Focus Areas in Grade 2

In Grade 2, instructional time should focus on four critical areas:

1. **Extending understanding of base-ten notation;**

   Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand whole numbers (up to thousands) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

2. **Building fluency with addition and subtraction;**

   Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable strategies to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply strategies that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

3. **Using standard units of measure; and**

   Students recognize the need for standard units of measure (centimeter and meter) and they use rulers and other measurement tools to measure and compare lengths. They recognize that the smaller the unit, the more repetitions they need to cover a given length.

4. **Describing and analyzing shapes.**

   Students describe and analyze shapes by investigating their properties. Students investigate, describe, and reason by manipulating shapes to make other shapes. Students build, draw, and analyze two- and three-dimensional shapes to develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Mathematical Practices in Grade 2

2.MP.1 Make sense of problems and persevere in solving them.	• Explain to themselves the meaning of a problem and look for ways to solve it. • May use concrete objects or pictures to help them conceptualize and solve problems. • Make conjectures about the solution and plan out a problem-solving approach.
2.MP.2 Reason abstractly and quantitatively.	• Recognize that a number represents a specific quantity. • Connect the quantity to written symbols. • Create a representation of a problem while attending to the meanings of the quantities. • Begin to know and use different properties of operations and relate addition and subtraction to length.

2.MP.3 Construct viable arguments and critique the reasoning of others.	• Construct arguments using concrete evidence, such as objects, pictures, drawings, and actions. • Explain their own thinking and listen to others' explanations. • Decide if the explanations make sense and ask appropriate questions.
2.MP.4 Model with mathematics	• Experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, acting out, making a chart or list, creating equations, etc. • Connect the different representations and explain the connections. • Able to use all representations as required.
2.MP.5 Use appropriate tools strategically.	• Consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be better suited. *For example, second graders may decide to solve a problem by drawing a picture rather than handwriting an equation.*
2.MP.6 Attend to precision	• Use clear and precise language in their discussions with others • Explain their own reasoning.
2.MP.7 Look for and make use of structure	• Look for patterns. For example, they adopt mental math strategies based on patterns (making ten, fact families, doubles).
2.MP.8 Look for and express regularity in repeated reasoning.	• Notice repetitive actions in counting and computation, etc. • Look for shortcuts, when adding and subtracting, such as rounding up and then adjusting the answer to compensate for the rounding. • Continually check their work by asking themselves, "Does this make sense?"

Focus Areas in Grade 3

In Grade 3, instructional time should focus on four critical areas:

1. **Developing understanding of multiplication and division and strategies for multiplication and division within 100;**

   Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve

multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

2. **Developing understanding of fractions, especially unit fractions (fractions with numerator 1);**

Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

3. **Developing understanding of the structure of rectangular arrays and of area; and**

Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

4. **Describing and analyzing two-dimensional shapes.**

Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

Mathematical Practices in Grade 3

3.MP.1 Make sense of problems and persevere in solving them.	• **Explain to themselves the meaning of a problem and look for ways to solve it.** • **May use concrete objects or pictures to help them conceptualize and solve problems.** • **May check their thinking by asking themselves, "Does this make sense?"** • **Listen to the strategies of others and will try different approaches.** • **Will use another method to check their answers.**
3.MP.2 Reason abstractly and quantitatively.	• Recognize that a number represents a specific quantity. • Connect the quantity to written symbols and • Create a logical representation of the problem at hand, considering both the appropriate units involved and the meaning of quantities

3.MP.3 Construct viable arguments and critique the reasoning of others.	• May construct arguments using concrete referents, such as objects, pictures, and drawings. • Refine their mathematical communication skills as they participate in mathematical discussions involving questions like "How did you get that?" and "Why is that true?" • Explain their thinking to others and respond to others' thinking.
3.MP.4 Model with mathematics	• Experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, acting out, making a chart, list, or graph, creating equations, etc. • Connect the different representations and explain the connections. • Evaluate their results in the context of the situation and reflect on whether the results make sense.
3.MP.5 Use appropriate tools strategically.	• Consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be helpful. *For EXAMPLE, they may use graph paper to find all the possible rectangles that have a given perimeter*. • Compile the possibilities into an organized list or a table, and determine whether they have all the possible rectangles.
3.MP.6 Attend to precision	• Use clear and precise language in their discussions with others and in their own reasoning. • Are careful about specifying units of measure and state the meaning of the symbols they choose. *For exampl , when figuring out the area of a rectangle they record their answers in square units*
3.MP.7 Look for and make use of structure	• Look closely to discover a pattern or structure. *For example, students use properties of operations as strategies to multiply and divide (commutative and distributive properties)*
3.MP.8 Look for and express regularity in repeated reasoning.	• Notice repetitive actions in computation and look for more shortcut strategies. *For example, students may use the distributive property as a strategy for using products they know to solve products that they don't know. For example, if students are asked to find the product of 7 x 8, they might decompose 7 into 5 and 2 and then multiply 5 x 8 and 2 x 8 to arrive at 40 + 16 or 56.* • Continually evaluate their work by asking themselves, "Does this make sense?"