MA.5.FR.1.1

Overarching Standard: MA.5.FR.1 *Interpret a fraction as an answer to a division problem.*

Benchmark of Focus

MA.5.FR.1.1	Given a mathematical or real-world problem, represent the division of twowhole numbers as a fraction.

Example: At Shawn's birthday party, a two-gallon container of lemonade is shared equally

among 20 friends. Each friend will have $\frac{2}{20}$ of a gallon of lemonade which is equivalent to one-tenth of a gallon which is a little more than 12 ounces.

Benchmark Clarifications:

Clarification 1: Instruction includes making a connection between fractions and division byunderstanding that fractions can also represent division of a numerator by a denominator.

Clarification 2: Within this benchmark, the expectation is not to simplify or use lowest terms.

Clarification 3: Fractions can include fractions greater than one.

Related Benchmark/Horizontal Alignment

- MA.5.NSO.2.2
- MA.5.AR.1.1
- MA.5.GR.3.3
- MA.5.DP.1.2

Vertical Alignment

Previous Benchmarks
- MA.4.NSO.2.4

Next Benchmarks
- MA.6.NSO.2.2

Purpose and Instructional Strategies

The purpose of this benchmark is for students to understand that a division expression can be

written as a fraction by explaining their thinking when working with fractions in various

contexts. This builds on the understanding developed in Grade 4 that remainders are fractions (MA.4.NSO.2.4) and prepares students for the division of fractions in Grade 6 (MA.6.NSO.2.2).

- When students read $\frac{5}{8}$ as "five-eighths," they should be taught that $\frac{5}{8}$ can also be interpreted as "5 divided by 8," where 5 represents the numerator and 8 represents the denominator of the fraction ($\frac{5}{8}$ = 5 ÷ 8) and refers to 5 wholes divided into 8 equal parts.

- Teachers can activate students' prior knowledge of fractions as division by using fractions that represent whole numbers (e.g.,$\frac{24}{6}$)   Familiar division expressions help build
  students' understanding of the relationship between fractions and division (MTR.5.1).

- During instruction, provide examples accompanied by area and number line models.

- During instruction for solving mathematical or real-world problems involving division ofwhole numbers and interpreting the quotient in the context of the problem, students will be able to represent the division of two whole numbers as a mixed number, where the remainder is the fractional part's numerator and the size of a group is its denominator (for example, 17÷3 equals $5\frac{2}{3}$ which is the number of size 3 groups you can make from 17 objects including the fractional group). Students should demonstrate their understanding by explaining or illustrating solutions using visual fraction models or equations.

Common Misconceptions or Errors
- Students can believe that the fraction bar represents subtraction in lieu of understandingthat the fraction bar represents division.
- Students can have the misconception that division always result in a smaller number.
- Students can presume that dividends must always be greater than divisors and, thus, reorder when representing a division expression as a fraction. Show students examples offractions with greater numerators and greater denominators to create a division equation.

Questions to ask students:

How are division and fractions related?
- Sample answer that indicates understanding: Fractions and division are the same thing. Division is breaking things up into equal groups. The divisor tells us how many groups. In fractions the denominator tells us how many pieces we are breaking something up into.
- Sample answer that indicates an incomplete understanding or a misconception: Division and fractions are not similar. Fractions are less than a whole.

How can you divide a smaller number by a larger number?
- Sample answer that indicates understanding: If you divide a smaller number by a larger number your answer will be a fraction. The divisor will be the denominator and the dividend will be the numerator.
- Sample answer that indicates an incomplete understanding or a misconception: You cannot do that. You can only divide a larger number by a smaller number.

John has 2 candy bars and wants to share them equally among 5 people. How much will each person get?
- Sample answer that indicates understanding… *I draw a picture of 2 candy bars and break each one up into fifths since they are 5 people sharing the candy bars. Each person gets one-fifth of each candy bar for a total of two-fifths per person.*
- Sample answer that indicates an incomplete understanding or a misconception: *You cannot do that because you don't have enough candy bars for 5 people.*

Instructional Tasks

Instructional Task 1
Create a real-world division problem that results in an answer equivalent to $\frac{3}{10}$

Instructional Task 2
Write a mixed number that is equivalent to 10 ÷ 3.

Instructional Task 3
Monica has a ribbon that is 8 feet long. She wants to make 12 bows for her friends. How longwill each piece of the ribbon be? Express your answer in both feet and inches.

Instructional Task 4
Albert baked 18 fudge brownies for his video game club members. He wants to share the brownies with the 5 club members. How many brownies will each club member get?

Instructional Items

Instructional Item 1

Which expression is equivalent to $\frac{7}{12}$?

    a. 7 – 12
    b. 7 ÷ 12
    c. 12 – 7
    d. 12 ÷ 7

Instructional Item 2

Amanda has 12 pepperoni slices that need to be distributed equally among 5 mini pizzas.How many pepperoni slices will go on each mini pizza?

    a. $\frac{2}{5}$
    b. $2\frac{2}{5}$
    c. 7
    d. 60

Achievement Level Descriptors:

Benchmark	Context	Assessment Limits
MA.5.FR.1.1 Given a mathematical or real-world problem, represent the division of two whole numbers as a fraction. Example: At Shawn's birthday party, a two-gallon container of lemonade is shared equally among 20 friends. Each friend will have $\frac{2}{20}$ of a gallon of lemonade which is equivalent to one-tenth of a gallon which is a little more than 12 ounces. Clarification 1: Instruction includes making a connection between fractions and division by understanding that fractions can also represent division of a numerator by a denominator. Clarification 2: Within this benchmark, the expectation is not to simplify or use lowest terms. Clarification 3: Fractions can include fractions greater than one	Both	N/A

ALD 2	ALD 3	ALD 4	ALD 5
Recognizes that a fraction represents the division of the numerator by the denominator.	Given a mathematical problem, represents the division of two whole numbers as a fraction.	Given a mathematical or real-world problem, represents the division of two whole numbers as a fraction.	Given a mathematical or real-world problem, represents the division of two whole numbers as a fraction and identifies errors

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Additional Resources:

[CPALMS](#)

[Khan Academy](#)

Resources/Tasks to Support Your Child at Home:

[Khan Academy Understand Fractions as Division](#)