

4th Grade

Bead Worker

Information for Teachers

Suggested grade level: 4th

Suggested materials: Grid paper

Skills addressed: Fractions

- ▶ Identifies the fraction with a numerator greater than 1 represented by a given model or diagram.
- ▶ Rewrites fractions as equivalent fractions.
- ▶ Adds fractions with like denominators.
- ▶ Uses benchmark fractions ($\frac{1}{2}$ and $\frac{1}{4}$).

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the left and right sides of the frame, leaving a large white central area for the text.

Math in Action: Bead Worker

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the page, creating a modern, layered effect. The rest of the page is a plain white background.

Act 1

Noticings and Wonderings

Math in Action: Sonja, Bead Worker

Video Link:

<https://msubillings.app.box.com/s/5v1149wmljqrr436047t498w7mqygl32>

What do you notice?

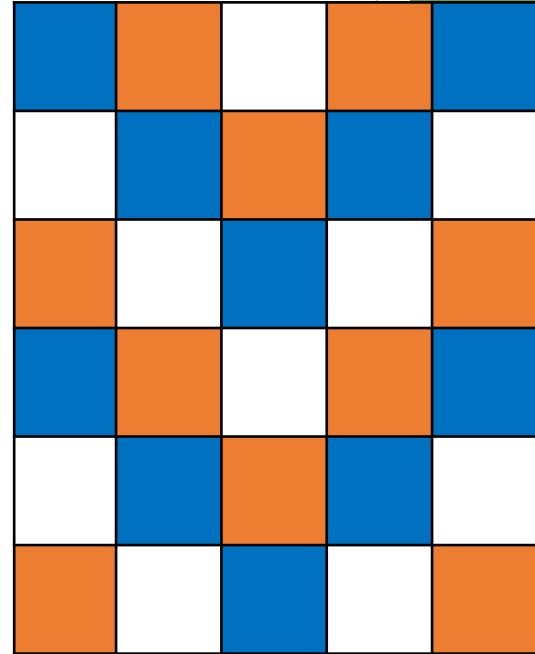
Add your thoughts here:

What do you wonder?

Add your thoughts here:

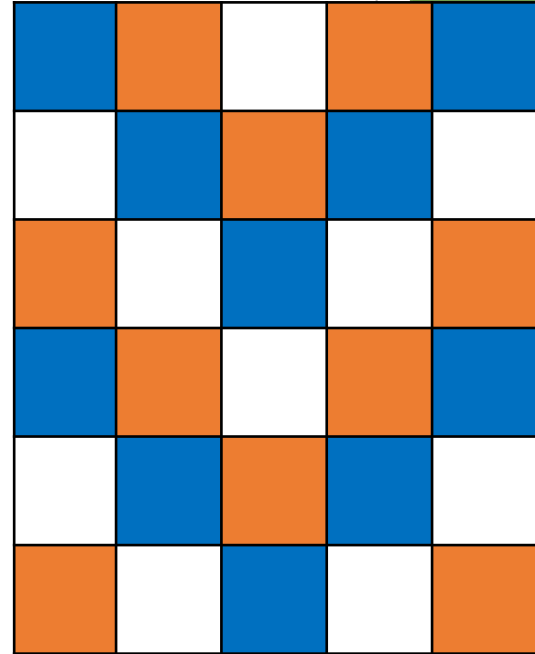
Example Design

- ▶ What pattern is this? Can you recall from the video?
- ▶ What type of jewelry is this pattern used for?



Example Design

- ▶ This pattern is a chevron type because of the V shape made with the different color of the beads
 - ▶ Common for fringe earrings



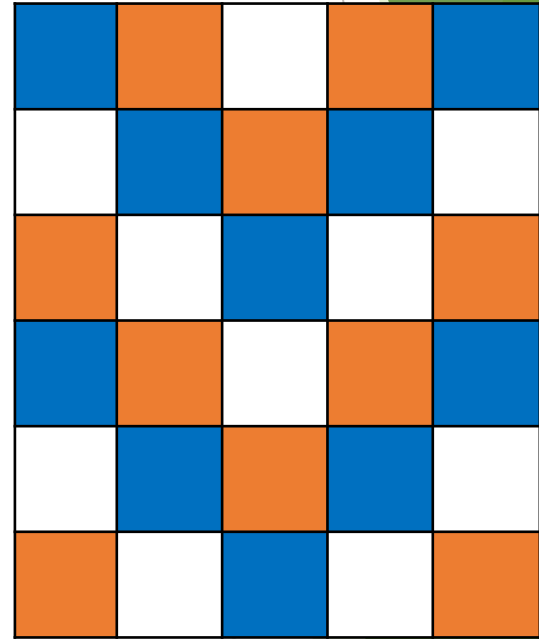
The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. The shapes are primarily triangles and polygons, creating a dynamic, layered effect. The overall composition is clean and modern, with a white central area where the text is located.

Act 2

Estimating and Solving

Which color comprises a greater fraction of the whole design?

- ▶ What do you predict?
- ▶ Is your prediction correct? How do you know?
- ▶ What do you notice about your findings?



Act 3

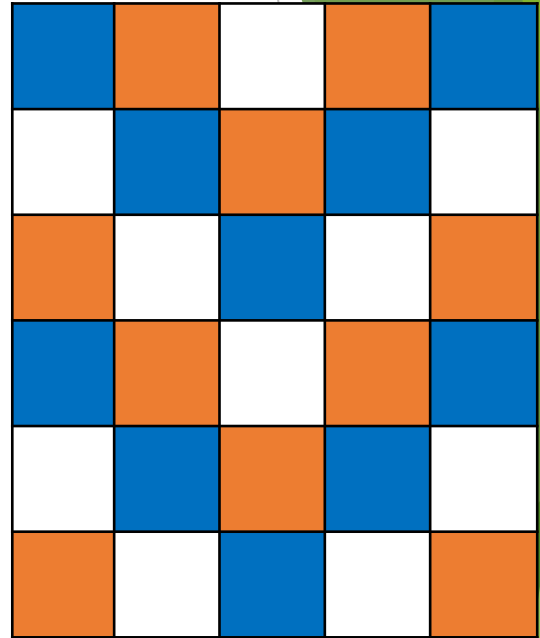
Discuss, Reveal, and Extend

Reveal and Discuss!

There is the same fraction of each color!

How can you represent each fraction in another way using equivalent fractions?

What happens when you add the fractions for each color together?



Extend

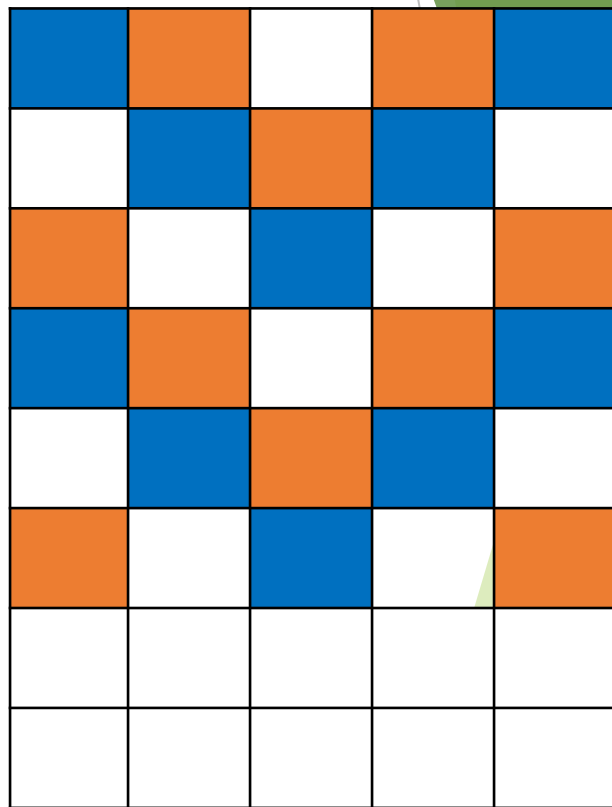
Will extending the pattern by two rows result in the same fraction for each color?

What do you predict?

What did you find?

Do you still get 1 whole when you add up all of the fractions?

How many rows do you need to extend the pattern by in order to keep the fractional amounts for each color identical? How do you know?



Extend Further

Make your own pattern!

How can you make a pattern in which one color is *more than half* of the whole design and two other colors are each *less than one quarter* of the design?

Skills you practiced:

Fractions

- ▶ Identifies the fraction with a numerator greater than 1 represented by a given model or diagram.
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- ▶ Uses benchmark fractions ($\frac{1}{2}$ and $\frac{1}{4}$).