Grade 5 Mathematics
School City of East Chicago

Grade 5 Mathematics

Units of Study

Appendices

Standards Breakdown

Green: Priority Standards **Pink:** Supporting Standards **Gray:** Additional Standards

STANDARDS		UNITS 1	2	3	4	5	6	7	8	9	10	11
Algebraic Thinking	1	Green										
Algebraic Thinking	2				Green							
Algebraic Thinking	3					Green						
Algebraic Thinking	4						Green					
Algebraic Thinking	5			Green								
Algebraic Thinking	6							Pink				
Algebraic Thinking	7							Gray				
Algebraic Thinking	8							Green				
Computation	1	Pink										
Computation	2	Pink										
Computation	3	Gray										
Computation	4				Green							
Computation	5					Pink						
Computation	6					Pink						
Computation	7						Pink					
Computation	8			Pink								
Computation	9			Gray								
Number Sense	1		Pink									
Number Sense	2		Green									
Number Sense	3		Pink									Pink
Number Sense	4		Pink									Pink
Number Sense	5		Pink									
Number Sense	6		Pink									
Geometry	1								Pink			
Geometry	2								Green			
Measurement	1											Pink
Measurement	2									Pink		
Measurement	3									Green		
Measurement	4									Pink		
Measurement	5									Green		
Measurement	6									Gray		
Data Analysis and Statistics	1										Gray	
Data Analysis and Statistics	2										Green	

General Description of the Unit	
Unit 1: Use multiplication and division to solve real-world problems Use equations to represent real-world problems Explain how the remainder of a division problem relates to its solution Multiply multi-digit whole numbers fluently Find whole-number quotients and remainders with up to 4-digit dividends and 2-digit divisors Use math reasoning to compare the size of a product to the size of one factor	
Priority Standards • **5.AT.1:** Solve real-world problems involving multiplication and division of whole numbers (e.g. by using equations to represent the problem). In division problems that involve a remainder, explain how the remainder affects the solution to the problem.	**Supporting Standards** • **5.C.1:** Multiply multi-digit whole numbers fluently using a standard algorithmic approach. • **5.C.2:** Find whole-number quotients and remainders 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. Describe the strategy and explain the reasoning used. **Additional Standards** • **5.C.3:** Compare 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.
Enduring Understandings • There are multiple methods that can be used to find products and quotients, and different strategies may be useful in different problems. Fluency with multiplication and division is the ability to select the best strategy, not the speed with which the problem is solved. • Estimation is an important step in a multiplication and division problem, and products and quotients should always be evaluated for reasonableness. • Multiplication and division are inverse operations and inverse operations can be used to check solutions.	**Essential Questions** • How are multiplication and division similar? How are they different? When do you use each in your lives at home? • How is estimation useful in multiplication? How is estimation useful in division? • What is your favorite strategy for solving a multiplication problem; why? What is your favorite strategy for solving a division problem; why?

Key Concepts	Related Concepts	Vocabulary
• I can solve real-world problems that involve multiplication and division of whole numbers. (5.AT.1) • I can use equations to represent real-world problems involving multiplication and division of whole numbers. (5.AT.1) • I can explain how the remainder of a real-world problem involving division impacts the solution of the problem. (5.AT.1)	• I can fluently multiply multi-digit whole numbers. (5.C.1) • I can select an appropriate algorithm to multiply multi-digit whole numbers. (5.C.1) • I can find whole-number quotients involving dividends up to four digits and divisors up to two digits. (5.C.2) • I can select and use an appropriate strategy including, place value, properties of operations, and the relationship between multiplication and division to solve division problems. (5.C.2) • I can describe and explain why I chose a given strategy to solve division problems. (5.C.2) • I can compare the size of a product to the size of one factor on the basis of the size of the other factor. (5.C.3) • I can compare the size of a product	• Algorithm • Dividend • Divisor • Factor • Place value • Product • Quotient • Remainder • Whole number

	to the size of the factors without performing the indicated multiplication. (5.C.3)	

Mathematical Processes
- PS.1 Make sense of problems and persevere in solving them.
- PS.2 Reason abstractly and quantitatively.
- PS.6 Attend to precision.

Resources

Proficiency Scales	Digital	Manipulatives
• 5.AT.1	• IDOE Examples/Tasks 5.AT.1 • IDOE Examples/Tasks 5.C.1 • IDOE Examples/Tasks 5.C.2 • IDOE Examples/Tasks 5.C.3 IREADY LESSONS Multiply Whole Numbers 5.C.1 Practice: Multiply Whole Numbers 5.C.1 Divide Whole Numbers 5.C.2, 6.C.1, 5.AT.1 Practice: Divide Whole Numbers 5.C.2, 6.C.1, 5.AT.1	• Long Division Calculator w/ Steps • Multiple Representation Math Fact Cards • Multiplication Calculator w/ Steps • Multiplication Chart • Partial Product Finder • Partial Quotient Finder

School Resources

Textbook	Formative Assessments
Lesson 5 Multiply Whole Numbers pgs. 40-47 (days) Practice bk. pgs. 47-52 Lesson 6 Divide Whole Numbers pgs. 48-55 (days) Lesson 12 136-145 (days) Practice pgs. 55-60	5.AT.1 ISM 5.AT.1 Form A Date:

General Description of the Unit

Unit 2: Explain how fractions can be parts of a whole, parts of a sets, and division of whole numbers
Order fractions, mixed numbers, decimals to thousandths on a number line
Use >, =, and < to compare fractions and decimals
Round decimals to thousandths to any given place value
Use pictures and diagrams to model percent as part of a hundred

Priority Standards

- **5.NS.2:** Explain different interpretations of fractions, including: as parts of a whole, parts of a set, and division of whole numbers by whole numbers.

Supporting Standards

- **5.NS.1:** Use a number line to compare and order fractions, mixed numbers, and decimals to thousandths. Write the results using >, =, and < symbols.
- **5.NS.3:** Recognize the relationship 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 inversely, a digit in one place represents 1/10 of what it represents in the place to its left.
- **5.NS.4:** 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.
- **5.NS.5:** Use place value understanding to round decimal numbers up to thousandths to any given place value.
- **5.NS.6:** Understand, interpret, and model percents as part of a hundred (e.g. by using pictures, diagrams, and other visual models).

Enduring Understandings

- Numbers can be represented in multiple ways.
- There is a direct relationship between fractions, whole numbers, mixed numbers, decimals, and percents.
- Percents are ratios that represent parts per 100.

Essential Questions

- How could you compare ¾ and .70?
- When might you need to compare fractions and decimals in a real-world situation?
- Do you prefer working with fractions or decimals; why?
- Why is rounding an important skill with both whole numbers and decimals?

Key Concepts

- I can interpret fractions as parts of a whole. (5.NS.2)
- I can interpret fractions as parts of a set. (5.NS.2)
- I can relate fractions to division problems of one being divided by another whole number. (5.NS.2)

Related Concepts

- I can use a number line to order fractions, decimals, and mixed numbers. (5.NS.1)
- I can use a number line to compare fractions, decimals, and mixed numbers. (5.NS.1)
- I can use greater than, less than, and equal to symbols to record the results of comparisons of fractions, decimals, and mixed numbers. (5.NS.1)
- I can explain that any digit is 10 times larger in value than the digit to its right. (5.NS.3)
- I can explain that any digit is 1/10 the value than any digit to its left. (5.NS.3)
- I can show that when numbers are multiplied by powers of 10, there is a pattern in the number of zeros in

Vocabulary

- Decimal point
- Mixed number
- Multiple
- Number line
- Parts of a set
- Parts of a whole
- Percent
- Place value
- Power of 10
- Rounding
- Thousandths
- Whole number

	the resulting product. (5.NS.4) • I can show that when numbers are multiplied the decimal point does not move, rather, the number increases in size. (5.NS.4) • I can show that when numbers are divided the decimal point does not move, rather, the number decreases in size. (5.NS.4) • I can round decimal numbers up to thousandths, to any given place value. (5.NS.5) • I can model percents as part of 100 using pictures, diagrams, and other visual models. (5.NS.6) • I can interpret percents as part of 100 using pictures, diagrams, and other visual models. (5.NS.6)	

Mathematical Processes

- PS.2 Reason abstractly and quantitatively.
- PS.4 Model with mathematics.
- PS.5 Use appropriate tools strategically.

Resources

Proficiency Scales	Digital	Manipulatives
• **5.NS.2**	• **IDOE Examples/Tasks 5.NS.2** • **IDOE Examples/Tasks 5.NS.1** • **IDOE Examples/Tasks 5.NS.3** • **IDOE Examples/Tasks 5.NS.4** • **IDOE Examples/Tasks 5.NS.5** • **IDOE Examples/Tasks 5.NS.6** IREADY LESSONS 5.NS.5 Round Decimals 5.NS.5 Practice: Round Decimals Read and Write Decimals Compare Decimals Understand Place Value 5.NS.3 Whole Numbers and Powers of Ten 5.NS.4 Multiply and Divide Decimals by Powers of Ten 5.NS.4 Practice: Decimals and Powers of Ten 5.NS.4	• **Decimal Chart** • **Fraction Board** • **Fraction Strips** • **Number Line** • **Percent, Fraction, Decimal** • **Percentage Strips**

School Resources	
Textbook Lesson 1 Understand Place Value pgs. 2-7 (days) Practice pgs. 3-8 Lesson 2 Powers of 10 pgs. 8-13 (days) Practice pages 11-16 Unit 12: Fractions as Division Pgs. 118-125 (days) Practice pages 129-134 Lesson 3 Read and Writing decimals pages 14-23 (days) Practice pages 19-26 Lesson 4A Rounding Decimals pgs. 24-33 (days) Practice Rounding Decimals pgs.29-36 Lesson 4B Understanding Percent Pages 34-39 (days) Practice pages 39-44	**Formative Assessments** 5.NS.2 ISM 5.NS.2 Form A Date:

General Description of the Unit	
Unit 3: Solve real-world problems using all 4 operations with decimals to hundredths (include money using decimal notation) Represent the above problems using equations, models, or drawing Explain the strategies used to solve problems Evaluate expressions with parentheses or brackets	
Priority Standards • **5.AT.5:** Solve real-world problems involving addition, subtraction, multiplication, and division with decimals to hundredths, including problems that involve money in decimal notation (e.g. by using equations, models or drawings and strategies based on place value or properties of operations to represent the problem).	**Supporting Standards** • **5.C.8:** Add, subtract, multiply, and divide decimals to hundredths, using models or drawings and strategies based on place value or the properties of operations. Describe the strategy and explain the reasoning. **Additional Standards** • **5.C.9:** Evaluate expressions with parentheses or brackets involving whole numbers using the commutative properties of addition and multiplication, associative properties of addition and multiplication, and distributive property.
Enduring Understandings • Adding and subtracting decimals is much like adding and subtracting whole numbers. Aligning place-values in computations is key with decimal addition and subtraction, as it is with whole number addition and subtraction. • Multiplying decimals is similar to multiplying whole numbers, and the placement of the decimal in the product is determined by the placement of the decimal in the factors. Estimation is also important for verifying products. • Dividing with decimals is similar to dividing whole numbers and the placement of the decimal in the quotient is determined by the placement in the dividend and divisor. Estimation is also important for verifying quotients. • Place-value can be used to easily multiply and divide decimals by powers of ten. • Equations and expressions that include parentheses and/or brackets indicate an operation that must be performed first. Symbols like this help us to read a math equation, just like there are rules for reading words.	**Essential Questions** • How are decimal addition and subtraction similar to whole number addition and subtraction? How are they different? When might you use decimal addition and subtraction in your life? • How are decimal multiplication and whole number multiplication similar? How are they different? When might you use decimal multiplication in your life? • How are decimal division and whole number division similar? How are they different? When might you use decimal division in your life?

Key Concepts	**Related Concepts**	**Vocabulary**
• I can solve real-world problems that involve adding, subtracting, multiplying and dividing numbers with decimals to the hundredths. (5.AT.5) • I can solve real-world problems that involve computation with money in decimal notation using equations to represent the problem. (5.AT.5) • I can solve real-world problems that involve computation with money in decimal notation using models or drawings to represent the problem. (5.AT.5)	• I can add, subtract, multiply, and divide decimals to hundredths using models or drawings. (5.C.8) • I can add, subtract, multiply, and divide decimals to hundredths using strategies based on place value or properties of operations. (5.C.8) • I can explain the strategy and method I used to add, subtract, multiply and divide decimals to hundredths, and why I chose that specific strategy. (5.C.8) • I can use the commutative	• Associative Property of Addition • Associative Property of Multiplication • Brackets • Commutative Property of Addition • Commutative Property of Multiplication • Distributive Property • Parentheses • Place value

• I can solve real-world problems that involve computation with money in decimal notation using strategies based on place value or properties of operations to represent the problem. (5.AT.5)	properties of addition and multiplication to evaluate expressions involving whole numbers. (5.C.9) • I can use the associative properties of addition and multiplication to evaluate expressions involving whole numbers. (5.C.9) • I can use the distributive property to evaluate expressions involving whole numbers. (5.C.9)	

Mathematical Processes

- PS.1 Make sense of problems and persevere in solving them.
- PS.3 Construct viable arguments and critique the reasoning of others.
- PS.7 Look for and make use of structure.

Resources

Proficiency Scales	Digital	Manipulatives
• 5.AT.5	• IDOE Examples/Tasks 5.AT.5 • IDOE Examples/Tasks 5.C.8 • IDOE Examples/Tasks 5.C.9 IREADY LESSONS Add and Subtract Decimals 5.AT.5, 5.C.8 Practice: Add Decimals 5.C.8 Practice: Add and Subtract Decimals 5.C.8 Multiply Decimals 5.AT.5, 5.C.8 Divide Decimals 5.AT.5, 5.C.8 Practice: Divide Decimals 5.C.8	• Addition Calculator w/ Steps • Interactive Decimal Chart • Long Division Calculator w/ Steps • Money and Decimals • Multiplication Calculator w/ Steps • Subtraction Calculator w/ Steps

School Resources

Textbook	Formative Assessments
Lesson 7 Add and Subtract Decimals pages 56-65 (days) Practice pages 63-70 Lesson 8 Multiply Decimals Pgs. 65-75 (days) Practice pages 73-80 Lesson 9 Divide Decimals pgs. 76-87(days) Practice pages 83-92	5.AT.5 ISM 5.AT.5 Form A Date:

<table>
<tr><td colspan="2">General Description of the Unit
Unit 4: Add and subtract fractions with unlike denominators
Solve real-world problems involving addition/subtraction of fractions
Use fraction models and equations to represent the above problems
Use benchmark fractions to estimate solutions and to assess whether an answer is reasonable</td></tr>
<tr><td>Priority Standards
• 5.AT.2: Solve real-world problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators (e.g., by using visual fraction models and equations to represent the problem). Use benchmark fractions and number sense of fractions to estimate mentally and assess whether the answer is reasonable.
• 5.C.4: Add and subtract fractions with unlike denominators, including mixed numbers.</td><td>Supporting Standards
• N/A</td></tr>
<tr><td>Enduring Understandings
• Many real-world situations require fraction addition and subtraction. It is important to understand the context of the problem to determine which operation(s) is needed and if the solution is reasonable.
• Common denominators are important when adding and subtracting fractions and mixed numbers, and equivalent fractions can be used to create common denominators.
• Fraction number sense should be used to estimate fraction computations and determine reasonableness of sums and differences.
• It may be necessary to regroup a whole number and convert between improper fractions and mixed numbers to add and subtract mixed numbers.</td><td>Essential Questions
• Why is it important to know how to add and subtraction fractions? What examples can you think of where you would need to add and subtract fractions in your life?
• Why are common denominators important in fraction addition and subtraction?
• How do you know if a sum or difference you've found is reasonable? How can you check your solutions?</td></tr>
</table>

<table>
<tr><td>Key Concepts
• I can solve real-world problems that involve adding and subtracting fractions referring to the same whole and with unlike denominators. (5.AT.2)
• I can use visual fraction models and equations to represent real-world problems involving addition and subtraction of fractions referring to the same whole and with unlike denominators. (5.AT.2)
• I can use fraction benchmarks to help me mentally estimate sums and differences and to assess whether my answers are reasonable. (5.AT.2)
• I can use number sense of fractions to estimate sums and differences mentally and to assess whether my answers are reasonable. (5.AT.2)
• I can add fractions with unlike denominators. (5.C.4)
• I can subtract fractions with unlike denominators. (5.C.4)
• I can add mixed numbers with</td><td>Related Concepts
• N/A</td><td>Vocabulary
• Benchmarks
• Denominator
• Fraction
• Fraction model
• Mixed number
• Numerator</td></tr>
</table>

unlike denominators. (5.C.4) • I can subtract mixed numbers with unlike denominators. (5.C.4)		
Mathematical Processes • PS.2 Reason abstractly and quantitatively. • PS.4 Model with mathematics.		
Resources		
Proficiency Scales • **5.AT.2** • **5.C.4**	**Digital** • **IDOE Examples/Tasks 5.AT.2** • **IDOE Examples/Tasks 5.C.4** IREADY LESSONS Add and Subtract Fractions 5.AT.2, 5.C.4 Add and Subtract Fractions in Word Problems 5.AT.2, 5.C.4	**Manipulatives** • **Fraction Strips** • **Fractions** • **Mixed Numbers Calculator w/ Steps** • **Online Improper Fraction and Mixed Number Builder**

School Resources	
Textbook Lesson 10: Add and Subtract fractions pages 100-109 (days) Practice pgs. 111-118 Lesson 11: Add and Subtract Fractions in word problems pages 110-117 (days) Practice pages 121-126	**Formative Assessments** 5.AT.2 ISM 5.AT.2 Form A Date: *Note- use classroom assessments to assess 5.C.4 for computational aspects.

General Description of the Unit

Unit 5: Solve real-world problems involving multiplication of fractions and mixed numbers
Use visual fraction models and equations to represent the above
Explain why the product of a positive number by a fraction greater than one will be greater than the given number
Explain why the product of a fraction less than one results in a product less than the given number

Priority Standards	Supporting Standards
• **5.AT.3:** Solve real-world problems involving multiplication of fractions, including mixed numbers (e.g., by using visual fraction models and equations to represent the problem).	• **5.C.5:** Use visual fraction models and numbers to multiply a fraction by a fraction or a whole number. • **5.C.6:** Explain why multiplying a positive number by a fraction greater than one results in a product greater than the given number. Explain why multiplying a positive number by a fraction less than 1 results in a product smaller than the given number. Relate the principle of fraction equivalence, a/b = (n x a)/(n x b), to the effect of multiplying a/b by one.
Enduring Understandings	**Essential Questions**
• Many real-world situations require fraction multiplication. It is important to understand the context of the problem and use number sense to determine reasonableness of solutions. • Visual fraction models can provide context for calculations taking place in equations involving fractions. • It may be helpful to simplify fractions before multiplying them. • When multiplying mixed numbers, you cannot just multiply the whole numbers and multiple the fractions. This would result in partial products. It may be necessary to convert between mixed numbers and improper fractions. • If a fraction, greater than one is multiplied by a number greater than one, the product will be larger than the original number. If a fraction, less than one is multiplied by a number greater than one, the product will be less than the original number.	• What are real-world examples of when you would need to multiply fractions and mixed numbers? • What are common mistakes to avoid when multiplying fractions? • How can you explain what is happening when a fraction is multiplied by a whole number, or when a fraction is multiplied by another fraction?

Key Concepts	Related Concepts	Vocabulary
• I can solve real-world problems that involve multiplying fractions including mixed numbers using visual fraction models. (5.AT.3) • I can solve real-world problems that involve multiplying fractions including mixed numbers using equations to represent the problem. (5.AT.3)	• I can use visual fraction models to multiply a fraction by a fraction or whole number. (5.C.5) • I can use numbers to multiply a fraction by a fraction or whole number. (5.C.5) • I can explain why multiplying a positive number by a fraction greater than 1 creates a product greater in value than the given number. (5.C.6) • I can explain why multiplying a positive number by a fraction less than 1 produces a product smaller than the given number. (5.C.6) • I can explore the concept of fraction equivalence. (5.C.6) • I can relate fraction equivalence to the effect of multiplying a fraction	• Equivalent • Fraction • Fraction model • Mixed number • Model • Product • Whole number

	by 1. (5.C.6)	

Mathematical Processes
- PS.3 Construct viable arguments and critique the reasoning of others.
- PS.4 Model with mathematics.
- PS.8 Look for and express regularity in repeated reasoning.

Resources

Proficiency Scales	Digital	Manipulatives
• 5.AT.3	• IDOE Examples/Tasks 5.AT.3 • IDOE Examples/Tasks 5.C.5 • IDOE Examples/Tasks 5.C.6 IREADY LESSONS Understand Products of Fractions 5.C.5 Understand Multiplication as Scaling 5.C.6	• Fraction Board • Fraction Strips • Mixed Numbers Calculator w/ Steps • Percent, Fraction, Decimals • Visual Fractions

School Resources

Textbook	Formative Assessments
Lesson 13 Understand products of fractions pages 126-131 (days) Practice pages 137-142 Lesson 14; Multiply fractions using an area model pages 132-141 (days) Practice pages 145-152 Lesson 16: Multiply fractions in word problems pages 148-157 (days) Practice pages 163-170 Lesson 15Understand Multiply as Scaling pages 142-147 (days) Practice pages 155-160	5.AT.3 ISM 5.AT.3 Form A Date:

General Description of the Unit

Unit 6: Use visual fraction models to divide a unit fraction by a whole number (⅓ ÷ 9)
Use visual models to divide a whole number by a unit fraction (8 ÷ ¼)
Solve real-world problems involving division of unit fractions by whole numbers
Solve real-world problems involving division of whole numbers by unit fractions

Priority Standards	Supporting Standards
• **5.AT.4:** 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).	• **5.C.7:** Use visual fraction models and numbers to divide a unit fraction by a non-zero whole number and to divide a whole number by a unit fraction.
Enduring Understandings	**Essential Questions**
• Many real-world situations require division of unit fractions by whole numbers and whole number by unit fractions. It is important to understand the context of the problem and use number sense to determine reasonableness of solutions. • Whole numbers can be divided into unit fraction partitions using visual fraction models and numerical computations. • Unit fractions can be divided by whole numbers using visual fraction models and numerical computations. • Number sense can be used to estimate quotients in fraction division.	• What are real-world situations where you would need to divide a unit fraction by a whole number? A whole number by a unit fraction? • How can you compare the value of the dividend, divisor, and quotient when dividing a whole number by a unit fraction? • What is the role of multiplication in fraction division? • Do you prefer visual models or numerical computations to solve problems involving fraction division; why? When might you need to use these skills in your life?

Key Concepts	Related Concepts	Vocabulary
• I can solve real-world problems that involve dividing unit fractions by non-zero whole numbers using visual fraction models. (5.AT.4) • I can solve real-world problems that involve dividing unit fractions by non-zero whole numbers using equations to represent the problem. (5.AT.4)	• I can use visual fraction models to divide a unit fraction by a non-zero whole number. (5.C.7) • I can use numbers to divide a unit fraction by a non-zero whole number. (5.C.7) • I can use visual fraction models to divide a non-zero whole number by a unit fraction. (5.C.7) • I can use numbers to divide a non-zero whole number by a unit fraction. (5.C.7)	• Fraction model • Reciprocal • Unit fraction • Whole number

Mathematical Processes

- PS.3 Construct viable arguments and critique the reasoning of others.
- PS.4 Model with mathematics.
- PS.8 Look for and express regularity in repeated reasoning.

Resources

Proficiency Scales	Digital	Manipulatives
• 5.AT.4	• IDOE Examples/Tasks 5.AT.4 • IDOE Examples/Tasks 5.C.7 IREADY LESSONS Understand Division with Unit Fractions 5.AT.4, 5.C.7 Divide Unit Fractions in Word Problems 5.AT.4, 5.C.7	• Fraction Strips • Fractions • Mixed Numbers Calculator w/ Steps • Online Improper Fraction and Mixed Number Builder

School Resources	
Textbook Lesson 17: Understand division with unit fractions pages 158-163 (days) Practice pages 173-178 Lesson 18: Divide Unit fractions in Word Problems pages 164-173 (days) Practice pages 181-188	**Formative Assessments** 5.AT.4 ISM 5.AT.4 Form A Date:

General Description of the Unit

Unit 7: Graph points on a coordinate plane
Explain how the coordinates relate to each axis (x-axis and y-axis)
Represent real-world problems and equations by graphing ordered pairs in the first quadrant
Interpret coordinate values of points in the context of the situation
Define and use up to two variables to write linear expressions that arise from real-world problems
Evaluate the above for given values

Priority Standards

- **5.AT.8:** Define and use up to two variables to write linear expressions that arise from real-world problems, and evaluate them for given values.

Supporting Standards

- **5.AT.6:** Graph points with whole number coordinates on a coordinate plane. Explain how the coordinates relate the point as the distance from the origin on each 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).

Additional Standards

- **5.AT.7:** Represent real-world problems and equations by graphing ordered pairs in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Enduring Understandings

- Expressions can be written using variables, often in the form of letters, in place of numbers whose value can be discovered by evaluating the expression.
- Coordinates are graphed on a coordinate plane. The first coordinate represents your x-value, and the second coordinate represents your y-value.

Essential Questions

- What are variables? How are they used to represent a relationship between numbers?
- What does it mean to evaluate an expression?
- How would you explain to someone how to graph on a coordinate plane? When might it be useful to graph on a coordinate plane?
- Do all points on a coordinate plane have a positive x coordinate and a positive y coordinate?
- What is the relationship between a coordinate plane and a number line?

Key Concepts

- I can use up to two variables to write linear expressions. (5.AT.8)
- I can define the variables to use when writing expressions that arise from real-world problems. (5.AT.8)
- I can evaluate linear expressions in real-world problems for given values. (5.AT.8)

Related Concepts

- I can graph points with whole number coordinates on a coordinate plane. (5.AT.6)
- I can show how each coordinate is the distance from the origin on each axis. (5.AT.6)
- I can identify which coordinate corresponds with which axis. (5.AT.6)
- I can represent real-world problems by graphing ordered pairs in the first quadrant. (5.AT.7)
- I can represent real-world equations by graphing ordered pairs in the first quadrant. (5.AT.7)
- I can interpret the values of the coordinates of a point in context. (5.AT.7)

Vocabulary

- Axis
- Coordinate
- Coordinate plane
- Evaluate
- Linear expression
- Ordered pair
- Quadrant
- Variable
- x-axis
- y- axis

Mathematical Processes

- PS.2 Reason abstractly and quantitatively.
- PS.3 Construct viable arguments and critique the reasoning of others.
- PS.8 Look for and express regularity in repeated reasoning.

Resources		
Proficiency Scales • 5.AT.8	**Digital** • IDOE Examples/Tasks 5.AT.8 • IDOE Examples/Tasks 5.AT.6 • IDOE Examples/Tasks 5.AT.7 IREADY LESSONS Understand the Coordinate Plane 5.AT.7, 5.AT.8 Analyze Patterns and Relationships 5.AT.6 Practice: Analyze Patterns and Relationships 5.AT.6	**Manipulatives** • Desmos • Geogebra Coordinate Plane • Graphing Coordinates

School Resources	
Textbook Lesson 19: Evaluate and Write Expressions pages 186-195 (days) Practice pages 203-210 Lesson 20 Analyze Patterns pages 196-205 (days) Practice pages 213-220 Lesson 28: Understand the Coordinate Plane pgs. 296-301 (days) Practice pgs. 321-326 Lesson 29 Graph points in the Coordinate Plane Instruction pgs. 302-311 (days) Practice pages 329-336	**Formative Assessments** 5.AT.8 ISM 5.AT.8 Form A Date:

General Description of the Unit

Unit 8: Identify and classify polygons based on angles and sides
Classify polygons in a hierarchy based on properties
Use appropriate tools to draw circles and triangles (right, acute, obtuse)
Understand the relationship between radius and diameter

Priority Standards	Supporting Standards
• **5.G.2:** Identify and classify polygons including quadrilaterals, pentagons, hexagons, and triangles (equilateral, isosceles, scalene, right, acute and obtuse) based on angle measures and sides. Classify polygons in a hierarchy based on properties.	• **5.G.1:** Identify, describe, and draw triangles (right, acute, obtuse) and circles using appropriate tools (e.g., ruler or straightedge, compass and technology). Understand the relationship between radius and diameter.
Enduring Understandings	**Essential Questions**
• Two-dimensional shapes can be classified based on their properties such as number of sides and angle measures. • Triangles can be classified based on their angle measures into categories such as right, acute, and obtuse. • Triangles can be classified by their side lengths as either equilateral, isosceles, or scalene. • Radius and diameter are related and represent measurements of a circle.	• How are radius and diameter related? • What are different ways to classify a triangle?

Key Concepts	Related Concepts	Vocabulary
• I can identify polygons such as quadrilaterals, pentagons, and hexagons based on their properties. (5.G.2) • I can classify polygons such as quadrilaterals, pentagons, and hexagons based on their properties. (5.G.2) • I can identify and classify triangles into the following categories: equilateral, isosceles, scalene, right, acute, and obtuse based on their angle measures and sides. (5.G.2) • I can classify polygons in hierarchies based on their properties. (5.G.2)	• I can identify and describe right, acute, and obtuse triangles. (5.G.1) • I can identify and describe circles. (5.G.1) • I can draw right, acute, and obtuse triangles. (5.G.1) • I can use both appropriate tools and technology to draw triangles. (5.G.1) • I can draw circles using appropriate tools and technology. (5.G.1) • I can explain the relationship between the radius and diameter of a circle. (5.G.1)	• Acute triangle • Compass • Diameter • Drawing triangle • Equilateral triangle • Hexagon • Isosceles triangle • Obtuse triangle • Pentagon • Polygons • Quadrilateral • Radius • Right triangle • Scalene triangle • Straightedge • Triangle

Mathematical Processes

- PS.4 Model with mathematics.
- PS.5 Use appropriate tools strategically.
- PS.7 Look for and make use of structure.

Resources

Proficiency Scales	Digital	Manipulatives
• 5.G.2	• IDOE Examples/Tasks 5.G.2 • IDOE Examples/Tasks 5.G.1 IREADY LESSONS Identify Two-Dimensional Figures 5.G.2, 5.G.1 Classify Two-Dimensional Figures 5.G.2, 5.G.1	• digital protractor • quadrilaterals • Geoboard • Basic Angles • Geogebra

School Resources	
Textbook Lesson 30 Classify 2 dimensional figures pages 312-319 (days) Practice pages 339-344 Lesson 31A Understand the properties of 2 dimensional figures pgs. 320-325 (days) Practice pages 347-352 Please note- circles, radius, and diameter will need to be supplemented, there are no Ready or I-Ready lessons for this topic in 5th grade.	**Formative Assessments** 5.G.2 ISM 5.G.2 Form A Date:

General Description of the Unit

Unit 9: Develop and use formulas to find the areas of triangles, parallelograms and trapezoids
Solve real-world problems that involve perimeter and area of triangles, parallelograms and trapezoids
Find the volumes of right rectangular prisms using whole number measurements using formulas:
V= l x w x h and V = B x h
Find the area of a rectangle with fractional side lengths by modeling with unit squares
Show that the area of the above could be found by multiplying the side lengths
Multiply fractional side lengths to find areas of rectangles
Use cubes to find the volume of right rectangular prisms
Show that multiplying the height by the area of the base is a quicker way to find volume

Priority Standards

- **5.M.3:** Develop and use formulas for the area of triangles, parallelograms and trapezoids. Solve real-world and other mathematical problems that involve perimeter and area of triangles, parallelograms and trapezoids, using appropriate units for measures.
- **5.M.5:** Apply the formulas V = l × w × h and V = B × h for right rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve real-world problems and other mathematical problems.

Supporting Standards

- **5.M.2:** Find the area of a rectangle with fractional side lengths by modeling 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.
- **5.M.4:** 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 or multiplying the height by the area of the base.

Additional Standards

- **5.M.6:** 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 and other mathematical problems.

Enduring Understandings

- Formulas to find perimeter and area of shapes can be Googled and being able to choose, interpret, and use a formula is more important than remembering the specific formula.
- Finding the areas of rectangles, triangles, parallelograms, and trapezoids are related to one another, and partitioning shapes with visual models can demonstrate these similarities.
- Solving expressions, understanding variables, order of operations, and the commutative and associative properties are all important skills for interpreting and using formulas.
- The volume of rectangular prisms can be found by using the formula V = l x w x h or V = b x h, or by filling it completely with unit cubes.
- Rectangular prisms with different dimensions can have the same volume.
- The area of a rectangle with fractional side lengths can be found by multiplying the side lengths. If given area and a side length, division can be used to find a missing side length.
- Volume of complex rectangular prisms is similar to area of complex figures. You can find the volume of sections and add those sections together.

Essential Questions

- How is finding the area of a rectangle, triangle, parallelogram and trapezoid similar? How are they different? Which shapes are most closely related? Most different?
- If you could only remember how to find the area of two different shapes, which two would you choose and why?
- Do you think you will need to use concepts of perimeter or area more in your life? Why? What are real-world examples of when you might need to find these?
- What are real-world examples of when you would need to find the volume of something?
- When might you need to find area with fractional side lengths in real life?
- How are the formulas V = l x w x h or V = b x h similar? How are they different?
- How are area and volume similar? How are they different?

Key Concepts	Related Concepts	Vocabulary

• I can develop formulas through investigation for the area of triangles. (5.M.3) • I can develop formulas through investigation for the area of parallelograms. (5.M.3) • I can develop formulas through investigation for the area of trapezoids. (5.M.3) • I can use a formula to find the area of triangles. (5.M.3) • I can use a formula to find the area of parallelograms. (5.M.3) • I can use a formula to find the area of trapezoids. (5.M.3) • I can solve real-world problems that involve the perimeter and area of triangles, parallelograms, and trapezoids. (5.M.3) • I can identify and use appropriate units when finding the perimeter and area of triangles, parallelograms, and trapezoids. (5.M.3) • I can use the formulas V = l × w × h and V = B × h to find the volume of right rectangular prisms with whole number edge lengths. (5.M.5) • I can solve real-world problems that involve finding the volume of rectangular prisms with whole number edge lengths. (5.M.5)	• I can find the area of rectangles with fractional side lengths using unit squares. (5.M.2) • I can find the area of rectangles with fractional side lengths by multiplying the side lengths. (5.M.2) • I can show that the area of a rectangle found by using unit squares is equal to the area of a rectangle found by multiplying the side lengths. (5.M.2) • I can represent fraction products as rectangular areas. (5.M.2) • I can use unit cubes to find the volume of a right rectangular prism with whole number side lengths. (5.M.4) • I can show how the volume of a prism filled with unit cubes is the same as if found by multiplying the height by the area of the base. (5.M.4) • I can find the volume of solid figures composed of two non-overlapping right rectangular prisms by finding the sum of the volumes of the individual prisms. (5.M.6) • I can decompose solid figures made up of two right rectangular prisms and find their individual volume. (5.M.6) • I can solve real-world problems that involve solid figures made up of two right rectangular prisms. (5.M.6)	• Area • Area formula • Base • Edge • Parallelogram • Perimeter • Rectangular prism • Trapezoid • Triangle • Unit cube • Unit squares • Volume • Volume formula

Mathematical Processes

- PS.2 Reason abstractly and quantitatively.
- PS.6 Attend to precision.
- PS.7 Look for and make use of structure.

Resources

Proficiency Scales	**Digital**	**Manipulatives**
• 5.M.3 • 5.M.5	• IDOE Examples/Tasks 5.M.3 • IDOE Examples/Tasks 5.M.5 • IDOE Examples/Tasks 5.M.2 • IDOE Examples/Tasks 5.M.4 • IDOE Examples/Tasks 5.M.6 IREADY LESSONS Understand and Measure Volume 5.M.4, 5.M.5 Practice Measure Volume 5.M.4, 5.M.5 Measure Volume Using Formulas 5.M.3, 5.M.4, 5.M.5 Practice Volume of Rectangular Prisms 5.M.4, 5.M.5 Practice: Volume of Composite Figures 5.M.4, 5.M.5	• Area and Perimeter Explorer • Cubes • Mixed Numbers Calculator • Volume

School Resources

Textbook	Formative Assessments
Lesson 24 Understand Volume pgs. 254-259 (days) Practice pgs. 275-80 Lesson 25: Finding Volume using cubes Pages 260-67 (days) Practice pages 283-88 Lesson 26: Finding Volume using formulas pages 268-275 (days) Practice pages 291-296 Lesson 31B: Finding the Area and Perimeter of Triangles, Parallelograms and Trapezoids Pages 326-337 (days) Practice pages 355-364 Lesson 27 Find Volume of composite figures pages 276-283 (days) Practice pages 299-304	5.M.3 5.M.5 ISM 5.M.5 Form A Date:

General Description of the Unit

Unit 10: Ask questions that can be addressed with data
Make predictions about data
Use observations, surveys and experiments to collect, represent, and interpret data
Use tables, line plots, bar and line graphs to display data
Recognize the differences in representing categorical and numerical data
Understand and use measures of center (mean, median and mode) to describe a data set

Priority Standards	Supporting Standards
• **5.DS.2:** Understand and use measures of center (mean and median) and frequency (mode), to describe a data set.	• **5.DS.1:** Formulate questions that can be addressed with data and make predictions about the data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, bar graphs, and line graphs. Recognize the differences in representing categorical and numerical data.

Enduring Understandings	Essential Questions
• Mean, median, and mode can be used to represent and describe a data set with one numerical value. These are often different values and not all data sets have a mode. • Measures of center are often referred to as "averages" and they can be used strategically to make a point about a data set to different audiences.	• If we were to look at all of the test scores on the last math test, how could we choose one number to communicate how the class did on the test? • How does the audience impact which average someone might choose? • How do outliers affect averages? • When would you collect data using a survey? An experiment? Observations? How do these methods differ? In what ways are they similar? Can you collect data using multiple methods? Would the data collected be the same and share the same information?

Key Concepts	Related Concepts	Vocabulary
• I can find the mean of given data set in order to describe it. (5.DS.2) • I can find the median of a given data set in order to describe it. (5.DS.2) • I can find the mode of a given data set in order to describe it. (5.DS.2) • I can recognize the difference between the mean, median, and mode of a data set. (5.DS.2)	• I can create questions that can be answered with data. (5.DS.1) • I can make predictions about data collected from a question. (5.DS.1) • I can use observations and surveys to collect data. (5.DS.1) • I can use experiments to collect data. (5.DS.1) • I can represent data using tables, including frequency tables. (5.DS.1) • I can represent data using line plots and line graphs. (5.DS.1) • I can represent data using bar graphs. (5.DS.1) • I can explain the difference between categorical and numerical data and which representation is appropriate for each. (5.DS.1)	• Bar graph • Data • Frequency • Frequency table • Hypothesis • Line graph • Line plot • Mean • Measures of center • Median • Mode • Observe • Prediction • Survey

Mathematical Processes

- PS.1 Make sense of problems and persevere in solving them.
- PS.6 Attend to precision.

Resources

Proficiency Scales	Digital	Manipulatives
• 5.DS.2	• IDOE Examples/Tasks 5.DS.2 • IDOE Examples/Tasks 5.DS.1	• Averages Activity • Dice and Spinners • Graph Creator •

School Resources	
Textbook Lesson 23B Understand Mean, Median, and Mode Pages 248-253 (days) Practice pages 267-272 Lesson 23A Make line plots and interpret data pages 238-247 (days) Practice pages 257-264	**Formative Assessments** 5.DS.2 ISM 5.DS.2 Form A Date:

General Description of the Unit

Unit 11: Convert measurement units to different units in the metric system (cm to meters, grams to kilos, etc.)
Convert measurement units to different units in the customary system (inches to feet, ounces to pounds, etc.)
Use the above conversions to solve multi-step real-world problems

Priority Standards	Supporting Standards
• N/A	• **5.M.1:** Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step real-world problems. • **5.NS.3:** Recognize the relationship 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 inversely, a digit in one place represents 1/10 of what it represents in the place to its left.* • **5.NS.4:** 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.* ***Note-blue text indicates this standard has been taught in a previous unit and is repeated as a supporting standard in this unit.**

Enduring Understandings	Essential Questions
• You can use formulas and conversion factors to convert between measurement units within the same measurement system. • In the base-ten number system, a digit in one place represents 10 times as much as it represents in the place to its right, and inversely, a digit in one place represents 1/10 of what it represents in the place to its left	• When might it be useful to convert measurements in a system to solve a real-world problem? • What patterns can you describe for multiplying or dividing numbers by powers of ten?

Key Concepts	Related Concepts	Vocabulary
• N/A	• I can convert among different sized standard measurement units within a given measurement system. (5.M.1) • I can solve real-world problems using conversions within a given measurement system. (5.M.1) • I can explain that any digit is 10 times larger in value than the digit to its right. (5.NS.3) • I can explain that any digit is 1/10 the value than any digit to its left. (5.NS.3) • I can show that when numbers are multiplied by powers of 10, there is a pattern in the number of zeros in the resulting product. (5.NS.4) • I can show that when numbers are multiplied the decimal point does not move, rather, the number increases in size. (5.NS.4) • I can show that when numbers are	• Decimal point • Measurement system • Metric System • Multiple • Place value • Power of 10 • US Customary Units

	divided the decimal point does not move, rather, the number decreases in size. (5.NS.4)	

Mathematical Processes

- PS.5 Use appropriate tools strategically.
- PS.6 Attend to precision.
- PS.7 Look for and make use of structure.

Resources		
Proficiency Scales • **N/A**	**Digital** • **IDOE Examples/Tasks 5.M.1** • **IDOE Examples/Tasks 5.NS.3** • **IDOE Examples/Tasks 5.NS.4** Solve Word Problems Involving Conversions 5.M.1	**Manipulatives** • **Measurement Conversion Chart** • **Gallon Man**

School Resources	
Textbook Lesson 21 Convert Measurement Units Pages 218-27 (days) Practice pgs, 237-244 Lesson 22: Solving word problems using conversions pgs. 228-237 (days) Practice pages 247-254	**Formative Assessments** N/A Note: No ISM for this unit.