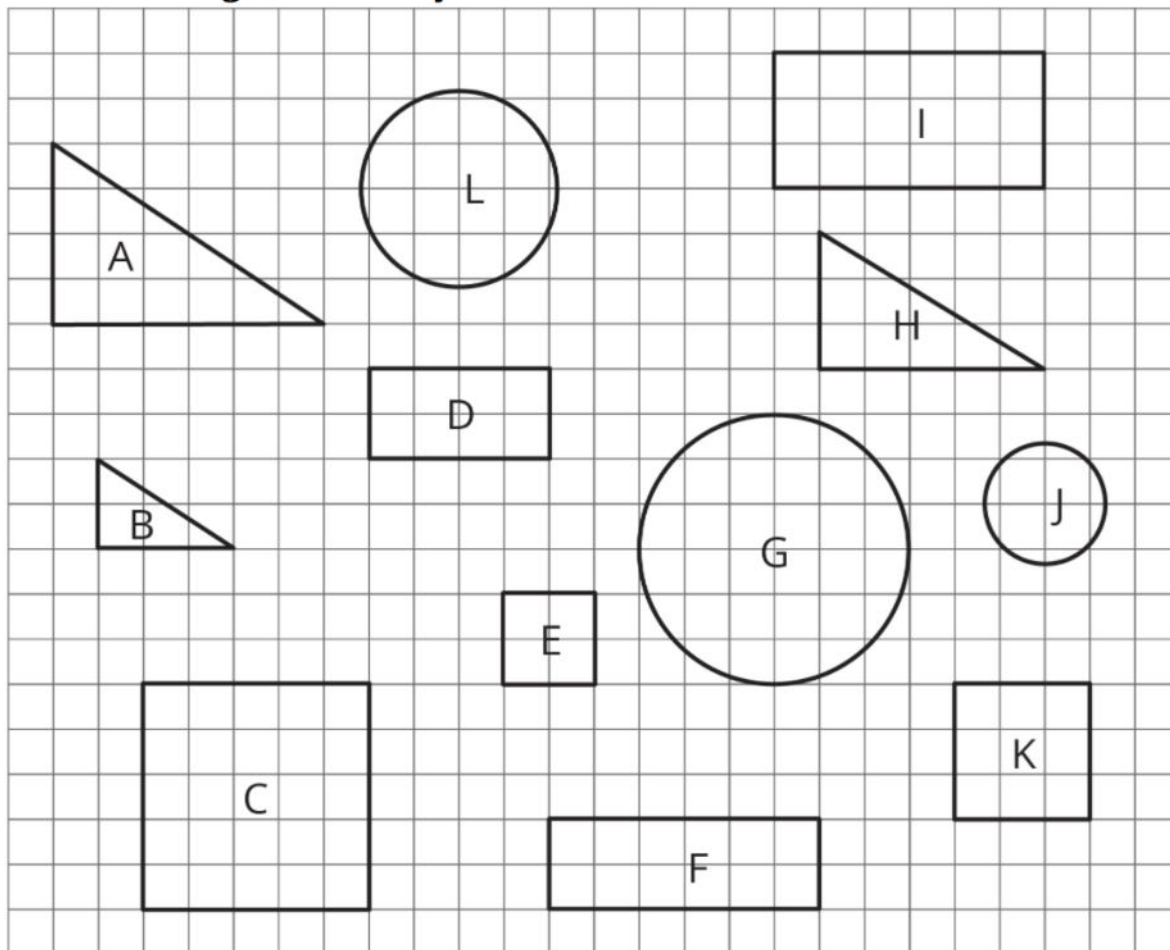


4-1: Learning Goals

- Let's explore the U.S. flag.

4-1-1: Scaled or Not?

1. Which of the geometric objects are scaled versions of each other?



2. Pick two of the objects that are scaled copies and find the scale factor.



4-1-2: Flags Are Many Sizes

One standard size for the United States flag is 19 feet by 10 feet. On a flag of this size, the union (the blue rectangle in the top-left corner) is $7\frac{5}{8}$ feet by $5\frac{3}{8}$ feet.

There are many places that display flags of different sizes.

- Many classrooms display a U.S. flag.
- Flags are often displayed on stamps.
- There was a flag on the space shuttle.
- Astronauts on the Apollo missions had a flag on a shoulder patch.



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1. Choose one of the four options and decide on a size that would be appropriate for this flag. Find the size of the union.
2. Share your answer with another group that used a different option. What do your dimensions have in common?



4-1-3: What Percentage Is the Union?

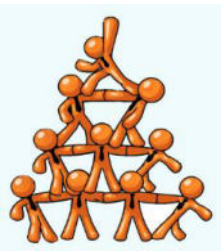
On a U.S. flag that is 19 feet by 10 feet, the union is $7\frac{5}{8}$ feet by $5\frac{3}{8}$ feet. For each question, first estimate the answer and then compute the actual percentage.

1. What percentage of the flag is taken up by the union?
2. What percentage of the flag is red? Be prepared to share your reasoning.



4-1: Lesson Synthesis

- How can you tell whether two objects are scaled versions of one another?
- What properties stay the same when an object is scaled up or down?
- What strategies did you use to find properties of a scaled object, e.g. the dimensions of the union on a small flag?
- How did you go about finding the estimated percentage of total area on the United States flag (taken up by the union or the red region)?



4-1: Learning Targets

- I remember how to compute percentages.
- I can find dimensions on scaled copies of a rectangle.



4-1-4: Colorado State Flag

The side lengths of the state flag of Colorado are in the ratio 2 : 3. If a flag is 12 feet long, what is its height?



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4: Pre-Assessment

