

5th Grade Mathematics Instructional Toolkit

The 5th Grade Mathematics Instructional Toolkit is intended to assist teachers with planning lessons aligned to the Florida Standards. This toolkit is not intended to replace your district's curriculum, but rather it serves to support the teaching and learning of the 5th grade Mathematics Florida Standards. This toolkit includes a breakdown of the standards, standards aligned resources and information related to the 5th Grade Mathematics Florida Standards Assessment (FSA). The resources presented in this document may only cover portions of the aligned standard and represent only a small sample of those available on [CPALMS](#).

5th Grade Mathematics Florida Standards Assessment

This section highlights some key information related to the 5th Grade Mathematics FSA that can be found on the FSA Portal. These items include the Test Design Summary and Blueprint, Test Item Specifications and FSA Practice Tests.

Test Design Summary and Blueprint

The 5th grade mathematics standards can be broken down into three major reporting categories as assessed on the 5th Grade Mathematics FSA with a corresponding weight. This information can be found on page 3 of the Test Design Summary and Blueprint. The reporting categories listed below link to their respective places within this document.

[Operations, Algebraic Thinking and Fractions \(39%\)](#)

[Numbers and Operations in Base Ten \(28%\)](#)

[Measurement, Data, and Geometry \(33%\)](#)

Test Item Specifications

Each grade-level and Test Item Specifications document indicates the alignment of items with the Florida Standards. Assessment limits are included in the specifications, which define the range of content knowledge in the assessment items for the standard. Sample items for each standard are also included in the specifications document. Each standard in this toolkit lists the corresponding page number in the specifications document.

Practice Tests

Practice tests are available for students to become familiar with the various item types that may be used on the 5th Grade Mathematics FSA.

CPALMS: Official Source of Florida Standards

This section features information and tools that are found on CPALMS. These resources include course descriptions, formative assessment resources, mathematical practices, depth of knowledge ratings and FloridaStudents.org resources.

[5th Grade Mathematics Course Description](#)

Course descriptions provide an overview for a course and designate which standards are in that course. The 5th grade mathematics course description includes resources for all 40 standards within the 5th grade mathematics course.

[Mathematics Formative Assessment System \(MFAS\)](#)

One resource available on [CPALMS](#) that has been designed specifically for mathematics instruction is the Mathematics Formative Assessment System (MFAS). The system includes a task or problem that teachers can implement with their students. It also includes various levels of rubrics that help the teacher interpret students' responses. In addition to using the MFAS tasks as formative assessments for students, these tasks can be used by teachers to plan lessons that are closely aligned to the standards.

[Mathematical Practices](#)

The Mathematical Practices are habits of mind that describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. The Mathematical Practices should be infused during the course and will be assessed throughout the 5th Grade Mathematics FSA. More information about each Mathematical Practice can be found by clicking on the links below.

[MAFS.K12.MP.1.1](#) Make sense of problems and persevere in solving them.

[MAFS.K12.MP.2.1](#) Reason abstractly and quantitatively.

[MAFS.K12.MP.3.1](#) Construct viable arguments and critique the reasoning of others.

[MAFS.K12.MP.4.1](#) Model with mathematics.

[MAFS.K12.MP.5.1](#) Use appropriate tools strategically.

[MAFS.K12.MP.6.1](#) Attend to precision.

[MAFS.K12.MP.7.1](#) Look for and make use of structure.

[MAFS.K12.MP.8.1](#) Look for and express regularity in repeated reasoning.

[Depth of Knowledge](#)

Florida has adopted Webb's four-level Depth of Knowledge (DOK) model of content complexity as a means of classifying the cognitive demand presented by the Florida standards. It is important to distinguish between the DOK rating for a given standard and the possible DOK ratings for assessment items designed to address the standard. This is particularly important for assessment purposes, since 50% or more of assessment items associated with a given standard should meet or exceed the DOK level of the standard. The DOK Levels are identified for each standard throughout this document. Please visit the [CPALMS Content Complexity](#) page for more information about the DOK complexity for standards. For more information about the DOK complexity for mathematics assessments, please visit page 9 of the mathematics [Test Design Summary and Blueprint](#) on the [FSA Portal](#).

[Florida Students](#)

Resources specifically designed with students in mind are available on Florida Students. Florida Students is an interactive site that provides educational resources aligned to the Florida Standards.

Operations and Algebraic Thinking

[MAFS.5.OA.1 Write and interpret numerical expressions.](#)

[MAFS.5.OA.1.1](#)

DOK Level 1: Recall

Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

[Page 9 Test Item Specifications](#)

Resources:

[The Expression Debate](#)

Resource Type: Original Tutorial

By the end of this tutorial, students will be able to evaluate expressions that have all four operations (multiplication, division, addition, and subtraction) and parentheses.

[Introduction to Order of Operations](#)

Resource Type: Tutorial

In this Khan Academy tutorial video, students will see why it is important to have one agreed upon order of operations. The tutorial clarifies the purpose of the order of operations.

[Order of Operations BINGO](#)

Resource Type: Teaching Idea

Students will evaluate arithmetic expressions for the equivalent answers, which correspond to numbers on Bingo sheets handed out by the teacher. This activity's goal is to strengthen the students' understanding of the order of operations for addition, subtraction, multiplication, and division, rather than applying the acronym PEMDAS. Students can be confused by the fact that in the acronym multiplication comes before division, and addition before subtraction. They should be brought to understand that when moving left to right, the precedence is equal for both components of each of these groups.

[Evaluating Expressions](#)

Resource Type: MFAS Formative Assessment

Students are asked to evaluate two similar expressions and explain why the answers are different.

[MAFS.5.OA.1.2](#)

DOK Level 1: Recall

Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.*

[Page 10 Test Item Specifications](#)

Resources:[Constructing a Numerical Expression Example](#)

Resource Type: Tutorial

This Khan Academy tutorial video demonstrates how to write a simple expression from a word problem.

[Words to Expressions 1](#)

Resource Type: Problem-Solving Task

This problem-solving task asks students to create a numerical expression that corresponds to the written word form. Additionally, the words (add, sum) and (product, multiply) are all strategically used, so the student can see these words have related meanings.

[Write the Expression](#)

Resource Type: MFAS Formative Assessment

Students are presented with a verbal description of a numerical expression and are asked to write the expression and then compare it to a similar expression.

[MAFS.5.OA.2 Analyze patterns and relationships.](#)

[**MAFS.5.OA.2.3**](#)

DOK Level 2: Basic Application of Skills & Concepts

Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*

[Page 11 Test Item Specifications](#)**Resources:**[Chameleon Graphing](#)

Resource Type: Lesson Plan

This resource illustrates vocabulary for the Cartesian Coordinate Plane and introduces students to finding and plotting ordered pairs using a fly and chameleon. Students should focus on Quadrant I. A glossary of terms is included.

[Free Graph Paper](#)

Resource Type: Educational Software/Tool

A variety of graph paper types for printing, including Cartesian, polar, engineering, isometric, logarithmic, hexagonal, probability, and Smith chart.

[Comic Books](#)

Resource Type: MFAS Formative Assessment

Students are asked to complete one of two number patterns, write ordered pairs composed of corresponding terms, graph the ordered pairs, and identify a relationship between corresponding terms of the patterns.

Numbers and Operations in Base Ten

[MAFS.5.NBT.1 Understand the place value system.](#)

[MAFS.5.NBT.1.1](#)

DOK Level 1: Recall

Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $1/10$ of what it represents in the place to its left.

[Page 12 Test Item Specifications](#)

Resources:

[Flying From Place to Place](#)

Resource Type: Original Tutorial

By the end of this tutorial, students should be able to recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right.

[Understanding Place Value](#)

Resource Type: Lesson Plan

This lesson is designed to help students understand the 10 to 1 relationship among place value positions and the mathematical patterns when calculating place value.

[Walking to School](#)

Resource Type: MFAS Formative Assessment

Students are presented with two decimals in the context of a distance word problem and asked to tell how many times longer one distance is than the other.

[MAFS.5.NBT.1.2](#)

DOK Level 2: Basic Application of Skills & Concepts

Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.

[Page 13 Test Item Specifications](#)

Resources:

[Multiply and Divide Powers of 10: Zero Patterns](#)

Resource Type: Tutorial

This Khan Academy tutorial video presents the methodology of understanding and using patterns in the number of zeros of products that have a factor that is a power of 10.

[Multiplying a Decimal by a Power of 10](#)

Resource Type: Tutorial

This Khan Academy tutorial video explains patterns in the placement of the decimal point, when a decimal is multiplied by a power of 10.

[What Happens When You Multiply by Powers of 10?](#)

Resource Type: Lesson Plan

This lesson explains patterns in the number of zeros of the product when multiplying a number by powers of 10 through a hands-on conceptual approach that then leads into the procedure of multiplying numbers by the a power of 10.

[How Many Zeros?](#)

Resource Type: MFAS Formative Assessment

Students are asked to determine how many zeros are in the expansion of 10 to the sixth power.

[MAFS.5.NBT.1.3](#)

DOK Level 2: Basic Application of Skills & Concepts

Read, write, and compare decimals to thousandths.

- a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.
- b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.

[Page 14 Test Item Specifications](#)

Resources:

[Cracking the Decimal Code](#)

Resource Type: Original Tutorial

By the end of this tutorial, you will be able to read and write decimals to the thousandths using base-ten numerals, number names, and expanded form.

[Comparing Two Decimals to Thousandths](#)

Resource Type: Tutorial

This Khan Academy tutorial video presents using place-value to compare two decimals expressed to thousandths.

[Decimals in Expanded Form](#)

Resource Type: MFAS Formative Assessment

Students are asked to write numbers involving decimals in both standard form (as base ten numerals) and expanded form.

[Comparing Decimals](#)

Resource Type: MFAS Formative Assessment

In the context of two word problems student are asked to compare decimals using the less than, equal to, and greater than symbols.

[MAFS.5.NBT.1.4](#)

DOK Level 1: Recall

Use place value understanding to round decimals to any place.

[Page 16 Test Item Specifications](#)

Resources:

[Rounding to the Nearest Whole Number](#)

Resource Type: MFAS Formative Assessment

Students are given four numbers and asked to round each to the nearest whole number and to explain their reasoning.

[Rounding to the Tenths Place](#)

Resource Type: MFAS Formative Assessment

Students are given four numbers and asked to round each to the nearest tenth and to explain their reasoning.

[MAFS.5.NBT.2 Performs operations with multi-digit whole numbers and with decimals to the hundredths.](#)

[MAFS.5.NBT.2.5](#)

DOK Level 1: Recall

Fluently multiply multi-digit whole numbers using the standard algorithm.

[Page 17 Test Item Specifications](#)

Resources:

[Area Models to Algorithms](#)

Resource Type: Lesson Plan

Students will investigate the standard algorithm of two-digit by two-digit multiplication and how it connects and relates to the area model. This will provide an introduction to the standard algorithm.

[Complete the Multiplication Problem](#)

Resource Type: MFAS Formative Assessment

Students are asked to finish a multiplication problem that has already been started using the standard algorithm.

[MAFS.5.NBT.2.6](#)

DOK Level 2: Basic Application of Skills & Concepts

Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

[Page 18 Test Item Specifications](#)

Resources:[Diving Deeper into Division](#)

Resource Type: Lesson Plan

This lesson introduces students to dividing with 2 digit divisors. Students are asked to apply strategies that they learned in dividing with 1 digit divisors such as partial quotients or breaking numbers apart using the distributive property.

[Dividing Using an Area Model with Larger Divisors](#)

Resource Type: MFAS Formative Assessment

Students are asked to interpret a division problem with a two-digit divisor that has been completed using an area model. If the student is successful, he or she is asked to determine the solution to a division problem with a two-digit divisor using an area model.

[Dividing Using Place Value with Larger Divisors](#)

Resource Type: MFAS Formative Assessment

Students are asked to complete a division problem using place value.

[MAFS.5.NBT.2.7](#)

DOK Level 2: Basic Application of Skills & Concepts

Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

[Page 19 Test Item Specifications](#)**Resources:**[Dinner with Friends](#)

Resource Type: Lesson Plan

In this lesson, students will determine what can be ordered at a dinner that they are taking their friends to with the given budget they have. The students will be trying to maximize their budgets and order as much food as they possibly can with their given amount of money.

[Buying Candy Bars](#)

Resource Type: MFAS Formative Assessment

Students are asked to solve a word problem involving multiplication of a decimal by a whole number using a model or drawing or a strategy based on place value, the relationship between multiplication and division, or properties of operations.

[Running](#)

Resource Type: MFAS Formative Assessment

Students are asked to solve a word problem involving division of a whole number by a decimal using a model or drawing, a strategy based on place value, the relationship between multiplication and division, or properties of operations.

Number and Operations - Fractions

[MAFS.5.NF.1](#) Use equivalent fractions as a strategy to add and subtract fractions.

[MAFS.5.NF.1.1](#)

DOK Level 2: Basic Application of Skills & Concepts

Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$. (In general, $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)*

[Page 20 Test Item Specifications](#)

Resources:

[Discovering Common Denominators](#)

Resource Type: Lesson Plan

Students use pattern blocks to represent fractions with unlike denominators. Students discover that they need to convert all the pattern blocks to the same shape in order to add them. Therefore, they find and use common denominators for the addition of fractions.

[Egyptian Fractions](#)

Resource Type: Problem-Solving Task

One goal of this task is to help students develop comfort and ease with adding fractions with unlike denominators. Another goal is to help them develop fraction number sense by having students decompose fractions.

[Adding Fractions with Unlike Denominators](#)

Resource Type: MFAS Formative Assessment

Students are asked to add two pairs of fractions with unlike denominators.

[Subtracting Fractions](#)

Resource Type: MFAS Formative Assessment

Students are asked to subtract fractions with unlike denominators.

[MAFS.5.NF.1.2](#)

DOK Level 2: Basic Application of Skills & Concepts

Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result $\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$, by observing that $\frac{3}{7} < \frac{1}{2}$.*

[Page 21 Test Item Specifications](#)

Resources:

[Adding and Subtracting Fractions](#)

Resource Type: Tutorial

In this Khan Academy video tutorial, students will further develop their skills for adding and subtracting fractions with like and unlike denominators.

[Let's Have a Fraction Party](#)

Resource Type: Lesson Plan

In this lesson, students will use addition and subtraction of fractions with unlike denominators to solve word problems involving situations that arise with the children who were invited to a party. They will use fraction strips as number models and connect the algorithm with these real-life word problems.

[Just Run](#)

Resource Type: MFAS Formative Assessment

Students are given a word problem involving subtraction of fractions with unlike denominators. Students are asked to determine if a given answer is reasonable, explain their reasoning, and calculate the answer.

[MAFS.5.NF.2 Apply and extend previous understandings of multiplication and division to multiply and divide fractions.](#)

[MAFS.5.NF.2.3](#)

DOK Level 2: Basic Application of Skills & Concepts

Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*

[Page 23 Test Item Specifications](#)

Resources:

[#InterpretAFractionAsDivision](#)

Resource Type: Original Tutorial

Learn to identify a fraction as division of the numerator by the denominator using fraction models in this interactive tutorial.

[Picture This! Fractions as Division](#)

Resource Type: Lesson Plan

In this lesson the student will apply and extend previous understandings of division to represent division as a fraction. This includes representations and word problems where the answer is a fraction.

[Sharing Brownies](#)

Resource Type: MFAS Formative Assessment

Students are asked to draw a visual fraction model to solve a division word problem.

[MAFS.5.NF.2.4](#)

DOK Level 2: Basic Application of Skills & Concepts

Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

- a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)*
- b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

Also Assesses: [MAFS.5.NF.2.6](#) Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

[Page 24 Test Item Specifications](#)

Resources:

[Multiplying Fractions](#)

Resource Type: Tutorial

This Khan Academy video tutorial describes how to multiply fractions and state the answer in lowest terms.

[Folding Strips of Paper](#)

Resource Type: Problem-Solving Task

The purpose of this task is to provide students with a concrete experience they can relate to fraction multiplication. Perhaps more importantly, the task also purposefully relates length and locations of points on a number line, a common trouble spot for students. This task is meant for instruction and would be a useful as part of an introductory unit on fraction multiplication.

[Multiplying Fractions by Fractions](#)

Resource Type: MFAS Formative Assessment

Students are asked to consider an equation involving multiplication of fractions, then create a visual fraction model, and write a story context to match.

[The Rectangle](#)

Resource Type: MFAS Formative Assessment

Students determine the area of a rectangle with given fractional dimensions by multiplying. Students are then asked to draw a model to find the area of the same rectangle.

[Box Factory](#)

Resource Type: MFAS Formative Assessment

Students are asked to solve a word problem by finding the product of two fractions.

[MAFS.5.NF.2.5](#)

DOK Level 3: Strategic Thinking & Complex Reasoning

Interpret multiplication as scaling (resizing), by:

- a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
- b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.

[Page 26 Test Item Specifications](#)

Resources:

[Real-World Fractions](#)

Resource Type: Lesson Plan

This lesson focuses on providing students with real-world experiences where they will be required to multiply fractions. A variety of situational problems involving scaling are provided for different levels of learners. Students will be required to use visual fraction models or equations to represent the problem.

[Calculator Trouble](#)

Resource Type: Problem-Solving Task

This particular problem deals with multiplication. Even though students can solve this problem by multiplying, it is unlikely they will. Here it is much easier to answer the question if you can think of multiplying a number by a factor as scaling the number.

[Multiplying by a Fraction Greater Than One](#)

Resource Type: MFAS Formative Assessment

Students are asked to describe the size of a product of a fraction greater than one and a whole number without multiplying.

[More Than or Less Than Two Miles](#)

Resource Type: MFAS Formative Assessment

Students are asked to reason about the size of the product of fractions and whole numbers presented in context.

[MAFS.5.NF.2.7](#)

DOK Level 2: Basic Application of Skills & Concepts

Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

- a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.*
- b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.*
- c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $1/3$ -cup servings are in 2 cups of raisins?*

[Page 28 Test Item Specifications](#)

Resources:

[It's My Party and I'll Make Dividing Fractions Easier If I Want to!](#)

Resource Type: Lesson Plan

During this lesson, students will relate their understanding of whole number division situations to help them interpret situations involving dividing by unit fractions. They will then develop models and strategies for representing the division of a whole number by a unit fraction. The students will work on math practice standards as they work with a partner to distinguish correct logic or reasoning from that which is flawed and explain flaws when they are present.

[Divide Fractions](#)

Resource Type: Teaching Idea

This interactive resource provides three activities which model the concept of dividing fractions, as well as mixed numbers, by using number lines or circle graphs.

[Relay Race](#)

Resource Type: MFAS Formative Assessment

Students are asked to solve a word problem involving division of a fraction by a whole number.

[Bags of Fudge](#)

Resource Type: MFAS Formative Assessment

Students are asked to solve a word problem involving division of a whole number by a fraction.

Measurement and Data

[MAFS.5.MD.1](#) Convert like measurement units within a given measurement system.

[MAFS.5.MD.1.1](#)

DOK Level 2: Basic Application of Skills & Concepts

Convert among different-sized standard measurement units (i.e., km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec) within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

[Page 30 Test Item Specifications](#)

Resources:

[Measuring to Build a Ramp](#)

Resource Type: Original Tutorial

By the end of this tutorial you'll know how to convert among different-sized customary units of weight, length, capacity, and units of time.

[Converting Fractions of a Unit into a Smaller Unit](#)

Resource Type: Problem-Solving Task

The purpose of this task is to help students gain a better understanding of fractions and the conversion of fractions into smaller units.

[Candy and Ribbon](#)

Resource Type: MFAS Formative Assessment

Students are asked to solve multi-step word problems that require converting units.

[MAFS.MD.2](#) Represent and interpret data.

[MAFS.5.MD.2.2](#)

DOK Level 2: Basic Application of Skills & Concepts

Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

[Page 31 Test Item Specifications](#)

Resources:

[Samantha's Shell-Collecting Adventure](#)

Resource Type: Original Tutorial

By the end of this tutorial you will be able to interpret data presented on a line plot and use operations on fractions to solve problems involving information presented in line plots.

[April Showers Bring May Flowers- Line Plots](#)

Resource Type: Lesson Plan

In this lesson, students will create a line plot that displays rainfall data. They will use the data from the line plot to answer questions using addition, subtraction, multiplication, and division of fractions.

[Bulk Candy Part One](#)

Resource Type: MFAS Formative Assessment

Students are asked to use a given set of data to create a line plot with an appropriate scale.

[Bulk Candy Part Two](#)

Resource Type: MFAS Formative Assessment

Students analyze data presented in a line plot and solve problems related to the data.

[MAFS.5.MD.3 Geometric measurement: understand concepts of volume and relate volume to multiplication and division.](#)

[MAFS.5.MD.3.3](#)

DOK Level 1: Recall

Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

- a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.
- b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.

Also Assesses: [MAFS.5.MD.3.4](#) Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

[Page 33 Test Item Specifications](#)

Resources:

[Working for Wonka](#)

Resource Type: Original Tutorial

By the end of this tutorial, you will be able to demonstrate how a rectangular prism can be carefully filled without gaps or overlaps using the same size unit cubes and then use this model to determine its volume.

[Building Rectangular Prisms Part One](#)

Resource Type: Lesson Plan

In this lesson, students will build foundational concepts for volume.

[Building Rectangular Prisms Part Two](#)

Resource Type: Lesson Plan

This is the second part of a two-part volume lesson. In the first Building Rectangular Prisms (attached) lesson, foundational volume concepts are taught and students count cubes to find volume. In this lesson, students will discover the volume formulas $length \times width \times height$ and $base \times height$ as they build rectangular prisms.

[Determining Volume](#)

Resource Type: MFAS Formative Assessment

Students analyze a rectangular prism that contains one layer of unit cubes and are asked to explain how to determine the volume of the entire prism using only the information given.

[Find the Volume](#)

Resource Type: MFAS Formative Assessment

Students are asked to count unit cubes to determine the volume of a right rectangular prism.

[MAFS.5.MD.3.5](#)

DOK Level 2: Basic Application of Skills & Concepts

Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

- a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
- b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.
- c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

[Page 35 Test Item Specifications](#)

Resources:

[Volume through Decomposition](#)

Resource Type: Tutorial

This Khan Academy tutorial video illustrates how to find the volume of an irregular solid figure by dividing the figure into two rectangular prisms and finding the volume of each.

[Computing Volume Progression](#)

Resource Type: Problem-Solving Task

Students are asked to find the height of a rectangular prism when given the length, width and volume.

[Determining and Interpreting Volume](#)

Resource Type: MFAS Formative Assessment

Students are asked to determine the volumes of two right rectangular prisms given the dimensions of one and the base area and height of the other.

Geometry

[MAFS.5.G.1](#) Graph points on the coordinate plan to solve real-world and mathematical problems.

[MAFS.5.G.1.1](#)

DOK Level 1: Recall

Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates.

Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

Also Assesses: [MAFS.5.G.1.2](#) Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

[Page 37 Test Item Specifications](#)

Resources:

[You Sank My Battleship!](#)

Resource Type: Original Tutorial

Learn how to accurately plot coordinates on a plane in this tutorial that includes student practice items.

[Coordinate Plane: Graphing Points Word Problem](#)

Resource Type: Tutorial

This Khan Academy tutorial video presentation represents a word problem's solution on a coordinate plane to determine the number of blocks walked from a home to a school.

[Battleship Using Grid Paper](#)

Resource Type: Problem-Solving Task

The purpose of this task is to give students practice plotting points in the first quadrant of the coordinate plane and naming coordinates of points. It also provides teachers with a good opportunity to assess how well their students understand how to plot ordered pairs and identify the coordinates of points.

[Coordinates](#)

Resource Type: MFAS Formative Assessment

Students will use directions provided to locate a point on the coordinate plane and then identify its x- and y-coordinates.

[Mowing the Lawn](#)

Resource Type: MFAS Formative Assessment

Students are asked to determine and graph the relationship between two variables within a real world context.

[MAFS.5.G.2](#) Classify two-dimensional figures into categories based on their properties.

[MAFS.5.G.2.3](#)

DOK Level 2: Basic Application of Skills & Concepts

Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*

Also Assesses: [MAFS.5.G.2.4](#) Classify and organize two-dimensional figures into Venn diagrams based on the attributes of the figures.

[Page 40 Test Item Specifications](#)

Resources:

[Shape Up](#)

Resource Type: Lesson Plan

Students explore the properties of shapes and learn the associated vocabulary. To address both standards, have students complete the activity using a Venn diagram.

[Quadrilateral Overview](#)

Resource Type: Tutorial

This Khan Academy tutorial video introduces quadrilaterals, their categories, and subcategories.

[Guess My Shape](#)

Resource Type: MFAS Formative Assessment

Using shape attribute clues, the student is asked to determine two shapes that fit these clues and describe a category to which both belong.

[Classifying Quadrilaterals](#)

Resource Type: MFAS Formative Assessment

Students are given a diagram of quadrilaterals that have been sorted and are asked to determine how the shapes were sorted. Then, students are given two additional quadrilaterals and asked to place them into the appropriate region on the diagram.

5th Grade Mathematics Resources

Course Descriptions, Standards, Teacher, Student and Parent Resources

- [5th Grade Mathematics Course Description](#)
- [Standards Coding Scheme](#)
- [5th Grade Mathematics Parent Guide](#)
- [5th Grade Mathematics Student Resources](#)

Assessment Assistance

- [FSA Portal](#)
- [Test Item Specifications](#)
- [Test Design Summary and Blueprint](#)
- [Achievement Levels and Descriptions](#)
- [Understanding FSA Reports](#)
- [FSA Fact Sheet for English Language Arts and Mathematics](#)
- [Calculator and Reference Sheet Policies](#)
- [Reference Sheets](#)

Instructional Resources

- [Elementary Mathematics Resources](#)
- [Elementary Standards Progressions](#)
- [Literacy for Learning in the Content Areas](#)
- [English Language Learners Assistance](#)
- [Khan Academy 5th Grade Math Mission](#)