Kindergarten Math Curriculum

Board Approved: March 21, 2024

Course Information

Course Description:
In Kindergarten, instructional time focuses on five areas: (1) Number sense and counting; (2) representing, relating, and operating on whole numbers, initially with sets of objects; (3) describing shapes and space; (4) building a foundational understanding of time and money; and (5) classifying objects into categories.

Transfer Goals:

- Apply mathematics to problems arising in everyday life, society, and the workplace.
- Select tools as appropriate, including real objects, manipulatives, paper/pencil, and technology to solve problems.
- Select techniques as appropriate, including mental math, estimation, and number sense, to solve problems.
- Organize, record, and communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.
- Analyze mathematical patterns and relationships to connect and communicate mathematical ideas.
- Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Curriculum Standards: Missouri Learning Standards for Mathematics, Kindergarten

Curriculum Resource(s): *enVisionMATH Realize Edition © 2015, Savvas Education*

Unit 1: Number Sense

Timeframe: ***See current resource scope and sequence***

Unit Description: This unit builds the foundation for counting and cardinality. Students will:

- Know number names and the count sequence.
- Understand the relationship between numbers and counting.
- Connect counting to cardinality.
- Compare numbers.

Enduring Understandings:

- Counting tells how many are in a set, regardless of their arrangement or the order in which they were counted.
- The last number said when counting a set is the total.
- There is a unique symbol for each number word.
- Zero is a number that tells how many objects there are when there are none.
- Base ten blocks, number lines, five-frames, ten-frames, patterns on a hundreds chart, and other models can be used to develop a better understanding of numbers.
- When comparing two groups of objects, if the number of objects match, the groups have an equal (same) number of objects. If one group has items left over, that group has more. The other group has less (fewer) objects.
- In a pair of numbers, the number that shows more is greater. The number that shows fewer is less.
- Relationships between numbers can be expressed by saying 1 more, 1 fewer, 2 more, 2 fewer.
- The numbers 5 and 10 can be used as benchmarks to compare numbers.

Essential Questions:

- What are the numbers in order from 0-100?
- How can I count objects saying the number names in order?
- When I count objects, how can I identify the total number counted?
- If the objects in a set are rearranged, how many will there be then?
- How can I count forward from any number other than 1?
- How can I show numbers of objects from 0-20?
- How can I write numbers up to 20?
- How can I use matching and counting strategies to:
    - identify which number is larger?
    - identify which number is smaller?
    - tell if two groups have the same amount of objects
- How do I know if a number is more or less than another number?
- How can I order numbers from 0 to 10?

Unit 1 Standards	
STANDARD CODE	**STUDENTS WILL KNOW, BE ABLE TO, AND UNDERSTAND:**
K.NS.A.1	• **I can count out loud to one hundred by ones, beginning at one.** • **I can count out loud to one hundred by tens, beginning at ten.**
K.NS.A.2	• I can count forward out loud within twenty beginning from a given number other than one.
K.NS.A.3	• I can count backward from a given number between ten and one.
K.NS.A.4	• **I can name numerals zero to twenty, when given numerals (written form) in any order.** • **I can write numerals zero to twenty, in any order.** • **I can identify a numeral to represent the quantity of objects in a set.** • **I can write a numeral to represent the quantity of objects in a set.**
K.NS.B.5	• **I can count objects in the standard order, pairing each object with one and only one number name and each number name with one and only one object.**
K.NS.B.6	• I can count objects to show that the last number said when counting tells the number of objects counted. • I can show that, regardless of their arrangement, the last number name said when counting tells the number of objects counted. • I can show that the last number name said when counting tells the number of objects counted, regardless of the order in which they are counted. • I can show that rearranging a known number of objects does not change the number in the set (the set does not need to be recounted).
K.NS.B.7	• I can show that each number in the count sequence is one more than the previous number.
K.NS.B.8	• I can recognize and verbally name a quantity of up to five objects arranged in a common pattern without counting.
K.NS.B.9	• I can show that a number can be used to represent “how many” are in a set (cardinality). • I can count out the number of objects when given a number from one to twenty. • I can organize objects in a way to make it easier to count and recount.
K.NS.C.10	• **I can compare two sets of objects to determine which set is more than the other.** • **I can compare two sets of objects to determine if two or more sets**

	are equal to each other. ● **I can compare two sets of objects to determine which set has fewer (less) than the other.** ● **I can compare two or more sets of objects to determine which set is equal to, more than (and most), or fewer (and less/least) than the other.**
K.NS.C.11	● I can compare two or more numerals between 1 and 10 to determine which numeral is more than the other. ● I can compare two or more numerals between 1 and 10 to determine which numeral is less than the other.

Unit 2: Relationships and Algebraic Thinking

Timeframe: ***See current resource scope and sequence***

Unit Description: This unit builds on students' understanding of counting to develop meaning for addition and subtraction through modeling and representing problem situations, using concrete objects and pictorial representations. Students will:

- Understand addition as putting together or adding to.
- Understand subtraction as taking apart or taking from.

Enduring Understandings:

- It is important to be able to count, order, add and subtract numbers in order to solve real life problems.
- Mental images, objects, fingers, and drawings can be used to help solve problems.
- Base ten blocks, number lines, five-frames, ten-frames, patterns on a hundreds chart, and other models can be used to add or subtract numbers and to develop mental math strategies and number sense.
- Numbers can be used to represent quantities, to combine quantities, and to find the difference of quantities.
- An equation is a math sentence that has two equal sides separated by an equal sign.
- The equal sign is a math symbol that means "the same value as"; each side of the equal sign should show the same amount.
- Putting together and adding to are both situations that use addition.
- Addition equations using (+) and (=) are used to show parts of a whole.
- Taking apart, taking away/from, separating parts from a whole, and comparing two numbers to find which is more/less are situations that use subtraction.
- Subtraction equations using (-) and (=) are used to show separating and take away situations.

Essential Questions:

- How can I use objects, images, fingers, and drawings to show addition?
- How can I use objects, images, fingers, and drawings to show subtraction?
- How can I use symbols, like (-), (+), and (=), to show what is happening in a math problem?
- How do I know if an answer makes sense?
- How can I separate numbers less than or equal to 10 into pairs in more than one way?
- How can I easily add and subtract within 5?
- How can I make 10 for any number from 1 to 9?

Unit 2 Standards	
STANDARD CODE	**STUDENTS WILL KNOW, BE ABLE TO, AND UNDERSTAND:**
K.RA.A.1	• **I can use objects to represent addition within ten.** • **I can use pictures to represent addition within ten.** • **I can write equations with the (+) and (=) symbols to represent addition within ten.** • **I can use objects to represent subtraction within ten.** • **I can use pictures to represent subtraction within ten.** • **I can write equations with the (-) and (=) symbols to represent subtraction within ten.** • **I can use a variety of strategies to represent addition and subtraction within ten.**
K.RA.A.2	• I can use more than one way to model real-world and mathematical problems involving addition and subtraction within five. • I can respectfully critique the reasoning of others, identifying errors and alternate approaches to solving problems involving addition and subtraction within five. • I understand the meaning of the symbols in a math problem and can use them to find solutions. • I can represent the situation in a math problem with symbols and find the solution. • I can explain my reasoning for solutions for addition and subtraction problems within five. • I can find and explain patterns when solving problems involving addition and subtraction within five. • I can explain my reasoning precisely to problems involving addition and subtraction within five.
K.RA.A.3	• **I can use objects to break apart numbers within ten in more than one way.** • **I can use drawings to show how to break apart numbers within ten in more than one way.** • **I can use equations with symbols (+), (=), and/or (-) to show how to break apart numbers within ten in more than one way.**
K.RA.A.4	• I can use models to find the unknown number that makes ten when given a number less than ten. • I can use drawings to find the unknown number that makes ten when given a number less than ten. • I can use equations to find the unknown number that makes ten when given a number less than ten. • I can use multiple strategies to find the unknown number that makes ten when given a number less than ten.

Unit 3: Number Sense and Operations in Base Ten

Timeframe: ***See current resource scope and sequence***

Unit Description: This unit builds the foundation for students to develop an understanding of the base ten system. Students will work with and develop connections to the meaning of numbers 11 to 19.	
Enduring Understandings: ● Drawings and objects can help me to understand tens and ones. ● Base ten blocks, number lines, five-frames, ten-frames, patterns on a hundreds chart, and other models can be used to add or subtract numbers and to develop mental math strategies. ● Numbers from 11-19 can be represented as the sum of 10 and some more ones. ● There is more than one way to show a number. ● Teen numbers can be decomposed, or broken apart, as the sum of ten and some ones. ● Equations can be written to represent the decomposition of numbers.	**Essential Questions:** ● How can I show quantities in different ways? ● What patterns do I see in numbers over 10? ● How can I use drawings and objects to break apart numbers from 11-19? ● How can I put together 1 ten and some ones to make the numbers 11 to 19? ● How can numbers from 11 to 20 be counted, read, and written?

Unit 3 Standards	
STANDARD CODE	**STUDENTS WILL KNOW, BE ABLE TO, AND UNDERSTAND:**
K.NBT.A.1	● **I can explain that numbers from eleven to nineteen are composed of, or made up of, one group of ten and one, two, three, four, five, six, seven, eight or nine additional ones.** ● **I can use objects to demonstrate the concept of unitizing numbers from eleven to nineteen by grouping ten ones as a unit, separate from the remaining ones.** ● **I can use objects to show how to combine two smaller numbers to make the numbers eleven to nineteen.** ● **I can use objects to show how to take apart the numbers eleven to nineteen.** ● **I can use drawings to show how to combine two smaller numbers to make the numbers eleven to nineteen.**

	• **I can use drawings to show how to take apart the numbers eleven to nineteen.** • **I can use numerals to show how to combine two smaller numbers to make the numbers eleven to nineteen.** • **I can use numerals to show how to take apart the numbers eleven to nineteen.** • **I understand that in the symbols that represent the numbers eleven to nineteen the first digit "1" represents one grouped set of ten items.**

Unit 4: Geometry and Measurement

Timeframe: ***See current resource scope and sequence***

Unit Description: Students in Kindergarten develop spatial reasoning as they learn to recognize and visualize shapes in their surroundings. Experiences with measurement develop concepts about what can be measured and how to measure it. Students will:

- Reason with shapes and their attributes.
- Work with time and money.
- Analyze squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres.

Enduring Understandings:

GEOMETRY

- Attributes can be used to compare and sort a group of objects.
- Measurable attributes include things like numbers of sides or corners, and non-measurable attributes include things like color or size.
- 2D shapes are flat, 3D shapes are solid.
- 2D and 3D shapes have specific names regardless of their orientation and size.
- Solid figures can be compared in different ways, including by their flat surfaces (faces), edges, and vertices.
- A rectangle is a closed figure with four sides and four right angles. A square is a special type of rectangle.
- A circle is round and doesn't have any corners.
- A triangle is a closed figure with three sides.
- Shapes can be combined to make other shapes.
- Shapes can be combined to make other shapes.
- The position of objects can be described in relation to surrounding objects using words.

MEASUREMENT- TIME

- Time is measured in seconds, minutes, hours, days, weeks, months, and years.
- Clocks and calendars are tools that measure time.

MEASUREMENT- MONEY

Essential Questions:

GEOMETRY

- How can I sort/classify/group different shapes?
- How do I use mathematical language to describe 2D and 3D shapes?
- What are attributes or properties of a shape or shapes?
- What shapes can I see in our world?
- What is a: square, circle, triangle, rectangle, hexagon,
- What is a cube, cone, cylinder and sphere?
- How can I show how shapes fit together and come apart?
- How can I use direction words to describe the location of an object or place?

MEASUREMENT- TIME

- What are some ways to describe the passage of time?
- What are the days of the week?
- What are the months of the year?

MEASUREMENT- MONEY

- How can I identify a penny, nickel, dime, and quarter?

• Each coin looks different and has its own name.	

Unit 4 Standards	
STANDARD CODE	**STUDENTS WILL KNOW, BE ABLE TO, AND UNDERSTAND:**
K.GM.A.1	• I can describe attributes of objects. • I can describe measurable attributes of objects.
K.GM.A.2	• **I can compare the measurable attributes of two objects.**
K.GM.B.3	• I understand the passage of time. • I can identify tools that measure time (analog and digital).
K.GM.B.4	• I can name the days of the week with cueing from a calendar or schedule. • I can name the days of the week in order without a visual cue.
K.GM.B.5	• I can identify (name) pennies, nickels, dimes and quarters.
K.GM.C.6	• I can identify squares, circles, triangles, rectangles and hexagons. • I can describe things in my environment that are shaped like squares, circles, triangles, rectangles and hexagons. • I can identify cubes, cones, cylinders, and spheres in the environment. • I can describe objects in my environment using the figure names cube, cone, cylinder and sphere. • I know that names of shapes and objects remain the same regardless of orientation or size.
K.GM.C.7	• I can describe positions of objects using words like above and below. • I can describe positions of objects using left and right. • I can describe positions of objects using in front, behind, and next to. • I can describe positions of objects using ordinal numbers like first, second, third.
K.GM.C.8	• I can identify the measurable attributes of squares, circles, triangles, rectangles and hexagons. • I can describe the measurable attributes of squares, circles, triangles, rectangles and hexagons. • I can sort a collection of two-dimensional shapes based on measurable attributes.
K.GM.C.9	• I can draw two-dimensional shapes. • I can model two-dimensional shapes.
K.GM.C.10	• I can draw or model two-dimensional shapes that are made from two or

	more other shapes. ● I can use 2 or more two-dimensional shapes to form new two-dimensional shapes.

Unit 5: Data and Statistics

Timeframe: ***See current resource scope and sequence***

Unit Description: Students will pose questions and collect, interpret, and analyze data. Students will represent and interpret data for up to three categories in object graphs, picture graphs, T-charts, and tally charts.	
Enduring Understandings: ● Graphs can be used to visually organize information and make comparisons. ● Data can be displayed in a variety of ways.	**Essential Questions:** ● How can graphs be used to show data and answer questions? ● How do I create, label, and put data in an object or picture graph? ● How do I create, label, and put data in a T-chart or tally chart?

Unit 5 Standards	
STANDARD CODE	**STUDENTS WILL KNOW, BE ABLE TO, AND UNDERSTAND:**
1.DS.A.1	● **I can collect data for up to three categories using object graphs.** ● **I can organize data for up to three categories using object graphs.** ● **I can represent data for up to three categories using object graphs.** ● **I can collect data for up to three categories using picture graphs.** ● **I can organize data for up to three categories using picture graphs.** ● **I can represent data for up to three categories using picture graphs.** ● **I can collect data for up to three categories using T-charts.** ● **I can organize data for up to three categories using T-charts.** ● **I can represent data for up to three categories using T-charts.** ● **I can collect data for up to three categories using tally charts.** ● **I can organize data for up to three categories using tally charts.** ● **I can represent data for up to three categories using tally charts.**
1.DS.A.2	● I can draw conclusions from given object graphs. ● I can draw conclusions from given picture graphs. ● I can draw conclusions from given T-charts. ● I can draw conclusions from given tally charts. Drawing conclusions includes: asking and answering questions about the total number of data points; finding how many in each category; and finding how many more or less are in one category compared to another category.