



Gateway School District Curriculum Map

Elementary Schools (K-4)

Cleveland Steward Elementary
5000 Gateway Campus Blvd,
Monroeville, PA 15146
412-373-5874

Ramsey Elementary
2200 Ramsey Road
Monroeville, PA 15146
412-373-5856

Evergreen Elementary
3831 Evergreen Drive
Monroeville, PA 15146
412-373-5842

University Park Elementary
320 Noel Drive
Monroeville, PA 15146
412-327-4113

Curriculum Map: Elementary - K Mathematics

Course: MATH GRADE K



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Unit 1: Classify and Count Numbers to 10

Subject: Mathematics

Brief Summary of Unit

Students start out realistically with solidifying the meaning of numbers to 10 with a focus on relationships to 5. In Module 1, students investigate growth and shrinking patterns to 10 of "1 more" and "1 less," using models such as the number stairs. [stairs.png](#)

Stage One - Desired Results

Established Goals:(Standards of Learning, content standards)

1. Count orally by ones beginning from a given number (instead of always beginning at 1).
2. Write numbers from 0 to 10.
3. Count to tell the number of objects.
4. Say the number names in the standard order, pairing each object with one and only one object.
5. Understand that the last number said tells the number of objects counted.
6. Understand that each successive number name refers to a quantity that is one larger.
7. Compare amounts to 10.
8. Rote count to 100.
9. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
10. Name numerals 0 – 20.
11. Represent a number of objects with a written numeral 0-20.
12. Uses one-to-one correspondence when counting to 20.
13. State the total number of objects counted, demonstrating understanding that the last number named tells the number of objects counted.
14. Understand that each successive number name refers to a quantity that is one larger.
15. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.
16. Compare two numbers between 1 and 10 presented as written numerals.

Understandings:What will students

Essential Questions:What arguable,

understand (about what big ideas) as a result of the unit? "Students will understand that..."

1. Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
2. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
3. Data can be modeled and used to make inferences.
4. Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.
5. Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.
6. Mathematical relationships among numbers can be represented, compared, and communicated.
7. Measurement attributes can be quantified and estimated using customary and non-customary units of measure.
8. Patterns exhibit relationships that can be extended, described, and generalized.

recurring, and thought-provoking questions will guide inquiry and point toward the big ideas of the unit?

1. How are relationships represented mathematically?
2. How can expressions, equations, and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
3. What does it mean to estimate or analyze numerical quantities?
4. When is it appropriate to estimate versus calculate?
5. What makes a tool and/or strategy appropriate for a given task?
6. How does the type of data influence the choice of display?
7. How can probability and data analysis be used to make predictions?
8. How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems?
9. How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?
10. How can geometric properties and theorems be used to describe, model, and analyze situations?
11. How can data be organized and represented to provide insight into the relationship between quantities?
12. How is mathematics used to quantify, compare, represent, and model numbers?
13. How can mathematics support effective communication?
14. Why does "what" we measure influence "how" we measure?
15. In what ways are the mathematical attributes of objects or processes measured, calculated, and/or interpreted?
16. How precise do measurements and calculations need to be?
17. How can patterns be used to describe relationships in mathematical situations?
18. How can recognizing repetition or regularity assist in solving problems more efficiently?

Performance Tasks:What evidence will be collected to determine whether or not the understandings have been developed, the knowledge and skill attained, and the state standards met?

Other Evidence:(quizzes, tests and so on)

Stage Three - Learning Plan

Unit 2: Identify and Describe Shapes

Subject: Mathematics

Brief Summary of Unit

Students learn to identify and describe squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders and spheres. Students also practice their fluency with numbers to 10.

Stage One - Desired Results

Established Goals:(Standards of Learning, content standards)

1. Identify shapes in environment.
2. Use positional words to describe position of shape.
3. Identify and compare attributes of shapes.
4. Sort by two attributes and count the shapes in each category.
5. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
6. Name numerals 0 – 20.
7. Represent a number of objects with a written numeral 0-20.
8. State the total number of objects counted, demonstrating understanding that the last number named tells the number of objects counted.
9. Identify shapes as two-dimensional or three-dimensional.
10. Name shapes regardless of their orientations or overall size.
11. Use simple shapes to compose larger shapes.
12. Describe objects in the environment using names of shapes and describe the relative positions of these objects using terms such as above, below, beside, in front, behind, and next to.
13. Analyze and compare two-and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts and other attributes.
14. Model shapes in the world by building shapes from components and drawing shapes.

Understandings:What will students understand (about what big ideas) as a result of the unit? "Students will understand that..."

Essential Questions:What arguable, recurring, and thought-provoking questions will guide inquiry and point toward the big ideas of the unit?

Stage Two - Assessment Evidence

Performance Tasks:What evidence will be collected to determine whether or not the understandings have been developed, the knowledge and skill attained, and the state standards met?

Other Evidence:(quizzes, tests and so on)

Stage Three - Learning Plan

Unit 3: Comparison with Length, Weight, and Numbers to 10

Subject: Mathematics

Brief Summary of Unit

Students begin to experiment with measurement, particularly with units and comparison of units. They use different units to measure length, weight and capacity, and explore the measurable attributes of an object. Comparison begins with developing the meaning of the word "than" in the context of "taller than," "shorter than," "heavier than," "longer than," etc. The terms "more" and "less" are abstract later in kindergarten because of their context: "7 is 2 more than 5" is more abstract than "Jim is taller than John." "1 more, 2 more, 3 more" lead into the addition fact fluencies (+1, +2, +3). Comparing numbers leads to a study of the numbers that make up a number (e.g., "3 is less than 7" and later, "3 and 4 make 7."). This, in turn, leads naturally to discussions of adding, subtracting, and solving word problems in the next module.

Stage One - Desired Results

Established Goals:(Standards of Learning, content standards)

- 1.Explore measuring length, weight and capacity with nonstandard units.
- 2.Use vocabulary such as shorter than, 1 more, 1 less when describing quantities.
- 3.Compare quantities.
- 4.Compare objects using a measurable attribute.
- 5.Describe measurable attributes of objects, such as length, weight, area or capacity.
- 6.Compare two objects with a measurable attribute in common and describe the difference.

Understandings:What will students understand (about what big ideas) as a result of the unit? "Students will understand that..."

Essential Questions:What arguable, recurring, and thought-provoking questions will guide inquiry and point toward the big ideas of the unit?

Stage Two - Assessment Evidence

Performance Tasks:What evidence will be collected to determine whether or not the understandings have been developed, the knowledge and skill attained, and the state standards met?

Other Evidence:(quizzes, tests and so on)

Stage Three - Learning Plan

Unit: Number Pairs, Addition and Subtraction of Numbers to 10

Subject: Mathematics

Brief Summary of Unit

Students use objects, fingers, mental images, drawings, acting out situations, verbal explanations, expressions, or equations to represent addition and subtraction situations. They will understand addition as putting together and adding to and subtractions as taking apart and taking from.

Stage One - Desired Results

Established Goals:(Standards of Learning, content standards)

- 1.Represent putting together and taking apart situations with objects, fingers, or drawings.
- 2.Add and subtract within 10 using objects, fingers, drawings, verbal explanations, or equations.
- 3.Solve addition and subtraction word problems, and add and subtract within 10, by using objects or drawings to represent the problem.
- 4.Represent addition and subtraction with objects, fingers, mental images, and drawings, sounds, acting out situations, verbal explanations, expressions, or equations.
- 5.Decompose numbers less than or equal to 10 into pairs in more than one way, by using objects or drawings, and record each decomposition by a drawing or equation.
- 6.Find the number that makes 10, for any number from 1 to 9, when added to the given number, by using objects or drawings, and record the answer with a drawing or equation.

Understandings:What will students understand (about what big ideas) as a result of the unit? "Students will understand that..."

Essential Questions:What arguable, recurring, and thought-provoking questions will guide inquiry and point toward the big ideas of the unit?

Stage Two - Assessment Evidence

Performance Tasks:What evidence will be collected to determine whether or not the understandings have been developed, the knowledge and skill attained, and the state standards met?

Other Evidence:(quizzes, tests and so on)

Stage Three - Learning Plan

Unit 4: Numbers 10-20, Counting to 100 by 1 and 10

Subject: Mathematics

Brief Summary of Unit

Students explore numbers 10-20, which are parsed as "10 together with a number from 1-10." For example, "12 is 2 more than 10." In numbers 6-10, the role of 5 loses significance as those numbers are shown in different configurations other than "5 and a number." In contrast, the number 10 is special; it is the anchor that will eventually become the "ten" unit in the place value system.

Stage One - Desired Results

Established Goals:(Standards of Learning, content standards)

- 1.Compose and decompose numbers.
- 2.Develop understanding of ten, both as a benchmark and as 10 ones = 1 ten.
- 3.Rename a teen number as ten and some more, e.g., 15 is ten and 5 more.
- 4.Count orally to 100 by ones and tens.
- 5.Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
- 6.Name numerals 0 – 20.
- 7.Represent a number of objects with a written numeral 0-20.
- 8.Compose and decompose numbers up to 19 into ten and ones by using objects or drawings, and record each composition or decomposition by a drawing or equation.

Understandings:What will students understand (about what big ideas) as a result of the unit? "Students will understand that..."

Essential Questions:What arguable, recurring, and thought-provoking questions will guide inquiry and point toward the big ideas of the unit?

Stage Two - Assessment Evidence

Performance Tasks:What evidence will be collected to determine whether or not the understandings have been developed, the knowledge and skill attained, and the state standards met?

Other Evidence:(quizzes, tests and so on)

Stage Three - Learning Plan

Unit 5: Analyze, Compare, Create, and Compose Shapes

Subject: Mathematics

Brief Summary of Unit

Students round out the year with an exploration of concepts of shapes. They discover that shapes can be composed of smaller shapes. Students begin to describe similarities and differences among shapes.

Stage One - Desired Results

Established Goals:(Standards of Learning, content standards)

1. Compare two shapes, giving similarities and differences.
2. Sort shapes based on appearance.
3. Make a larger shape out of two or more smaller shapes.
4. Model shapes using paper, clay, gumdrops, etc.
5. Identify shapes as two-dimensional or three-dimensional.
6. Name shapes regardless of their orientations or overall size.
7. Use simple shapes to compose larger shapes.
8. Describe objects in the environment using names of shapes and describe the relative positions of these objects using terms such as above, below, beside, in front, behind, and next to.
9. Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts and other attributes.
10. Model shapes in the world by building shapes from components and drawing shapes.

Understandings:What will students understand (about what big ideas) as a result of the unit? "Students will understand that..."

Essential Questions:What arguable, recurring, and thought-provoking questions will guide inquiry and point toward the big ideas of the unit?

Stage Two - Assessment Evidence

Performance Tasks:What evidence will be collected to determine whether or not the understandings have been developed, the knowledge and skill attained, and the state standards met?

Other Evidence:(quizzes, tests and so on)

Stage Three - Learning Plan

Unit: K - Standards for Mathematical Practice

Subject: Mathematics

Brief Summary of Unit

Standards for Mathematical Practice

[Mathematical Practices](#) resource page on SAS

Unit 1:

- MP# 1. Make sense of problems and persevere in solving them
- MP# 3. Construct viable arguments and critique the reasoning of others
- MP# 5. Use appropriate tools strategically
- MP# 6. Attend to precision

Unit 2:

- MP# 1. Make sense of problems and persevere in solving them
- MP# 3. Construct viable arguments and critique the reasoning of others
- MP# 5. Use appropriate tools strategically
- MP# 6. Attend to precision

Unit 3:

- MP# 1. Make sense of problems and persevere in solving them
- MP# 5. Use appropriate tools strategically
- MP# 6. Attend to precision

Unit 4:

- MP# 1. Make sense of problems and persevere in solving them
- MP# 2. Reason abstractly and quantitatively
- MP# 3. Construct viable arguments and critique the reasoning of others
- MP# 5. Use appropriate tools strategically

Unit 5:

- MP# 1. Make sense of problems and persevere in solving them
- MP# 2. Reason abstractly and quantitatively
- MP# 4. Model with mathematics
- MP# 7. Look for and make use of structure
- MP# 8. Look for and express regularity in repeated reasoning

Unit 6:

- MP# 1. Make sense of problems and persevere in solving them
- MP# 3. Construct viable arguments and critique the reasoning of others
- MP# 4. Model with mathematics
- MP# 7. Look for and make use of structure

Stage One - Desired Results

Established Goals:(Standards of Learning, content standards)

Understandings:What will students understand (about what big ideas) as a result of the unit? "Students will understand that..."

Essential Questions:What arguable, recurring, and thought-provoking questions will guide inquiry and point toward the big ideas of the unit?

Stage Two - Assessment Evidence

Performance Tasks:What evidence will be collected to determine whether or not the understandings have been developed, the knowledge and skill attained, and the state standards met?

Other Evidence:(quizzes, tests and so on)

Stage Three - Learning Plan