

Curriculum Map: Riverview Kindergarten Math

Course: Math Grade K

Grade(s): Kindergarten

Course Description:

Throughout the Kindergarten program, emphasis is placed on

- building from and connecting with children's informal everyday experiences with mathematics
- problem solving in everyday situations and mathematical contexts
- an instructional design that revisits topics regularly to ensure depth of knowledge and long-term learning
- distributed practice through routines, games, and other activities
- teaching that supports "productive struggle" and maintains high cognitive demand

Course Student Learning Outcomes:

The needs and abilities of kindergarten learners are diverse, and teachers must use varied approaches to support each child's learning and development. Therefore, student learning outcomes will vary at this grade level.

With prompting and support students will:

- know number names and the counting sequence
- count to tell the number of objects
- compare numbers
- understand addition as putting together and adding to, and understand subtraction as taking apart, and taking from
- work with numbers 11-19 to gain foundations for place value
- describe and compare measurable attributes
- classify objects and count the number of objects in each category
- identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
- analyze, compare, create, and compose shapes

Course Essential Questions:

Counting and Cardinality

- How is mathematics used to quantify, compare, represent, and model numbers?
- How can mathematics support effective communication?
- What does it mean to estimate or analyze numerical quantities?
- How can patterns be used to describe relationships in mathematical situations?
- What makes a tool and/or strategy appropriate for a given task?
- How can recognizing repetition or regularity assist in solving problems more efficiently?

Number and Operations in Base 10

- How does the knowledge of base 10 help to gain foundations for place value?

Algebraic Concepts

- How is mathematics used to quantify, compare, represent, and model numbers?
- How can mathematics support effective communication?
- How are relationships represented mathematically?
- How can recognizing repetition or regularity assist in solving problems more efficiently?

Measurement, Data, and Probability

- What does it mean to estimate and analyze numerical quantities?
- What makes a tool and/or strategy appropriate for a given task?
- Why does "what" we measure influence "how" we measure?
- In what ways are the mathematical attributes of objects or processes measured, calculated and/or interpreted?
- How can data be organized and represented to provide insight into the relationship between quantities?
- How does the type of data influence the choice of display?
- How can probability and the data analysis be used to make predictions?

Geometry

- How can patterns be used to describe relationships in mathematical situations?
- How can recognizing repetition or regularity assist in solving problems more efficiently?
- 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?
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Course Big Ideas:

Counting and Cardinality

- Know number names and the count sequence to 100.
- Represent a number of objects with a written numeral 0-20.
- Count to tell the number of objects in a set regardless of how they are configured.
- Compare numerals and the number of objects in groups.

Number and Operations in Base 10

- Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18=10+8$); understand that these numbers are composed of ten ones, and one, two, three, four, five, six, seven, eight, or nine ones.

Algebraic Concepts

- Mathematical relationships among numbers can be represented, compared, and communicated.
- Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
- Fluently add and subtract within 5.

Measurement, Data, and Probability

- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
- Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.
- Classify and describe objects into given categories; count the numbers of objects in each category and sort the categories by count.
- Data can be modeled and used to make inferences.

Geometry

- Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.
- Patterns exhibit relationships that can be extended, described, and generalized. (This is not part of the curriculum, however, it is still taught because it is fundamental to the acquisition of skills needed for mastery of the PA Common Core Standards.)

Course Long Term Transfer Goals: The Everyday Mathematics Program incorporates numeration, operations, patterns, functions, geometry, measurement, data, and chance. These skills are developed through manipulatives, real life experiences, and builds upon a spiraling, curriculum throughout the year. Many small groups are utilized to provide individualized teacher support and promote the use of games as a teaching tool. These experiences lay the foundation for future growth and encourages lifelong learning.