

Next Generation Math Standards----Grade 1

Cognitive Complexity/Depth of Knowledge Rating: Low, Moderate, High

BIG IDEAS (1)

BIG IDEA 1: Develop understandings of addition and subtraction strategies for basic addition facts and related subtraction facts.

MA.1.A.1.1 Moderate	Model addition and subtraction situations using the concepts of "part-whole," "adding to," "taking away from," "comparing," and missing addend."	Remark: Teachers should ensure that students focus on conceptual understanding by using manipulatives, words, or pictures, and limiting the use of formal algorithms.
MA.1.A.1.2 Moderate	Identify, describe, and apply addition and subtraction as inverse operations.	Example: $4 + 2 = 6$ and $6 - 2 = 4$. Example: List three other facts using addition or subtraction that are related to $3 + 5 = 8$. Example: I have 8 marbles. Some are red. Some are blue. How many of each could I have? How many red marbles? How many blue marbles? Find as many combinations as you can.
MA.1.A.1.3 Moderate	Create and use increasingly sophisticated strategies, and use properties such as Commutative, Associative and Additive Identity, to add whole numbers.	Example: $2 + 3 = 5$ and $3 + 2 = 5$ (Commutative Property) Example: $2 + (3 + 1) = 6$ and $(2 + 3) + 1 = 6$ (Associative Property) Example: $7 + 8 = 7 + 7 + 1$ (doubles + 1) Example: $9 + 4 = 10 + 3$ (Using 10 as a friendly number to add and subtract)
MA.1.A.1.4 High	Use counting strategies, number patterns, and models as a means for solving basic addition and subtraction fact problems.	Remark: Decomposing considered key for understanding the addition and subtraction relationship. Teachers should include one-step word problems. Strategies include: Doubles, Doubles + 1, Doubles - 1, Grouping 10s, Counting on, and Counting back. Example: $6 + 7 = 13$, $6 + 6 + 1 = 13$ Example: $13 - 7 = 6$ and $(13 - 3) - 4 = 6$ (using the knowledge that $3 + 4 = 7$)

BIG IDEA 2: Develop an understanding of whole number relationships, including grouping by tens and ones.


MA.1.A.2.1 Moderate	Compare and order whole numbers at least to 100.	Example: Is 86 larger than 68? Example: State whether 29 is larger than 38 or smaller than 38. Example: Name a number that comes between 70 and 75. Example: What number comes after 29?
MA.1.A.2.2 Low	Represent two digit numbers in terms of tens and ones.	Example: How many tens and how many ones are in fifty-six? Explain your answer.
MA.1.A.2.3 Moderate	Order counting numbers, compare their relative magnitudes, and represent numbers on a number line.	Remark: Vocabulary should include use of the words: greater, greatest, smaller, and smallest. Show position of given whole numbers on the number line. Given a starting number and ending number on the number line, students decide whether to go left or right to get from the starting number to the ending number. Example: Arrange the numbers 5, 2, 9 in order from greatest to least.

BIG IDEA 3: Compose and decompose two-dimensional and three-dimensional geometric shapes.

MA.1.G.3.1 Moderate	Use appropriate vocabulary to compare shapes according to attributes and properties such as number and lengths of sides and number of vertices.	Remark: Activities should include classification of shapes.
MA.1.G.3.2 High	Compose and decompose plane and solid figures, including making predictions about them, to build an understanding of part-whole relationships and properties of shapes.	Example of composing: The student puts two congruent isosceles triangles together to make a rhombus. Students can decorate necklaces by composing triangles (or other shapes) and find number of triangles or rhombuses needed for different necklaces with different lengths. Example of decomposing: The student notices that a regular hexagon can be decomposed into two trapezoids or six triangles.

SUPPORTING IDEAS (1)

SUPPORTING IDEA 4: Algebra

MA.1.A.4.1 High	Extend repeating and growing patterns, fill in missing terms, and justify reasoning.	Remark: The student gains an understanding of skip counting. Example: What number comes next in this pattern {3, 6, 9, 12, 15, ___}? Why? Example: What shape is missing in this pattern? Explain your answer. 
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SUPPORTING IDEA 5: Geometry and Measurement

MA.1.G.5.1 Moderate	Measure by using iterations of a unit, and count the unit measures by grouping units.	Remark: Measuring by using iterations involves multiple copies of a unit placed end-to-end and then counting the unit measures by grouping units. Use manipulatives such as cubes, rods, or other objects in the counting process.
MA.1.G.5.2 Moderate	Compare and order objects according to descriptors of length, weight, and capacity.	Remark: Descriptors of length would include words such as short, shorter, shortest, long, longer, longest, tall, taller, tallest, and high, higher, highest. Similar descriptors are used for weight and capacity. Activities should include the use of simple approximations to measure lengths and weights.

SUPPORTING IDEA 6: Number and Operations

MA.1.A.6.1 High	Use mathematical reasoning and beginning understanding of tens and ones, including the use of invented strategies, to solve two-digit addition and subtraction problems.	Remark: Invented and standard algorithms should be explored to help students reason about joining, separating and comparing numbers, and about the relationship between tens and ones. Example: Adding 27 and 15, a student might reason that 27 is 20 + 7 and that 15 is 10 + 5. In determining the result, they combine 20 + 10=30 and 7 + 5 =12. The final answer involves the simpler addition problem of 30 + 12 is 42. Activities should include contexts such as money.
MA.1.A.6.2 High	Solve routine and non-routine problems by acting them out, using manipulatives, and drawing diagrams.	Remark: Students should be able to explain and justify their reasoning.