

MA.1.FR.1.1

Overarching Standard: *MA.1.FR.1 Develop an understanding of fractions by partitioning shapes into halves and fourths.*

Benchmark of Focus

MA.1.FR.1.1 Partition circles and rectangles into two and four equal-sized parts. Name the parts of the whole using appropriate language including halves or fourths.

Benchmark Clarifications:

Clarification 1: This benchmark does not require writing the equal sized parts as a fraction with a numerator and denominator.

Related Benchmark/Horizontal Alignment

- MA.1.NSO.1.3
- MA.1.M.2.1

Vertical Alignment

Previous Benchmarks	Next Benchmarks
MA.K.AR.1.2	MA.2.FR.1.1
MA.K.GR.1.1/1.5	MA.2.FR.1.2

Terms from the K-12 Glossary

- Circle
- Rectangle

Purpose and Instructional Strategies

The purpose of this benchmark is to introduce the initial idea of equal parts in the form of halves and fourths. While students are not expected to use a numerator or denominator, it is the first exposure for students to see circles and rectangles partitioned into two or four equal-sized parts which sets the stage for fractional understanding. In Kindergarten, students recognized how combining two equal-sized triangles can form a rectangle. Also in Kindergarten, students learned that whole numbers up to 10 could be broken apart into two other whole numbers. (*MTR.5.1*)

- Instruction includes the idea of part-whole relationships as supported by the model. (*MTR.5.1*)
 - Instruction includes naming the parts based on the number of equal parts that make the whole.
 - Instruction includes partitioning rectangles in multiple ways, such as horizontal, vertical, and diagonal, to show halves or fourths. Depending on the type of rectangle that is being presented, it may not result in four equal parts. (*MTR.2.1*)
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Common Misconceptions or Errors

- Students may have difficulty partitioning circles or rectangles into equal-sized parts; additional guided practice may be helpful in these cases.
- When a rectangle is divided into fourths using its diagonals students may have trouble seeing that all four parts are the same size. This should not be a point of contention, but it should be an opportunity to explain to students that they will get a deeper understanding of this in later grades.

Strategies to Support Tiered Instruction

- Teacher models partitioning circles and rectangles into fourths using a geoboard to investigate equal-sized parts.
- Example:



Not equal parts



Equal parts

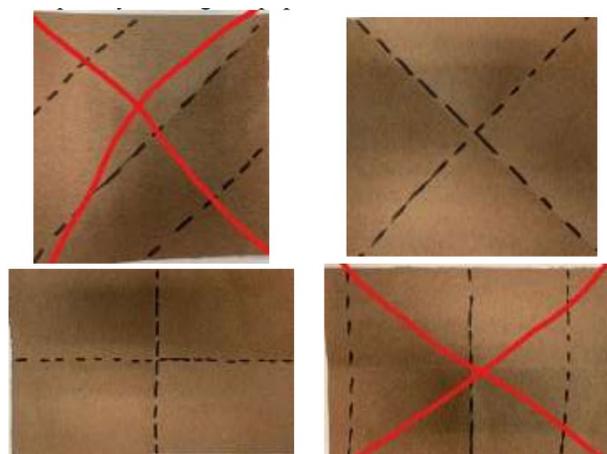


Not equal parts



Equal parts

- Teacher models folding rectangles and circles into halves and fourths to develop an understanding of equal sized parts.
- Instruction provides opportunities to investigate equal sized parts using paper squares divided into fourths on the diagonal.
- For example, teacher provides paper squares and demonstrates how to divide it into fourths on the diagonal. Discussion should be centered on recognizing parts that are equal by folding the paper over onto itself to show the parts are equal.



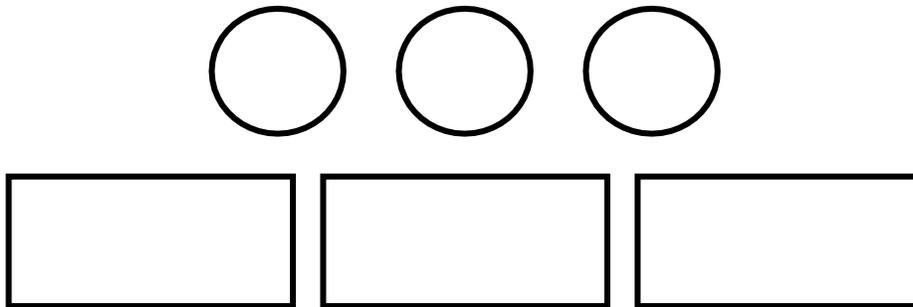
Questions to ask students:

- *Ask: Can you draw a circle and show four equal shares?*
 - Sample answer that indicates understanding: Student correctly partitions a circle into fourths.
- *Ask: What happens to the size of the shares if we keep decomposing the shape?*
 - Sample answer that indicates understanding: The more shares we make the smaller each share will be.
- *Ask: What does it mean to partition something into halves? How is that different than fourths?*
 - Sample answer: Halves mean that I have two equal parts, fourths mean there are four equal parts.
- *Ask: If you draw a rectangle, does it matter where you draw your line to show halves?*
 - Sample answer: It matters because the two parts have to be the same size.

Instructional Tasks

Instructional Task 1 (MTR.2.1, MTR.4.1)

Part A. Partition the circles and rectangles in different ways to show two

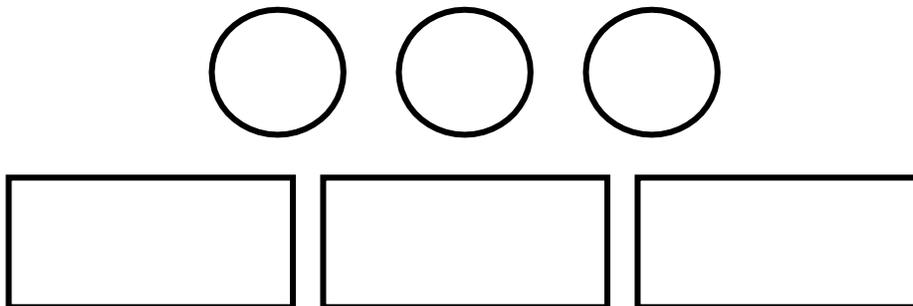


equal parts. Name the parts of the whole.

My shapes are partitioned into _____.

Compare with a partner to discuss if your circles and rectangles look alike and share how you know your shapes show two equal parts.

Part B. Partition the circles and rectangles in different ways to show four

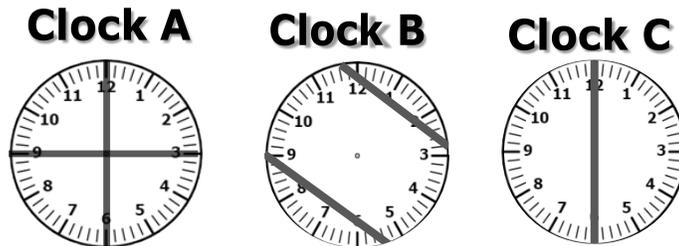


equal parts. Name the parts of the whole.

My shapes are partitioned into _____.
Compare with a partner to discuss if your circles and rectangles look alike and share how you know your shapes show four equal parts.

Instructional Task 2

Josephine says she partitioned the clocks below into halves. Do you agree with her? Why or Why not?



Enrichment Task 1

Repeat *Instructional Task 2* with halves replaced by fourths; helps make the connection to grade 2.

Instructional Items

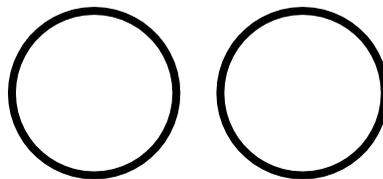
Instructional Item 1

Divide a piece of paper into two parts so that each part has an equal amount. How could you describe each part?

Instructional Item 2

Pretend each of the circles below is a cake.

- The first one is for two people. Can you show how you would partition the cake for 2? What is the name for each piece of cake?
- The second cake is for 4 people. Can you show how you would partition the cake for 4? What is the name for each piece of cake?



Additional Resources:

[CPALMS Resources](#)

Video: [The Progression of Fractions](#)

Video: [Khan Academy – How to Model Halves and Fourths](#)

Resources/Tasks to Support Your Child at Home:

Task: Use playdough or paper to make a variety of squares, rectangles, and circles. Guide your child by having them cut one of their circles/squares/rectangles in half. Talk about how each of the 2 shares is a half and together they're called **halves**. Then have them cut their other circles/squares/rectangles into half and then half again. Let them know these are called **quarters or fourths** because there are four equal parts. As they're looking at their halves and fourths side by side, ask them if they notice anything. Discuss how the more shares you cut it into, the smaller the shares get. You could also cut your circle in an unequal way and ask if it's cut into halves or fourths and help them see that the shares must be equal to be called halves/fourths.

Task: Spread out the [equal/unequal part cards](#) on the table. Have your child sort them into two piles, equal parts and unequal parts. Allow your child to explain their thinking. Ask them what equal parts means and how they determined if the parts were equal.