler or measuring tape: 1
- ★ Sticky notes, any color: 8 (or use masking tape)
- ★ Writing surface, like a large sheet of paper or whiteboard

Key Prep

- ★ Gather as many crayons (any size, new or used) as you can in a large bucket or container. You can ask the kids ahead of time to bring in approximately 12 unwanted crayons from home.

What's the Math?

- ★ Addition and subtraction
- ★ Multiplication
- ★ Skip counting
- ★ Perimeter
- ★ Estimation
- ★ Fractions
- ★ Bar graphing

Kickoff

Intro to the kids: "Crayons come in all different shapes, sizes and colors, and they're really fun to draw with. But they're also great for **counting** and **sorting**. Today, we're going to explore all the different ways to count with crayons, and we'll do some fun math to uncover the hottest crayon colors."

Getting Your Cray-on! (10-15 minutes)

Intro to the kids: "First we're going to have some colorful fun with our crayons!"

1. Dump all of the crayons onto the floor.
2. Have the kids put crayons into **groups of 15** and count by 15s. Next put them into **groups of 25** and count by 25s. See how high they can count!

Ask the kids:

★ "Does anyone know what the **perimeter** of a shape is?" (Discuss.) "The perimeter of any space or two-dimensional shape is the sum of the lengths of all its sides."

★ Pick a large shape, like a table or desk or section of the floor: "How can we use crayons to measure the perimeter of this area? What do we need to know?" (Discuss. See if the kids can figure out that you need to know the length of a crayon. Tell the kids it's about 3 inches for an unused crayon.)

3. Have the kids see how many crayons it takes to measure the perimeter of the area you picked. Make sure kids remember to use crayons of the same size, with no gaps and no overlapping crayons. Then calculate the perimeter, using both crayons and inches as units of measure.

The Odd Couple (20-25 minutes)

Intro to the kids: "Now we're going to play a game called The Odd Couple. Let's see who can stay in the game the longest. As you'll find out, it's all in the numbers!"

- ★ Put a bucket or bin of crayons in the center of the room.
- ★ **Pair off** the kids. If you have an odd number of kids, you can make a group of 3.
- ★ Have each kid grab a **handful of crayons** and count them.

Ask the kids: "Add up the crayons you and your partner have altogether. If it's an **even number**, you're **out**. Partners with **odd totals stay in**!"

- ★ Kids who are still in the game return their crayons to the bucket, then grab a **new handful** of crayons.

Ask the kids: "How many crayons do you and your partner have now? This time, **even totals stay in**!"

- ★ The remaining kids in the game return their crayons to the bucket and grab a new handful of crayons. If **all remaining pairs** are knocked out, they all get to stay in for another round.

Ask the kids: "Compare your crayon count with your partner's, then subtract the smaller number from the larger. Odd answers stay in!"

- ★ To keep kids on their toes, use a **new rule** for each round (see below) until just one pair remains – the winners! If you like, divide the club into two groups to play the initial rounds – then have the winners of each group face off in an Odd Couple Tournament Championship!

Sample rules:

- ★ "Multiply your crayon count by your partner's count to get the product. All even products stay in!" (You can also switch it up and have all odd products stay in.)
- ★ "Add your crayon count to your partner's. Multiples of 3 stay in!"

★ "Can your crayon count divide evenly into your partner's, or the other way around? If yes, stay in!"

Bonus: Ask the kids: "When is an even answer more likely, and when is it not?" (Discuss what odd/even combos add up to an odd or even total. Then explore how odd and even numbers multiply.)

A Touch of Class: "We just had some colorful fun adding up our crayons! We also learned about even and odd numbers, just like in math class."

Size It Up! (20-25 minutes)

Intro to the kids: "Now that we're experts at doing math with crayons, we're going to estimate how many crayons we have – then count to see who's right!"

1. Make sure all crayons are returned to the bucket in the center of the room.

Ask the kids: "How many crayons do you think are in the bucket?"

2. Have the kids **estimate** and write down their guesses or write them on a large sheet of paper or whiteboard.

Ask the kids: "Are your guesses close to each other or far apart?" (Discuss.)

3. Now, have the kids **count** the crayons in the bucket.

When they're finished counting, ask the kids: "Which method of estimating led to the **best guess**?" (Discuss.)

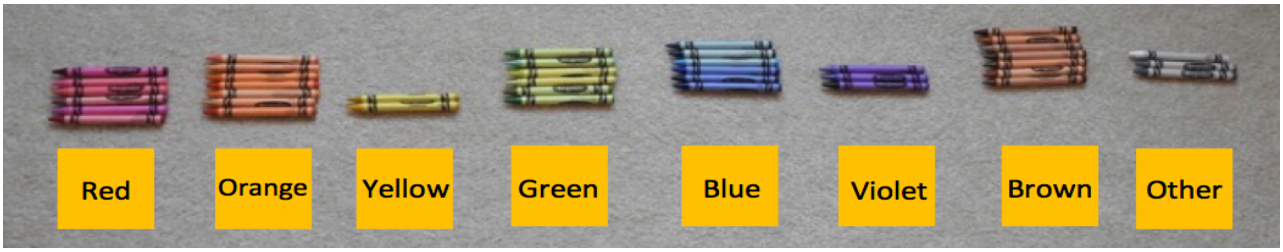
Ask the kids: "Which color in this bucket do you think is most popular?"

4. Have the kids write down which color they think is most common or collect guesses on paper or board.

5. Have the kids decide how they should **sort** the crayons into the color groups (red, yellow, green, etc...). You may also want to include a "One Hit Wonders" for colors that don't fall neatly into any category.
6. Have the kids count the crayons in the largest pile. If the largest pile isn't obvious, they may need to count the 2 largest piles to see which color is most popular!

Ask the kids: "Now that you know how many are in the largest pile, can you guess how many are in the smallest pile? Try it and see if you're right!"

7. Explore different ways of counting – by 5s, 10s, or 20s – to help kids estimate.
8. Finally, have the kids make a **colorful bar graph** on the floor to show how many crayons the kids collected. For each bar, have kids place one crayon on the chart for every 5 crayons in the pile. Put sticky notes (or masking tape) as labels for each color's bar:



Ask the kids:

★ "Which color category has the most crayons? Which one has the least?" These are the **maximum** and **minimum** of the crayon color counts.

Bonus: Ask the kids: "What **fraction** of the total does each color represent?"

NOTE TO COACH: You can send unwanted crayons to a great nonprofit, **The Crayon Initiative**. For years they've been melting down old crayons and recycling them into new ones for kids in hospitals. So, they're saving the planet and helping kids! See their website for more info: **https://thecrayoninitiative.org/give-crayons/**