

HAZLETON AREA SCHOOL DISTRICT



GRADE 2

Math Curriculum

Hazleton Area School District

Math Curriculum

Grade 2

Topic:	Operations and Algebraic Thinking
Weeks:	9 Weeks (Quarter 1)
PA Standards:	CC.2.2.2.A.1 Represent and solve problems involving addition and subtraction within 100. CC.2.2.2.A.2 Use mental strategies to add and subtract within 20. CC.2.2.2.A.3 Work with equal groups of objects to gain foundations for multiplication.
Math Practice Standards:	<ul style="list-style-type: none">• Make sense of problems and persevere in solving them.• Reason abstractly and quantitatively.• Construct viable arguments and critique the reasoning of others.• Model with mathematics.• Use appropriate tools strategically.• Attend to precision.• Look for and make use of structure.• Look for and make sense of regularity in repeated reasoning.

Weeks	Topic	PA Standard	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
9 Weeks	Operations and Algebraic Thinking	CC.2.2 2.A.2 Use mental strategies to add and subtract within 20.	<ul style="list-style-type: none"> • Fluently add and subtract within 20 using mental strategies. • Realize that doing mathematics involves solving problems and discussing how the problems were solved. • Explain the meaning of a problem and look for ways to solve it. • Practice mathematical communication skills. 	<ul style="list-style-type: none"> • Add • Addend • Addition • Algebraic expression • Difference • Equal to = • Fluent • Minus – • Number sense • Plus + • Solve • Strategy • Subtract • Subtraction • Sum

Weeks	Topic	PA Standard	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
	Operations and Algebraic Thinking	CC.2.2 2.A.1 Represent and solve problems involving addition and subtraction within 100.	<ul style="list-style-type: none"> • Use addition and subtraction within 100 to solve one- and two-step word problems by using drawings and equations with a symbol for the unknown number to represent the problem. • Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20. • Add and subtract within 20 using various strategies. (e.g., counting on, making ten, decomposing a number leading to a ten, using the relationship between addition and subtraction, and creating equivalent but easier or known sums) • Apply properties of operations as strategies to add and subtract. (e.g., commutative property of addition, associative property of addition) • Make sense of a word problem and understand what it is asking for. • Understand subtraction as an unknown addend problem. (e.g., subtract $10 - 8$ by finding the number that makes 10 when added to 8) • Look for patterns. (e.g., making ten, fact families, doubles) • Practice mathematical communication skills. 	<ul style="list-style-type: none"> • Add • Addend • Addition • Algebraic expression • Associative property • Commutative property • Difference • Equal to = • Fact family • Fluent • Minus – • Number sense • Patterns • Plus + • Solve • Strategy • Subtract • Subtraction • Sum • Unknown addend • Word problems

Weeks	Topic	PA Standard	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
	Operations and Algebraic Thinking	CC.2.2 2.A.3 Work with equal groups of objects to gain foundations for multiplication.	<ul style="list-style-type: none"> • Determine whether a group of objects (up to 20) has an odd or even number of members. • Write an equation to express an even number as a sum of two equal addends. • Use addition to find the total number of objects arranged in rectangular arrays with up to five rows and up to five columns; write an equation to express the total as a sum of equal addends. • Identify and describe the rule for a pattern. • Use a rule to extend a pattern. • Understand multiplication as repeated addition and arrays. • Use concrete objects and pictures to help solve problems. • Realize that doing mathematics involves solving problems and discussing the solutions. • Use concrete objects or pictures to help conceptualize and solve problems. • Decide to solve a problem by drawing a picture rather than writing an equation. 	<ul style="list-style-type: none"> • Addend • Addition • Arrays • Columns • Equation • Even number • Extend • Horizontal • Manipulatives • Multiplication • Number sense • Odd number • Pattern • Problem • Rows • Solution • Sum • Vertical

Hazleton Area School District

Math Curriculum

Grade 2

Topic:	Numbers & Operations in Base Ten
Weeks:	9 weeks (Quarter 2)
PA Standards:	CC.2.1.2.B.1 Use place-value concepts to represent amounts of tens and ones and to compare three digit numbers. CC.2.1.2.B.2 Use place-value concepts to read, write, and skip count to 1000. CC.2.1.2.B.3 Use place-value understanding and properties of operations to add and subtract within 1000.
Math Practice Standards:	<ul style="list-style-type: none">• Make sense of problems and persevere in solving them.• Reason abstractly and quantitatively.• Construct viable arguments and critique the reasoning of others.• Model with mathematics.• Use appropriate tools strategically.• Attend to precision.• Look for and make use of structure.• Look for and make sense of regularity in repeated reasoning.

Weeks	Topic	PA Standard	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
5 weeks	Numbers & Operations in Base Ten	CC.2.1 2.B.3 Use place-value understanding and properties of operations to add and subtract within 1,000.	<ul style="list-style-type: none"> • Use place-value and properties of operations to add and subtract. • Add up to four two-digit numbers using strategies based on place-value and properties of operations. • Add and subtract within 1,000 (understanding that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones, and sometimes it is necessary to compose or decompose tens or hundreds). *expanded form • Explain why addition and subtraction strategies work, using place-value and the properties of operations. 	<ul style="list-style-type: none"> • Add • Addition • Base ten • Compose • Decompose • Digit • Minus – • Number sense • Numbers • Numerals • Operations • Place value • Hundreds • Tens • Ones • Plus + • Subtract • Subtraction
4 weeks	Numbers & Operations in Base Ten	CC.2.1 2.B.2 Use place value concepts to read, write, and skip count to 1,000.	<ul style="list-style-type: none"> • Count within 1,000; skip-count by 5s, 10s, and 100s. • Read and write numbers to 1,000 using base-ten numerals, number names, and expanded form. 	<ul style="list-style-type: none"> • Base ten • Expanded form • Standard form • Number sense • Skip count

Weeks	Topic	PA Standard	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
		CC.2.1 2.B.1 Use place value concepts to represent amounts of tens and ones and to compare three digit numbers.	<ul style="list-style-type: none"> • Understand that the two-digits of a two-digit number represent the amount of tens and ones. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones. • Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons. 	<ul style="list-style-type: none"> • Comparison • Digits • Equal to = • Greater than $>$ • Less than $<$ • Number sense • Symbols

Hazleton Area School District

Math Curriculum

Grade 2

Topic:	Measurement and Data
Weeks:	9 weeks (Quarter 3)
PA Standards:	<p>CC.2.4.2.A.1 Measure and estimate lengths in standard units using appropriate tools.</p> <p>CC.2.4.2.A.4 Represent and interpret data using line plots, picture graphs, and bar graphs.</p> <p>CC.2.4.2.A.6 Extend the concepts of addition and subtraction to problems involving length.</p> <p>CC.2.3.2.A.1 Analyze and draw two- and three-dimensional shapes having specified attributes.</p> <p>CC.2.3.2.A.2 Use the understanding of fractions to partition shapes into halves, quarters, and thirds.</p>
Math Practice Standards:	<ul style="list-style-type: none">• Make sense of problems and persevere in solving them.• Reason abstractly and quantitatively.• Construct viable arguments and critique the reasoning of others.• Model with mathematics.• Use appropriate tools strategically.• Attend to precision.• Look for and make use of structure.• Look for and make sense of regularity in repeated reasoning.

Weeks	Topic	PA Standard	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
2 weeks	Measurement and Data – (Data)	CC.2.4 2.A.4 Represent and interpret data using line plots, picture graphs, and bar graphs.	<ul style="list-style-type: none"> • Make a line plot to show measurement data of the lengths of several objects to the nearest whole-number unit. • Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. • Solve simple put-together, take apart, and compare problems using information presented in a graph. • Describe features of data such as range, mode, and median. • Practice mathematical communication skills. • Decide when certain graphs might be better suited than others. 	<ul style="list-style-type: none"> • Bar graph • Compare • Data • Draw conclusions • Graph • Interpret • Length • Line plots • Median • Mode • Number sense • Pictograph • Range • Whole number
4 weeks	Measurement and Data – (Measurement)	CC.2.4 2.A.1 Measure and estimate lengths in standard units using appropriate tools.	<ul style="list-style-type: none"> • Measure the length of an object by selecting and using appropriate tools. (e.g., rulers, yardsticks, meter sticks, measuring tapes) • Measure the same length with different sized units and note the measurement made with the smaller unit is more than the measurement made with the larger unit and vice versa. • Estimate lengths using units of inches, feet, centimeters, and meters. • Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. • Practice mathematical communication skills. • Select the appropriate tool. 	<ul style="list-style-type: none"> • Centimeter (cm.) • Foot (ft.) • Inch (in.) • Length • Manipulatives • Meter (m.) • Meter sticks • Non-standard measurement • Number sense • Rulers • Standard measurement • Yard (yd.) • Yardsticks

Weeks	Topic	PA Standard	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
	Measurement and Data	CC.2.4 2.A.6 Extend the concepts of addition and Subtraction to problems involving length.	<ul style="list-style-type: none"> • Measure the length of an object by selecting and using appropriate tools. (e.g., rulers, yardsticks, meter sticks, measuring tapes) • Estimate lengths using units of inches, feet, centimeters, and meters. • Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. • Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. • Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, and 2, and represent whole-number sums and differences within 100 on a number line diagram. 	<ul style="list-style-type: none"> • Bar graph • Centimeter (cm.) • Difference • Estimate • Foot (ft.) • Graph • Inch (in.) • Length • Manipulatives • Meter (m.) • Meter sticks • Non-standard measurement • Number sense • Pictograph • Rulers • Scale • Standard measurement • Sum • Whole number • Yard (yd.) • Yardsticks

Weeks	Topic	PA Standard	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
3 weeks	Geometry	CC.2.3 2.A.1 Analyze and draw two- and three dimensional shapes having specified attributes.	<ul style="list-style-type: none"> • Recognize and draw shapes having specified attributes. • Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. • Describe, classify, and sort plane and solid geometric shapes according to the number and shape of faces and the number of sides, edges, and/or vertices. • Recognize and represent geometric shapes and solids in structures in the environment. • Manipulate, draw, construct, and represent (e.g., on a geoboard) two dimensional shapes. • Name characteristics of two-dimensional shapes and three-dimensional figures. • Describe the similarities and differences between two two-dimensional shapes or two three-dimensional figures. 	<ul style="list-style-type: none"> • Attributes • Cubes • Edge • Face • Hexagons • Manipulatives • Octagons • Pentagons • Quadrilaterals • Side • Three-dimensional • Triangles • Two-dimensional • Vertex • Vertices
3 weeks	Geometry	CC.2.3 2.A.2 Use the understanding of fractions to partition shapes into halves, quarters, and thirds.	<ul style="list-style-type: none"> • Partition circles, squares, and rectangles into two, three, or four equal shares. • Recognize that equal shares of identical wholes need not have the same shape. • Match the fraction to the corresponding model. (e.g., concrete and/or pictorially) • Represent a given fraction using drawings or concrete materials. 	<ul style="list-style-type: none"> • Corresponding • Equal • Fraction • Partition • Share

Hazleton Area School District

Math Curriculum

Grade 2

Topic:	Measurement and Data Geometry
Weeks:	5 weeks (Quarter 4) 4 weeks (Quarter 4)
PA Standards:	CC.2.4.2.A.2 Tell and write time to the nearest five minutes using both analog and digital clocks. CC.2.4.2.A.3 Solve problems and make change using coins and paper currency with appropriate symbols CC.2.1.2.B.3 Use place-value understanding and properties of operations to add and subtract within 1000.
Math Practice Standards:	<ul style="list-style-type: none">• Make sense of problems and persevere in solving them.• Reason abstractly and quantitatively.• Construct viable arguments and critique the reasoning of others.• Model with mathematics.• Use appropriate tools strategically.• Attend to precision.• Look for and make use of structure.• Look for and make sense of regularity in repeated reasoning.

Weeks	Topic	PA Standard	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
3 weeks	Measurement and Data	CC.2.4 2.A.2 Tell and write time to the nearest five minutes using both analog and digital clocks.	<ul style="list-style-type: none"> • Tell and write time from analog and digital clocks to the nearest five minutes. • Develop mathematical communication skills. 	<ul style="list-style-type: none"> • Analog clock • Clockwise • Colon • Digital clock • Elapsed time • Half-hour • Hands (hour/minute) • Hours • Minutes • Number sense • Numbers • Numerals • O'clock • Quarter-hour • Skip count

Weeks	Topic	PA Standard	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
3 weeks	Measurement and Data	CC.2.4 2.A.3 Solve problems and make change using coins and paper currency with appropriate symbols.	<ul style="list-style-type: none"> • Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. • Use the context of money to find sums and differences less than or equal to 100. (e.g., using the numbers 0 to 100) • Add and subtract to solve one- and two step word problems involving money situations. (e.g., adding to, taking from, putting together, taking apart, comparing) • Use drawings and equations with a symbol for the unknown number to represent the problem. • Learn the relationships between the values of a penny, nickel, dime, quarter, and dollar bill. • Practice mathematical communication skills. • Decide to solve a problem by drawing a picture rather than writing an equation. 	<ul style="list-style-type: none"> • \$ and ¢ symbols • Difference • Dime • Dollar bill • Equation • Nickel • Number sense • Penny • Quarter • Sum • Unknown number

Weeks	Topic	PA Standard	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
2 weeks	Numbers & Operations in Base Ten	CC.2.1 2.B.3 Use place-value understanding and properties of operations to add and subtract within 1,000.	<ul style="list-style-type: none"> • Mentally add 10 or 100 to a given number from 100–900, and mentally subtract 10 or 100 from a given number from 100–900 	<ul style="list-style-type: none"> • Add • Addition • Subtration • Subtract • Minus • Place Value • Hundreds • Tens • Ones