DIOCESE OF HARRISBURG
KINDERGARTEN CURRICULUM
MATH

Anchor: Students will have daily practice using numbers and number relationships.

	Objectives	Mastery
1	Count using whole numbers (to 100) by ones and tens (rote counting).	Master
2	Use concrete objectives to represent quantities up to and including 20.	Master
3	Represent equivalent forms of the same number through the use of concrete objects and drawings up to and including 20.	Master
4	Use concrete objects to group into sets of ten.	Demonstrate
5	Use concrete objects to demonstrate understanding of one-to-one correspondence up to and including 20.	Master
6	Count, read, and write whole numbers 0 to 20.	Master
7	Identify numbers before, after, and between 0 and 20.	Demonstrate
8	Provide opportunities for modeling appropriate languages. • Separating Sets • Half/whole equal parts • Creating/naming patterns	Demonstrate

The teacher will:

1. Count during daily activities.
2. Model the process of counting with one-to-one correspondence, and write the number signifying that amount.
3. Provide opportunities for matching and counting objects (e.g. passing out snacks, counting manipulatives).
4. Provide opportunities for one-to-one correspondence.
5. Explore one-to-one correspondence.
6. Provide opportunities for counting, reading, and writing numerals.
7. Provide opportunities for creating groups of ten.

The student will:

1. Practice group and individual rote counting experiences (e.g. daily counts, objects in the classroom).
2. Represent a given number up to twenty with manipulatives.
3. Use manipulatives to demonstrate one-to-one correspondence.
4. Analyze a set of objects and successfully divide them in half.
5. Create sets of ten with manipulatives.
6. Count a set of manipulatives to match a given number.
7. Use manipulatives to find before, after, and between on a number line and 100s chart.

Supplementary Materials:

Anchor: Provide exposure to practices using Computation and Estimation.

	Objectives	Mastery
1	Represent addition and subtraction in everyday situations using up to ten concrete objects.	Master
2	Join and separate sets of objects in quantities up to and including ten.	Master
3	Separate concrete objects into equal groups.	Master

The teacher will:

1. Provide opportunities in estimating a quantity and counting the number of objects.
2. Model, using the appropriate language/vocabulary, the process of adding, subtracting, and dividing sets.
3. Create real-life addition and subtraction problems for learners to solve by using pictures and/or concrete manipulatives.
4. Identify everyday classroom opportunities that involve the operation of addition and/or subtraction.
5. Provide opportunities, using counters or objects, to make and count sets.
6. Create addition problems that join two sets of the same amount of objects.
7. Provide opportunities for learners to explore and apply understanding of joining, subtracting, and dividing sets in learning centers.
8. Provide center activities for joining, subtracting, and dividing sets.

The student will:

1. Use counters to:
    a. Make sets up to ten.
    b. Solve simple math stories.
    c. Separate a pile of counters into two equal piles.
2. Draw pictures to explain the process of joining the sets.
3. Explore the concepts of addition and subtraction by joining and separating sets.
4. Combine two sets of objects (up to five) and find the sum.
5. Explain how they applied their skills during mathematical tasks.

Supplementary Materials:

Anchor: To provide exposure to methods of measurement.

	Objectives	Mastery
1	Understand the spatial concepts of over, under, beside, in, out, around, on, and between.	Master
2	Compare two objects.	Master
3	Estimate and measure objects using nonstandard units.	Demonstrate

The teacher will:

1. Incorporate spatial concept words into directions throughout the day.
2. Incorporate comparative and spatial vocabulary to compare, locate, and identify positions in space.
3. Use gross motor activities to help children understand and internalize comparative and positional words and phrases.
4. Emphasize the daily use of positional words.
5. Model the processes of measurement using standard and nonstandard tools and units while using the appropriate language/vocabulary.
6. Provide interesting objects for comparison.

The student will:

1. Engage in teacher-led activities, such as Simon Says, that use spatial words (e.g. “stand in a circle”).
2. Use positional vocabulary to describe the relative positions of objects (e.g. “The book is on the chair” and “I am in front of Amanda.”).
3. Collect two classroom objects and compare them by a defined characteristic (e.g. length, height, weight).
4. Explore objects to determine which will make a good measuring tool.

Supplementary Materials:

Anchor: To provide exposure to methods of measurement. (continued)

	Objectives	Mastery
1	Determine the length and height of objects with nonstandard units (e.g. hands, shoe lengths, jellybeans).	Demonstrate
2	Describe the instruments used for standard measurement of length, weight, volume, and temperature.	Demonstrate
3	Using a calendar or schedule chart, solve problems involving measurement of time.	Exposure

The teacher will:

1. Demonstrate how to measure objects starting at an end point and adding on cubes until the cubes are equal in length to the object they are measuring.
2. Design and provide activities to help children recognize the attributes of length, weight, and volume.
3. Provide opportunities and support learners in determining the appropriate measurement tool.
4. Provide cooking and mixing activities that use measurement for real-life purposes.
5. Create measurement math stories that require students to determine which measuring tool to use.
6. Provide opportunities and support learners in using standard and nonstandard units to measure objects by more than one attribute.
7. Engage children in thinking about the concept of time (e.g. number of days at school, season, days of the week, month).

The student will:

1. Use multiple units of the same size (nonstandard units) to measure and estimate the length of an object.
2. Investigate the different ways to measure the various attributes of an object.
3. Measure and compare classroom objects.
4. Select appropriate tools for the attribute being measured (e.g. a scale for weight, measuring cups for baking).
5. Recognize parts of the day and discuss activities that occur in the morning, afternoon, and night.
6. Participate using the calendar. Identify the season, the month, and the date of today, tomorrow, and yesterday.
7. Use pictures, drawings, and words to depict events in the order of occurrence.
8. Generate solutions to problems that might arise if we do not pay attention to time.

Supplementary Materials:

Anchor: To make, check, and verify predictions about the quantity, size, and shape of objects and groups of objects. Use measurements in everyday situations.

	Objectives	Mastery
1	Use math vocabulary comparison terms when making predictions regarding the quantity, size, and shape of objects.	Demonstrate
2	Identify the use of (nonstandard) measurement in everyday situations.	Demonstrate

The teacher will:

1. Model, using the appropriate language/vocabulary, the process of estimation (e.g. the size of an object, the size of a container, comparisons of the size of containers).
2. Engage learners in recognizing and applying measurement in everyday situations.
3. Encourage and support learners in explaining how they applied their skills during mathematical tasks.

The student will:

1. Analyze the size of a container and the objects inside when making an estimate as to the amount.
2. Examine the object being measured to determine the appropriate tool and approach.
3. Make an estimate by considering the size of the object(s) and its container.

Supplementary Materials:

Anchor: Introduce Problem-Solving Skills.

	Objectives	Mastery
1	Identify a problem, the information needed to solve it, and the strategies to use in solving it.	Demonstrate

The teacher will:

1. Model, using the appropriate language/vocabulary, the process of identifying and solving a problem.
2. Facilitate classroom discussion to identify the necessary steps and the appropriate order to solve problems occurring in and out of the classroom.
3. Create and provide opportunities for learners to engage in problem solving activities.
4. Answer open-ended questions, encourage conversations, and create classroom activities that encourage learners to explore a variety of possible solutions.
5. Encourage and support learners to explain their mathematical thinking and work.
6. Provide opportunities for learners to explore and apply understanding of problem solving throughout the school day.

The student will:

1. Express possible solutions to solve daily problems occurring in and out of the classroom.
2. Utilize different strategies and approaches to solve daily problems occurring in and out of the classroom.

Supplementary Materials:

Anchor: Organize data on graphs, tallies, and pictograms.

	Objectives	Mastery
1	Gather, organize, and display data on a bar graph and/or pictograph.	Demonstrate
2	Answer questions based on data shown on graphs or charts.	Demonstrate

The teacher will:

1. Model, using the appropriate language/vocabulary, the process of graphing (creating a graph, adding data, and interpreting the data).
2. Pose open-ended questions to engage learners in "reading" the data on a graph.
3. Provide opportunities for learners to see graphs used in the real world.
4. Provide opportunities throughout the school day for learners to explore and apply their understanding of creating and interpreting a graph.

The student will:

1. Participate in classroom graphing activities by adding their input to a graph.
2. Analyze the data on classroom graphs.

Supplementary Materials:

Anchor: Exposure to Probability and Predictions.

	Objectives	Mastery
1	Compare sets of data using the concepts of largest, smallest, most, least, equal to, greater than, and less than.	Demonstrate

The teacher will:

1. Provide opportunities for predicting results by referring to previous events.
2. Encourage and support learners in explaining how they applied their skills during mathematical tasks.

The student will:

1. Compare two sets of numerical data.

Supplementary Materials:

Anchor: Provide opportunities for learners to explore and apply understanding of the foundations for algebraic thinking throughout the school day.

	Objectives	Mastery
1	Identify, describe, and extend patterns based on shape, size, color, sound, or number.	Master
2	Use concrete objects to show equal or not equal.	Master
3	Recreate a simple story problem using concrete objects or pictures.	Demonstrate
4	Use concrete objects and trial and error to represent a number story.	Demonstrate
5	Use concrete objects or pictures to represent a number story that involves a missing addend.	Demonstrate
6	Explain how solutions are determined.	Demonstrate
7	Identify the purposes for different mathematical symbols (+, -, and =).	Demonstrate

The teacher will:

1. Provide a variety of materials for sorting, classifying, and creating patterns.
2. Demonstrate and explain the concept of recognizing, describing, and extending a pattern.
3. Provide opportunities and support learners in recognizing, describing, and extending patters.
4. Provide opportunities and support learners in recognizing and describing patterns in the environment.
5. Model, using the appropriate language/vocabulary, the process of determining equal and not equal sets.
6. Support learners in determining if sets are equal.
7. Support learners using numbers as they draw pictures to illustrate story problems.
8. Support learners in solving the missing addend (e.g. given an end number “5” and a set number “2”, learners will “count on” from “2” to “5” to determine “3” is the missing amount).
9. Provide opportunities and support learners in solving real-life story problems.
10. Provide opportunities and support learners in solving story problems with symbolic notation of numbers, adding, subtracting, and equals.
11. Encourage and support learners in explaining how they applied their skills during mathematical tasks.

The student will:

1. Sort manipulatives and other objects according to attribute (e.g. color, shape, size, and function). Define the sorting rule.
2. Recognize, describe, and extend a pattern.
3. Use manipulatives to create sets that are equal.
4. Determine whether two sets of objects are equal by counting the objects in each set.
5. Use concrete manipulatives and/or draw pictures to show the process of addition.
6. Use concrete manipulatives and/or draw pictures to determine the missing addend (e.g. There were 3 bears at the table, now there are 5. How many came?).
7. Utilize a number line to “count on” from a specified number to reach an end number.
8. Use numbers and symbols to represent addition and subtraction of concrete objects or pictures.
9. Solve a simple story problem and explain the process.
10. Draw story problems and assign the appropriate number to each set, then choose the correct symbol.

Supplementary Materials:

Anchor: Provide opportunities for learners to explore and apply understanding of geometry throughout the school day.

	Objectives	Mastery
1	Identify common two-dimensional geometric shapes.	Master
2	Identify common three-dimensional geometric shapes.	Master
3	Create and reproduce geometric designs using concrete objects.	Demonstrate
4	Draw and/or construct two-dimensional geometric shapes.	Master
5	Name and describe two-dimensional geometric shapes in real life.	Master
6	Identify geometric shapes that are turned in different ways.	Master

The teacher will:

1. Model, using the appropriate language/vocabulary, the process of recognizing, describing, and naming geometric shapes.
2. Provide opportunities and support learners in locating geometric shapes within the environment.
3. Provide materials/opportunities and support learners in creating shapes.
4. Provide opportunities and support learners in describing the attributes of shapes.
5. Encourage and support learners in explaining how they applied their skills during mathematical tasks.
6. Provide tactile opportunities to compose and decompose shapes using manipulatives (e.g. playdough).

The student will:

1. Explore the environment to locate two and three-dimensional shapes (e.g. circles, squares, triangles, rectangles, cubes, spheres, cones).
2. Name two-dimensional shapes in the environment and describe their properties.
3. Name three-dimensional shapes in the environment and describe their properties.
4. Create various geometric shapes with manipulatives (e.g. pattern blocks, geoboards, tangrams).
5. Determine if shapes folded in half are the same or different (i.e. symmetrical or nonsymmetrical).
6. Observe items from nature to determine if they are symmetrical or nonsymmetrical.
7. Identify and describe similarities and differences in shapes found in everyday situations and learning materials.
8. Explore geometric shapes turned in different ways.
9. Compose and analyze shapes.

Supplementary Materials:

Anchor: Provide opportunities for learners to explore and apply understanding of ordering (e.g. from least to greatest, from slowest to fastest).

	Objectives	Mastery
1	Order whole numbers (0-20) from least to greatest value.	Demonstrate

The teacher will:

1. Model, using the appropriate language/vocabulary, the process of ordering numbers from least to greatest.
2. Use classroom tools (e.g. number line, 100s board) to model strategies that support learning.
3. Provide opportunities and support learners in ordering numbers from least to greatest.
4. Encourage and support learners in explaining how they applied their skills during mathematical tasks.

The student will:

1. Place number cards in order from 0 to 20.
2. Visualize and think about two objects (e.g. a bike and a car) and compare their rates of speed.

Supplementary Materials: