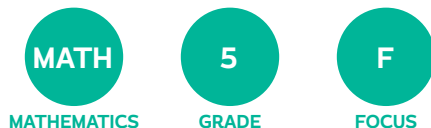


This focus document shows where students and teachers should spend the large majority of their time in order to meet the expectations of the Louisiana Student Standards for Mathematics.

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 5

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<sup>1</sup> of their time on the major work of the grade.<sup>2</sup>

■ Major Clusters      □ Supporting Clusters      ● Additional Clusters

5.OA.A	● Write and interpret numerical expressions.
5.OA.B	● Analyze patterns and relationships.
5.NBT.A	■ Understand the place value system.
5.NBT.B	■ Perform operations with multi-digit whole numbers and with decimals to hundredths.
5.NF.A	■ Use equivalent fractions as a strategy to add and subtract fractions.
5.NF.B	■ Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
5.MD.A	□ Convert like measurement units within a given measurement system.
5.MD.B	□ Represent and interpret data.
5.MD.C	■ Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
5.G.A	● Graph points on the coordinate plane to solve real-world and mathematical problems.
5.G.B	● Classify two-dimensional figures into categories based on their properties.

### 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 5

5.NBT.B.5	Multi-digit multiplication
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<sup>1</sup> 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.

<sup>2</sup> 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 4 TO GRADE 5

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.

- In grade 5, students will integrate decimal fractions more fully into the place value system (5.NBT.A.1–4). By thinking about decimals as sums of multiples of base-ten units, students begin to extend algorithms for multidigit operations to decimals (5.NBT.B.7).
- Students use their understanding of fraction equivalence and their skill in generating equivalent fractions as a strategy to add and subtract fractions, including fractions with unlike denominators.
- Students apply and extend their previous understanding of multiplication to multiply a fraction or whole number by a fraction (5.NF.B.4). They also learn the relationship between fractions and division, allowing them to divide any whole number by any nonzero whole number and express the answer in the form of a fraction or mixed number (5.NF.B.3). And they apply and extend their previous understanding of multiplication and division to divide a unit fraction by a whole number or a whole number by a unit fraction.<sup>1</sup>
- Students extend their grade 4 work in finding whole-number quotients and remainders to the case of two-digit divisors (5.NBT.B.6).
- Students continue their work in geometric measurement by working with volume as an attribute of solid figures and as a measurement quantity (5.MD.C.3–5).
- Students build on their previous work with number lines to use two perpendicular number lines to define a coordinate system (5.G.A.1–2).

## 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.

**5.NBT.B.5** Students fluently multiply multidigit whole numbers using the standard algorithm.

## 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.)

- Understanding that in a multidigit number, a digit in one place represents  $\frac{1}{10}$  of what it represents in the place to its left (5.NBT.A.1) is an example of multiplying a quantity by a fraction (5.NF.B.4).

## 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.

- The work that students do in multiplying fractions extends their understanding of the operation of multiplication. For example, to multiply  $\frac{m}{n} \times q$  (where  $q$  is a whole number or a fraction), students can interpret  $\frac{m}{n} \times q$  as meaning  $q$  parts of a partition of  $m$  into  $n$  equal parts (5.NF.B.4a). This interpretation of the product leads to a product that is less than, equal to or greater than  $q$  depending on whether  $\frac{m}{n} < 1$ ,  $\frac{m}{n} = 1$  or  $\frac{m}{n} > 1$ , respectively (5.NF.B.5).
- Conversions within the metric system represent an important practical application of the place value system. Students’ work with these units (5.MD.A.1) can be connected to their work with place value (5.NBT.A.1).

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<sup>1</sup> Students able to multiply fractions in general can develop strategies to divide fractions in general by reasoning about the relationship between multiplication and division. But the division of a fraction by a fraction is not a requirement in this grade.