4-4: **Learning Goals**

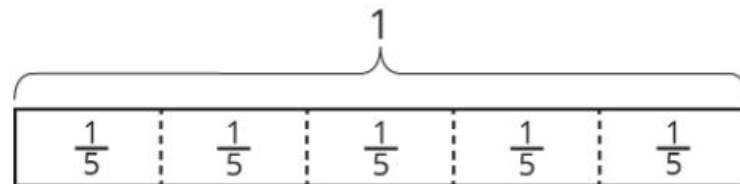- Let's play with blocks and diagrams to think about division with fractions.

4-4-1: Equal-sized Groups

Write a multiplication equation and a division equation for each statement or diagram.

1. Eight $5 bills are worth $40.

2. There are 9 thirds in 3 ones.

3.

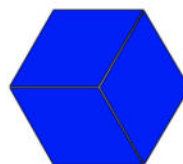# 4-4-2: Reasoning with Pattern Blocks

Your teacher will give you pattern blocks as shown here. Use them to answer the following questions.

1. If a hexagon represents 1 whole, what fraction do each of the following shapes represent? Be prepared to show or explain your reasoning.

   a. 1 triangle

   b. 1 rhombus

   c. 1 trapezoid

   d. 4 triangles

   e. 3 rhombuses

   f. 2 hexagons

   g. 1 hexagon and 1 trapezoid

2. Here are Elena's diagrams for $2 \cdot \frac{1}{2} = 1$ and $6 \cdot \frac{1}{3} = 2$. Do you think these diagrams represent the equations? Explain or show your reasoning.
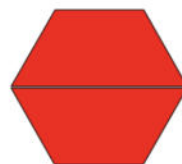
   $2 \cdot \frac{1}{2} = 1$ $6 \cdot \frac{1}{3} = 2$
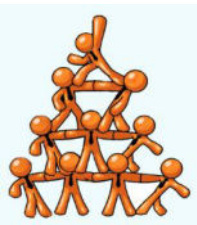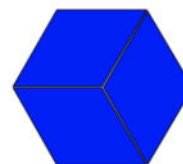
4-4-2: Reasoning with Pattern Blocks

3. Use pattern blocks to represent each multiplication equation. Recall that a hexagon represents 1 whole.
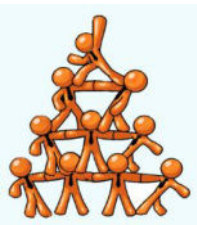
    a. $3 \cdot \frac{1}{6} = \frac{1}{2}$

    b. $2 \cdot \frac{3}{2} = 3$

4. Answer the following questions. If you get stuck, use pattern blocks.

    a. How many $\frac{1}{2}$s are in 4?

    b. How many $\frac{2}{3}$s are in 2?

    c. How many $\frac{1}{6}$s are in $1\frac{1}{2}$?

4-4: Lesson Synthesis

- How do we know which number represents the size of a group, and which represents a total?

- How do diagrams or pattern blocks help us find the answers to these questions?

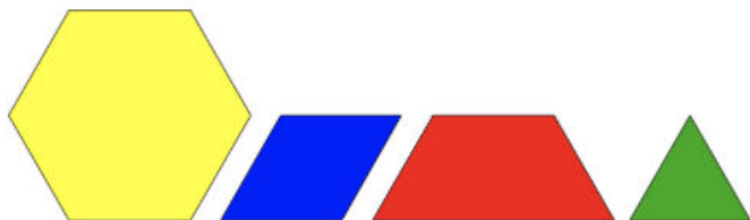- What equations can we write to represent the question "how many ¾s are in 6"?

4-4: **Learning Targets**

- I can use diagrams and multiplication and division equations to represent "how many groups?" questions.

- I can find how many groups there are when the amount in each group is not a whole number.

4-4-3: Halves, Thirds, and Sixths

1. The hexagon represents 1 whole.

   Draw a pattern-block diagram that represents the equation $4 \cdot \frac{1}{3} = 1\frac{1}{3}$.

2. Answer the following questions. If you get stuck, use pattern blocks.

   a. How many $\frac{1}{2}$s are in $3\frac{1}{2}$?

   b. How many $\frac{1}{3}$s are in $2\frac{2}{3}$?

   c. How many $\frac{1}{6}$s are in $\frac{2}{3}$?