GRADE 1 MATHEMATICS

CURRICULUM

CARLISLE AREA SCHOOL DISTRICT

DATE OF BOARD APPROVAL: AUGUST 18, 2022

COURSE OVERVIEW

Title:	Grade 1 Mathematics
Grade Level:	1
Level:	N/A
Length:	90 Minute Blocks
Duration:	165-180 Days
Frequency:	Daily
Pre-Requisites:	N/A
Credit:	N/A
Description:	This curriculum document is part of a vertically-aligned sequence of curricula from grades Kindergarten through five. Each grade level is aligned to the Pennsylvania Mathematics Standards, and addresses the four curricular domains: Numbers and Operations, Algebraic Thinking, Geometry, and Measurement and Data. Throughout elementary school, these courses are designed to develop students' concrete and abstract understanding of mathematics, foster strong number sense, and strengthen the ability to solve increasingly complex problems using a variety of methods and strategies. Ultimately, the objective is to empower students as mathematical thinkers and communicators. **Throughout document, italicized vocabulary appears in PSSA Mathematics Glossary.*

COURSE TIMELINE

UNIT	TITLE	KEY CONCEPTS	DURATION (DAYS)
	Number Sense and Math Fluency	• Ongoing skill development	Ongoing
1	Numbers and Operations - Foundations	• Counting in sequence • Comparing numbers to 10 • Adding and subtracting to 10 • Solving word problems to 10	15 Days
2	Numbers and Operations in Base 10	• Place value using tens and ones • Comparing number using symbols • Adding and subtracting multiples of 10	50 Days
3	Operations in Algebraic Thinking to 100	• Adding and subtracting numbers to 100 • Solving problems involving addition and subtraction	60 Days
4	Measurement and Data	• Determining length • Telling time to the nearest hour and half hour • Introduction to charts and graphs	20 Days
5	Geometry	• Classifying objects by specific attributes • Understanding 2- and 3-dimensional shapes • Introduction to the concept of fractions (parts of whole)	20 Days

DISCIPLINARY SKILLS and PRACTICES

**Adapted from PA Academic Standards for Mathematics.*

DISCIPLINARY SKILL/PRACTICE	DESCRIPTION
Make sense of problems and persevere in solving them	Make conjectures about how real world application problems may be solved, monitor progress toward a solution, and make adjustments in the problem solving plan if necessary.
Reason abstractly and quantitatively	Estimate and check answers to problems and determine the reasonableness of results.
Construct viable arguments and critique the reasoning of others	Justify and communicate conclusions effectively and respond to arguments logically.
Model with mathematics	Use mathematics to model real world problems, interpreting the mathematical results in the context of the situation.
Use appropriate tools strategically	Consider the tools available in solving problems and understand the insights gained by using the tool as well as the limitation of the tool.
Attend to precision	Calculate accurately and efficiently within the context of problems and communicate results precisely.
Look for and make use of structure	Examine problems to discern a pattern or structure and utilize this finding in similar problems.
Look for and express regularity in repeated reasoning	Notice repeated calculations or processes and generalize from those insights in order to solve problems.

**Adapted from PA Academic Standards for Mathematics.*

FLUENCY UNIT

Unit Title	Number Sense and Math Fluency **(Ongoing)**
Unit Description	This is an ongoing mathematics fluency unit that is designed to be taught and reviewed consistently throughout the school year.
Unit Assessment	N/A

Essential Question	**Learning Goals**	**Content and Vocabulary**	**Standards**
Fluency Skills	☐ Identify numbers visually (1-120). ☐ Count and write (1-120). ☐ Extend the counting sequence (1-120). ☐ Master addition (0-10). ☐ Master subtraction (0-10).	**Vocabulary** dice, dominoes, ten frames, tally marks, fingers, numerals, subitize, fact fluency	CC.2.1.1.B.1 Extend the counting sequence to read and write numerals to represent objects.

UNIT 1

Unit Title	Numbers and Operations – Foundations **(15 Days)**
Unit Description	Students will develop number sense, and addition and subtraction skills. Students will build number sense by counting objects, writing numbers in order, and comparing numbers to 20. Students will use these skills and multiple strategies to add and subtract to 10, and will transfer these skills to solve word problems. This unit precedes all other units because it lays the foundation for first grade math skills.
Unit Assessment	Common Assessment

Essential Question	**Learning Goals**	**Content and Vocabulary**	**Standards**
How do I count objects and write numbers to 100?	☐ Count objects and write corresponding numerals (one-to-one correspondence) to 100.	**Vocabulary** numerals, digit, equal, count, sequence	CC.2.1.1.B.1 Extend the counting sequence to read and write numerals to represent objects.
How do I find sums to 10?	☐ Solve addition problems with sums to 10 using various strategies.	**Vocabulary** strategy, sum/addition, number grid, number line, manipulatives **Example Strategies** 10 frames, turn around rule, fact families, part-part, total, plus 1 and plus zero	CC.2.2.1.A.1 Represent and solve problems involving addition and subtraction within 20.

How do I find differences to 10?	☐ Solve subtraction problems with differences to 10 using various strategies.	**Vocabulary** difference/subtract, strategy, number grid, number line, manipulatives, *fact family* **Example Strategies** 10 frames, *fact families*, minus 1 and minus zero	CC.2.2.1.A.1 Represent and solve problems involving addition and subtraction within 20.

UNIT 2

Unit Title	Numbers and Operations in Base 10 **(50 Days)**
Unit Description	Students will learn place value, addition, and subtraction. Students will build understanding of place value by identifying tens and ones, representing numbers to 100, and comparing numbers to 100. They will then use these skills to add and subtract multiples of 10.
Unit Assessment	Common Assessment

Essential Question	**Learning Goals**	**Content and Vocabulary**	**Standards**
How do I use place value to represent two-digit numbers?	☐ Identify ones and tens in numbers up to 100. ☐ Read and write numbers using place value. ☐ Represent numbers using base 10 blocks to 100.	**Vocabulary** value**,** base 10, tens, ones, word form	CC.2.1.1.B.2 Use place value concepts to represent amounts of tens and ones and to compare two-digit numbers.
How do I use place value to compare two-digit numbers?	☐ Compare two numbers up to two digits. ☐ Explain how to compare two numbers up to two digits.	**Vocabulary** greater than, less than, <, >, =	CC.2.1.1.B.2 Use place value concepts to represent amounts of tens and ones and to compare two-digit numbers.

How do I use place value to add and subtract multiples of 10 within 100?	☐ Solve a two-digit plus or minus a multiple of ten problem using base 10 blocks. ☐ Find ten more and ten less than a number without having to count. ☐ Add ten and multiples of ten to a two-digit number. ☐ Subtract ten and multiples of ten from a two-digit number.	**Vocabulary** number grid, base 10 blocks, two-digit	CC.2.1.1.B.3 Use place value concepts and properties of operations to add and subtract within 100.

UNIT 3

Unit Title	Operations in Algebraic Thinking to 100 **(60 Days)**
Unit Description	Students will build upon their prior understanding of addition and subtraction and begin working with numbers up to 100. Students will use previously learned skills and new strategies to add and subtract to 100, and will transfer these skills to solve word problems up to 20.
Unit Assessment	Common Assessment

Essential Question	**Learning Goals**	**Content and Vocabulary**	**Standards**
How do I add to 20?	☐ Solve addition problems using manipulatives. ☐ Solve addition problems using strategies (emphasis on fact families).	**Vocabulary** strategy, sum/addition, difference/subtraction **Example Strategies** number grid, number line, manipulatives, ten frames, turn around rule, *fact family*, number bonds, part-part total, *equation*, doubles, doubles plus one, making ten, unknown	CC.2.2.1.A.1 Represent and solve problems involving addition and subtraction within 20. CC.2.2.1.A.2 Understand and apply properties of operations and the relationship between addition and subtraction.

How do I subtract to 20?	☐ Solve subtraction problems using manipulatives. ☐ Solve subtraction problems using strategies (emphasis on fact families).	**Vocabulary** strategy, sum/addition, difference/subtraction **Example Strategies** number grid, number line, manipulatives, ten frames, turn around rule, *fact family*, number bonds, part-part total, *equation*, doubles, doubles plus one, making ten, unknown	CC.2.2.1.A.1 Represent and solve problems involving addition and subtraction within 20. CC.2.2.1.A.2 Understand and apply properties of operations and the relationship between addition and subtraction.
How do I solve addition and subtraction word problems to 20?	☐ Use strategies to solve addition word problems. ☐ Use strategies to solve subtraction word problems including comparison problems. ☐ Determine whether to add or subtract in a word problem.	**Vocabulary** word problem, comparison, *fact family*, addition terms (altogether, add, more, in all), subtraction terms (less, take away, left)	CC.2.2.1.A.1 Represent and solve problems involving addition and subtraction within 20.
How do I add and subtract to 100?	☐ Solve addition and subtraction problems using manipulatives. ☐ Solve addition and subtraction problems using strategies (emphasis on fact families).	**Vocabulary** strategy, sum/addition, difference/subtraction **Example Strategies** number grid, number line, manipulatives, ten frames, turn around rule, *fact family*, number bonds, part-part total, *equation*, doubles, doubles plus one, making ten, unknown, regrouping	CC.2.1.1.B.3 Use place value concepts and properties of operations to add and subtraction 100.

UNIT 4

Unit Title	Measurement and Data **(20 Days)**
Unit Description	Students will learn measurement of length, telling time, and will be introduced to data. They will understand length and use it to compare and order objects. Students will measure objects using non-standard measurement, and will learn to tell time to the hour and half hour. They will then use data to create a table and answer questions about the table.
Unit Assessment	Common Assessment

Essential Question	**Learning Goals**	**Content and Vocabulary**	**Standards**
How do I compare, order and measure objects?	☐ Compare lengths of two objects. ☐ Order the lengths of three objects. ☐ Measure the lengths of objects using non-standard measurement and repeat length unit.	**Vocabulary** compare, order, length, long/longer, short/shorter, measure, measurement	CC.2.4.1.A.1 Order lengths and measure them both indirectly and by repeating length units.
How do I tell time to the hour and half hour using digital and analog clocks?	☐ Tell, show, and write time to the nearest hour. ☐ Tell, show, and write time to the nearest half hour.	**Vocabulary** hour hand, minute hand, analog, digital, hour, minute, half hour	CC.2.4.1.A.2 Tell and write time to the nearest half hour using both analog and digital clocks.
How do I interpret data on a tally chart and table?	☐ Answer questions about a tally chart. ☐ Answer questions about a table.	**Vocabulary** tally chart, table, data, information, category/label, title	CC.2.4.1.A.4 Represent and interpret data using tables/charts
How do I create a tally chart and table?	☐ Use data to create a tally chart. ☐ Use data to create a table.	**Vocabulary** tally chart, table, data, information, category/label, title.	CC.2.4.1.A.4 Represent and interpret data using tables/charts

UNIT 5

Unit Title	Geometry **(20 Days)**
Unit Description	Students will learn about two- and three-dimensional shapes. Students will draw two-dimensional shapes, and will identify two- and three-dimensional shapes by their names and attributes. Students will divide shapes into halves and fourths and identify the parts.
Unit Assessment	Common Assessment

Essential Question	**Learning Goals**	**Content and Vocabulary**	**Standards**
How do I identify a two-dimensional shape based on its attributes?	☐ Draw polygons based on specific attributes. ☐ Identify polygons based on specific attributes. ☐ Understand the attributes of shapes.	**Vocabulary** polygon, triangles, rectangle, square, rhombus, trapezoid, circle, hexagon, closed, attributes	CC.2.3.1.A.1 Compose and distinguish between two- and three-dimensional shapes based on their attributes.
How do I identify a three-dimensional shape based on its attributes?	☐ Identify three-dimensional shapes based on specific attributes. ☐ Understand the attributes of shapes.	**Vocabulary** solid/three-dimensional shapes, cube, rectangular prism, sphere, cone, cylinder, pyramid, attributes	CC.2.3.1.A.1 Compose and distinguish between two- and three-dimensional shapes based on their attributes.

How do I divide a two-dimensional shape into halves and quarters?	☐ Identify equal parts of a two-dimensional shape. ☐ Divide rectangles, circles, and squares into two or four equal parts. ☐ Describe the parts of the whole using fraction vocabulary.	**Vocabulary** divide, half/halves, quarters/fourths, equal shares	CC.2.3.1.A.2 Use the understanding of fractions to partition shapes into halves and quarters.

ACCOMMODATIONS AND MODIFICATIONS

Adaptations or modifications to this planned course will allow exceptional students to earn credits toward graduation or develop skills necessary to make a transition from the school environment to community life and employment. The I.E.P. team has determined that modifications to this planned course will meet the student's I.E.P. needs.

Adaptations/Modifications may include but are not limited to:

INSTRUCTION CONTENT

- Modification of instructional content and/or instructional approaches
- Modification or deletion of some of the essential elements

SETTING

- Preferential seating

METHODS

- Additional clarification of content
- Occasional need for one to one instruction
- Minor adjustments or pacing according to the student's rate of mastery
- Written work is difficult, use verbal/oral approaches
- Modifications of assignments/testing
- Reasonable extensions of time for task/project completion
- Assignment sheet/notebook
- Modified/adjusted mastery rates
- Modified/adjusted grading criteria
- Retesting opportunities

MATERIALS

- Supplemental texts and materials
- Large print materials for visually impaired students
- Outlines and/or study sheets
- Carbonless notebook paper
- Manipulative learning materials
- Alternatives to writing (tape recorder/calculator)