Transitioning from the Indiana Academic Standards (IAS) to the Common Core State Standards (CCSS): Instructional and Assessment Guidance (Mathematics – Updated April 2012)

Opportunity to Learn

Since the adoption of the Common Core State Standards, Indiana educators have been transitioning to the CCSS. From an assessment perspective, transitioning to the CCSS necessitates a focus on "Opportunity to Learn" for students. Opportunity to Learn (OTL) refers to equitable conditions or circumstances within the school or classroom that promote learning for all students. OTL includes curricula, learning materials and instructional experiences. In short, OTL supports student success by ensuring student access to both content and instruction.

Opportunity to Learn is both a **moral imperative** and an **ethical responsibility** on the part of educators. "Using OTL standards as a guide, students can measure whether they have a realistic shot at learning the subjects the state requires and whether they will have a fair chance to compete for college," (UCLA's Institute for Democracy, Education, & Access, 2003).

Indiana teachers have a two-fold obligation with regard to OTL. First, teachers must provide students with OTL for Indiana Academic Standards and Indicators that are assessed in the classroom and on ISTEP+. Second, and just as important, teachers must provide OTL in terms of the CCSS content that students must learn in preparation for college and careers, as measured by the new CCSS assessments. In considering the latter, teachers must acknowledge that important consideration must be given to specific indicators over the course of the next few years that might otherwise go untaught unless consciously integrated into instruction.

Assessing Student Learning

In an effort to empower teachers and assist with the transition to CCSS, the Office of Student Assessment has created "Assessment Guidance" documents for grades 3-8. All of the Indiana Academic Standards and Indicators represent valuable content, and a number of those Indicators are assessed on ISTEP+. Other Indicators are best assessed in the classroom through a variety of assessment methods, including teacher observation, student presentations, and teacher-developed quizzes and tests. The Indicators assessed on ISTEP+ are identified on the documents with a "✓+"and a "✓"; those assessed in the classroom are acknowledged with a clipboard symbol (📋).

Emphasis on Instruction

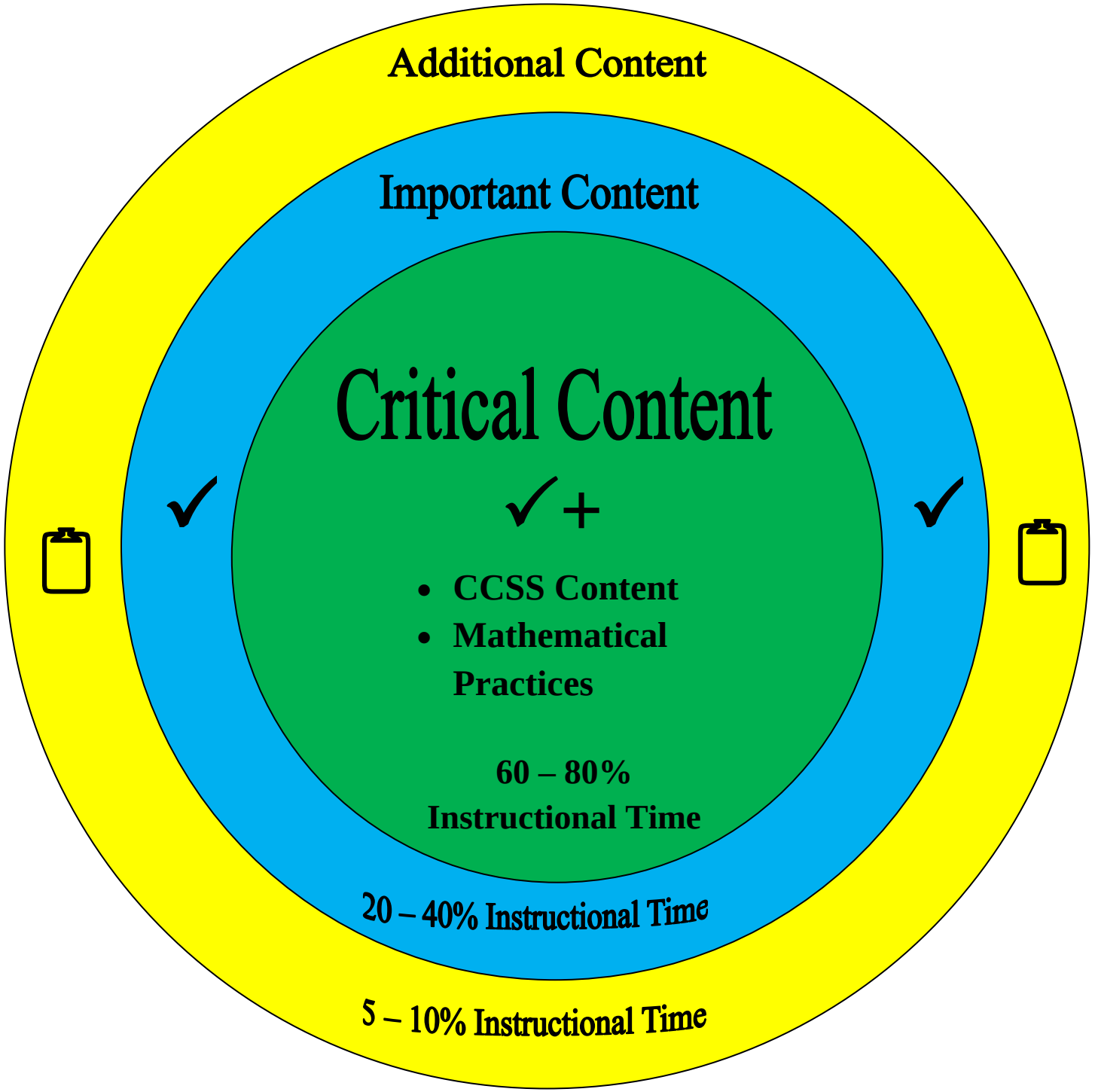
The Assessment Guidance also communicates instructional priorities with regard to the CCSS. Specific content that has been identified as *essential* for building the foundational skills required in the CCSS is incorporated at each grade level. The OTL for this essential content only exists at the particular grade level in the school year designated. If essential content is not taught,

students will experience a gap in learning. As there is risk to future learning if essential content is not taught and learned, it is important to note that **mastery of essential content is critical**. The instructional priorities play a key role in student success on the CCSS accountability assessments, known as the **Partnership for Assessment of College and Career Readiness (PARCC) Assessments**, which begin in 2014-15.

New for 2012-13

To assist teachers even more, the concentric circle graphic (similar to a bull's-eye) was created. This graphic displays the three levels of instructional priority. The highest priority, entitled ***Critical Content***, is indicated by the "✓+" symbol and ideally represents approximately 60-80% of instructional time. The middle priority, entitled ***Important Content***, is indicated by the "✓" symbol and represents approximately 20-40% of instructional time. The lowest priority, entitled ***Additional Content***, is indicated by the (📋) symbol and ideally represents approximately 5-10% of instructional time.

Instructional priorities related specifically to the CCSS have also been updated for 2012-13. This guidance focuses on CCSS foundational skills and Mathematical Practices. The guidance also includes "grayed-out sections" that are part of the major clusters in the PARCC *Model Content Frameworks*. These sections help to highlight the CCSS principles of focus and coherence. Teachers may choose to include this content in their curriculum either completely, by means of differentiation, or not at all. At a minimum, teachers are expected to become familiar with these major clusters as Indiana transitions to the CCSS.


Additional Content
Important Content
Critical Content
✓+
• CCSS Content
• Mathematical Practices
60 – 80%
Instructional Time
20 – 40% Instructional Time
5 – 10% Instructional Time

Instructional and Assessment Guidance 2012-13

Mathematics – Grade 3

Symbol	Content Priority	Approximate Instructional Time	Possible Test Questions	
			ISTEP+	Acuity
✓+	Critical	60 – 80%	Yes	Yes
✓	Important	20 – 40%	Yes	Yes
🗒	Additional	5 – 10%	Assessed Locally	

Standard 1 Number Sense		Standard 2 Computation		Standard 3 Alg. & Functions		Standard 4 Geometry		Standard 5 Measurement	
3.1.1	✓+	3.2.1	✓+	3.3.1	✓+	3.4.1	✓	3.5.1	✓
3.1.2	✓+	3.2.2	✓+	3.3.2	✓+	3.4.2	✓	3.5.2	✓
3.1.3	✓+	3.2.3	✓+	3.3.3	✓+	3.4.3	✓	3.5.3	✓
3.1.4	✓+	3.2.4	✓+	3.3.4	✓+	3.4.4	🗒	3.5.4	🗒
3.1.5	✓+	3.2.5	✓+	3.3.5	✓+	3.4.5	✓	3.5.5	🗒
3.1.6	✓	3.2.6	✓	3.3.6	✓+	3.4.6	✓	3.5.6	🗒
3.1.7	✓	3.2.7	🗒	3.3.7	✓	3.4.7	✓	3.5.7	🗒
3.1.8	✓+	3.2.8	🗒			3.4.8	✓	3.5.8	🗒
3.1.9	🗒					3.4.9	🗒	3.5.9	✓+
3.1.10	✓+					3.4.10	🗒	3.5.10	✓
3.1.11	✓							3.5.11	✓
3.1.12	🗒							3.5.12	✓
3.1.13	✓								
3.1.14	🗒								
3.1.15	✓								

There are similarities among the Indiana Academic Problem Solving Standards and Common Core State Standards for Mathematical Practice. These standards should be taught on a regular basis in connection with the content standards.

Common Core State Standards (CCSS)
2012-13 Instructional Priorities – Grade 3

- *The following content is essential for building the foundational skills required in the CCSS. Mastery of this content is critical to avoid gaps in student learning. In addition, a focus on the* ***Mathematical Practices*** *is imperative to ensure student success.*
- ***** *The* ***grayed-out sections*** *are part of the major clusters in the PARCC Model Content Frameworks. They help to highlight the CCSS principles of focus and coherence.* ***Teachers may choose to include this content in their curriculum either completely, by means of differentiation, or not at all. However, our expectation is that teachers at least become familiar with these major clusters as we transition to the CCSS.***

CCSS	Standard Text	Notes
3.OA.1	Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*	This aligns partially with IAS 3.2.2.
3.OA.2	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*	This aligns partially with IAS 3.2.3.
3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	This aligns partially with IAS 3.2.2 and 3.2.3. See Pg 89 Table 2: http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf
3.OA.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ÷ 3, 6 × 6 = ?.*	*
3.OA.5	Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*	This aligns partially with IAS 3.3.4. The CCSS includes the distributive property. Students do not need to use formal terms for these properties.
3.OA.6	Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*	*
3.OA.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.	This aligns partially with IAS 3.2.4, 3.2.5 and 3.3.4. Sufficient practice and support throughout the year are needed to help students meet this fluency.

3.OA.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	*
3.OA.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*	*
3.NBT.2	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	This aligns well with IAS 3.2.1. Sufficient practice and support throughout the year are needed to help students meet this fluency.
3.NF.1	Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.	*
3.NF.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line. b. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.	This aligns partially with IAS 3.1.9 and 3.3.7. The CCSS refers to understanding a fraction as a number and using a number line to represent fractions.
3.NF.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	This aligns partially with IAS 3.1.8 and 3.1.10. The CCSS includes the number line and symbols to compare fractions. Denominators are limited to 2, 3, 4, 6, and 8 in the Fractions domain of the Grade 3 CCSS.
3.MD.1	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	*

3.MD.2	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).6 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.	This aligns partially with IAS 3.5.6 and 3.5.7. The CCSS excludes problems involving notions of "times as much". See Pg 89 Table 2: http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf).
3.MD.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.	This aligns partially with IAS 3.5.1. The CCSS measures to the nearest quarter inch and includes data representation.
3.MD.5	Recognize area as an attribute of plane figures and understand concepts of area measurement. a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.	This aligns partially with IAS 3.5.4 and 4.5.5. The CCSS requires a more conceptual understanding of area.
3.MD.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	This aligns partially with IAS 3.5.4.
3.MD.7	Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. b. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning. d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	This aligns partially with IAS 3.5.4, 4.5.4, 4.5.5 and 4.5.7.