

Chambersburg Area School District Mathematic Curriculum Grade 2

Course Summary: Grade 2 mathematics is about (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
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Unit of Study	Unit 1 - Sums and Differences to 100
Time Frame/Pacing	10 days Notes on Pacing: None for this module
Big Ideas	Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
Unit Essential Questions	<ul style="list-style-type: none"> How do place value understanding and properties of operations contribute to solving addition and subtraction problems? How do you represent and solve problems involving addition and subtraction? Can you demonstrate addition and subtraction fluently within 20? How can expressions, equations, and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
PA Core 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.2.1.2.B.3 Use place value understanding and properties of operations to add and subtract within 1000.
Learning Objectives (Concepts Taught)	<ul style="list-style-type: none"> adding and subtracting within 20 and within 100 solve addition and subtraction word problems use math drawings to represent each situation
Performance Objectives (Skills Demonstrated)	Foundations for Fluency with Sums and Differences Within 100 <ul style="list-style-type: none"> Practice making ten and adding to ten. Practice making the next ten and adding to a multiple of ten. Initiating Fluency with Addition and Subtraction Within 100 <ul style="list-style-type: none"> Add and subtract like units. Make a ten to add within 20. Make a ten to add within 100. Subtract single-digit numbers from multiples of 10 within 100. Take from ten within 20.

	<ul style="list-style-type: none"> • Take from ten within 100.
Key Vocabulary	<p>New or Recently Introduced Terms</p> <p>Addend</p> <p>Familiar Terms and Symbols</p> <p>Sum (PA Core Math Vocab), a ten, count on, expression, like units, make ten and take from ten, number sentence, equation (PA Core Vocab), number bond, a one, part, partners to 10, “Say Ten” counting, ten plus facts, total</p>
Assessments	<p>Exit tickets for all lessons, End of Module Assessment</p> <p>Topic A quiz: https://embarc.online/mod/page/view.php?id=8343</p> <p>Topic B quiz: https://embarc.online/mod/page/view.php?id=8344</p>
Authentic Examples (real-world tasks)	<p>Application Problems</p> <p>Friends You Can Count On, Level A and B</p>
Visual Representations and Strategies	<ul style="list-style-type: none"> • 100 bead Rekenrek • number bonds • 5 group column • whiteboards • dice • place value chart • Hide Zero cards • quick ten • linking cubes • ten frame cards
Writing in Math	<p>End of Module Assessment Questions 2 and 4. Write a statement to answer the question (pp. 110- 11 in Teacher Edition).</p>
Culturally Responsive Activities	<ul style="list-style-type: none"> • Lesson 7 Application Problem • https://www.engageny.org/resource/grade-2-mathematics-module-1 (see the various language resources under “Downloadable Resources”) • Mayan Mathematics <p>http://www.michiellb.nl/maya/math.html (compare quick tens and ones with the Mayan representation of numbers)</p>
Resources and Differentiation Tools	<p>Primary Resource: Eureka Module1</p> <p>Other Resources:</p> <ul style="list-style-type: none"> • www.zearn.org (Grade 2 Mission 1) • Number Talks • Hundreds Chart • Ten frames • Number Lines • 3-Act Math Task: https://gfletchy.com/the-whopper-jar/ • Problem of the Month: Calculating Palindromes, <ul style="list-style-type: none"> ◦ Friends You Can Count On, Level A and B ◦ Got Your Number, Level A ◦ Party Time • Illustrative Mathematics: https://tasks.illustrativemathematics.org/2.OA.A, https://tasks.illustrativemathematics.org/2.OA.B <p>ELL Overlay for Listening and Reading Grades 1 and 2 Mathematics</p> <p>ELL Overlay for Speaking and Writing for Grades 1 and 2 Mathematics</p>

Grade Level DOK Examples	<u>Grade 2 Math DOK Samples</u>
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Unit of Study	Unit 2 - Addition and Subtraction of Length Units
Time Frame/Pacing	12 days Notes on Pacing: consider consolidating Lessons 2 and 3, Lessons 4 and 5, and omitting Lesson 8 (see p. 3 of Teacher Manual)
Big Ideas	Measurement attributes can be quantified and estimated using customary and non-customary units of measure.
Unit Essential Questions	<ul style="list-style-type: none"> ● How do we use units of measurement? ● How precise do measurements and calculations need to be? ●
PA Core Standards	CC.2.4.2.A.1 Measure and estimate lengths in standard units using appropriate tools. CC.2.4.2.A.6 Extend the concepts of addition and subtraction to problems involving length.
Learning Objectives (Concepts Taught)	<ul style="list-style-type: none"> ● measure and estimate using standard units for length and solve measurement problems involving addition and subtraction of length and comparison ● use measurement tools with the understanding that linear measure involves an iteration (repetition) of units and that the smaller a unit, the more iterations (repetitions) are necessary to cover a given length ● metric units (centimeters and meters) to support upcoming work with place value concepts. ● learn the meaning of a length unit ● solve word problems involving addition and subtraction comparison situations ●
Performance Objectives	Understand Concepts About the Ruler <ul style="list-style-type: none"> ● Connect measurement with physical units by using multiple ● Use iteration with one physical unit to measure.

(Skills Demonstrated)	<ul style="list-style-type: none"> ● Apply concepts to create unit rulers and measure lengths using <p>Measure and Estimate Length Using Different Measurement Tools</p> <ul style="list-style-type: none"> ● Measure various objects using centimeter rulers and meter ● Develop estimation strategies by applying prior knowledge <p>Measure and Compare Lengths Using Different Length Units</p> <ul style="list-style-type: none"> ● Measure and compare lengths using centimeters and meters. ● Measure and compare lengths using standard metric length ● units and non-standard length units; relate measurement to unit size. <p>Relate Addition and Subtraction to Length</p> <ul style="list-style-type: none"> ● Solve addition and subtraction word problems using the ruler as a number line. ● Measure lengths of string using measurement tools, and use tape diagrams to represent and compare the lengths. ● Apply conceptual understanding of measurement by solving two-step word problems.
Key Vocabulary	<p>New or Recently Introduced Terms benchmark, endpoint, estimate, hash mark, meter, meter stick or strip, number line, overlap, ruler</p> <p>Familiar Terms and Symbols centimeter, combine, compare, difference, height, length, length unit</p>
Assessments	<ul style="list-style-type: none"> ● Exit Tickets after each Lesson and End of Module Assessment ● Topic A quiz: https://embarc.online/mod/page/view.php?id=8623 ● Topic B and C quiz: https://embarc.online/mod/page/view.php?id=8624 ● Topic D quiz: https://embarc.online/mod/page/view.php?id=8626
Authentic Examples (real-world tasks)	<ul style="list-style-type: none"> ● Application Problems ● Lessons 4 and 6 – measuring items with a centimeter ruler or meter stick ● Lesson 9 – measuring body parts with measuring tape
Visual Representations and Strategies	<ul style="list-style-type: none"> ● centimeter cubes ● centimeter rulers ● large and small paper clips ● meter sticks ● paper meter strips ● whiteboards ● tape diagram
Writing in Math	<ul style="list-style-type: none"> ● End of Module Assessment Questions 2b- Explain your choice using words. 2d -Who won? How do you know?, and 4b - Explain why using words (pp. 128-129 Teacher Edition).

Culturally Responsive Activities	<ul style="list-style-type: none"> • Lesson 7 Application Problem • https://www.engageny.org/resource/grade-2-mathematics-module-2 (see the various language resources under “Downloadable Resources”)
Resources and Differentiation Tools	<p>Primary Resource: Eureka Module 2</p> <p>Other Resources:</p> <ul style="list-style-type: none"> • www.zearn.org (Grade 2 Mission 2) • Number Talks • See p. 7 in the Teacher’s Manual for “Scaffolds” • 3-Act Math Task: https://gfletchy.com/let-it-fly/ • Problem of the Month (Level A): http://www.insidemathematics.org/assets/problems-of-the-month/miles%20of%20tiles.pdf • Illustrative Mathematics: https://tasks.illustrativemathematics.org/2.OA.B, https://tasks.illustrativemathematics.org/2.MD.A, https://tasks.illustrativemathematics.org/content-standards/2/MD/A/3, https://tasks.illustrativemathematics.org/2.MD.B <p>ELL Overlay for Listening and Reading Grades 1 and 2 Mathematics ELL Overlay for Speaking and Writing for Grades 1 and 2 Mathematics</p>
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Unit of Study	Unit 3 - Place Value, Counting, and Comparison of Numbers to 1,000
Time Frame/Pacing	25 days Notes on Pacing: consider omitting lesson 10 and use as an extension instead and consolidating lessons 17 and 18 (see p. 3 in the Teacher's Manual)
Big Ideas	Mathematical relationships among numbers can be represented, compared, and communicated.
Unit Essential Questions	<ul style="list-style-type: none"> ● How do place value understanding and properties of operations contribute to solving addition and subtraction problems? ● How is mathematics used to quantify, compare, represent, and model numbers?
PA Core 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.
Learning Objectives (Concepts Taught)	<ul style="list-style-type: none"> ● extension of understanding of base ten notation and apply their understanding of place value to count and compare numbers to 1,000 ● understanding of various models of place value units
Performance Objectives (Skills Demonstrated)	Forming Base Ten Units of Ten, a Hundred, and a Thousand <ul style="list-style-type: none"> ● Bundle and count ones, tens, and hundreds to 1,000. Understanding Place Value Units of One, Ten, and a Hundred <ul style="list-style-type: none"> ● Count up and down between 100 and 220 using ones and tens. ● Count up and down between 90 and 1,000 using ones, tens, and hundreds. Three-Digit Numbers in Unit, Standard, Expanded, and Word Forms <ul style="list-style-type: none"> ● Count up to 1,000 on the place value chart. ● Write base ten three-digit numbers in unit form; show the value of each digit. ● Write base ten numbers in expanded form. ● Write, read, and relate base ten numbers in all forms.

	<p>Modeling Base Ten Numbers Within 1,000 with Money</p> <ul style="list-style-type: none"> Count the total value of \$1, \$10, and \$100 bills up to \$1,000. Count from \$10 to \$1,000 on the place value chart and the empty number line. Explore \$1,000. How many \$10 bills can we change for a thousand dollar bill? <p>Modeling Numbers Within 1,000 with Place Value Disks</p> <ul style="list-style-type: none"> Count the total value of ones, tens, and hundreds with place value disks. Change 10 ones for 1 ten, 10 tens for 1 hundred, and 10 hundreds for 1 thousand. Read and write numbers within 1,000 after modeling with place value disks. Model numbers with more than 9 ones or 9 tens; write in expanded, unit, standard, and word forms. Explore a situation with more than 9 groups of ten. <p>Comparing Two Three-Digit Numbers</p> <ul style="list-style-type: none"> Compare two three-digit numbers using $<$, $>$, and $=$. Compare two three-digit numbers using $<$, $>$, and $=$ when there are more than 9 ones or 9 tens. Order numbers in different forms. (Optional) <p>Finding 1, 10, and 100 More or Less than a Number</p> <ul style="list-style-type: none"> Model and use language to tell about 1 more and 1 less, 10 more and 10 less, and 100 more and 100 less. Model 1 more and 1 less, 10 more and 10 less, and 100 more and 100 less when changing the hundreds place. Complete a pattern counting up and down.
Key Vocabulary	<p>New or Recently Introduced Terms base ten numerals, equivalent (PA Core Vocab), expanded form, hundreds place, one thousand (1,000), place value or number disk, standard form, unit form, word form</p> <p>Familiar Terms and Symbols $=$, $<$, and $>$ (equal/is equal to, less than, and greater than), altogether, bundling/grouping, changing unknowns, how many more/less, how much more/less, more than/less than, number sentence, ones place, place value, renaming, tens place, units of ones/tens/hundreds/one thousand</p>
Assessments	<ul style="list-style-type: none"> Exit Tickets from each lesson, Mid-Module Assessment, End of Module Assessment Topic A and B quiz: https://embarc.online/mod/page/view.php?id=6762 Topic C quiz: https://embarc.online/mod/page/view.php?id=6763 Topic D quiz: https://embarc.online/mod/page/view.php?id=6764 Topic E quiz: https://embarc.online/mod/page/view.php?id=6765 Topic F quiz: https://embarc.online/mod/page/view.php?id=6766 Topic G quiz: https://embarc.online/mod/page/view.php?id=6767
Authentic Examples (real-world tasks)	<ul style="list-style-type: none"> Application Problems Lesson 8, 9, 10 – understanding place value through the use of bills
Visual Representations and Strategies	<ul style="list-style-type: none"> 2 boxes of 1,000 straws clock number line Dice Dienes blocks Hide Zero Cards Hundreds place value chart

	<ul style="list-style-type: none"> • meter strip • Number spelling activity sheet • place value box • place value cards to 1,000 • place value disks • play money • rubber bands • small plastic bags • whiteboards
Writing in Math	Mid-Module Assessment question 1b, c, and d - Explain your answer using words (p. 149 Teacher Edition).
Culturally Responsive Activities	<ul style="list-style-type: none"> • Lesson 21 Application Problem • https://www.engageny.org/resource/grade-2-mathematics-module-3 (see the various language resources under “Downloadable Resources”) • Culturally Relevant Mathematics See page 4 for place value tools from different cultures and historical time periods.
Resources and Differentiation Tools	<p>Primary Resource: Eureka Module 3</p> <p>Other Resources:</p> <ul style="list-style-type: none"> • www.zearn.org (Grade 2 Mission 3) • Number Talks • See p. 9 “Scaffolds” in the Teacher’s Manual • 1,000 chart • Illustrative Mathematics: https://tasks.illustrativemathematics.org/2.OA.B <p>ELL Overlay for Listening and Reading Grades 1 and 2 Mathematics ELL Overlay for Speaking and Writing for Grades 1 and 2 Mathematics</p>
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Unit of Study	Unit 4 - Addition and Subtraction within 200 with Word Problems to 100
Time Frame/Pacing	35 days Notes on Pacing: consider omitting Lessons 29 and 30 (see p. 4 in the Teacher's Manual)
Big Ideas	Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
Unit Essential Questions	<ul style="list-style-type: none"> • How do place value understanding and properties of operations contribute to solving addition and subtraction problems? • How do you represent and solve problems involving addition and subtraction? • Can you demonstrate addition and subtraction fluently within 20? • How are relationships represented mathematically? • How can expressions, equations, and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
PA Core Standards	CC.2.2.2.A.1 Represent and solve problems involving addition and subtraction within 100. CC.2.1.2.B.3 Use place value understanding and properties of operations to add and subtract within 1000.
Learning Objectives (Concepts Taught)	<ul style="list-style-type: none"> • add and subtract within 200, moving from concrete to pictorial to abstract • one-step and two-step word problems within 100
Performance Objectives (Skills Demonstrated)	Sums and Differences Within 100 <ul style="list-style-type: none"> • Relate 1 more, 1 less, 10 more, and 10 less to addition and subtraction of 1 and 10. • Add and subtract multiples of 10 including counting on to subtract. • Add and subtract multiples of 10 and some ones within 100.

	<ul style="list-style-type: none"> • Solve one- and two-step word problems within 100 using strategies based on place value. <p>Strategies for Composing a Ten</p> <ul style="list-style-type: none"> • Use manipulatives to represent the composition of 10 ones as 1 ten with two-digit addends. • Relate addition using manipulatives to a written vertical method. • Use math drawings to represent the composition and relate drawings to a written method. • Use math drawings to represent the composition when adding a two-digit to a three-digit addend. <p>Strategies for Decomposing a Ten</p> <ul style="list-style-type: none"> • Represent subtraction with and without the decomposition of 1 ten as 10 ones with manipulatives. • Relate manipulative representations to a written method. • Use math drawings to represent subtraction with and without decomposition and relate drawings to a written method. • Represent subtraction with and without the decomposition when there is a three-digit minuend. • Solve one- and two-step word problems within 100 using strategies based on place value. <p>Strategies for Composing Tens and Hundreds</p> <ul style="list-style-type: none"> • Use mental strategies to relate compositions of 10 tens as 1 hundred to 10 ones as 1 ten. • Use manipulatives to represent additions with two compositions. • Relate manipulative representations to a written method. • Use math drawings to represent additions with up to two compositions and relate drawings to a written method. • Solve additions with up to four addends with totals within 200 with and without two compositions of larger units. <p>Strategies for Decomposing Tens and Hundreds</p> <ul style="list-style-type: none"> • Use number bonds to break apart three-digit minuends and subtract from the hundred. • Use manipulatives to represent subtraction with decompositions of 1 hundred as 10 tens and 1 ten as 10 ones. • Relate manipulative representations to a written method. • Use math drawings to represent subtraction with up to two decompositions and relate drawings to a written method. • Subtract from 200 and from numbers with zeros in the tens place. <p>Student Explanations of Written Methods</p> <ul style="list-style-type: none"> • Use and explain the totals below method using words, math drawings, and numbers. • Compare totals below to new groups below as written methods. • Solve two-step word problems within 100.
<p>Key Vocabulary</p>	<p>New or Recently Introduced Terms algorithm, compose, decompose, equation, new groups below, simplifying strategy, totals below</p> <p>Familiar Terms and Symbols addend, addition, bundle/unbundle/regroup/rename/change, difference, hundreds place,</p>

	place value, subtraction, units of ones/tens/hundreds/thousands
Assessments	<ul style="list-style-type: none"> • Exit Ticket from each lesson, Mid-Module Assessment, End of Module Assessment • Topic A quiz: https://embarc.online/mod/page/view.php?id=6780 • Topic B quiz: https://embarc.online/mod/page/view.php?id=6781 • Topic C quiz: https://embarc.online/mod/page/view.php?id=6782 • Topic D quiz: https://embarc.online/mod/page/view.php?id=6783 • Topic E quiz: https://embarc.online/mod/page/view.php?id=6784 • Topic F quiz: https://embarc.online/mod/page/view.php?id=6785
Authentic Examples (real-world tasks)	<ul style="list-style-type: none"> • Application Problems • Lesson 31 – solving story problems with real world situations
Visual Representations and Strategies	<ul style="list-style-type: none"> • arrow notation • chip model • Hide Zero cards • number bond • whiteboards • place value charts • place value disks • rekenrek • tape diagram
Writing in Math	<p>Mid Module Assessment question 4a - Explain why the strategy worked (p. 201 Teacher Edition).</p> <p>End of Module Assessment question 4c - Explain your answer (pp. 406-307 Teacher's Edition).</p>
Culturally Responsive Activities	<ul style="list-style-type: none"> • Lesson 4, 6, 23, and 27 Application Problem • https://www.engageny.org/resource/grade-2-mathematics-module-4 (see the various language resources under “Downloadable Resources”)
Resources and Differentiation Tools	<p>Primary Resource: Eureka Module 4</p> <p>Other Resources:</p> <ul style="list-style-type: none"> • www.zearn.org (Grade 2 Mission 4) • Number Talks • see p. 11 “Scaffolds” in the Teacher’s Manual • Illustrative Mathematics: https://tasks.illustrativemathematics.org/2.OA.B, https://tasks.illustrativemathematics.org/2.NBT.A <p>ELL Overlay for Listening and Reading Grades 1 and 2 Mathematics</p> <p>ELL Overlay for Speaking and Writing for Grades 1 and 2 Mathematics</p>
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Unit of Study	Unit 5 - Foundations of Multiplication and Division
Time Frame	22 days Notes on Pacing: consider consolidating Lessons 1 and 2 and omitting Lessons 3, 8, and 11.
Big Ideas	<ul style="list-style-type: none"> • Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations. • Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualizations.
Unit Essential Questions	<ul style="list-style-type: none"> • Can you demonstrate how to work with equal groups of objects to gain foundations for multiplication? • How can expressions, equations, and inequalities be used to quantify, solve, model, and/or analyze mathematical situations? • How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems?
PA Core Standards	CC.2.2.2.A.3 Work with equal groups of objects to gain foundations for multiplication. CC.2.3.2.A.1 Analyze and draw two- and three- dimensional shapes having specified attributes.
Learning Objectives (Concepts Taught)	<ul style="list-style-type: none"> • build the foundation for multiplication and division • making equal groups where the unit is not ten • relating the new unit to the one used to create it lays the foundation for multiplication
Performance Objectives (Skills Demonstrated)	Formation of Equal Groups <ul style="list-style-type: none"> • Use manipulatives to create equal groups. • Use math drawings to represent equal groups, and relate to repeated addition.

	<ul style="list-style-type: none"> ● Represent equal groups with tape diagrams, and relate to repeated addition. <p>Arrays and Equal Groups</p> <ul style="list-style-type: none"> ● Compose arrays from rows and columns, and count to find the total using objects. ● Decompose arrays into rows and columns, and relate to repeated addition. ● Represent arrays and distinguish rows and columns using math drawings. ● Create arrays using square tiles with gaps. ● Solve word problems involving addition of equal groups in rows and columns. <p>Rectangular Arrays as a Foundation for Multiplication and Division</p> <ul style="list-style-type: none"> ● Use square tiles to compose a rectangle, and relate to the array model. ● Use math drawings to compose a rectangle with square tiles. ● Use square tiles to decompose a rectangle. ● Use scissors to partition a rectangle into same-size squares, and compose arrays with the squares. ● Use math drawings to partition a rectangle with square tiles, and relate to repeated addition. ● Use grid paper to create designs to develop spatial structuring. <p>The Meaning of Even and Odd Numbers</p> <ul style="list-style-type: none"> ● Relate doubles to even numbers, and write number sentences to express the sums. ● Pair objects and skip-count to relate to even numbers. ● Investigate the pattern of even numbers: 0, 2, 4, 6, and 8 in the ones place, and relate to odd numbers. ● Use rectangular arrays to investigate odd and even numbers.
Key Vocabulary	<p>New or Recently Introduced Terms array, columns, even number, odd number, repeated addition, rows, tessellation, whole number</p> <p>Familiar Terms and Symbols addends, doubles, equation, number path, number sentence, pair, rectangle, skip-counting</p>
Assessments	<ul style="list-style-type: none"> ● Exit Tickets for each lesson, Mid Module Assessment, and End of Module Assessment ● Topic A quiz: https://embarc.online/mod/page/view.php?id=6844 ● Topic B quiz: https://embarc.online/mod/page/view.php?id=6845 ● Topic C quiz: https://embarc.online/mod/page/view.php?id=6846 ● Topic D quiz: https://embarc.online/mod/page/view.php?id=6847
Authentic Examples (real-world tasks)	Application Problems
Visual Representations and Strategies	<ul style="list-style-type: none"> ● counters ● number bond ● number path ● whiteboards ● rectangular array ● square tiles
Writing in Math	<p>Lesson 18 Problem Set question 3. (pp. 243-244 Teacher Edition).</p> <p>Mid Module Assessment question 4b with student explanation (p. 163 Teacher Edition).</p>

	End of Module Assessment question 5 (p. 273 Teacher Edition).
Culturally Responsive Activities	<ul style="list-style-type: none"> • https://www.engageny.org/resource/grade-2-mathematics-module-6 (see the various language resources under “Downloadable Resources”) • Lesson 2 Application Problem, Lesson 9 Concept Development problems 1-3
Resources and Differentiation Tools	<p>Primary Resource: Eureka Module 6</p> <p>Other Resources:</p> <ul style="list-style-type: none"> • www.zearn.org (Grade 2 Mission 6) • Number Talks • See p. 8 in the Teacher’s Manual for “Scaffolds” • Problem of the Month: <ul style="list-style-type: none"> • Diminishing Return, (Level A) • Double Down, (Level B) • Miles of Tiles, (Level A and B) • Squirreling it Away, (Level A and B) • the Wheel Shop (Level A and B) • Illustrative Mathematics: <ul style="list-style-type: none"> ○ https://tasks.illustrativemathematics.org/2.OA.C ○ https://tasks.illustrativemathematics.org/2.OA.B <p>ELL Overlay for Listening and Reading Grades 1 and 2 Mathematics ELL Overlay for Speaking and Writing for Grades 1 and 2 Mathematics</p>
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Unit of Study	Unit 6 - Problem Solving with Length, Money, and Data
Time Frame/Pacing	27 days Notes on Pacing: consider consolidating Lessons 1 and 2, Lessons 3 and 4, Lessons 11 and 12, and Lessons 14 and 15. Consider omitting Lesson 26, or consolidate it with Lesson 25.
Big Ideas	Data can be modeled and used to make inferences.
Unit Essential Questions	<ul style="list-style-type: none"> How does the type of data influence the choice of display? How can probability and data analysis be used to make predictions?
PA Core 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.3 Solve problems using coins and paper currency with appropriate symbols.</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.2.1.2.B.3 Use place value understanding and properties of operations to add and subtract within 1000.</p>
Learning Objectives (Concepts Taught)	<ul style="list-style-type: none"> problem solve with dollars, dimes, pennies, quarters, and nickels measuring and estimating length from both the customary system and the metric system represent data given by measurement and money data using picture graphs, bar graphs, and line plots
Performance Objectives (Skills Demonstrated)	<p>Problem Solving with Categorical Data</p> <ul style="list-style-type: none"> Sort and record data into a table using up to four categories; use category counts to solve word problems.

	<ul style="list-style-type: none"> ● Draw and label a picture graph to represent data with up to four categories. ● Draw and label a bar graph to represent data; relate the count scale to the number line. ● Draw a bar graph to represent a given data set. ● Solve word problems using data presented in a bar graph. <p>Problem Solving with Coins and Bills</p> <ul style="list-style-type: none"> ● Recognize the value of coins and count up to find their total value. ● Solve word problems involving the total value of a group of coins. ● Solve word problems involving the total value of a group of bills. ● Solve word problems involving different combinations of coins with the same total value. ● Use the fewest number of coins to make a given value. ● Use different strategies to make \$1 or make change from \$1. ● Solve word problems involving different ways to make change from \$1. ● Solve two-step word problems involving dollars or cents with totals within \$100 or \$1. <p>Creating an Inch Ruler</p> <ul style="list-style-type: none"> ● Connect measurement with physical units by using iteration with an inch tile to measure. ● Apply concepts to create inch rulers; measure lengths using inch rulers. <p>Measuring and Estimating Length Using Customary and Metric Units</p> <ul style="list-style-type: none"> ● Measure various objects using inch rulers and yardsticks. ● Develop estimation strategies by applying prior knowledge of length and using mental benchmarks. ● Measure an object twice using different length units and compare; relate measurement to unit size. ● Measure to compare the differences in lengths using inches, feet, and yards. <p>Problem Solving with Customary and Metric Units</p> <ul style="list-style-type: none"> ● Solve two-digit addition and subtraction word problems involving length by using tape diagrams and writing equations to represent the problem. ● Identify unknown numbers on a number line diagram by using the distance between numbers and reference points. ● Represent two-digit sums and differences involving length by using the ruler as a number line. <p>Displaying Measurement Data</p> <ul style="list-style-type: none"> ● Collect and record measurement data in a table; answer questions and summarize the data set. ● Draw a line plot to represent the measurement data; relate the measurement scale to the number line. ● Draw a line plot to represent a given data set; answer questions and draw conclusions based on measurement data.
Key Vocabulary	<p>New or Recently Introduced Terms bar graph, category, data, degree, foot, inch, legend, line plot, picture graph, scale, survey, symbol, table, thermometer, yard</p> <p>Familiar Terms and Symbols benchmark number, centimeter, cents, coins including quarter (PA Core Vocab), dime (PA Core Vocab), nickel (PA Core Vocab) and penny (PA Core Vocab), compare, compose, decompose, difference, dollars, endpoint</p>

Assessments	<ul style="list-style-type: none"> ● Exit tickets for each lesson, Mid Module Assessment, End of Module Assessment ● Topic A quiz: https://embarc.online/mod/page/view.php?id=6851 ● Topic B quiz: https://embarc.online/mod/page/view.php?id=6852 ● Topic C and D quiz: https://embarc.online/mod/page/view.php?id=6853 ● Topic E quiz: https://embarc.online/mod/page/view.php?id=6855 ● Topic F quiz: https://embarc.online/mod/page/view.php?id=6856
Authentic Examples (real-world tasks)	<ul style="list-style-type: none"> ● Application Problems ● Lesson 5 – create own survey and collect and analyze data ● Lesson 6-13 – solving problems using coins ● Lesson 16 and 17 – measuring items with a ruler
Visual Representations and Strategies	<ul style="list-style-type: none"> ● bar graph (representation of data) ● centimeter cube ● centimeter ruler ● dice ● grid paper ● inch and centimeter ruler ● inch tiles ● line plot ● measuring tape ● meter stick ● money (i.e., dollars, coins) ● number bond ● number line ● personal white board ● picture graph ● table ● tape diagram ● yardstick
Writing in Math	<p>Mid Module Assessment question 4 (p. 125 Teacher Edition).</p> <p>End-of-Module Assessment question 4 (p. 271 Teacher Edition).</p>
Culturally Responsive Activities	<ul style="list-style-type: none"> ● https://www.engageny.org/resource/grade-2-mathematics-module-7 (see the various language resources under “Downloadable Resources”)
Resources and Differentiation Tools	<p>Primary Resource: Eureka Module 7</p> <p>Other Resources:</p> <ul style="list-style-type: none"> ● www.zearn.org (Grade 2 Mission 7) ● 3-Act Math Tasks: https://gfletchy.com/it-all-adds-up/, https://gfletchy.com/let-it-fly/ ● Problem of the Month: <ul style="list-style-type: none"> ○ Digging Dinosaurs, (Level B) ○ Diminishing Return, ○ Courtney's Coin Collection ● Illustrative Mathematics: <ul style="list-style-type: none"> ○ https://tasks.illustrativemathematics.org/2.OA.B ○ https://tasks.illustrativemathematics.org/2.MD.A ○ https://tasks.illustrativemathematics.org/content-standards/2/MD/A/3 ○ https://tasks.illustrativemathematics.org/content-standards/2/MD/C/8 ○ https://tasks.illustrativemathematics.org/2.MD.D

	ELL Overlay for Listening and Reading Grades 1 and 2 Mathematics ELL Overlay for Speaking and Writing for Grades 1 and 2 Mathematics
Grade Level DOK Examples	Grade 2 Math DOK Samples

Chambersburg Area School District Mathematic Curriculum Grade 2

Course Summary: Grade 2 mathematics is about (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
 4. Model with mathematics.
 5. Use appropriate tools strategically.
 6. Attend to precision.
 7. Look for and make use of structure.
8. Look for and makes sense of regularity in repeated reasoning.

Unit of Study	Unit 7 - Time, Shapes, and Fractions as Equal Parts of Shapes
Time Frame/Pacing	19 days Notes on Pacing: consider consolidating Lessons 9 and 10
Big Ideas	Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.
Unit Essential Questions	<ul style="list-style-type: none"> • How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? • How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving? • How can geometric properties and theorems be used to describe, model, and analyze situations?
PA Core Standards	<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> <p>CC.2.4.2.A.2 Tell and write time to the nearest five minutes using both analog and digital clocks.</p>
Learning Objectives (Concepts Taught)	<ul style="list-style-type: none"> • investigate, describe, and reason about the composition and decomposition of shapes to form other shapes • develop a foundation for understanding area, volume, congruence, similarity, and symmetry through building, drawing, and analyzing two- and three-dimensional shapes
Performance Objectives (Skills Demonstrated)	<p>Attributes of Geometric Shapes</p> <ul style="list-style-type: none"> • Describe two-dimensional shapes based on attributes. • Build, identify, and analyze two-dimensional shapes with specified attributes.

	<ul style="list-style-type: none"> ● Use attributes to draw different polygons quadrilaterals, pentagons, and hexagons. ● Use attributes to identify and draw different quadrilaterals including rectangles, rhombuses, parallelograms, and trapezoids. ● Relate the square to the cube, and describe the cube based on attributes. <p>Composite Shapes and Fraction Concepts</p> <ul style="list-style-type: none"> ● Combine shapes to create a composite shape; create a new shape from composite shapes. ● Interpret equal shares in composite shapes as halves, thirds, and fourths. <p>Halves, Thirds, and Fourths of Circles and Rectangles</p> <ul style="list-style-type: none"> ● Partition circles and rectangles into equal parts, and describe those parts as halves, thirds, or fourths. ● Describe a whole by the number of equal parts including 2 halves, 3 thirds, and 4 fourths. ● Recognize that equal parts of an identical rectangle can have different shapes. <p>Application of Fractions to Tell Time</p> <ul style="list-style-type: none"> ● Construct a paper clock by partitioning a circle into halves and quarters, and tell time to the half hour ● Tell time to the nearest five minutes. ● Tell time to the nearest five minutes; relate a.m. and p.m. to time of day. ● Solve elapsed time problems involving whole hours and a half hour.
Key Vocabulary	<p>New or Recently Introduced Terms a.m./p.m., analog clock, angle, parallel, parallelogram, partition, pentagon, polygon, quadrilateral, quarter past, quarter to/until, right angle, third of/thirds, whole</p> <p>Familiar Terms and Symbols attributes, cubes, digital clock, face, fourth of/fourths, half of/halves, half past, hour, minute, o'clock, quarter of/quarters, tangram, two-dimensional shapes, cube, circle, half-circle, hexagon, quarter-circle, rectangle, rhombus, square, trapezoid, triangle</p>
Assessments	<ul style="list-style-type: none"> ● Exit Tickets for each lesson, Mid Module Assessment, End of Module Assessment ● Topic A quiz: https://docs.google.com/document/d/1cD7j6OLMVeDkMzXXxxLsbedNhtXTT8ew90WVik-xEBM/edit?usp=sharing ● Topic B quiz: https://docs.google.com/document/d/16Wj3OFpR0XIc6o_gfgfS3xtZrhrEBp-URsNQhaycXns/edit?usp=sharing ● Topic C and D quiz: https://docs.google.com/document/d/1hivWDFBc3xOjxLHuhCzt9xroilF7iwMl5kc0hxKDpzY/edit?usp=sharing ● Topic E quiz: https://docs.google.com/document/d/1q6XYmqMsZo3Dkg8D7NsJWaSNCXbfNF1WtMWQo0cgCaA/edit?usp=sharing ● Topic F quiz: https://docs.google.com/document/d/1Km5c-hXM1eKN7-bnZAJkI1chm_w0glUVyfuVmXbS9sU/edit

Authentic Examples (real-world tasks)	<ul style="list-style-type: none"> • Application Problems • Lessons 13-16 – concepts of time on an analog clock
Visual Representations and Strategies	<ul style="list-style-type: none"> • Cube: a three-dimensional shape (real-world examples such as a die, alphabet blocks, or a box) • Geoboards • Large instructional geared clock • Pattern blocks • Personal white boards • Rulers • Spaghetti • Student clocks, preferably those with gears that can provide the appropriate hour-hand alignment • Tangrams • Toothpicks
Writing in Math	Mid Module Assessment question 4 (p. 189 Teacher Edition).
Culturally Responsive Activities	<ul style="list-style-type: none"> • https://www.engageny.org/resource/grade-2-mathematics-module-8 (see the various language resources under “Downloadable Resources”) • https://learnenglishkids.britishcouncil.org/short-stories/one-moment-around-the-world What time is it in different parts of the world? Includes military time • https://www.slideshare.net/geetasngh/history-of-time-powerpoint-presentations-for-kids History of clocks
Resources and Differentiation Tools	<p>Primary Resource: Eureka Module 8</p> <p>Other Resources:</p> <ul style="list-style-type: none"> • www.zearn.org (Grade 2 Mission 8) • Problem of the Month <ul style="list-style-type: none"> ○ The Shape of Things, (Level A) ○ Once Upon a Time, (Level A and B) ○ Tri-Triangles (Level A and B) • Illustrative Mathematics: <ul style="list-style-type: none"> ○ https://tasks.illustrativemathematics.org/2.OA.B ○ https://tasks.illustrativemathematics.org/content-standards/2/MD/C/7 ○ https://tasks.illustrativemathematics.org/2.G <p>ELL Overlay for Listening and Reading Grades 1 and 2 Mathematics ELL Overlay for Speaking and Writing for Grades 1 and 2 Mathematics</p>
Grade Level DOK Examples	Grade 2 Math DOK Samples

The following link takes you to the academic vocabulary list.

[General Academic Vocabulary](#)

Chambersburg Area School District Mathematic Curriculum Grade 2

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Unit of Study	Unit 8 - Addition and Subtraction Within 1,000 with Word Problems to 100
Time Frame/Pacing	23 days Notes on Pacing: None for this module
Big Ideas	Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
Unit Essential Questions	<ul style="list-style-type: none"> • How are relationships represented mathematically? • How can expressions, equations, and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
PA Core Standards	CC.2.1.2.B.3 Use place value understanding and properties of operations to add and subtract within 1000.
Learning Objectives (Concepts Taught)	<ul style="list-style-type: none"> • place value strategies, manipulatives, and math drawings to extend their conceptual understanding of the addition and subtraction algorithms to numbers within 1,000 • maintain addition and subtraction fluency within 100 through daily application work to solve one- and two-step word problems of all types • use place value reasoning to explain why their addition and subtraction strategies work
Performance Objectives (Skills Demonstrated)	Strategies for Adding and Subtracting Within 1,000 <ul style="list-style-type: none"> • Relate 10 more, 10 less, 100 more, and 100 less to addition and subtraction of 10 and 100. • Add and subtract multiples of 100, including counting on to subtract. • Add multiples of 100 and some tens within 1,000.

	<ul style="list-style-type: none"> • Subtract multiples of 100 and some tens within 1,000. • Use the associative property to make a hundred in one addend. • Use the associative property to subtract from three-digit numbers and verify solutions with addition. • Share and critique solution strategies for varied addition and subtraction problems within 1,000. <p>Strategies for Composing Tens and Hundreds Within 1,000</p> <ul style="list-style-type: none"> • Relate manipulative representations to the addition algorithm. • Use math drawings to represent additions with up to two compositions and relate drawings to the addition algorithm. • Choose and explain solution strategies and record with a written addition method. <p>Strategies for Decomposing Tens and Hundreds Within 1,000</p> <ul style="list-style-type: none"> • Relate manipulative representations to the subtraction algorithm, and use addition to explain why the subtraction method works. • Use math drawings to represent subtraction with up to two decompositions, relate drawings to the algorithm, and use addition to explain why the subtraction method works. • Subtract from multiples of 100 and from numbers with zero in the tens place. • Apply and explain alternate methods for subtracting from multiples of 100 and from numbers with zero in the tens place. <p>Student Explanations for Choice of Solution Methods</p> <ul style="list-style-type: none"> • Choose and explain solution strategies and record with a written addition or subtraction method.
Key Vocabulary	<p>New or Recently Introduced Terms compensation</p> <p>Familiar Terms and Symbols addend, addition, algorithm, bundle, compose, decompose, difference, equation, new groups below, number bond, place value, place value chart, place value or number disk, rename, simplifying strategy, subtraction, tape diagram, total, unbundle, units of ones/tens/hundreds</p>
Assessments	<ul style="list-style-type: none"> • Exit Tickets for each lesson, Mid Module Assessment, and End of Module Assessment • Topic A quiz: https://embarc.online/mod/page/view.php?id=6802 • Topic B quiz: https://embarc.online/mod/page/view.php?id=6803 • Topic C quiz: https://embarc.online/mod/page/view.php?id=6804 • Topic D quiz: https://embarc.online/mod/page/view.php?id=6805
Authentic Examples (real-world tasks)	Application Problems
Visual Representations and Strategies	<ul style="list-style-type: none"> • Arrow notation, arrow way • Chip model • Hide Zero cards • Number Bonds • Whiteboards • Place value disks • Place value charts • Tape diagram
Writing in Math	Mid-Module Assessment Problem e (p. 117 Teacher Edition).

Culturally Responsive Activities	<ul style="list-style-type: none"> • https://www.engageny.org/resource/grade-2-mathematics-module-5 (see the various language resources under “Downloadable Resources”)
Resources and Differentiation Tools	<p>Primary Resource: Eureka Module 5</p> <p>Other Resources:</p> <ul style="list-style-type: none"> • www.zearn.org (Grade 2 Mission 5) • 3-Act Math Tasks: https://gfletchy.com/downsizing-tomatoes/ • Problem of the Month: <ul style="list-style-type: none"> ○ http://www.insidemathematics.org/assets/problems-of-the-month/double%20down.pdf, (Level B) ○ http://www.insidemathematics.org/assets/problems-of-the-month/got%20your%20number.pdf, (Level D and E) • Illustrative Mathematics: <ul style="list-style-type: none"> ○ https://tasks.illustrativemathematics.org/2.OA.B ○ https://tasks.illustrativemathematics.org/2.NBT.A <p>ELL Overlay for Listening and Reading Grades 1 and 2 Mathematics ELL Overlay for Speaking and Writing for Grades 1 and 2 Mathematics</p>
Grade Level DOK Examples	<u>Grade 2 Math DOK Samples</u>