Grade Kindergarten Mathematics

Version Description

In Grade Kindergarten Mathematics, instructional time will emphasize three areas:

(1) developing an understanding of counting to represent the total number of objects in a set and to order the objects within a set;
(2) developing an understanding of addition and subtraction and the relationship of these operations to counting and
(3) measuring, comparing and categorizing objects according to various attributes, including their two- and three-dimensional shapes.

Curricular content for all subjects must integrate critical-thinking, problem-solving, and workforce-literacy skills; communication, reading, and writing skills; mathematics skills; collaboration skills; contextual and applied-learning skills; technology-literacy skills; information and media-literacy skills; and civic-engagement skills.

All clarifications stated, whether general or specific to Kindergarten Mathematics, are expectations for instruction of that benchmark.

General Notes

Florida's Benchmarks for Excellent Student Thinking (B.E.S.T.) Standards: This course includes Florida's B.E.S.T. ELA Expectations (EE) and Mathematical Thinking and Reasoning Standards (MTRs) for students. Florida educators should intentionally embed these standards within the content and their instruction as applicable. For guidance on the implementation of the EEs and MTRs, please visit https://www.cpalms.org/Standards/BEST_Standards.aspx and select the appropriate B.E.S.T. Standards package.

English Language Development ELD Standards Special Notes Section: Teachers are required to provide listening, speaking, reading and writing instruction that allows English language learners (ELL) to communicate information, ideas and concepts for academic success in the content area of Mathematics. For the given level of English language proficiency and with visual, graphic, or interactive support, students will interact with grade level words, expressions, sentences and discourse to process or produce language necessary for academic success. The ELD standard should specify a relevant content area concept or topic of study chosen by curriculum developers and teachers which maximizes an ELL's need for communication and social skills. To access an ELL supporting document which delineates performance definitions and descriptors, please click on the following link: http://www.cpalms.org/uploads/docs/standards/eld/MA.pdf.

General Information

Course Number: 5012020	Course Type: Core Academic Course
Course Length: Year (Y)	Course Level: 2
Course Attributes: Class Size Core Required	Grade Level(s): K
Course Path: Section | Grades PreK to 12 Education Courses > Grade Group | Grades PreK to 5 Education Courses > Subject | Mathematics > SubSubject | General Mathematics > Abbreviated Title | M/J GRADE K MATH	
Educator Certification: Prekindergarten/Primary Education (Age 3 through Grade 3) or Elementary Education (Elementary Grades 1-6) or Primary Education (K-3) or Early Childhood Education (Early Childhood) or Elementary Education (Grades K-6)	

Course Standards and Benchmarks

Mathematical Thinking and Reasoning

MA.K12.MTR.1.1 Actively participate in effortful learning both individually and collectively.

Mathematicians who participate in effortful learning both individually and with others:

- Analyze the problem in a way that makes sense given the task.
- Ask questions that will help with solving the task.
- Build perseverance by modifying methods as needed while solving a challenging task.
- Stay engaged and maintain a positive mindset when working to solve tasks.
- Help and support each other when attempting a new method or approach.

Clarifications:

Teachers who encourage students to participate actively in effortful learning both individually and with others:

- Cultivate a community of growth mindset learners.
- Foster perseverance in students by choosing tasks that are challenging.
- Develop students' ability to analyze and problem solve.
- Recognize students' effort when solving challenging problems.

MA.K12.MTR.2.1 Demonstrate understanding by representing problems in multiple ways.

Mathematicians who demonstrate understanding by representing problems in multiple ways:

- Build understanding through modeling and using manipulatives.
- Represent solutions to problems in multiple ways using objects, drawings, tables, graphs and equations.
- Progress from modeling problems with objects and drawings to using algorithms and equations.
- Express connections between concepts and representations.
- Choose a representation based on the given context or purpose.

Clarifications:

Teachers who encourage students to demonstrate understanding by representing problems in multiple ways:

- Help students make connections between concepts and representations.
- Provide opportunities for students to use manipulatives when investigating concepts.
- Guide students from concrete to pictorial to abstract representations as understanding progresses.
- Show students that various representations can have different purposes and can be useful in different situations.

MA.K12.MTR.3.1 Complete tasks with mathematical fluency.

Mathematicians who complete tasks with mathematical fluency:

- Select efficient and appropriate methods for solving problems within the given context.
- Maintain flexibility and accuracy while performing procedures and mental calculations.
- Complete tasks accurately and with confidence.
- Adapt procedures to apply them to a new context.
- Use feedback to improve efficiency when performing calculations.

Clarifications:

Teachers who encourage students to complete tasks with mathematical fluency:

- Provide students with the flexibility to solve problems by selecting a procedure that allows them to solve efficiently and accurately.
- Offer multiple opportunities for students to practice efficient and generalizable methods.
- Provide opportunities for students to reflect on the method they used and determine if a more efficient method could have been used.

MA.K12.MTR.4.1 Engage in discussions that reflect on the mathematical thinking of self and others.

Mathematicians who engage in discussions that reflect on the mathematical thinking of self and others:

- Communicate mathematical ideas, vocabulary and methods effectively.
- Analyze the mathematical thinking of others.
- Compare the efficiency of a method to those expressed by others.
- Recognize errors and suggest how to correctly solve the task.
- Justify results by explaining methods and processes.
- Construct possible arguments based on evidence.

Clarifications:
Teachers who encourage students to engage in discussions that reflect on the mathematical thinking of self and others:

- Establish a culture in which students ask questions of the teacher and their peers, and error is an opportunity for learning.
- Create opportunities for students to discuss their thinking with peers.
- Select, sequence and present student work to advance and deepen understanding of correct and increasingly efficient methods.
- Develop students' ability to justify methods and compare their responses to the responses of their peers.

MA.K12.MTR.5.1 Use patterns and structure to help understand and connect mathematical concepts.

Mathematicians who use patterns and structure to help understand and connect mathematical concepts:

- Focus on relevant details within a problem.
- Create plans and procedures to logically order events, steps or ideas to solve problems.
- Decompose a complex problem into manageable parts.
- Relate previously learned concepts to new concepts.
- Look for similarities among problems.
- Connect solutions of problems to more complicated large-scale situations.

Clarifications:
Teachers who encourage students to use patterns and structure to help understand and connect mathematical concepts:

- Help students recognize the patterns in the world around them and connect these patterns to mathematical concepts.
- Support students to develop generalizations based on the similarities found among problems.
- Provide opportunities for students to create plans and procedures to solve problems.
- Develop students' ability to construct relationships between their current understanding and more sophisticated ways of thinking.

MA.K12.MTR.6.1 Assess the reasonableness of solutions.

Mathematicians who assess the reasonableness of solutions:

- Estimate to discover possible solutions.
- Use benchmark quantities to determine if a solution makes sense.
- Check calculations when solving problems.
- Verify possible solutions by explaining the methods used.
- Evaluate results based on the given context.

Clarifications:

Teachers who encourage students to assess the reasonableness of solutions:

- Have students estimate or predict solutions prior to solving.
- Prompt students to continually ask, "Does this solution make sense? How do you know?"
- Reinforce that students check their work as they progress within and after a task.
- Strengthen students' ability to verify solutions through justifications.

MA.K12.MTR.7.1 Apply mathematics to real-world contexts.

Mathematicians who apply mathematics to real-world contexts:

- Connect mathematical concepts to everyday experiences.
- Use models and methods to understand, represent and solve problems.
- Perform investigations to gather data or determine if a method is appropriate.
- Redesign models and methods to improve accuracy or efficiency.

Clarifications:

Teachers who encourage students to apply mathematics to real-world contexts:

- Provide opportunities for students to create models, both concrete and abstract, and perform investigations.
- Challenge students to question the accuracy of their models and methods.
- Support students as they validate conclusions by comparing them to the given situation.
- Indicate how various concepts can be applied to other disciplines.

ELA Expectations

ELA.K12.EE.1.1 Cite evidence to explain and justify reasoning.

ELA.K12.EE.2.1 Read and comprehend grade-level complex texts proficiently.

ELA.K12.EE.3.1 Make inferences to support comprehension.

ELA.K12.EE.4.1 Use appropriate collaborative techniques and active listening skills when engaging in discussions in a variety of situations.

ELA.K12.EE.5.1 Use the accepted rules governing a specific format to create quality work.

ELA.K12.EE.6.1 Use appropriate voice and tone when speaking or writing.

English Language Development

ELD.K12.ELL.MA Language of Mathematics

ELD.K12.ELL.MA.1	English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

Number Sense and Operations

MA.K.NSO.1 Develop an understanding for counting using objects in a set.

MA.K.NSO.1.1	Given a group of up to 20 objects, count the number of objects in that group and represent the number of objects with a written numeral. State the number of objects in a rearrangement of that group without recounting.

Benchmark Clarifications:
Clarification 1: Instruction focuses on developing an understanding of cardinality and one-to-one correspondence.
Clarification 2: Instruction includes counting objects and pictures presented in a line, rectangular array, circle or scattered arrangement. Objects presented in a scattered arrangement are limited to 10.
Clarification 3: Within this benchmark, the expectation is not to write the number in word form.

MA.K.NSO.1.2	Given a number from 0 to 20, count out that many objects.

Benchmark Clarifications:
Clarification 1: Instruction includes giving a number verbally or with a written numeral.

MA.K.NSO.1.3	Identify positions of objects within a sequence using the words "first," "second," "third," "fourth" or "fifth."

Benchmark Clarifications:
Clarification 1: Instruction includes the understanding that rearranging a group of objects does not change the total number of objects but may change the order of an object in that group.

MA.K.NSO.1.4 Compare the number of objects from 0 to 20 in two groups using the terms less than, equal to or greater than.

Benchmark Clarifications:
Clarification 1: Instruction focuses on matching, counting and the connection to addition and subtraction.
Clarification 2: Within this benchmark, the expectation is not to use the relational symbols $=, >$ or $<$.

MA.K.NSO.2 Recite number names sequentially within 100 and develop an understanding for place value.

MA.K.NSO.2.1 Recite the number names to 100 by ones and by tens. Starting at a given number, count forward within 100 and backward within 20.

Benchmark Clarifications:
Clarification 1: When counting forward by ones, students are to say the number names in the standard order and understand that each successive number refers to a quantity that is one larger. When counting backward, students are to understand that each succeeding number in the count sequence refers to a quantity that is one less.
Clarification 2: Within this benchmark, the expectation is to recognize and count to 100 by the end of Kindergarten.

MA.K.NSO.2.2 Represent whole numbers from 10 to 20, using a unit of ten and a group of ones, with objects, drawings and expressions or equations.

Example: The number 13 can be represented as the verbal expression "ten ones and three ones" or as "1 ten and 3 ones".

MA.K.NSO.2.3 Locate, order and compare numbers from 0 to 20 using the number line and terms less than, equal to or greater than.

Benchmark Clarifications:
Clarification 1: Within this benchmark, the expectation is not to use the relational symbols $=, >$ or $<$.
Clarification 2: When comparing numbers from 0 to 20, both numbers are plotted on the same number line.
Clarification 3: When locating numbers on the number line, the expectation includes filling in a missing number by counting from left to right on the number line.

MA.K.NSO.3 Develop an understanding of addition and subtraction operations with one-digit whole numbers.

MA.K.NSO.3.1 Explore addition of two whole numbers from 0 to 10, and related subtraction facts.

Benchmark Clarifications:
Clarification 1: Instruction includes objects, fingers, drawings, number lines and equations.
Clarification 2: Instruction focuses on the connection that addition is "putting together" or "counting on" and that subtraction is "taking apart" or "taking from." Refer to Situations Involving Operations with Numbers (Appendix A).
Clarification 3: Within this benchmark, it is the expectation that one problem can be represented in multiple ways and understanding how the different representations are related to each other.

MA.K.NSO.3.2 Add two one-digit whole numbers with sums from 0 to 10 and subtract using related facts with procedural reliability.

Example: The sum $2 + 7$ can be found by counting on, using fingers or by "jumps" on the number line.
Example: The numbers 3, 5 and 8 make a fact family (number bonds). It can be represented as 5 and 3 make 8; 3 and 5 make 8; 8 take away 5 is 3; and 8 take away 3 is 5.

Benchmark Clarifications:
Clarification 1: Instruction focuses on helping a student choose a method they can use reliably.

Algebraic Reasoning

MA.K.AR.1 Represent and solve addition problems with sums between 0 and 10 and subtraction problems using related facts.

MA.K.AR.1.1 For any number from 1 to 9, find the number that makes 10 when added to the given number.

Benchmark Clarifications:
Clarification 1: Instruction includes creating a ten using manipulatives, number lines, models and drawings.

MA.K.AR.1.2 Given a number from 0 to 10, find the different ways it can be represented as the sum of two numbers.

Benchmark Clarifications:
Clarification 1: Instruction includes the exploration of finding possible pairs to make a sum using manipulatives, objects, drawings and expressions; and understanding how the different representations are related to each other.

MA.K.AR.1.3 Solve addition and subtraction real-world problems using objects, drawings or equations to represent the problem.

Benchmark Clarifications:
Clarification 1: Instruction includes understanding the context of the problem, as well as the quantities within the problem.
Clarification 2: Students are not expected to independently read word problems.
Clarification 3: Addition and subtraction are limited to sums within 10 and related subtraction facts. Refer to Situations Involving Operations with Numbers (Appendix A).

MA.K.AR.2 Develop an understanding of the equal sign.

MA.K.AR.2.1 Explain why addition or subtraction equations are true using objects or drawings.

Example: The equation $7 = 9 - 2$ can be represented with cupcakes to show that it is true by crossing out two of the nine cupcakes.

Benchmark Clarifications:
Clarification 1: Instruction focuses on the understanding of the equal sign.
Clarification 2: Problem types are limited to an equation with two or three terms. The sum or difference can be on either side of the equal sign.
Clarification 3: Addition and subtraction are limited to sums within 20 and related subtraction facts.

Measurement

MA.K.M.1 Identify and compare measurable attributes of objects.

MA.K.M.1.1 Identify the attributes of a single object that can be measured such as length, volume or weight.

Benchmark Clarifications:
Clarification 1: Within this benchmark, measuring is not required.

MA.K.M.1.2 Directly compare two objects that have an attribute which can be measured in common. Express the comparison using language to describe the difference.

Benchmark Clarifications:
Clarification 1: To directly compare length, objects are placed next to each other with one end of each object lined up to determine which one is longer.
Clarification 2: Language to compare length includes short, shorter, long, longer, tall, taller, high or higher. Language to compare volume includes has more, has less, holds more, holds less, more full, less full, full, empty, takes up more space or takes up less space. Language to compare weight includes heavy, heavier, light, lighter, weighs more or weighs less.

MA.K.M.1.3	Express the length of an object, up to 20 units long, as a whole number of lengths by laying non-standard objects end to end with no gaps or overlaps. *Example:* A piece of paper can be measured using paper clips.

Benchmark Clarifications:
Clarification 1: Non-standard units of measurement are units that are not typically used, such as paper clips or colored tiles. To measure with non-standard units, students lay multiple copies of the same object end to end with no gaps or overlaps. The length is shown by the number of objects needed.

Geometric Reasoning

MA.K.GR.1 Identify, compare and compose two- and three-dimensional figures.

MA.K.GR.1.1	Identify two- and three-dimensional figures regardless of their size or orientation. Figures are limited to circles, triangles, rectangles, squares, spheres, cubes, cones and cylinders.

Benchmark Clarifications:
Clarification 1: Instruction includes a wide variety of circles, triangles, rectangles, squares, spheres, cubes, cones and cylinders.
Clarification 2: Instruction includes a variety of non-examples that lack one or more defining attributes.
Clarification 3: Two-dimensional figures can be either filled, outlined or both.

MA.K.GR.1.2	Compare two-dimensional figures based on their similarities, differences and positions. Sort two-dimensional figures based on their similarities and differences. Figures are limited to circles, triangles, rectangles and squares. *Example:* A triangle can be compared to a rectangle by stating that they both have straight sides, but a triangle has 3 sides and vertices, and a rectangle has 4 sides and vertices.

Benchmark Clarifications:
Clarification 1: Instruction includes exploring figures in a variety of sizes and orientations.
Clarification 2: Instruction focuses on using informal language to describe relative positions and the similarities or differences between figures when comparing and sorting.

MA.K.GR.1.3	Compare three-dimensional figures based on their similarities, differences and positions. Sort three-dimensional figures based on their similarities and differences. Figures are limited to spheres, cubes, cones and cylinders.

Benchmark Clarifications:
Clarification 1: Instruction includes exploring figures in a variety of sizes and orientations.
Clarification 2: Instruction focuses on using informal language to describe relative positions and the similarities or differences between figures when comparing and sorting.

MA.K.GR.1.4	Find real-world objects that can be modeled by a given two- or three-dimensional figure. Figures are limited to circles, triangles, rectangles, squares, spheres, cubes, cones and cylinders.

MA.K.GR.1.5	Combine two-dimensional figures to form a given composite figure. Figures used to form a composite shape are limited to triangles, rectangles and squares. *Example:* Two triangles can be used to form a given rectangle.

Benchmark Clarifications:
Clarification 1: This benchmark is intended to develop the understanding of spatial relationships.

Data Analysis and Probability

MA.K.DP.1 Develop an understanding for collecting, representing and comparing data.

MA.K.DP.1.1	Collect and sort objects into categories and compare the categories by counting the objects in each category. Report the results verbally, with a written numeral or with drawings. *Example:* A bag containing 10 circles, triangles and rectangles can be sorted by shape and then each category can be counted and compared.

Benchmark Clarifications:
Clarification 1: Instruction focuses on supporting work in counting.
Clarification 2: Instruction includes geometric figures that can be categorized using their defining attributes.
Clarification 3: Within this benchmark, it is not the expectation for students to construct formal representations or graphs on their own.