

What's Inside This Sample Lesson?

- A fully guided **Explore activity** written to meet rigorous state and national standards
- **Teacher Edition** pages, **Student Workbook** pages, and **other helpful resources** to fully experience a STEMscopes Math Explore activity

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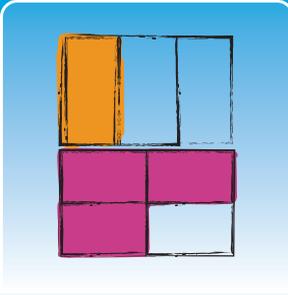
Grade 2, Fractions - Explore 1

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Go Online!

Explore the digital resources for this lesson.





GRADE 2 GEOMETRY

FRACTIONS

FOCUS STANDARDS

Reason with shapes and their attributes.

- Partition circles and rectangles into two, three, or four equal shares; describe the shares using the words halves, thirds, half of, a third of, etc.; and describe the whole as two halves, three thirds, and four fourths. Recognize that equal shares of identical wholes need not have the same shape.

ENGAGE ACTIVITIES

ACCESSING PRIOR KNOWLEDGE

Students explore the concept of partitioning shapes into equal shares using a pizza model. Students use pizza cutouts to practice dividing circles and rectangles into halves and fourths.

- They fold and trace the pizza to visually and physically understand equal partitioning.
- Students label each partition to reinforce the vocabulary of halves, fourths, and quarters.
- A class discussion helps assess understanding and address misconceptions about equal shares.

HOOK MAKING A CHOCOLATE CAKE

Students explore the concept of partitioning rectangles into equal shares and learn to describe these shares accurately.

- Students begin by discussing a real-world scenario involving partitioning a cake into three equal parts.
- They use brown construction paper to model the cake and practice cutting it into thirds in two different ways.
- The activity encourages students to compare their models and understand the concept of fractions, specifically focusing on thirds.
- As an extension, students explore how many thirds make up multiple wholes, enhancing their understanding of fractions.

EXPLORE ACTIVITIES

EXPLORE 1 PARTITIONING OBJECTS

Students explore the concept of partitioning shapes into equal parts using construction paper to create a quilt.

- Students work in groups to cut sheets of construction paper into halves, thirds, and fourths, ensuring each piece is equal in size.
- They record their partitioning process in a Student Journal and discuss the concept of fractions as parts of a whole.
- Students assemble their paper pieces into a quilt, decorate it, and participate in a gallery walk to view each group's work.
- A Math Chat follows, where students share observations and discuss the importance of equal parts in fractions.

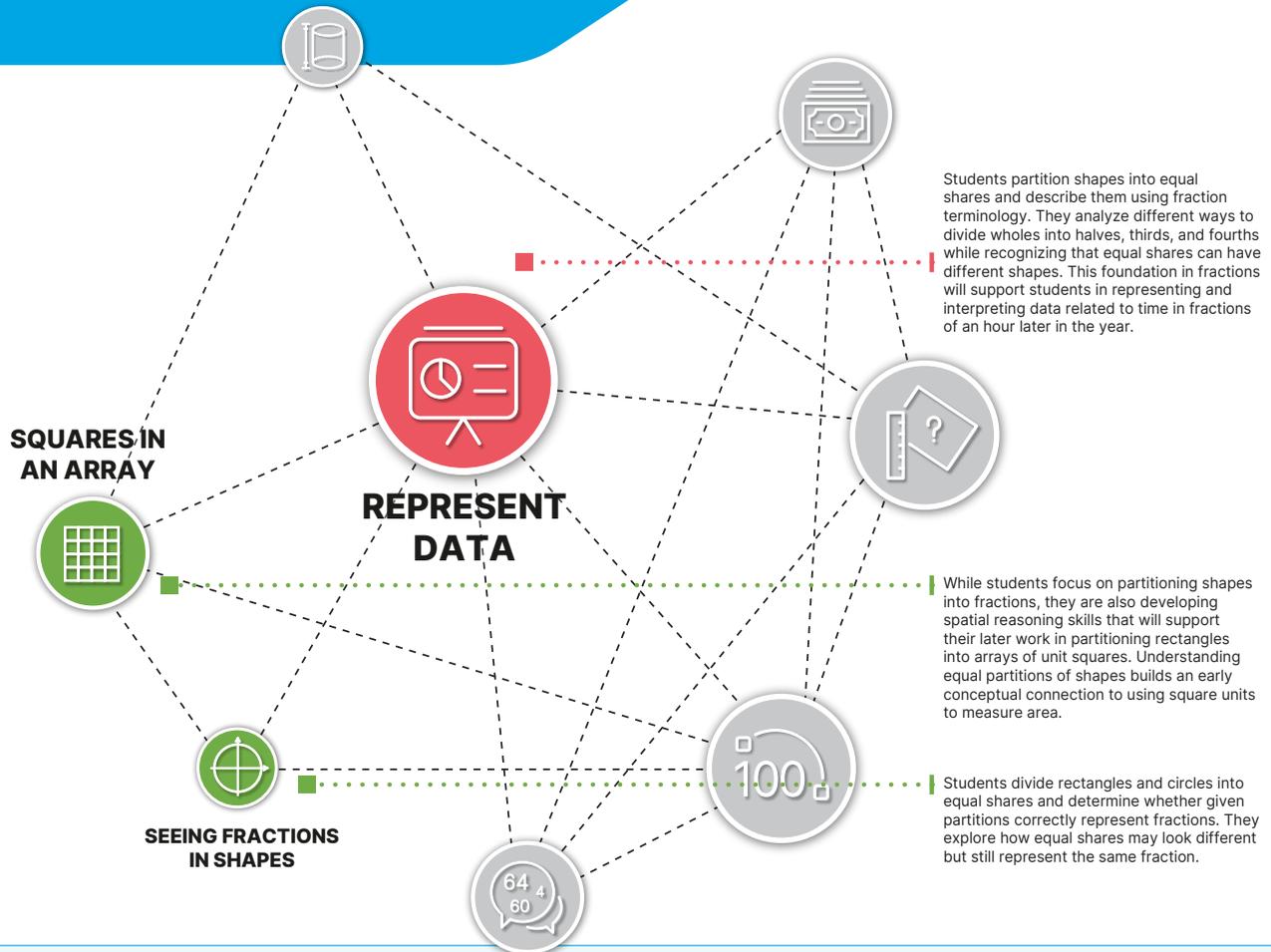
EXPLORE 2 EXAMPLES AND NONEXAMPLES

Students explore the concept of fractions by examining partitioned shapes to identify examples and nonexamples of halves, thirds, and fourths.

- Students work in small groups to analyze illustrations of partitioned circles and rectangles, using chocolate candy images as a visual aid.
- They use cut-apart pieces to determine if the parts are equal in size and record their findings in a Student Journal.
- Students rotate through different candy images, drawing representations and explaining whether each is an example or nonexample of a fraction.
- The activity concludes with a class discussion to share strategies and observations, followed by a Math Chat to deepen understanding of fractions.

JUMP IN HERE

SCOPE BIG IDEAS



KEY CONCEPTS

- I can partition circles into two, three, or four equal shares.
- I can partition rectangles into two, three, or four equal shares and describe the shares as halves, thirds, half of, a third of, etc.
- I can describe the shares using the words halves, thirds, half of, third of, etc.
- I can describe the whole using the words two halves, three thirds, and four fourths.
- I can recognize that equal shares of identical wholes need not have the same shape.

FUNDAMENTAL QUESTIONS

- How can you partition circles into two, three, or four equal shares?
- How can you partition rectangles into two, three, or four equal shares?
- What academic language can you use to describe the circles you partition?
- What academic language can you use to describe the rectangles you partition?
- How many fractional parts can make up the whole in a circle or a rectangle?
- How can you show the different ways that a whole is composed of two halves, three thirds, and four fourths in a circle or a rectangle?



GRADE 2 FRACTIONS

EXPLORE > EXPLORE 1



SCAN HERE
for the
Teacher
Prep Video

INSTRUCTIONAL LESSON

EXPLORE 1 PARTITIONING OBJECTS

Standard(s)

- **Reason with shapes and their attributes.** Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

Big Ideas	Standards for Mathematical Practice	Content Connections	Drivers of Investigation
Represent Data Seeing Fractions in Shapes Squares in an Array	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.6 Attend to precision. MP.7 Look for and make use of structure.	CC1 Reasoning with Data CC4 Discovering Shape and Space	DI1 Make Sense of the World (Understand and Explain)

DESCRIPTION

Students partition rectangular sheets of paper into equal shares and describe the shares using the words halves, thirds, and fourths.

MATERIALS

PRINTED

- 1 Student Journal (per student)
- 1 Exit Ticket (per student)

REUSABLE

- 1 Sheet of red construction paper (per group)
- 1 Sheet of blue construction paper (per group)
- 1 Sheet of green construction paper (per group)
- 1 Sheet of yellow construction paper (per group)
- 1 Sheet of black construction paper (per group)
- 1 Sheet of orange construction paper (per group)
- 1 Pair of scissors (per group)
- 1 Set of markers or crayons (per group)

CONSUMABLE

- Tape (per group)

PREPARATION

- Plan to divide the class into groups of 4 to complete this activity.
- Prepare a set of construction paper (all colors) and gather enough pairs of scissors, markers or crayons, and tape for each group to have some of each.
- Print the Student Journal and Exit Ticket for each student.
- For students who need more support in recalling information, please see our Grid Paper Supplemental Aids element in the Intervention section.

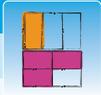


PROCEDURE AND FACILITATION POINTS

1. Read the following scenario: Each 2nd-grade class has been asked to make a quilt for school spirit week. We have been given fabric and instructions, and it is our job to cut and put the quilt together. It is time to get creative! Are you ready?
2. Divide the class into groups of 4 and give each group a set of construction paper, scissors, markers or crayons, and tape.
3. Direct students' attention to the sheets of construction paper. Explain to students that the sheets of paper will represent fabric from the scenario. Allow students a few moments to discover the manipulatives and experience how they can be pieced together to create a quilt.
4. Give a Student Journal to each student.
5. Instruct students to read the instructions on the Student Journal to find out how they will be cutting each sheet of construction paper. Explain that they will be cutting each sheet into halves, thirds, or fourths. Remind students that the pieces they cut must be equal in size. Suggest folding the paper first to see if all group members agree on the partitioning before cutting the paper.
6. Ask students to record their partitioning by drawing lines on the rectangle on the Student Journal and answer the questions before moving on to the next colored sheet of paper. When students get to the yellow, black, and orange pieces of paper, they will cut them into halves, thirds, and fourths but in a different way from the first three sheets of paper.
7. Monitor and talk with students as needed to check for understanding by using guiding questions.
 - a. **DOK-1** How many pieces are you cutting your paper into? *Answers will vary. 2, 3, or 4*
 - b. **DOK-1** What does the one sheet of paper represent? *One whole*
 - c. **DOK-1** How many parts make one whole? *Answers will vary. 2, 3, or 4*
 - d. **DOK-1** What do you call one part of this whole? *Answers will vary. One-half, one-third, one-fourth*
8. After students have completed the Student Journal and cut all of their sheets of construction paper, instruct students to use tape to piece together all of the pieces to form a quilt. They can decorate the quilt using markers or crayons. Display each group's quilt and allow students to do a gallery walk to view all the quilts.
9. After the Explore, invite the class to a Math Chat to share their observations and learning.

Math Chat

- **DOK-3** Ask students to observe each group's quilt. What do you notice about the red pieces of fabric? *Answers will vary. For example: Everyone cut their papers into halves, but some groups cut horizontally and some cut vertically. (Discuss the differences in what the pieces look like, but that they still represent halves, thirds, or fourths.)*
 - **DOK-1** How many halves equal one whole? *Two*
 - **DOK-1** How many thirds equal one whole? *Three*
 - **DOK-1** How many fourths equal one whole? *Four*
 - **DOK-4** How do we use fractions in everyday life? *Answers will vary. For example: When we share something equally with friends and family, to be fair, etc.*
 - **DOK-2** What do you notice about the size of each part as you partition your object into more and more parts? *The individual parts get smaller*
 - **DOK-1** What is a new vocabulary word for the whole thing that you are cutting into equal shares? *The whole or unit*
 - **DOK-1** What do we call a whole that is partitioned into two equal shares? *Two halves*
 - **DOK-1** What do we call a whole that is partitioned into three equal shares? *Three thirds*
 - **DOK-1** What do we call a whole that is partitioned into four equal shares? *Four fourths*
 - **DOK-2** Is there more than one way a rectangle can be partitioned into 4 equal parts? What are the different shapes that can be made from these fourths? *Yes, it can be divided into 4 squares or 4 triangles or 4 equal long rectangles.*
10. When students are done, have them complete the Exit Ticket to formatively assess their understanding of the concept.



GRADE 2 FRACTIONS

EXPLORE > EXPLORE 1

Explore Fractions Explore 1

Name: _____ Date: _____

Partitioning Objects

Fold and cut each colored piece of fabric into equal parts. Draw lines on the rectangle to show your equal parts. Label each equal part as either *one-half*, *one-third*, or *one-fourth*.

Red Fabric:
Cut into 2 equal parts.

one-half	one-half
----------	----------

How many parts make one whole? **2**

What is this whole partitioned into? **Halves**

Students may cut and draw lines showing halves, thirds, and fourths in various ways.

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Explore Fractions Explore 1

Yellow Fabric:
Cut into 2 equal parts, different from your red fabric.

one-half
one-half

How many parts make one whole? **2**

What is this whole partitioned into? **Halves**

Orange Fabric:
Cut into 3 equal parts, different from your green fabric.

one-third
one-third
one-third

How many parts make one whole? **3**

What is this whole partitioned into? **Thirds**

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Explore Fractions Explore 1

Green Fabric:
Cut into 3 equal parts.

one-third	one-third	one-third
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How many parts make one whole? **3**

What is this whole partitioned into? **Thirds**

Blue Fabric:
Cut into 4 equal parts.

one-fourth	one-fourth
one-fourth	one-fourth

How many parts make one whole? **4**

What is this whole partitioned into? **Fourths**

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Explore Fractions Explore 1

Black Fabric:
Cut into 4 equal parts, different from your blue fabric.

one-fourth	one-fourth	one-fourth	one-fourth
------------	------------	------------	------------

How many parts make one whole? **4**

What is this whole partitioned into? **Fourths**

Reflect

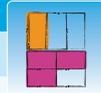
Compare and contrast your pieces of red and yellow fabric.
Both the red and yellow fabrics are partitioned into halves. They are different because of the way we cut those halves.

What do you notice about the size of the pieces as you partition your fabric into more and more pieces?
The size of the pieces gets smaller as we partition the fabric into more and more pieces.

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STUDENT JOURNAL
ANSWER KEY

STUDENT JOURNAL
ANSWER KEY



INSTRUCTIONAL SUPPORTS

1. Review halves and fourths at the beginning of the lesson. Consider creating an anchor chart with a rectangle partitioned in each of these ways.
2. If students are struggling to translate the physical model into a pictorial model, allow them to trace the physical model on a separate sheet of paper.

LANGUAGE ACQUISITION STRATEGY

The following Language Acquisition Strategy is supported in this Explore activity. See the strategies below for ways to support a student's language development.

During instruction, students will monitor their understanding of spoken language and seek clarification as needed.

Beginner: When giving instructions for the activity, speak in a clear and concise manner and provide clarification in the native language as needed. Provide a step-by-step, bulleted picture for the order they need to complete the activity. Frequently check for understanding.

Intermediate: Provide an example of halves, thirds, and fourths to point to when identifying each fraction. Have a student point to the corresponding picture and repeat the pronunciation.

Advanced: Expect to rephrase, repeat, or slow down at student's request. Have an agreed upon signal that the student can give you when he or she needs you to slow down or give more help understanding.

Explore
Fractions Explore 1

Name: _____ Date: _____

Partitioning Objects
Exit Ticket
Answers may vary.

Partition each shape into halves.

How many equal shares make one whole? **Two**

Partition each shape into thirds.

How many equal shares make one whole? **Three**

Partition each shape into fourths.

How many equal shares make one whole? **Four**

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EXIT TICKET
ANSWER KEY

Show What You Know
Fractions Part 1

Name: _____ Date: _____

Fractions
Answers will vary.

Part 1: Partitioning Objects

Luke wanted to share a pizza with some of his friends. Partition the pizza into thirds.

How many equal shares make one whole? **Three**

Carol wanted to cut the brownies she made to share with her family. Partition the brownies into fourths.

How many equal shares make one whole? **Four**

Mrs. Smith cut a cake to share with her neighbor. Partition the cake into halves.

How many equal shares make one whole? **Two**

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SHOW WHAT YOU KNOW PART 1
ANSWER KEY



Explore

Fractions
Explore 1

Name: _____ Date: _____

Partitioning Objects

Fold and cut each colored piece of fabric into equal parts. Draw lines on the rectangle to show your equal parts. Label each equal part as either *one-half*, *one-third*, or *one-fourth*.

Red Fabric:
Cut into 2 equal parts.



How many parts make one whole?

What is this whole partitioned into?



Explore

Fractions
Explore 1

Green Fabric:
Cut into 3 equal parts.



How many parts make one whole?

What is this whole partitioned into?

Blue Fabric:
Cut into 4 equal parts.



How many parts make one whole?

What is this whole partitioned into?



Explore

Fractions
Explore 1**Yellow Fabric:**

Cut into 2 equal parts, different from your red fabric.



How many parts make one whole?

What is this whole partitioned into?

Orange Fabric:

Cut into 3 equal parts, different from your green fabric.



How many parts make one whole?

What is this whole partitioned into?



Explore

Fractions
Explore 1

Black Fabric:
Cut into 4 equal parts, different from your blue fabric.

How many parts make one whole?

What is this whole partitioned into?

Reflect

Compare and contrast your pieces of red and yellow fabric.

What do you notice about the size of the pieces as you partition your fabric into more and more pieces?



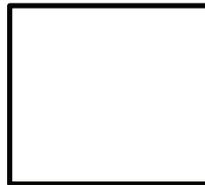
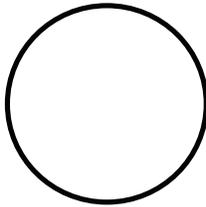
Explore

Fractions
Explore 1

Name: _____ Date: _____

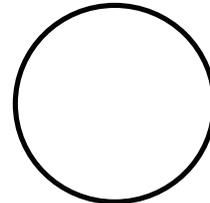
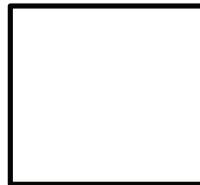
Partitioning Objects Exit Ticket

Partition each shape into halves.



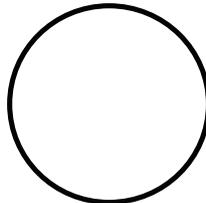
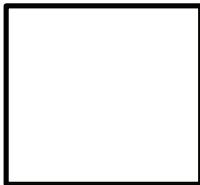
How many equal shares make one whole?

Partition each shape into thirds.



How many equal shares make one whole?

Partition each shape into fourths.



How many equal shares make one whole?



Math Chat

Math Chat
What do you notice about how the different quilt pieces were cut?
How many halves, thirds, or fourths make up a whole?
Why do equal parts of the same whole not always have the same shape?
When might you use this skill outside of school?



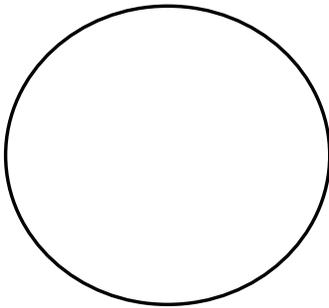
Show What You Know

Name: _____ Date: _____

Fractions

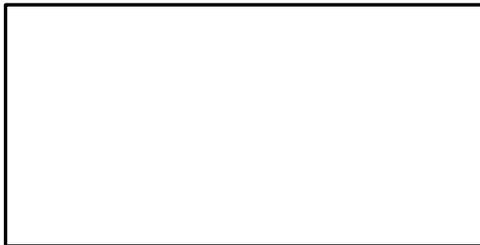
Part 1: Partitioning Objects

Luke wanted to share a pizza with some of his friends.
Partition the pizza into thirds.



How many equal shares make one whole?

Carol wanted to cut the brownies she made to share with her family. Partition the brownies into fourths.



How many equal shares make one whole?

Mrs. Smith cut a cake to share with her neighbor. Partition the cake into halves.



How many equal shares make one whole?



Ready to see the full program?

Scan here!



Exploring this lesson with your students?

We'd love to see it in action! Snap a pic, share your classroom experience, and tag us with @AccelerateLearningInc on Facebook.

By sharing, you'll join a community of math educators who are making math meaningful. You might even get featured!

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