Kindergarten Florida Standards Math

Revised, 2014

Course #5012020

This is an update of the Kindergarten Math Curriculum to align with changes in the Florida Standards. It includes emphases for instruction and a required order of instruction pacing guide

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The district-adopted text for math is Harcourt GOMATH for Florida Standards. Additional materials are available on the Harcourt ThinkCentral website. Math iXL is available at all elementary schools.

MAFS.2

In Kindergarten, instructional time should focus on two critical areas: (1) representing, relating, and operating on whole numbers, initially with sets of objects; (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics.

(1) Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as 5 + 2 = 7 and 7 – 2 = 5. (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.

(2) Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons, presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes such as cubes, cones, cylinders, and spheres. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

Mathematical Practices: The eight Mathematical Practices describe HOW we do math. They must be infused into all math instruction. This is done by having students:

- explain their thinking;
- solve problems in different ways;
- use manipulatives to demonstrate and visualize problem solving;
- work on difficult problems that are accessible but challenging;
- solve fewer problems that require more thinking rather than focusing on working a lot of one-step problems;
- use different tools to make sense of math;
- focus on precision;
- look for patterns in numbers and problems.

In addition, teachers must:

- plan with the practices in mind. This means asking planning questions like: 'What mathematical practice will the students need to use to solve this problem?' or 'What mathematical practice will I be modeling when we are working on this concept?'
- model the practices.
- use the vocabulary of the practices.
- honor student problem solving by giving them time to work on problems without moving quickly to 'the answer', and giving students multiple opportunities to discuss their reasoning in the context of math.
- question and discuss answers.
- make mathematical tools visible by discussing appropriate and available tools for solving problems, and having the tools readily accessible for use.

Mathematical Practices from the Florida Standards for Mathematics, with explanations:

MAFS.K12.MP.1.1 -- **Make sense of problems and persevere in solving them.**

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

MAFS.K12.MP.2.1 : **Reason abstractly and quantitatively**.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

MAFS.K12.MP.3.1 : **Construct viable arguments and critique the reasoning of others.**

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

MAFS.K12.MP.4.1 : **Model with mathematics.**

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

MAFS.K12.MP.5.1 : **Use appropriate tools strategically.**

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

MAFS.K12.MP.6.1 : **Attend to precision.**

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

MAFS.K12.MP.7.1 : **Look for and make use of structure.**

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 – 3(x – y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

MAFS.K12.MP.8.1 : **Look for and express regularity in repeated reasoning.**

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y – 2)/(x – 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x – 1)(x + 1)$, $(x – 1)(x^2 + x + 1)$, and $(x – 1)(x^3 + x2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

Lead teachers from across the district met to discuss changes that must be implemented in math instruction in order to appropriately prepare students for new requirements in math and assure students ongoing success. The following principles must be reinforced across grade levels.

District Expectations and Considerations for Instruction: (requirements)

1. **Use of and instruction in correct math terminology is critical.**
    a. Use the language of your standards.
    b. Do not substitute 'cute' words for accurate terminology.
    c. Have students use the vocabulary multiple times in a variety of contexts.
    d. Have students practice categorizing words and have them explain their rules for sorting.
    e. Mathematical vocabulary must be evident on Word Walls.
    f. Teach vocabulary to mastery.
2. **Consistently use the High-Yield Routines.**
    These routines allow students to practice concepts with higher-order thinking. They incorporate writing with thinking about math.
3. **Use the mathematical practices. They matter.**
    a. Plan with the practices in mind. Sample questions to think about when planning: 'What mathematical practice(s) will I be using when I model this task?' 'What mathematical practice(s) will my students have to use to solve this problem?'
    b. Read the descriptions of what 'mathematically proficient' students do (see the previous two pages), and consistently check to see if your students are growing toward that goal.
4. **Routinely practice having students justify their answers.** Ex. 'Show us how you arrived at that answer. What math concepts did you use to arrive at that answer?'
5. **Always reinforce number sense.** Ask: 'Is this a reasonable answer? Why or why not?'
6. **Teach and practice the basic facts to automaticity. No exceptions. This is foundational to later math success.**
    a. By the end of second grade students should have developed fluency with the basic addition and subtraction facts. This means that they can quickly (with automaticity) give answers for problems like 2 + 6 or 8 + 5, even when those are embedded in more difficult problems. Turning problems around like 13 – 5 = 8 because 8 + 5 = 13 should make sense to them. In other words they should not be stumbling over the basic math.
    b. In third and fourth grades student must develop automaticity with basic multiplication facts. Third grade builds a strong conceptual foundation and begins moving toward fluency and fourth-grade assures that automaticity is reached.
7. **Practice word problems at all levels in a variety of contexts. This goes well beyond teaching key words for solving word problems. Over teaching key words can hinder later math understanding.**
    a. Teach them to understand the problem.
        i. What does it say?
        ii. What information does it provide?
        iii. What is the question?
        iv. What information do I need to answer the question (relevant vs. irrelevant)?
        v. What math procedure(s) will I need to complete to answer the question?
        vi. What tools are available to help me? (drawing, visualizing, graphing or charting, measuring, numberline, etc.)
8. **Make tools visible.** Talk about and practice using mathematical tools. Make them available in the classroom. Discuss which tools are appropriate in which situations.

9. **Have students respond in a variety of ways to questions. Questions should challenge student thinking.** (See question types in the Test Item Specifications.)
10. **Important Concepts Across Grade Levels:**
    a. Equivalence – students need to understand that the answer does not always follow the = sign (ex. □+3 = 2+4, □ = 4+3)
    b. Fractions – students must experience and understand equal parts of a whole leading into formal fraction instruction in third grade.
    c. Use of the number (a ruler is an example of a numberline) – facility with the numberline is critical for later work with fractions.
    d. Solving problems by drawing the concepts – Students who learn to use fraction bars and to draw fractions and fractional combinations can better visualize the m ore difficult operations with fractions.
11. **Math will be taught for 90 minutes every day.** This does not have to be uninterrupted.
12. **Attention must be paid to the *Cognitive Complexity* of items to help determine the rigor of the instruction and expectation.**

Math Progress Monitoring

Progress monitoring must be ongoing in classrooms throughout the year. This includes, but is not limited to, the following:

1. Ongoing checks for development of fluency with basic math facts;
2. Formative assessments on math concepts like equivalency, number, parts of a whole, etc., as appropriate to the grade level standards;
3. Formative assessment through interaction with students as they explain problem solving. It is critical to catch and correct misconceptions early.
4. Review of responses to the High-Yield Routines.

Grading should accurately reflect the students' accomplishment of the grade level standards. If a student is making an 'A', that means that the student is able to, after instruction, independently perform at an above-average level. Be careful of overweighting grades with work habits and citizenship considerations. Grades should reflect a variety of assessments that allow the students to demonstrate proficiency.

Formal Progress Monitoring will occur quarterly.
All students will participate in formal progress monitoring quarterly using Discovery Education Assessments.
Data will be reviewed at the district, school, and classroom level.
Follow-up instruction on for students who are not performing on level is required.

Resources:

- CPALMS – lesson resources and formative assessments are linked to the standards in CPALMS.
- www.FSAssessments.org - This is the link to the online portal with information on the new Florida assessments. Teachers are expected to review and use the test item specifications for their respective grade levels. You will have to cut and paste this address into your browser address bar.
- Math iXL – for ongoing reinforcement and for targeted practice of skills. Please note that this practice does not preclude the necessity for ongoing instruction and problem solving with answer justification in the classroom.

Kindergarten Florida Standards for Math

BODY OF KNOWLEDGE: COUNTING AND CARDINALITY

Cluster 1: Know number names and the count sequence

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.CC.1.1	Count to 100 by ones and by tens. *Cognitive Complexity:* Level 1: Recall	• Numbers follow a pattern. **The student is able to:** • Count to 50 by ones. • Count to 100 by ones. • Count to 100 by tens.	• I can count to 50 by ones. • I can count to 100 by ones. • I can count to 100 by tens.
Key Vocabulary: ones, tens, count			
Resources:			

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.CC.1.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1). *Cognitive Complexity:* Level 1: Recall	• Numbers come in a sequence, and you can start counting at any point in the sequence. **The student is able to:** • Count forward from any given number.	• I can count forward from any given number.
Key Vocabulary: count, sequence, forward			
Resources:			

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.CC.1.3	Read and write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). *Cognitive Complexity:* Level 1: Recall	• Each object or group of objects that is counted stands for one number and only one number. • Numbers are represented by numerals. **The student is able to:** • Write the numerals 0 to 20 • Represent a group of counted objects with a written numeral.	• I can write numerals from 0 to 20. • I can count objects and write the number. • I can use zero to represent no objects.
Key Vocabulary: objects, numeral, number, zero, one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty			
Resources:			

Cluster 2: Count to tell the number of objects

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.CC.2.4	Understand the relationship between numbers and quantities; connect counting to cardinality. • K.CC.4a - When counting objects, say the number names 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.CC.4b - Understand the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. • K.CC.4c - Understand that each successive number name refers to a quantity that is one larger. *Cognitive Complexity:* Level 1: Recall	• Counting shows one to one correspondence. • When counting a group of objects, the last number said tells how many. • Physical arrangement does not change the number of objects. • Each successive number refers to a quantity that is one larger. **The student is able to:** • Touch and count one object at a time while saying the number name. • Count objects arranged differently in groups and justify that the last number said is how many there are in the group. • Show objects to prove the number that is one larger.	• I can touch and count one object at a time saying the number name in order. • I can count each object and know that the last number said is how many there are in the group. • I can move the same objects around and know that I have the same number. • I can count by ones and know that the next number I say is one more.

Key Vocabulary: greater than (more), group, one-to-one, matching, next, count, number name, same, pairing, physical arrangement

Resources:

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.CC.2.5	Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects. *Cognitive Complexity:* Level 1: Recall	• The last number counted in a group of objects tells "how many". • When counting, each object counted is assigned a number. • Counting is correlated to a chronological order (one-to-one correspondence). **The student is able to:** • Count up to 20 objects in an order (line, rectangular array, and circle). • Show the correct number of objects after given a number from 1-20. • Apply concepts by counting 10 or less objects visually and mentally (not touching them).	• I can count objects in a group up to 20. • I can count up to 10 objects in a group without touching them. • I can count out a group of objects to match a given number up to 20.

Key Vocabulary: arranged, objects/items/things

Resources:

Cluster 3: Compare numbers

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands:	Student Friendly Language Learning Targets
MAFS.K.CC.3.6	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. (Include groups with up to ten objects.) *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• The concept of greater than when comparing two groups of objects. • The concept of less than when comparing two groups of objects. • Two groups with the same number of objects are equal. • Counting strategies can be used to determine if one group of objects is greater than, less than, or equal to another groups. • Matching strategies can be used to determine if one group of objects is greater than, less than, or equal to another groups. **The student is able to:** • Identify a group of objects that is greater than another group of objects. • Compare two groups of objects to determine which one has more or less (up to 10 objects). • Investigate group size to determine when a group of objects is equal to another group. • Create groups that show the same, less than and more than • Illustrate groups that show more, less or the same as a specific set.	• I can tell if one group of objects is greater (more) than another group of objects. • I can tell if one group of objects is less than another group of objects. • I can tell if one group of objects is equal to another group of objects.

Key Vocabulary: greater than, less than, equal, counting strategies, matching objects

Resources:

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.CC.3.7	Compare two numbers between 1 and 10 presented as written numerals. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• Written numerals represent an amount. • Each number has a different value. **The student is able to:** • Compare two written numerals. (1-10)	• I can compare 2 numbers. • I can tell you which number is greater and which is less.

Key Vocabulary: value, compare

Resources:

BODY OF KNOWLEDGE: OPERATIONS AND ALGEBRAIC THINKING

Cluster 1: Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.OA.1.1	Represent addition and subtraction with objects, fingers, mental images, drawings (drawings need not show details, but should show the mathematics in the problem), sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• Adding means putting together. • Subtracting means taking apart. • There are multiple strategies to solve addition and subtraction problems. • There are different strategies that work best for individual students. **The student is able to:** • Use manipulatives to represent an addition or subtraction problem. • Draw a simple picture that represents an addition or subtraction problem.	• I can use a strategy to solve addition problems. • I can use a strategy to solve subtraction problems.
Key Vocabulary: addition, subtraction, represent			
Resources:			

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.OA.1.2	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.([1]Students are not required to independently read the word problems.) *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• The number changes when you add or subtract, except for zero. • Addition is putting together and adding to and subtraction is taking apart and from – decomposing and composing numbers. • Visuals (drawings and manipulatives) can be used to solve word problems. • A word problem is a story that you will use numbers to solve. **The student is able to:** • Model a word problem with objects or drawings.. • Prove/explain solutions using manipulatives or drawings. • Use one or more strategies to solve addition and subtraction word problems.	• I can put together and take apart numbers (addition and subtraction) up to ten after hearing a word problem. • I can use objects or create drawings to show my thinking about numbers.
Key Vocabulary: word problem, all together, total, how many more			
Resources:			

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.OA.1.4	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• Addition can be used to combine 2 groups together. • Ten can be composed of 2 smaller numbers (1 + 9). • There are multiple combinations of numbers that make 10 (7+3, 2+8, 6+4 etc). • Number thinking can be recorded with an equation, a drawing, with numerals, or with objects. **The student is able to:** • Identify the different combinations that make 10. • Show ways of making 10 with 2 addends (draw a picture or make an equation), grouping objects together. • Investigate how many more it takes to get 10, when starting from a number, 1-9. • Prove that there is more than 1 way to make 10.	• I can make 10 by adding on to a number 1-9. • I can use drawing, objects, and numerals to show my thinking.
Key Vocabulary: answer, plus			
Resources:			

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.OA.1.5	Fluently add and subtract within 5. *Cognitive Complexity:* Level 1: Recall	• Addition means putting together. • Subtraction means taking apart. • There are many ways to add and subtract. **The student is able to:** • Add fluently within 5. • Subtract fluently within 5.	• I can add numbers to make 5. • I can subtract numbers from 5.
Key Vocabulary: addition, subtraction, equals			
Resources:			

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding-	Student Friendly Language Learning Targets
MAFS.K.OA.1a	Use addition and subtraction within 10 to solve word problems involving both addends unknown numbers to represent the problem. (Students are not required to independently read the word problems.) *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• There is a relationship between addition and subtraction. • When adding, the sum will be greater. • When subtracting, the difference will be less. • Comparing involves subtraction. • There is more than one way to solve a word problem. **The student is able to:** • Use different strategies to solve addition word problems up to 10. • Use different strategies to solve subtraction word problems within10.	• I can solve addition and subtraction word problems up to 10 in a way that makes sense to me. • I can write an equation using the correct symbols to solve word problems with sums or differences up to10.
Key Vocabulary: Add (+) Subtract (-) Solve. Compare. Sum .Difference .Equal (=), Symbol			
Resources:			

BODY OF KNOWLEDGE: NUMBER AND OPERATIONS IN BASE TEN

Cluster 1: Work with numbers 11-19 to gain foundations for place value

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.NBT.1.1	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 (such as 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• A number from 11-19 can be decomposed into a ten and some ones. • A number from 11-19 can be composed of a ten and some ones. • A composed or decomposed number can be recorded by a drawing or an equation. **The student is able to:** • Compose numbers from 11-19 into a ten plus one(s). • Decompose numbers from 11-19 into a ten plus one(s). • Use objects/drawings to show how many tens and ones are in a number 11-19. • Use an equation to show tens and ones from 11 – 19 (ex. 10 + 1 = 11).	• I can use objects to show how many tens and ones are in a number ,11-19. • I can use a drawing to show how many tens and ones are in a number, 11-19. • I can write an equation to show how many tens and ones are in a number, 11-19
Key Vocabulary: tens, ones			
Resources:			

BODY OF KNOWLEDGE: MEASUREMENT AND DATA

Cluster 1: *Describe and compare measurable attributes*

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.MD.1.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• Objects can be measured in different ways. • Objects can be described in different ways. **The student is able to:** • Describe the measurable attributes of different objects. • Describe several measurable attributes of a single object.	• I can tell different ways to measure objects, like length and weight. • I can describe an object by telling about its weight or length.
Key Vocabulary: measure, length, weight, attributes			
Resources:			

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.MD.1.2	Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• Objects can be measured in different ways. • The sizes of two or more objects can be compared. • When directly comparing the length of two objects, it is important to line up the ends. **The student is able to:** • Directly compare objects based on a common measurable attribute. • Describe measured objects by using the degree of difference (more of/less of).	• I can compare the length or height of two objects and tell which is longer, taller/shorter. • I can use more than and less than to compare two objects.
Key Vocabulary: Compare, Measurable Attributes, Difference, Describe			
Resources:			

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.MD.1a	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end: understand that the length measurement of an object is the number of same –size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• Objects can be measured using multiple copies of a length unit. • Objects can be described as being longer (taller) or shorter. • The length of an object can be described as a number of length units. • Length units must be uniform when measuring an object. • There can be no gaps or overlaps of the length units when measuring an object. **The student is able to:** • Accurately measure objects using a variety of length units (i.e. linking cubes, markers, paper clips, etc.). • Express length to the nearest whole number. • Use the same length unit when comparing one object with another. • Express length in terms of the length unit when describing an object (Ex. How long is the pencil? The pencil is three *paperclips* long.)	• I can measure the length of an object by laying a shorter object end to end with no gaps or overlaps. • I can tell someone the length of something by telling them how many shorter objects it equals. • I can compare the lengths of two objects by stating how long each is.
Key Vocabulary: measure, unit, end-to-end, gaps, overlaps, whole number			
Resources:			

Cluster 2: **CLASSIFY OBJECTS AND COUNT THE NUMBER OF OBJECTS IN EACH CATEGORY**			
Standard Identifier	**Standard with Complexity Rating**	**Conceptual and Procedural Understanding – The student understands that:**	**Student Friendly Language Learning Targets**
MAFS.K.MD.2.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. Limit category counts to be less than or equal to 10 *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• Identifying attributes of items can be used to sort items into like categories. **The student is able to:** • Classify objects into categories. • Count the objects in each category. • Sort the categories by count.	• I can sort objects into groups. • I can count items in each group. • I can sort the groups by the number of objects.
Key Vocabulary: categories, sort, classify, alike, same, different, not alike			
Resources:			

BODY OF KNOWLEDGE: GEOMETRY

Cluster 1: ***Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres)***			
Standard Identifier	**Standard with Complexity Rating**	**Conceptual and Procedural Understanding – The student understands that:**	**Student Friendly Language Learning Targets**
MAFS.K.G.1.1	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 of, behind, and next to. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• Using positional words explains the location of objects. • Objects in our environment can be described using names of shapes. **The student is able to:** • Identify different shapes by name. • Describe the location of objects using positional words.	• I can name shapes that I see. • I can describe location by using position words.
Key Vocabulary: square, circle, triangle, rectangle, cube, cone, cylinder, sphere, above, below, in front of, behind, next to, shapes, environment, location, position			
Resources:			
Standard Identifier	**Standard with Complexity Rating**	**Conceptual and Procedural Understanding – The student understands that:**	**Student Friendly Language Learning Targets**
MAFS.K.G.1.2	Correctly name shapes regardless of their orientations or overall size. *Cognitive Complexity:* Level 1: Recall	• Changing orientation does not change the name of the shape. • Changing size does not change the name of the shape. • Shapes can come in a variety of sizes and be placed in a number of orientations. **The student is able to:** • Identify a 2 dimensional shape no matter the orientation. • Identify a 2 dimensional shape regardless of the size of shape. • Identify a 3 dimensional shape regardless of orientation. • Identify a 3 dimensional shape regardless of the orientation of the shape.	• I can correctly name a shape no matter which way it is turned. • I can correctly name a shape no matter what size it is.
Key Vocabulary: shape, size			
Resources:			

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.G.1.3	Identify shapes as two-dimensional (lying in a plane, "flat") or three dimensional ("solid"). *Cognitive Complexity*: Level 1: Recall	• Shapes can be two-dimensional or three-dimensional. **The student is able to:** • Identify a shape by name. • State if shape is two-dimensional or three-dimensional. • Sort shapes according to their dimension.	• I can tell if a shape is two-dimensional or three-dimensional.
Key Vocabulary: three-dimensional, solid, flat, two-dimensional			
Resources:			
***Cluster 2:* Analyze, compare, create, and compose shapes**			
Standard Identifier	**Standard with Complexity Rating**	**Conceptual and Procedural Understanding – The student understands that:**	**Student Friendly Language Learning Targets**
MAFS.K.G.2.4	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length). *Cognitive Complexity:* Level 3: Strategic Thinking & Complex Reasoning	• Each shape has its own attributes. • Size and orientation do not change the basic shape. **The student is able to:** • Describe the attributes of shapes. • Compare two and three dimensional shapes.	• I can tell how shapes are alike and different.
Key Vocabulary: Sides, Corners, 2 dimensional shapes, 3 dimensional shapes, Attributes, Vertices			
Resources:			
Standard Identifier	**Standard with Complexity Rating**	**Conceptual and Procedural Understanding – The student understands that:**	**Student Friendly Language Learning Targets**
MAFS.K.G.2.5	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• Real world objects have a shape, or are composed of shapes. • A model is a small scale representation of a larger real-world object. • A model will have the same shape as the real world object. **The student is able to:** • Build a model representing a real world object. • Draw a picture using composite shapes to represent a real world object.	• I can build a model to represent the shapes I see around me. • I can draw shapes that model the shapes I see around me.
Key Vocabulary: Model, represent			
Resources:			

Standard Identifier	Standard with Complexity Rating	Conceptual and Procedural Understanding – The student understands that:	Student Friendly Language Learning Targets
MAFS.K.G.2.6	Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?" *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	• Small shapes can be put together to form larger shapes. • Small shapes can be put together to form different shapes. **The student is able to:** • Compose simple shapes. • Put simple shapes together to form larger shapes. • Use two or more simple shapes to make a different shape.	• I can put small shapes together to form larger shapes. • I can put shapes together to form different shapes.
Key Vocabulary: Compose			
Resources:			

Kindergarten Math Vocabulary				
Above	Cube	Height	One	Solid
Add	Cylinder	How many more	Ones	Sort
Addition	Decompose	In front of	One-to-one	sphere
Alike	Describe	Length	Pairing	Square
All together	Difference	Less than	Physical arrangement	Subtract
Answer	Different	Location	Plus	Subtraction
Arranged	Eight	Matching	Position	Ten
Attribute	Eighteen	Measure	Record	Tens
Behind	Eleven	Model	Rectangle	Thirteen
Below	Environment	More	Represent	Three
Categories	Equal	Next	Same	Three-dimensional
Circle	Equation	Next to	Same	Total
Classify	Fifteen	Nine	Sequence	Triangle
Compare	Five	Nineteen	Seven	Twenty
Compose	Flat	Not alike	Seventeen	Two
compose	Forward	Number	Shapes	Two-dimensional
Cone	Four	Number name	Sides	Value
Corners	Fourteen	Numeral	Six	Vertices
Count	Greater than	Object	Sixteen	Weight
Count/counting	Group		Size	Word problem
Counting strategy				zero

<u>Sample</u> Categories for Math Vocabulary

Position Words	Shapes	Counting Words	Comparing Words
Next to	Triangle	One	Greater than
Behind	Rectangle	Two	Less than
In front of	Square	Three	More
Beside	Cone	Four	Equal
Under	Cylinder	Five	Same
Over	Circle	Six	Longer
around	Sphere	Seven	Shorter
		Eight	Taller
		Nine	Same
		Ten	Alike
		Eleven	Not alike
		Twelve	different
		Thirteen	
		Fourteen	
		Fifteen	
		Sixteen	
		Seventeen	
		Eighteen	
		Nineteen	
		Twenty	

For more information on vocabulary categories, see the resource in the Resources for Implementation section of the ELA Curriculum Guide.

Kindergarten MATH Pacing Guide

2014-15 Implementation

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Overarching Concepts	Numbers to 10, Shapes, classifying, and sorting, positional words, number sense 1-10	Operations and Algebraic Thinking, Making 10,	Counting and Cardinality numbers to 20, Numbers and Operations in Base 10	Measurement/ Data, 2D and 3D Shapes, extend word problems
Standards/ Learning Targets	MAFS K.CC.1.2 MAFS.K.CC.1.3 (to 10) MAFS.K.CC.2.4 MAFS.K.CC.2.5 (to 10) MAFS.K.CC.3.6 (to 10) MAFS.K.CC.3.7 MAFS.K.OA.1.4 MAFS.K.MD.2.3 MAFS.K.G.1.2 MAFS.K.G.2.5 MAFS.K.G.2.6	MAFS.K.CC.1.3 (to 10) MAFS.K.OA.1.1 MAFS.K.OA.1.4 MAFS.K.OA.1.5 MAFS.K.MD.2.3	MAFS.K.CC.1.1 MAFS.K.CC.1.3 (to 20) MAFS.K.CC.2.5 (to 20) MAFS.K.CC.3.6 (to 20) MAFS.K.NBT.1.1	MAFS.K.CC.1.1 MAFS.K.OA.1.2 MAFS.K.OA.1a MAFS.K.MD.1.1 MAFS.K.MD.1.2 MAFS.K.MS.1a MAFS.K.G.1.1 MAFS.K.G.1.2 MAFS.K.G.1.3 MAFS.K.G.2.4 MAFS.K.G.2.5 MAFS.K.G.2.6
Aligned Resources	Go Math Chapters: 9, 12, 1, 2, 3, 4 'Five' Frames	Go Math Chapters: 4, 5 ,6 'Five' and 'Ten' Frames	Go Math Chapters 7, 8 'Five' and 'Ten' Frames	Go Math Chapters: 10, 11 Pattern Blocks Tangrams
Pacing	Week 1-2D Shapes Week 2- Classify/ sorting and positional words Week 3- Numbers 1, 2 Week 4- Numbers 3, 4 Week 5- Number 5 Week 6- Compare to 5 Week 7- Numbers 6, 7 Week 8- Numbers 8, 9 Week 9- Number 10	Week 10- Comparing and ways to make 10 Week 11- Continue to 10 Week 12- Addition to 10 Week 13- Addition to 10 Week 14- Subtraction to 10 Week 15- Subtraction to 10 Week 16- Review Week 17- Review/ Assessments Embed simple word problems in all instruction.	Week 18- Review Week 19- Numbers 11, 12 Week 20- Numbers 13, 14 Week 21- Numbers 15 Week 22- Numbers 16, 17 Week 23- Numbers 18, 19 Week 24- Number 20 Week 25- Number 20 and Review Week 26- Base 10 Week 27- Base 10 Embed simple word problems in all instruction.	Week 28- Measurement Week 29- Measurement Week 30- 3D Shapes Week 31- 3D Shapes Week 32- Apply learning in a variety of contexts Week 33- Apply learning in a variety of contexts Week 34-36: Review/ Assess for mastery Embed simple word problems in all instruction.
High Yield Routine(s)	*Today's Numbers*	*Alike and Different*	*Quick Images*	*How do you know?*

Target Vocabulary	• Count ones • Tens • Sequence • Forward • Objects • Numeral • Number: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 • Greater than (more) • Group • One-to-one • Matching • Next • Number • Name • Same pacing • Physical arrangement	• Addition • Subtraction • Represent • Equals • Plus • Minus • Add • More than • Less than • Number line	• Ones • Tens, • …..11, 12, 12, 14, 15, 16, 17, 18, 19, 20	• Word problem • All together • Total • How many more • Sum • Difference • Length • Weight • Attributes • Describe • Shape • Three dimensional • Two dimensional • solid • flat • sides • corners, vertices • ruler, measure
	Include other vocabulary as noted below and in the vocabulary list on page 15.			
Essentials to Remember: Make Use of Structure	Less than, Equal, Value, Compare, Answer, Sort, Classify, Alike, Different, Shape Names, Positional Words, Size, Model, Represent, Compose Make sure to use standards' language and appropriate vocabulary.	MAFS.K.MD.2.3 will be used as a high-yield routine. Represent number sentences in as many ways as possible. Reason abstractly and quantitatively/ make sure of the problem/ persevere/ reason.	Keep samples throughout the year of routines. Look for and express regularity in repeated reasoning.	Make sense of problems and persevere in solving them. Use appropriate tools.