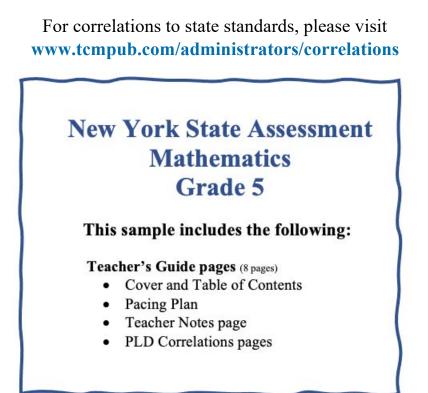Sample Pages from

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New York State Assessment Mathematics Grade 5

This sample includes the following:

Teacher's Guide pages (8 pages)
- Cover and Table of Contents
- Pacing Plan
- Teacher Notes page
- PLD Correlations pages

To **Create** a *World* in which
Children *Love* to *Learn!*

New York State Assessment

Teacher's Guide

Preparing for Next Generation Success in

Mathematics

Table of Contents

Pacing Plan

The following eight-week pacing plan is designed to provide students with standards-based mathematics practice every day. Lessons in the student book appear in this order. You should customize this pacing plan according to students' needs. Prepare your students in only 30 minutes a day.

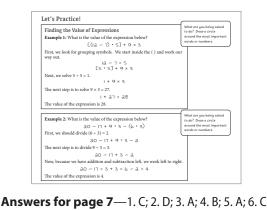|	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**
Operations and Number Sense	Order of Operations (5.OA.1)	Expressions (5.OA.2)	Patterns and Graphs (5.OA.3)	Place Value (5.NBT.1)	Exponents (5.NBT.2)
Number Sense and Base Ten	Powers of Ten (5.NBT.2)	Powers with Patterns (5.NBT.2)	Comparisons (5.NBT.3a–b)	Rounding! (5.NBT.4)	Dividing (5.NBT.6)
Base Ten and Fractions	Adding and Subtracting with Decimals (5.NBT.7)	Multiplying Decimals (5.NBT.7)	Adding and Subtracting Fractions (5.NBT.5)	Real-World Fractions (5.NF.2)	Benchmark Fractions (5.NF.2)
Fractions	Fractions as Division (5.NF.3)	Word Problems with Division (5.NF.3)	Multiply! (5.NF.4a)	Finding Area (5.NF.4b)	Estimating the Answer (5.NF.5a)
Fractions and Measurement	Larger, Smaller, or the Same? (5.NF.5b)	Real-World Math (5.NF.6; 5.NF.7c)	Dividing Fractions (5.NF.7a–b)	Converting Measurement (5.MD.1)	Line Plots (5.MD.2)
Measurement	Count It! (5.MD.3b)	Volume Using Cubes (5.MD.3a)	Cubic Units (5.MD.4)	Volume Formula (5.MD.5a)	Find the Volume or Missing Edge (5.MD.5b)
Geometry	Composite Figures (5.MD.5c)	Coordinates (5.G.1)	Real-World Coordinates (5.G.2)	2-D Figures (5.G.3)	Classifying Figures (5.G.4)
Practice Tests	Test 1	Test 1 Review	Test 2	Test 2 Review	Celebration

Order of Operations

This lesson guides students as they work on pages 6–7.

💡 Teacher Tip

Remind students they will be using the order of operations to solve mathematical expressions.

Explain each step in the first example. Review the difference between each of the grouping symbols and which ones to start with.

Let's Practice!

Finding the Value of Expressions

Example 1: What is the value of the expression below?
$$[(12 - 7) \cdot 5] + 9 \times 3$$
First, we look for grouping symbols. We start inside the ( ) and work our way out.
$$12 - 7 = 5$$
$$[5 \cdot 5] + 9 \times 3$$
Next, we solve 5 ⋅ 5 = 1.
$$1 + 9 \times 3$$
The next step is to solve 9 × 3 = 27.
$$1 + 27 = 28$$
The value of the expression is 28.

What are you being asked to do? Draw a circle around the most important words or numbers.

Example 2: What is the value of the expression below?
$$20 - 17 + 9 \div 3 - (6 \div 3)$$
First, we should divide (6 ÷ 3) = 2.
$$20 - 17 + 9 \div 3 - 2$$
The next step is to divide 9 ÷ 3 = 3.
$$20 - 17 + 3 - 2$$
Now, because we have addition and subtraction left, we work left to right.
$$20 - 17 + 3 + 3 = 6 - 2 = 4$$
The value of the expression is 4.

What are you being asked to do? Draw a circle around the most important words or numbers.

For this example, stress that after completing parentheses, students should work left to right.

✅ **Answers for page 7**—1. C; 2. D; 3. A; 4. B; 5. A; 6. C

For additional practice, have students solve the expression: $[(30 \div 5) + (12 - 8)] \times 2$. Students should find the answers to both sets of parentheses first and then solve $[6 + 4] \times 2$. Next, add 6 + 4 = 10, and then multiply 10 × 2 = 20. The value of the expression is 20.

Expressions

This lesson guides students as they work on pages 8–9.

💡 Teacher Tip

Remind students they will be writing expressions based on word problems.

Remind students that, in order to make sure we add first, we put the first part of the expression in parentheses.

Let's Practice!

Finding the Value of Expressions

Example 1: Marco has football practice for 2 hours in the morning and 3 hours in the afternoon 5 days each week. Write an expression that can be used to show how many hours Marco has football practice each week.

For one day, Marco practices 2 hours in the morning and 3 hours in the afternoon, so we can add those together. Because we want to add the numbers first, we can put it in parentheses: (2 + 3). Next, Marco practices 5 days every week, so after we find the sum, we can multiply the sum by 5. The expression is (2 + 3) × 5.

What are you being asked to do? Draw a circle around the most important words or numbers.

Example 2: Maria makes bowls on her pottery wheel. She makes 3 bowls on Monday, 2 bowls on Tuesday, and 4 bowls on Wednesday every week for 6 weeks. Write an expression that can be used to show how many bowls Maria makes after 6 weeks.

First, we need to find the sum of the bowls Maria makes each week. To find the sum, we add 3 + 2 + 4. Because we want to add the numbers first, we can put in parentheses: (3 + 2 + 4). Next, Maria makes the bowls for 6 weeks, so we multiply the sum by 6.

What are you being asked to do? Underline the most important words or numbers.

Again, remind students that operations in parentheses are calculated first.

✅ **Answers for page 9**—1. D; 2. A; 3. C; 4. C; 5. B; 6. A

If time permits, give students this additional problem: Myka makes bracelets for her friends. She made 8 on Wednesday, 10 on Thursday, and 12 on Friday. She gave each of her 3 friends the same number of bracelets. What expression can be used to find the number of bracelets each friend will receive? Students should realize they need to add (8 + 10 + 12), and then they need to divide by 3. The expression is (8 + 10 + 12) ÷ 3.

Performance Level Description Correlations

Each lesson strategy corresponds with a Performance Level Description (PLD) as outlined by the NYSED. The strategies in each lesson are written to align with the highest PLD for each standard.

Lesson Title	Standard	Performance Level Description
Order of Operations	5.OA.1	Apply the order of operations to evaluate numerical expressions with 2 or more types of groupings. These expressions could involve powers of 10.
Expressions	5.OA.2	Write and interpret numerical expressions that involve 2 or more types of groupings but not nested grouping. These expressions could involve powers of 10.
Patterns and Graphs	5.OA.3	Generate 2 numerical patterns with 2 rules. Identify and explain apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the 2 patterns, and graph the ordered pairs on a coordinate plane. Explain informally why this is so.
Place Value	5.NBT.1	Recognize, demonstrate, or explain that in any multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left.
Exponents	5.NBT.2	Use whole number exponents to denote powers of 10 and evaluate numerical expressions involving whole number exponents.
Powers of Ten	5.NBT.2	Analyze and explain patterns in the number of zeros of the product when multiplying a number by powers of 10.
Powers with Patterns	5.NBT.2	Use patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10 to evaluate numerical expressions.
Comparisons	5.NBT.3a–b	Read, write, and compare decimals to the thousandths using base-ten numerals, number names, expanded form, and inequality symbols (>, <, =).
Rounding!	5.NBT.4	Use place value understanding to round decimals to any place.
Dividing	5.NBT.6	Divide whole numbers with up to 4-digit dividends and 2-digit divisors using strategies based on place value, the properties of operations, and/or the relationships between multiplication and division. Identify relationships between different approaches. Check reasonableness of answers using a standard algorithm for multiplication.

Performance Level Description Correlations *(cont.)*

Lesson Title	Standard	Performance Level Description
Adding and Subtracting with Decimals	5.NBT.7	Add and subtract decimals involving tenths and/or hundredths using concrete models, drawings, or strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Apply these strategies to real-world context, relate the strategy to a written method, and explain the reasoning used.
Multiplying Decimals	5.NBT.7	Multiply and divide decimals involving tenths and/or hundredths using strategies based on place value, properties of operations, and/or the relationship between operations. Apply these strategies to a real-world context, relate the strategy to a written method, and explain the reasoning used.
Adding and Subtracting Fractions	5.NF.1	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 with like denominators.
Real-World Fractions	5.NF.2	Create and solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators.
Benchmark Fractions	5.NF.2	Use benchmark fractions $(0, \frac{1}{2}, 1)$ to estimate and assess the reasonableness of an answer.
Fractions as Division	5.NF.3	Interpret a fraction as division of the numerator by the denominator $(\frac{a}{b} = a \div b)$.
Word Problems with Division	5.NF.3	Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.
Multiply!	5.NF.4a	Multiply a fraction or a whole number by a fraction by interpreting the product $\frac{a}{b} \times q$ as part of a partition of q into b parts.
Finding Area	5.NF.4b	Create area models to illustrate the meaning of multiplying fractions and explain the model's relationship to both factors and the product.
Estimating the Answer	5.NF.5a	Interpret and explain multiplication as scaling (resizing) by 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 where one factor is a fraction or mixed number.

Performance Level Description Correlations *(cont.)*

Lesson Title	Standard	Performance Level Description
Larger, Smaller, or the Same?	5.NF.5b	Explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number. Explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number. Relate the principle of fraction equivalence $\frac{a}{b} = \frac{a}{b} \times \frac{n}{n}$ the effect of multiplying $\frac{a}{b}$ by 1.
Real-World Math	5.NF.6 5.NF.7c	Create and solve real-world problems by multiplying a mixed number by a fraction, a fraction by a fraction, and a whole number by a fraction; dividing a fraction by a whole number and a whole number by a fraction using visual fraction models and creating context and equations including rectangular areas; and interpreting the product and/or quotient.
Dividing Fractions	5.NF.7a–b	Divide a unit fraction by a whole number and a whole number by a unit fraction, and interpret the quotients to solve real-world problems.
Converting Measurement	5.MD.1	Convert among different-sized standard measurement units within a given measurement system when the conversion factor is given. Use these conversions to create and solve multi-step real-world problems.
Line Plots	5.MD.2	Gather data and use to complete a line plot that displays a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use grade appropriate fractional operations to solve problems involving information presented in line plots.
Count It!	5.MD.3b	Recognize that a solid figure that can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
Volume Using Cubes	5.MD.3a	Prove that the number of unit cubes packed in a rectangular prism is equivalent to multiplying the height by the area of the base.
Cubic Units	5.MD.4	Make as many rectangular prisms as possible with a volume of the specified cubic units including possible dimensions.
Volume Formula	5.MD.5a	Prove that the number of unit cubes packed in a rectangular prism is equivalent to multiplying the edge lengths, which is also equivalent to multiplying the height by the area of the base. Relate to volume formula and apply to real-world problems.

Performance Level Description Correlations *(cont.)*

Lesson Title	Standard	Performance Level Description
Find the Volume or Missing Edge	5.MD.5b	Create real-world and mathematical problems related to a missing edge length of a right rectangular prism. Solve problems to find the dimensions when given the total volume.
Composite Figures	5.MD.5c	Measure volumes of 2 or more composite figures composed of right rectangular prisms by adding the separate volumes and applying this technique to solve real-world problems.
Coordinates	5.G.1	Use axes to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line. Plot a set of coordinates on the first quadrant of the coordinate plane.
Real-World Coordinates	5.G.2	Create 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.
2-D Figures	5.G.3	Compare and contrast the attributes belonging to a category of 2-dimensional figures that also belongs to all subcategories of that category.
Classifying Figures	5.G.4	Classify 2-dimensional figures in a hierarchy based on properties.