Grade 6  
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Unit 4, Lesson 5

# How Many Groups? (Part 2)

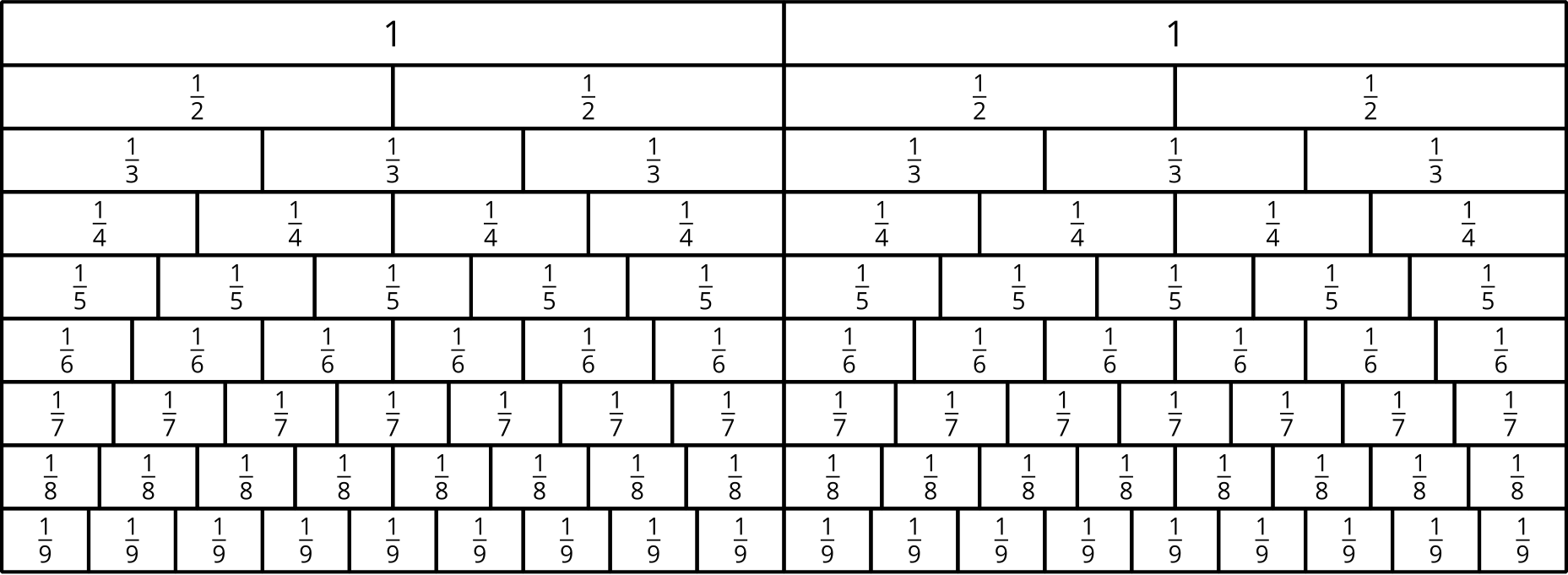
Let’s use blocks and diagrams to understand more about division with fractions.

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## 5.1Reasoning with Fraction Strips

Write a fraction or whole number as an answer for each question. If you get stuck, use the fraction strips. Be prepared to share your reasoning.

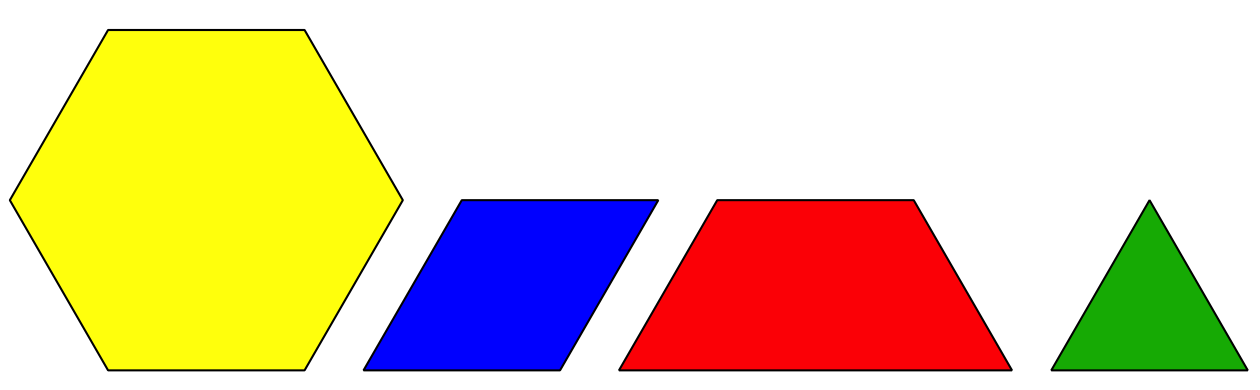
1. How many s are in 2?
2. How many s are in 3?
3. How many s are in ?



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## 5.2More Reasoning with Pattern Blocks

Your teacher will give you pattern blocks. Use them to answer the questions.



1. If the trapezoid represents 1 whole, what does each of the other shapes represent? Be prepared to show or explain your reasoning.
   1. 1 triangle
   2. 1 rhombus
   3. 1 hexagon
2. Use pattern blocks to represent each multiplication equation. Use the trapezoid to represent 1 whole. Sketch or trace the blocks to record your representation.
3. Diego and Jada were asked “How many rhombuses are in a trapezoid?”
   * Diego says, “. If I put 1 rhombus on a trapezoid, the leftover shape is a triangle, which is of the trapezoid.”
   * Jada says, “I think it’s . Since we want to find out ‘How many rhombuses . . . ?’ we should compare the leftover triangle to a rhombus. A triangle is of a rhombus.”

* Do you agree with either of them? Explain or show your reasoning.

1. Select **all** the equations that can be used to answer the question: “How many rhombuses are in a trapezoid?”

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## 5.3Drawing Diagrams to Show Equal-size Groups

For each situation:

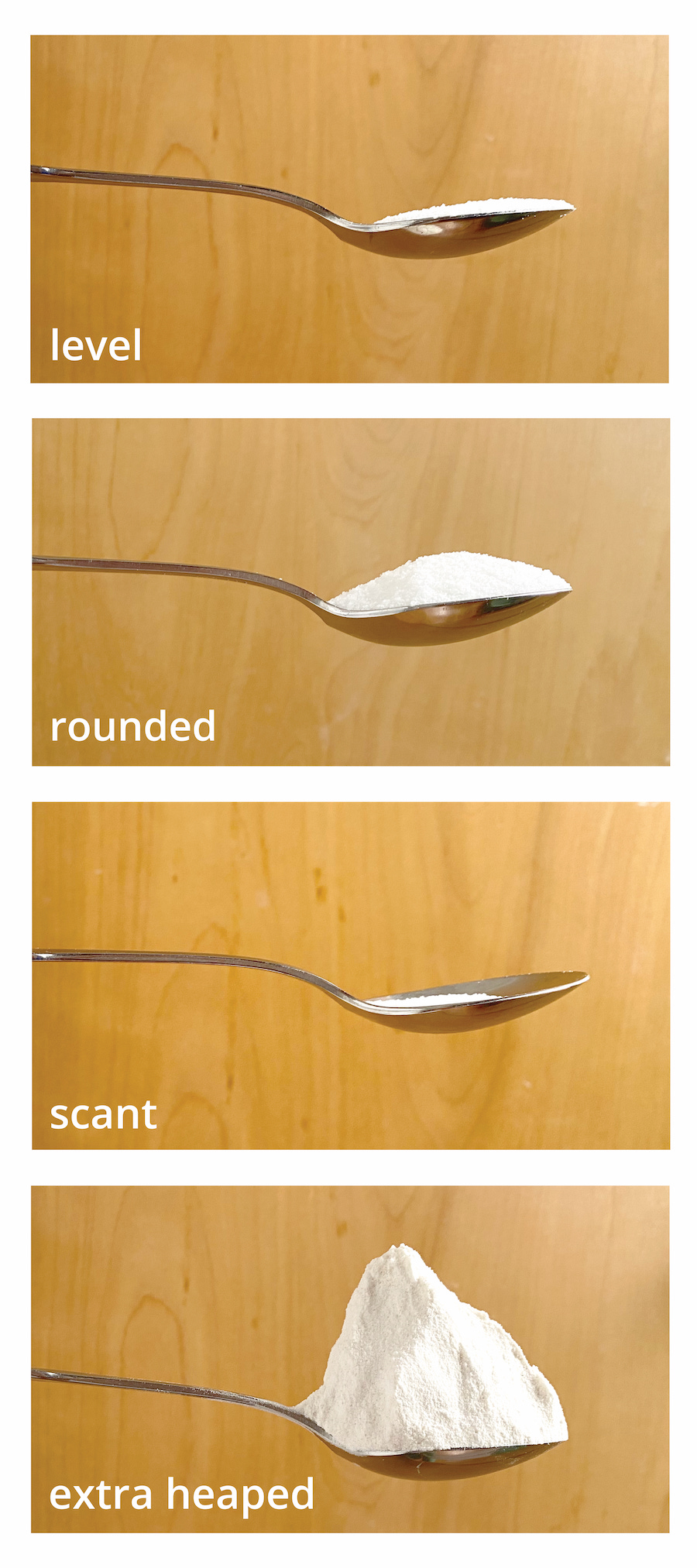
* Draw a diagram to represent the situation.
* Answer the question.
* Write a multiplication equation or a division equation for the relationship between the quantities.

1. The water hose fills a bucket at gallon per minute. How many minutes does it take to fill a 2-gallon bucket?
2. The distance around a park is miles. Noah rode his bicycle around the park for a total of 3 miles. How many times around the park did he ride?
3. You need yard of ribbon for one gift box. You have 3 yards of ribbon. How many gift boxes do you have ribbon for?

### Are you ready for more?

There are 48 level teaspoons in 1 cup. Estimate:

1. How many rounded teaspoons are in 1 cup?
2. How many scant teaspoons are in 1 cup?
3. How many extra-heaped teaspoons are in 1 cup?

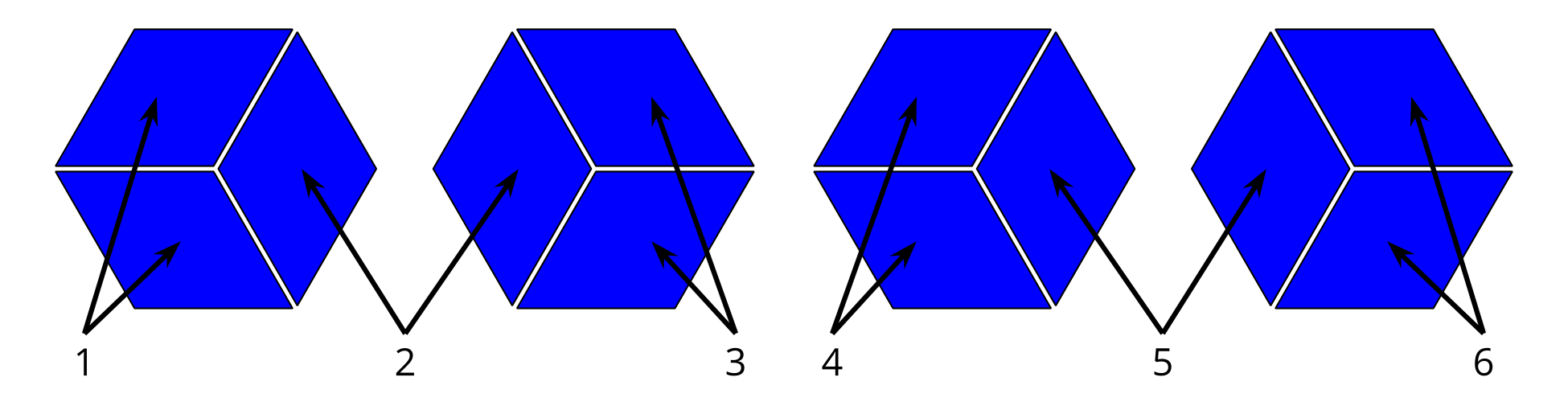


## Lesson 5 Summary

Suppose one batch of cookies requires cup of flour. How many batches can be made with 4 cups of flour?

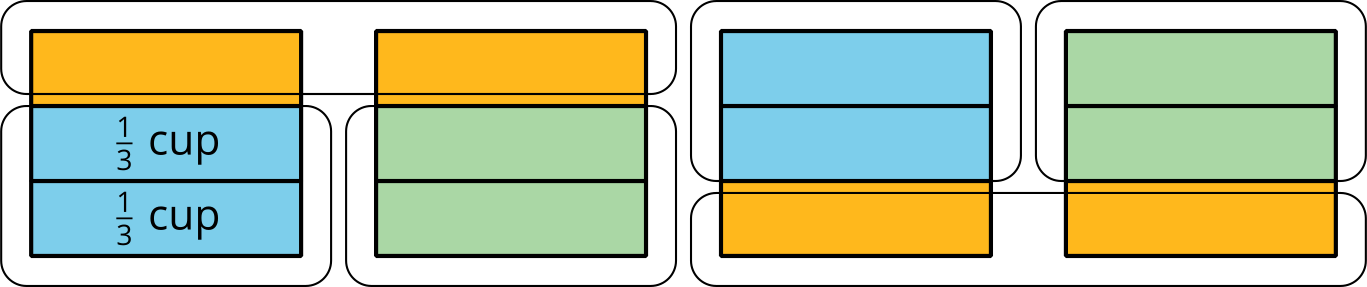
We can think of the question as being: “How many s are in 4?” and represent it using multiplication and division equations.

Let’s use pattern blocks to visualize the situation and say that a hexagon is 1 whole.



Since 3 rhombuses make a hexagon, 1 rhombus represents , and 2 rhombuses represent .  
We can see that 6 pairs of rhombuses make 4 hexagons, so there are 6 groups of in 4.

Other kinds of diagrams can also help us reason about equal-size groups involving fractions. This example shows how we might reason about the same question asked earlier: “How many -cup are in 4 cups?”



We can see each “cup” partitioned into thirds, and that there are 6 groups of -cup in 4 cups. In both diagrams, we see that the unknown value (or the “?” in the equations) is 6. So we can now write: