Unit 4: Division

Dear Parents/Guardians,

Unit 4 explores division. In Lesson 1, students divide whole numbers in different ways and solve problems in context. Lesson 2 revisits decimal division through rate problems. Lessons 3 and 4 explore multiple methods for dividing fractions. Due to space limitations, the examples on this page are focused on non-traditional methods.

The "Chunking Method" for Division

The "chunking method" is an alternative to the standard algorithm.

Step 1: Make a multiplication bank that may be useful for the problem.
Step 2: Select a fact from the bank that is less than or equal to the dividend and record.
Step 3: Subtract and repeat Steps 2 and 3 until the remainder is less than the divisor.

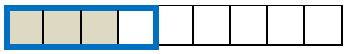
$405 \div 15 = 27$

Multiplication Bank	
$15 \times 1 = 15$	$15 \times 10 = 150$
$15 \times 2 = 30$	$15 \times 20 = 300$
$15 \times 3 = 45$	$15 \times 30 = 450$
$15 \times 4 = 60$	$15 \times 40 = 600$

$15\overline{)405}$	
-300	20
105	
-60	4
45	
-45	3
0	27 groups of 15.

Fraction Division

Students divide fractions using pictures, the divide across rule, and the standard algorithm of multiplying by the reciprocal.

Expression	$\frac{6}{8} \div \frac{3}{8}$	$\frac{1}{3} \div \frac{4}{9}$
Picture	How many $\frac{3}{8}$ are in $\frac{6}{8}$?  There are 2 of the $\frac{3}{8}$ in $\frac{6}{8}$.	It is helpful to rename the fractions using a common denominator. $\frac{3}{9} \div \frac{4}{9}$  There is $\frac{3}{9}$ of $\frac{4}{9}$ in $\frac{3}{9}$.
Divide Across	$\frac{6}{8} \div \frac{3}{8} = \frac{2}{1} = 2$	$\frac{3}{9} \div \frac{4}{9}$ $\frac{3 \div 4}{9 \div 9} = \frac{\frac{3}{4}}{1} = \frac{3}{4}$
Multiply by the Reciprocal	$\frac{6}{8} \times \frac{8}{3} = \frac{48}{24} = 2$	$\frac{1}{3} \times \frac{9}{4} = \frac{9}{12} = \frac{3}{4}$

Center For Mathematics And Teaching

Math Links GRADE 6

By the end of the unit, your student should know…

- How to solve whole number division problems by "chunking" [Lesson 4.1]
- How to solve whole number division problems using the standard algorithm [Lesson 4.1]
- How to solve rate problems involving whole numbers, fractions and decimals [Lesson 4.2]
- How to represent division of fractions with a picture [Lesson 4.3]
- How to use the divide across rule for dividing fractions [Lesson 4.3]
- How to use the multiply by the reciprocal rule for dividing fractions [Lesson 4.4]

Additional Resources

- For definitions and additional notes please refer to Student Resources at the end of the unit.
- For dividing whole numbers using the standard algorithm: https://youtu.be/4yp5v64XuRc
- For dividing whole numbers by decimals: https://bit.ly/2UO89e6
- For dividing decimals by decimals: https://bit.ly/3ft69zU
- For dividing fractions by multiplying by the reciprocal: https://bit.ly/3e7UJkJ