

Beaded Braids



INVESTIGATING PATTERNS & RATIOS

MATERIALS

Simone's and Brianna's braid boards,
pages 72 and 73
40 hair beads or tag paper beads,
page 181

MATH CONNECTION

Mathematics is about patterns. In the early grades, children observe, describe, copy, and create patterns. As children move through the grades, they investigate the relationship between elements in patterns.

REAL-WORLD CONNECTION

Patterns are designs or sequences that repeat in a predictable order. A wallpaper border might have a pink shell, a tan shell, and a gray shell, which appear in that order over and over. There are repeating patterns in music. For example the "one, two, three, one, two, three" pattern in a waltz is known as three-quarter time. A canon in music refers to the fact that the same melody is played over and over in counterpoints, inversions, and at different tempos. Engineers check to make sure that patterns in creating products are consistent. This assures that, for example, the gasket that comes off the assembly line at the beginning of the day looks just like the one that comes off at the end of the day.

Some patterns are simple like the pink, tan, and gray shells; and some are complex like the canons in music. Here we investigate bead patterns for Simone and Brianna's braids.

Simone loves to wear beads in her braids. She has four braids. She always wears more heart-shaped beads than round ones, and she likes lots of beads.

Brianna likes both heart and round beads, but she prefers only a few beads on each of her two braids.

Whenever their mom braids the girls' hair, she has to sort the beads out ahead of time to be sure that there are enough beads to satisfy both Simone and Brianna.

How

- Cut out 20 round and 20 heart-shaped beads from page 181, or you can use beads you have at home.
- Start with Simone's braids. Use the board on page 72 to create a pattern. Work with a partner to divide some beads between her four braids. Make sure the pattern is the same for each braid, and that she has more heart beads than round ones. Don't forget, Simone likes lots of beads on each braid.
- Arrange the beads so that each braid will have the same number of beads in the same pattern on each of Simone's four braids. Don't forget to leave some beads for Brianna.
- Now sort the remaining beads for Brianna's two braids. For this you will need the board on page 73. Make sure that the pattern for each braid is the same.

This is about

designing patterns to explore ratio through addition, multiplication, and division.

- How many arrangements can you find to please both girls? Illustrate your bead patterns so that you can keep track of the ones you have created.
- What can you say about the beads on one of Simone's braids?
- Sometimes there may be some leftover beads. What does this mean about the pattern?

Here's More

- What would happen if Simone had five braids or six braids?
- If Simone had 100 braids, how many beads would she need?
- How can you express the pattern in terms of ratio for one of Simone's braids? For example, for one of her braids, how many heart beads are there for each round bead?
- What would the ratio be if you used 15 round and 24 heart-shaped beads on three braids?

Just For Fun

- Select your favorite colors and color the tag paper beads in sets of 20. For example, you might color 20 red hearts and 20 yellow round beads. Or, color 20 blue heart beads and 20 green round beads.
- Color the game boards.
- Practice making braids with yarn. It is fun and helps develop fine motor skills.

To show the ratio between the round and heart beads, we write Number of round beads: Number of heart beads. For example, the ratio between 8 round beads and 12 heart beads is written 8:12.

SIMONE'S BRAIDS



BRIANNA'S BRAIDS

