

Goals:

- Define division as the number of objects in each group when a number of objects are partitioned equally into groups
 - Define division as the number of groups when a number of objects are partitioned into equal groups of objects
 - Define the symbol for division
 - Distinguish partitioning with groups versus partitioning with objects per group from context of real world problems
 - Solve real world problems given in both forms of division
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Prerequisite Knowledge:

- Multiplication facts up through 9×9
 - Understand multiplication as groups of objects
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Activities:

1. Working with a partner:

Eight cupcakes are split equally between you and a friend. How many cupcakes does each person get?

- a. Draw a picture of the scenario.

- b. Write an expression for this scenario.

- c. What is the result?

2. Working with a partner:

Eight cupcakes are given out two at a time. How many people will receive two cupcakes?

- a. Draw a picture of the scenario.

- b. Write an expression for this scenario.

- c. What is the result?

3. Working with a partner, discuss the similarities and differences between the two problems. Be prepared to share your thoughts and ideas with the class.

4. Working with a partner, for each of the following problems, determine the type of partitioning used. Also, write an expression for each problem, do not compute.
 - a. Eighteen cookies will be put into packages. Each package will have six cookies. How many packages will there be?

 - b. Sixty-four fourth graders are placed into four classrooms. How many fourth graders will be in each class?

 - c. Two hundred dollars is split equally between five people. How much money will each person receive?

 - d. Two hundred dollars is given out in five dollar bills. How many people will receive five dollars?

 - e. You and your three friends are painting a house for twelve hundred dollars. How much money will you receive for painting the house?

5. Working with a partner, create a division problem for each type of partitioning. Be prepared to share your problems with the class.

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Prerequisite Knowledge:

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Lesson Materials:

- None

Preparation:

- Cut colored sheets of paper (3 different colors) into equal-sized strips.
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Lesson Breakdown:

Activity	Size of Group	Time in Activity Total Time: 55 minutes
Present division problem using 1st type of partitioning	Groups of 2 (or individually)	10 minutes
Present division problem using 2nd type of partitioning	Groups of 2 (or individually)	10 minutes
Discuss 2 types of partitioning	Groups of 2, then Whole Class	10 minutes
Present division problems to determine the type of partitioning used	Groups of 2	15 minutes
Compose a story problem to represent each type of partitioning	Groups of 2	10 minutes

Activities:

6. Working with a partner:

Eight cupcakes are split equally between you and a friend. How many cupcakes does each person get?

- a. Draw a picture of the scenario.

They should draw the 8 cupcakes being split into 2 groups of 4.

- b. Write an expression for this scenario.

They should come up with '8 ÷ 2'.

- c. What is the result? *4 cupcakes per person.*

They should have 2 groups of 4 cupcakes.

7. Working with a partner:

Eight cupcakes are given out two at a time. How many people will receive two cupcakes?

- a. Draw a picture of the scenario.

They should draw the 8 cupcakes being split into 4 groups of 2.

- b. Write an expression for this scenario.

They should come up with '8 ÷ 2', which is another way to partition by 2.

- c. What is the result? *4 people.*

8. Working with a partner, discuss the similarities and differences between the two problems. Be prepared to share your thoughts and ideas with the class.

Similarities are in the written mathematics, both problems represent ' $8 \div 2 = 4$ ' but the differences come in with the type of partitioning. In the first problem, they are partitioning by groups and counting the number of items in each group and in the second problem, they are partitioning by objects per group and counting the number of groups.

9. Working with a partner, for each of the following problems, determine the type of partitioning used. Also, write an expression for each problem, do not compute.

- a. Eighteen cookies will be put into packages. Each package will have six cookies. How many packages will there be?

Type of partitioning: Items per group and counting the number of groups.

- b. Sixty-four fourth graders are placed into four classrooms. How many fourth graders will be in each class?

Type of partitioning: Groups and counting the number of objects in each group.

- c. Two hundred dollars is split equally between five people. How much money will each person receive?

Type of partitioning: Groups and counting the number of objects in each group.

- d. Two hundred dollars is given out in five dollar bills. How many people will receive five dollars?

Type of partitioning: Objects per group and counting the number of groups.

- e. You and your three friends are painting a house for twelve hundred dollars. How much money will you receive for painting the house?

Type of partitioning: Groups and counting the number of objects in each group.

10. Working with a partner, create a division problem for each type of partitioning. Be prepared to share your problems with the class.

Answers will vary. Walk around the classroom and ensure students have one of each type. Ask questions like, "Can you explain to me why this would be partitioning by groups?" Etc.

