

# Grade 6 Topic 09 - Dividing Fractions and Mixed Numbers

Content Area: **Mathematics**

Course(s):

Time Period: **Week1**

Length: **1 Week**

Status: **Published**

## Stage 1: Desired Results

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## Unit Overview/ Rationale

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## Standards & Indicators

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MA.6.6.EE.B.7	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which $p$ , $q$ and $x$ are all nonnegative rational numbers.
MA.6.6.NS.C.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
MA.6.6.NS.A.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.

## Big Ideas - Students will understand that...

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**Estimation** – Numbers can be approximated by numbers that are close. Numerical calculations can be approximated by replacing numbers with other numbers that are close and easy to compute with mentally. Some measurements can be approximated using known referents as the unit in the measurement process.

**Operations Meanings and Relationships** – There are multiple interpretations of addition, subtraction, multiplication, and division of rational numbers and each operation is related to other operations.

**Basic facts and Algorithms** – There is more than one algorithm for each of the operations with rational numbers. Some strategies for basic facts and most algorithms for operations with rational numbers, both mental math and paper/pencil, use equivalence to transform calculations into simpler ones.

**Solving Equations and Inequalities** – Rules of arithmetic and algebra can be used together with notions of equivalence to transform equations and inequalities so solutions can be found.

**Practices, Processes and Proficiencies** – Mathematics content and practices can be applied to solve problems.

## **Essential Questions - What provocative questions will foster inquiry and transfer of learning**

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What are standard procedures for estimating and finding quotients of fractions and mixed numbers?

## **Content - Students will know...**

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Write and solve equations of the form  $x + p = q$ .

Divide fractions.

Solve word problems involving division of fractions by fractions.

Write and solve equations of the form  $px = q$ .

Show rational numbers on the number line.

## **Skills - Students will be able to...**

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Make and use models to divide by fractions and to divide fractions.

Use the inverse relationship between multiplication and division to help them understand how to divide by a fraction.

Use multiplication to divide fractions.

Estimate quotients of mixed numbers using compatible numbers and rounding.

Find the quotients of divisions involving mixed numbers.

Solve one-step linear equations in one variable involving fraction and mixed numbers.

Solve problems by looking for a pattern.

## **Stage 2: Assessment Evidence**

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### **Assessment**

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## **Stage 3: Learning Plan**

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### **Learning Activities**

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Learn how to use a number line to model division of fractions.

Use fraction strips and explore using the inverse relationship of multiplication and division to divide whole numbers by fractions.

Use fraction strips to model dividing a fraction by a fraction.

Use compatible numbers and rounding to estimate the quotient of mixed numbers.

Divide mixed numbers by using models and improper fractions.

Solve equations involving fractions and mixed numbers.

Find and use patterns to solve a problem.

### **Resources**

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Number Lines (Teaching Tool 8)

Fraction Strips (Teaching Tool 26) 3 per student

Inch Rulers (or Teaching Tool 30)

