Louisiana STUDENT STANDARDS
MATHEMATICS

| MATH	2	F
MATHEMATICS	GRADE	FOCUS

This focus document shows where students and teachers should spend the large majority of their time in order to meet the expectations of the Louisiana Student Standards for Mathematics.

Not all content in a given grade is emphasized equally in the standards. Some clusters require greater emphasis than others based on the depth of the ideas, the time that they take to master, and/or their importance to future mathematics or the demands of college and career readiness. More time in these areas is also necessary for students to meet the Louisiana Standards for Mathematical Practice.

To say that some things have greater emphasis is not to say that anything in the standards can safely be neglected in instruction. Neglecting material will leave gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade.
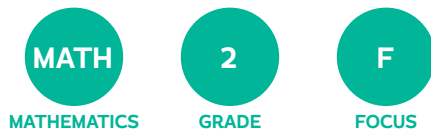
MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 2

Emphases are given at the cluster level. Refer to the Louisiana Student Standards for Mathematics for the specific standards that fall within each cluster. Students should spend the large majority[1] of their time on the major work of the grade.[2]

■ Major Clusters   ☐ Supporting Clusters   ◯ Additional Clusters

2.OA.A	■	Represent and solve problems involving addition and subtraction.
2.OA.B	■	Add and subtract within 20.
2.OA.C	☐	Work with equal groups of objects to gain foundations for multiplication.
2.NBT.A	■	Understand place value.
2.NBT.B	■	Use place value understanding and properties of operations to add and subtract.
2.MD.A	■	Measure and estimate lengths in standard units.
2.MD.B	■	Relate addition and subtraction to length.
2.MD.C	☐	Work with time and money.
2.MD.D	☐	Represent and interpret data.
2.G.A	◯	Reason with shapes and their attributes.

HIGHLIGHTS OF MAJOR WORK IN GRADES K–8

K–2	Addition and subtraction – concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

REQUIRED FLUENCIES FOR GRADE 2

2.OA.B.2	Single-digit sums and differences (sums from memory by end of Grade 2)
2.NBT.B.5	Add/subtract within 100

1 At least 65% and up to approximately 85% of class time, with Grades K–2 nearer the upper end of that range, should be devoted to the major work of the grade.
2 Note, the critical areas are a survey of what will be taught at each grade level; the major work is the subset of topics that deserve the large majority of instructional time during a given year to best prepare students for college and careers.

EXAMPLES OF KEY ADVANCES FROM GRADE 1 TO GRADE 2

This section highlights some of the major grade-to-grade steps in the progression of increasing knowledge and skill detailed in the standards. Each key advance in mathematical content also corresponds to a widening scope of problems that students can solve. Examples of key advances are highlighted to stress the need to treat topics in ways that take into account where students have been in previous grades and where they will be going in subsequent grades.

- Students read and write numbers through 1,000, extending their use of place value to include units of hundreds.

- Students use their understanding of place value to add and subtract within 1,000 (e.g., 237 + 616 or 822 – 237). They can explain what they are doing as they add and subtract, and record their written method, using visual models to support calculating and explaining. They become fluent in addition and subtraction within 100.

- For word problems, students extend their ability by solving two-step problems using addition, subtraction, or both operations. They also master more advanced one-step addition and subtraction problems in this grade (such as take from with start unknown).

- Students use standard units of measure and appropriate measurement tools. They understand basic properties of linear measurement (e.g., length, distance), such as the fact that the smaller the unit, the more iterations will be needed to cover a given length.

FLUENCY EXPECTATIONS OR EXAMPLES OF CULMINATING STANDARDS

This section highlights individual standards that set expectations for fluency or that represent culminating masteries. Fluency standards are highlighted to stress the need to provide sufficient supports and opportunities for practice to help students meet these expectations. Wherever the word "fluently" appears in a content standard, it is used to mean "quickly and accurately." A key aspect of fluency in this sense is that it does not happen all at once in a single grade, but requires attention to student understanding as they progress towards college/career readiness. It is important to ensure that sufficient practice and extra support are provided at each grade, to allow all students to meet the standards that call explicitly for fluency. Fluency is not meant to come at the expense of understanding but is an outcome of a progression of learning and sufficient thoughtful practice. It is important to provide the conceptual building blocks that develop understanding in tandem with skill along the way to fluency; the roots of this conceptual understanding often extend to one or more grades earlier in the standards than the grade when fluency is finally expected. Culminating standards are highlighted to help give a sense of critical foundations needed to maintain progressions from grade to grade.

2.OA.B.2 Fluently add and subtract within 20 using mental strategies. By end of grade 2, know from memory all sums of two one-digit numbers.

2.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Critical area 2 within the grade 2 Louisiana Student Standards for Mathematics introduction says "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 methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations." As a result, students also use efficient, accurate, and generalizable methods for fluency within 100.

2.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s.

2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. Fluency with these relationships is important for adding and subtracting within 1000.

2.NBT.B.8 Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.

2.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. Students require sufficient practice to measure accurately and reasonably quickly.

EXAMPLES OF MAJOR WITHIN-GRADE DEPENDENCIES

This section highlights cases in which a body of content within a given grade depends, conceptually or logically, upon another body of content within that same grade. Examples of within-grade dependencies are highlighted to stress the need to organize material coherently within the grade. (Because of space limitations, only examples of large-scale dependencies are described in this section, but coherence is important for dependencies that exist at finer grain sizes as well.)

- "Understand place value" (cluster 2.NBT.A) is the foundation for "Use place value understanding and the properties of operations to add and subtract" (cluster 2.NBT.B). (Mastery of the two clusters can grow over time, in tandem with each other.) Adding and subtracting within 1,000 (2.NBT.B.7) involves adding or subtracting hundreds with hundreds, tens with tens, and ones with ones, sometimes composing or decomposing tens or hundreds. These ideas and methods rest on an understanding of the place-value units (2.NBT.A.1, building on 1.NBT.A.2) and understanding these units deepens students' understanding of place value.

- Knowing single-digit sums from memory (2.OA.B.2) is the basis for adding and subtracting multidigit numbers fluently and efficiently in general (cluster 2.NBT.B).

EXAMPLES OF OPPORTUNITIES FOR CONNECTIONS AMONG STANDARDS, CLUSTERS, OR DOMAINS

This section highlights opportunities for connecting content in assessments, as well as in curriculum and instruction. Examples of connections are highlighted to stress the need to avoid approaching the standards as merely a checklist.

- Problems involving dollars, dimes, and pennies (2.MD.C.8) should be connected with the place- value learning of hundreds, tens, and ones (2.NBT.A.1), though the notation is different. A dollar is 100 cents, or a "bundle" of 10 dimes, each of which is a "bundle" of 10 pennies. Work with dollars, dimes, and pennies (without the notation) can support methods of whole-number addition (e.g., dimes are added to dimes). Addition that is appropriate with whole numbers can be explored in the new notation of money contexts (though fluency with that notation is not a standard at this grade).

- Students' work with addition and subtraction word problems (2.OA.A.1) can be coordinated with their growing skill in multidigit addition and subtraction (2.OA.B.2; cluster 2.NBT.B).

- Work with nickels (2.MD.C.8) and with telling time to the nearest five minutes on analog clocks (2.MD.C.7) should be taken together with counting by 5s (2.NBT.A.2) as contexts for gaining familiarity with repeating groups of 5 (2.OA.C.4). Recognizing time by seeing the minute hand at 3 and knowing that that signifies 15 minutes; recognizing three nickels as 15 cents; and seeing the 15-ness of a 3-by-5 rectangular array held in any position (including with neither base horizontal) will prepare for understanding, in grade 3, what the new operation of multiplication means.

- A number line (2.MD.B.6) connects numbers, lengths, and units. Number lines are first used in grade 2. A number line shows units of length; the numbers at the end points of the lengths tell how many lengths so far. Bar-graph scales (2.MD.D.10) and rulers (2.MD.A.1, 2, 3, 4) are number lines. Length units can be added and subtracted using rulers or number-line diagrams (2.MD.B.5,6); adding lengths is an extension of adding and subtracting numbers of things, which has been a focus in kindergarten and grade 1 and will be a focus in grade 2 OA and NBT standards. The purpose of number lines is to represent numbers, sums, and differences as lengths, rather than using lengths to solve all addition and subtraction problem.