

## Roadmap for the 2013 Illinois Standards Achievement Test Mathematics

As Illinois transitions to Common Core State Standards for Mathematics, moving from the final administration of the Illinois Standards Achievement Test (ISAT) in 2013-2014 to the Partnership for Assessment of Readiness for College and Career (PARCC) Assessments in 2014-2015, this document has been created to help stakeholders address changes in assessment.

This, however, is not a scope and sequence document, nor should it be used to "teach to the test." Rather, this roadmap provides some clarity and description of expectations. This document may assist educational leaders in continuing to work on the alignment of curriculum, instruction, and classroom assessments and maintaining of focus on the key areas in the preparation for full implementation of the Common Core State Standards and PARCC Assessments.

The document outlines what Mathematics CCSS will be assessed on the ISAT in 2013. The CCSS will make up approximately 20% of the operational ISAT in 2013. The roadmap is intended to assist educational leaders as they consider learning progressions, instructional shifts, and rigor of the CCSS. Attention to this roadmap will assist in a seamless transition to the PARCC Assessment in 2014-2015.

#### Below are some guiding questions that educators may want to consider when reviewing this document.

- How have you engaged teachers in learning about CCSS?
- How have you aligned your resources to CCSS?
- Have you used the Tri-State Rubric which considers rigor, the key areas of focus, instructional support and aligned assessments to begin aligning lessons and units?
- Have you reviewed the PARCC publishers' criteria to evaluate your teaching materials?
- Have you reviewed the PARCC Content Frameworks and the IL Guide to the Content Frameworks?
- How are teachers adjusting their instruction to exemplify the shifts required by CCSS?



## Roadmap for the 2013 Illinois Standards Achievement Test Grade 3 Mathematics

Common Core State Standards (CCSS) on the 2013 ISAT (Illinois Assessment Framework – IAF\* Goal 6)

**CC.3.NBT.1** Use place value understanding to round whole numbers to the nearest 10 or 100. (A range of algorithms may be used.) **CC.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. (A range of algorithms may be used.)

**CC.3.NF.2b** 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. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)

**CC.3.NF.3b** 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. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)

**CC.3.NF.3d** 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. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)

**CC.3.OA.5** Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) *Examples: If*  $6 \times 4 = 24$  *is known, then*  $4 \times 6 = 24$  *is also known. (Commutative property of multiplication.)*  $3 \times 5 \times 2$  *can be found by*  $3 \times 5 = 15$  *then*  $15 \times 2 = 30$ , *or by*  $5 \times 2 = 10$  *then*  $3 \times 10 = 30$ . *(Associative property of multiplication.) Knowing that*  $8 \times 5 = 40$  *and*  $8 \times 2 = 16$ , *one can find*  $8 \times 7$  *as*  $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ . *(Distributive property.)* 

**CC.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. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).)

### Common Core State Standards on the 2013 ISAT (IAF Goal 7)

**CC.3.MD.2** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (Excludes compound units such as cm<sup>3</sup> and finding the geometric volume of a container.) 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. (Excludes multiplicative comparison problems (problems involving notions of "times as much."))

**CC.3.MD.7a** 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.

**CC.3.MD.7b** 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.

Common Core State Standards on the 2013 ISAT (IAF Goal 8)

**CC.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. **CC.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  $8 \times ? = 48$ ,  $5 = \Box \div 3$ ,  $6 \times 6 = ?$ . **Common Core State Standards on the 2013 ISAT (IAF Goal 10)** 

**CC.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.

Grade 3	Past Targets	2013 ISAT		
	OVERALL (%)	OVERALL (%)	%CCSS	%IAF**
	Calculators Not Allowed	Calculators Not Allowed	Calculators Not Allowed	Calculators Not Allowed
State Goal 6 – Number Sense	35%	41%	12%	29%
Standard 6A Representations and Ordering	15%			15%
Standards 6B, 6C Computation, Operations, Estimation, and Properties	20%			15%
Standard 6D Ratios, Proportions, and Percents	0%			0%
State Goal 7 – Measurement	20%	16%	4%	12%
Standards 7A, 7B, 7C Units, Tools, Estimation, and Applications	20%	16%	4%	12%
State Goal 8 – Algebra	10%	15%	3%	12%
Standard 8A Representations, Patterns, and Expressions	5%			4%
Standard 8B Connections Using Tables, Graphs, and Symbols	0%			0%
Standards 8C, 8D Writing, Interpreting, and Solving Equations	5%			7%
State Goal 9 – Geometry	20%	13%	0%	13%
Standard 9A Properties of Single Figures and Coordinate Geometry	15%	4%		9%
Standard 9B Relationships Between and Among Multiple Figures	5%	9%		4%
Standard 9C Justifications of Conjectures and Conclusions	Standard 9C is not assessed in isolation.			
Standard 9D Trigonometry	Standard 9D is not assessed until grade 11.			
State Goal 10 – Data Analysis, Statistics, and Probability	15%	15%	2%	13%
Standards 10A, 10B Data Analysis and Statistics	10%			9%
Standard 10C Probability	5%			4%
Total	100%	100%	21%	79%



# Roadmap for the 2013 Illinois Standards Achievement Test Grade 4 Mathematics

#### Common Core State Standards (CCSS) on the 2013 ISAT (Illinois Assessment Framework – IAF\* Goal 6)

**CC.4.NBT.4** Fluently add and subtract multi-digit whole numbers using the standard algorithm. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)

**CC.4.NBT.5** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)

**CC.4.NF.4b** Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express  $3 \times (2/5)$  as  $6 \times (1/5)$ , recognizing this product as 6/5. (In general,  $n \times (a/b) = (n \times a)/b$ .) (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)

**CC.4.NF.4c** Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie? (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)

**CC.4.NF.6** Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)

**CC.4.OA.3** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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.

**CC.4.OA.4** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.

Common Core State Standards on the 2013 ISAT (IAF Goal 7)

**CC.4.MD.2** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

CC.4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

Common Core State Standards on the 2013 ISAT (IAF Goal 9)

**CC.4.G.2** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

	Past Targets 2013 ISAT			
Grade 4	OVERALL (%)	OVERALL (%)	%CCSS	%IAF**
	Calculators	Calculators	Calculators	Calculators
	Allowed	Allowed	Allowed	Allowed
State Goal 6 – Number Sense	35%	49%	15%	34%
Standard 6A	15%			15%
Representations and Ordering				
Standards 6B, 6C	20%			19%
Computation, Operations, Estimation, and Properties	, .			
Standard 6D	0%			0%
Ratios, Proportions, and Percents				
State Goal 7 – Measurement	20%	17%	4%	13%
Standards 7A, 7B, 7C	20%	17%	4%	13%
Units, Tools, Estimation, and Applications				
State Goal 8 – Algebra	10%	10%	0%	10%
Standard 8A	5%	4%		4%
Representations, Patterns, and Expressions				
Standard 8B	2%	2%		2%
Connections Using Tables, Graphs, and Symbols				
Standards 8C, 8D	3%	4%		4%
Writing, Interpreting, and Solving Equations	<b>2</b> 00/	110/	• • • •	0.0 (
State Goal 9 – Geometry	20%	11%	2%	9%
Standard 9A	15%			9%
Properties of Single Figures and Coordinate Geometry				
Standard 9B	5%			0%
Relationships Between and Among Multiple Figures				
Standard 9C	Standard 9C is not assessed in isolation.			
Justifications of Conjectures and Conclusions				
Standard 9D	Standard 9D is not assessed until grade 11.			
State Goal 10 – Data Analysis, Statistics, and	15%	13%	0%	13%
Probability				
Standards 10A, 10B	10%	7%		7%
Standard 10C				
Stanuaru TUC Probability	5%	6%		6%
Total	100%	100%	21%	70%
I Utal	100/0	100/0	21/0	17/0



# Roadmap for the 2013 Illinois Standards Achievement Test Grade 5 Mathematics

### Common Core State Standards (CCSS) on the 2013 ISAT (Illinois Assessment Framework – IAF\* Goal 6)

**CC.5.NBT.2** Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10.

**CC.5.NBT.3b** Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

**CC.5.NF.1** Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example,* 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (*In general, a/b* + c/d = (ad + bc)/bd.)

**CC.5.NF.4a** Interpret the product  $(a/b) \times q$  as a parts of *a* partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations  $a \times q \div b$ . For example, use a visual fraction model to show  $(2/3) \times 4 = 8/3$ , and create a story context for this equation. Do the same with  $(2/3) \times (4/5) = 8/15$ . (In general,  $(a/b) \times (c/d) = ac/bd$ .)

**CC.5.NF.5b** Interpret multiplication as scaling (resizing), by explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence  $a/b = (n \times a)/(n \times b)$  to the effect of multiplying a/b by 1.

**CC.5.NF.7a** Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for  $(1/3) \div 4$  and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that  $(1/3) \div 4 = 1/12$  because  $(1/12) \times 4 = 1/3$ . (Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division of a fraction by a fraction is not a requirement at this grade.)

**CC.5.NF.7c** Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?* (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 division of a fraction by a fraction is not a requirement at this grade.) **CC.5.OA.1** Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

### Common Core State Standards on the 2013 ISAT (IAF Goal 8)

**CC.5.OA.3** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. For mordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.

Common Core State Standards on the 2013 ISAT (IAF Goal 9)

**CC.5.G.1** Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

Grade 5	Past Targets	2013 ISAT		
	OVERALL (%)	OVERALL (%)	%CCSS	%IAF**
	Calculators	Calculators	Calculators	Calculators
	Allowed	Allowed	Allowed	Allowed
State Goal 6 – Number Sense	30%	45%	16%	29%
Standard 6A	10%			9%
Representations and Ordering	1070			570
Standards 6B, 6C	15%			16%
Computation, Operations, Estimation, and Properties	1570			1070
Standard 6D	5%			4%
Ratios, Proportions, and Percents	570			170
State Goal 7 – Measurement	15%	18%	0%	18%
Standards 7A, 7B, 7C	15%	18%		18%
Units, Tools, Estimation, and Applications	1570	1070		1070
State Goal 8 – Algebra	20%	14%	2%	12%
Standard 8A	8%			3%
Representations, Patterns, and Expressions	0/0			370
Standard 8B	5%			4%
Connections Using Tables, Graphs, and Symbols	0,0			.,,,
Standards 8C, 8D	7%			4%
Writing, Interpreting, and Solving Equations	///0			170
State Goal 9 – Geometry	20%	13%	3%	10%
Standard 9A	10%			4%
Properties of Single Figures and Coordinate Geometry	1070			.,,,
Standard 9B	10%			6%
Relationships Between and Among Multiple Figures	1070			0,0
Standard 9C	Standard 9C is not assessed in isolation			
Justifications of Conjectures and Conclusions				
Standard 9D	Standard 9D is not assessed until grade 11			
Trigonometry				
State Goal 10 – Data Analysis, Statistics, and	15%	10%	0%	10%
Probability				
Standards 10A, 10B	10%			7%
Data Analysis and Statistics				
Standard 10C	5%			3%
Probability	1000/	1000/	• • • • •	=00/
Total	100%	100%	21%	79%



## Roadmap for the 2013 Illinois Standards Achievement Test Grade 6 Mathematics

#### Common Core State Standards (CCSS) on the 2013 ISAT (Illinois Assessment Framework – IAF\* Goal 6)

**CC.6.NS.4** Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express* 36 + 8 *as* 4 (9 + 2). **CC.6.NS.6a** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3) = 3, and that 0 is its own opposite.

**CC.6.NS.7b** Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write  $-3^{\circ}C > -7^{\circ}C$  to express the fact that  $-3^{\circ}C$  is warmer than  $-7^{\circ}C$ .

### Common Core State Standards on the 2013 ISAT (IAF Goal 8)

**CC.6.EE.4** Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.

**CC.6.EE.5** Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

**CC.6.NS.1** Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for  $(2/3) \div (3/4)$  and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that  $(2/3) \div (3/4) = 8/9$  because 3/4 of 8/9 is 2/3. (In general,  $(a/b) \div (c/d) = ad/bc$ .) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?

#### Common Core State Standards on the 2013 ISAT (IAF Goal 9)

**CC.6.G.3** Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

**CC.6.NS.6b** Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

**CC.6.NS.8** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Common Core State Standards on the 2013 ISAT (IAF Goal10)

**CC.6.SP.1** Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.* 

**CC.6.SP.3** Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

CC.6.SP.5a Summarize numerical data sets in relation to their context, such as by reporting the number of observations.

**CC.6.SP.5c** Summarize numerical data sets in relation to their context, such as by giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

Grade 6	Past Targets	2013 ISAT		
	OVERALL (%)	OVERALL (%)	%CCSS	%IAF**
	Calculators	Calculators	Calculators	Calculators
	Allowed	Allowed	Allowed	Allowed
State Goal 6 – Number Sense	25%	30%	5%	25%
Standard 6A	5%			6%
Representations and Ordering	270			070
Standards 6B, 6C	15%			15%
Computation, Operations, Estimation, and Properties				
Standard 6D	5%			4%
Ratios, Proportions, and Percents				
State Goal 7 – Measurement	15%	12%	0%	12%
Standards 7A, 7B, 7C	15%	12%		12%
Units, Tools, Estimation, and Applications	250/	220/	40/	100/
State Goal 8 – Algebra	25%	22%	4%	18%
Standard 8A	10%			6%
Representations, Patterns, and Expressions				
Standard 8B Connections Using Tables, Crenbs, and Symbols	7%			4%
Standards 8C 8D				
Standards 8C, 8D Writing Interpreting and Solving Equations	8%			7%
State Cool 9 Coometry	200/	100/	10/	150/
State Goal 9 – Geometry	2070	1970	4 70	1370
Properties of Single Figures and Coordinate Geometry	10%			7%
Standard 9B				
Relationships Between and Among Multiple Figures	10%			7%
Standard 9C				
Justifications of Conjectures and Conclusions	Standard 9C is not assessed in isolation.			
Standard 9D				
Trigonometry	Standard 9D is not assessed until grade 11.			
State Goal 10 – Data Analysis, Statistics, and	150/	170/	70/	100/
Probability	15%	1 / %0	/ %0	10%
Standards 10A, 10B	10%			7%
Data Analysis and Statistics	1070			/ /0
Standard 10C	50/2			20/2
Probability	570			570
Total	100%	100%	20%	80%



## Roadmap for the 2013 Illinois Standards Achievement Test Grade 7 Mathematics

Common Core State Standards (CCSS) on the 2013 ISAT (Illinois Assessment Framework – IAF\* Goal 6)

**CC.7.EE.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

**CC.7.NS.1a** Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.

**CC.7.RP.1** Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction (1/2)/(1/4) miles per hour, equivalently 2 miles per hour.

**CC.7.SP.2** Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.* 

Common Core State Standards on the 2013 ISAT (IAF Goal 7)

**CC.7.G.4** Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

Common Core State Standards on the 2013 ISAT (IAF Goal 8)

**CC.7.EE.4a** Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where *p*, *q*, and *r* are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

**CC.7.EE.4b** Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example, As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.

**CC.7.NS.1c** Understand subtraction of rational numbers as adding the additive inverse, p - q = p + (-q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

**CC.7.RP.2c** Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.

**CC.7.RP.2d** Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.

Common Core State Standards on the 2013 ISAT (IAF Goal 9)

**CC.7.G.5** Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

Common Core State Standards on the 2013 ISAT (IAF Goal10)

**CC.7.SP.4** Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.* 

**CC.7.SP.6** Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.* 

**CC.7.SP.8c** Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?

	Past Targets 2013 ISAT			
Grade 7	OVERALL (%)	OVERALL (%)	%CCSS	%IAF**
	Calculators	Calculators	Calculators	Calculators
	Allowed	Allowed	Allowed	Allowed
State Goal 6 – Number Sense	25%	21%	0%	21%
Standard 6A	5%	6%		6%
Representations and Ordering				
Standards 6B, 6C Computation Operations Estimation and Properties	15%	12%		12%
Standard 6D				
Statual of D	5%	3%		3%
State Coal 7 – Measurement	15%	10%	1%	Q0/2
Standards 7A 7B 7C	1370	1070	1 /0	770
Units, Tools, Estimation, and Applications	15%	10%	1%	9%
State Goal 8 – Algebra	25%	31%	13%	18%
Standard 8A	1.00/			407
Representations, Patterns, and Expressions	10%			4%
Standard 8B	7%			6%
Connections Using Tables, Graphs, and Symbols	770			070
Standards 8C, 8D	8%			7%
Writing, Interpreting, and Solving Equations	070			, , , 0
State Goal 9 – Geometry	20%	19%	3%	16%
Standard 9A	10%			10%
Properties of Single Figures and Coordinate Geometry				
Standard 9B Relationshing Ratwoon and Among Multiple Figures	10%			6%
Standard OC				
Justifications of Conjectures and Conclusions	Standard 9C is not assessed in isolation.			
Standard 9D				
Trigonometry	Standard 9D is not assessed until grade 11.			
State Goal 10 – Data Analysis, Statistics, and	15%	10%	30/2	16%
Probability	1370	1770	5 /0	10 /0
Standards 10A, 10B	8%			10%
Data Analysis and Statistics	070			1070
Standard 10C	7%			6%
Probability	1000/	1000/	<b>2</b> 001	0001
Total	100%	100%	20%	80%



### Roadmap for the 2013 Illinois Standards Achievement Test Grade 8 Mathematics

#### Common Core State Standards (CCSS) on the 2013 ISAT (Illinois Assessment Framework – IAF\* Goal 7)

**CC.8.G.9** Know the formulas for the volume of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

#### Common Core State Standards on the 2013 ISAT (IAF Goal 8)

**CC.8.EE.7b** Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

**CC.8.EE.8a** Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.

**CC.8.EE.8b** Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.

**CC.8.EE.8c** Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.* 

**CC.8.F.2** Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.* 

**CC.8.F.4** Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

### Common Core State Standards on the 2013 ISAT (IAF Goal 9)

**CC.8.G.3** Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates. **CC.8.G.7** Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

#### Common Core State Standards on the 2013 ISAT (IAF Goal 10)

**CC.8.SP.2** Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

**CC.8.SP.4** Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?* 

	Past Targets 2013 ISAT			
Grade 8	OVERALL (%)	OVERALL (%)**	%CCSS	%IAF**
	Calculators	Calculators	Calculators	Calculators
	Allowed	Allowed	Allowed	Allowed
State Goal 6 – Number Sense	20%	19%	0%	19%
Standard 6A	5%	6%		6%
Standards oB, oC Computation Operations Estimation and Properties	10%	9%		9%
Standard 6D				
Ratios, Proportions, and Percents	5%	4%		4%
State Goal 7 – Measurement	15%	14%	1%	13%
Standards 7A, 7B, 7C	1.50/	1.40/	10/	120/
Units, Tools, Estimation, and Applications	15%	14%	1%	13%
State Goal 8 – Algebra	30%	32%	13%	19%
Standard 8A	10%			7%
Representations, Patterns, and Expressions	1070			/ / 0
Standard 8B	10%			6%
Connections Using Tables, Graphs, and Symbols				
Standards 8C, 8D	10%			6%
Writing, Interpreting, and Solving Equations	200/	100/	20/	150/
State Goal 9 – Geometry	20%	18%	3%	15%
Standard 9A Properties of Single Figures and Coordinate Geometry	10%			7%
Standard 9B	1.00/			===
Relationships Between and Among Multiple Figures	10%			/%
Standard 9C	Standard QC is not assessed in isolation			
Justifications of Conjectures and Conclusions	Sundard 90 is not assessed in isolation.			
Standard 9D	Standard 9D is not assessed until grade 11			
Trigonometry				
State Goal 10 – Data Analysis, Statistics, and	15%	16%	3%	13%
Standards 10A, 10B	8%			7%
Standard 10C		+ +		
Probability	7%			6%
Total	100%	100%	20%	80%