

Indiana Academic Standard for Grade 3 Mathematics 2014	Content Connectors	Part		
		1	2	3
Number Sense				
3.NS.1: Read and write whole numbers up to 10,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 10,000.	Read, demonstrate, and write whole numbers up to 200.	Y	Y	Y
3.NS.2: Compare two whole numbers up to 10,000 using $>$, $=$, and $<$ symbols.	Compare two whole numbers up to 200 using symbols and words (tier two to 50)	Y	Y	Y
3.NS.3: 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 $1/b$. [In grade 3, limit denominators of fractions to 2, 3, 4, 6, 8.]	Identify the number of shaded parts (numerator) of a given representation (rectangles and circles).			Y
	Identify the total number of parts (denominator) of a given representation (rectangles and circles).			Y
	Identify the fraction that matches the representation (rectangles and circles; halves, fourths, thirds).			Y
3.NS.6: Understand two fractions as equivalent (equal) if they are the same size, based on the same whole or the same point on a number line.	Use $=$, $<$, or $>$ to compare two fractions with the same numerator or denominator.			Y
Computation				
3.C.1: Add and subtract whole numbers fluently within 1000.	Adding and subtracting whole numbers.	Y	Y	Y
3.C.2: Represent the concept of multiplication of whole numbers with the following models: equal-sized groups, arrays, area models, and equal "jumps" on a number line. Understand the properties of 0 and 1 in multiplication.	Solve multiplication problems with manipulatives and arrays with numbers 1, 5, and 10 (tier 2: 1 & 5)		Y	Y
Algebraic Thinking				
3.AT.1: Solve real-world problems involving addition and subtraction of whole numbers within 1000 (e.g., by using drawings and equations with a symbol for the unknown number	Use pictures and/or manipulatives to solve real-world one-step addition and subtraction word problems.	Y	Y	Y
Geometry				
3.G.1: Identify and describe the following: cube, sphere, prism, pyramid, cone, and cylinder.	Identify the following: cube, sphere, cylinder, cone		Y	

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Measurement				
3.M.1: Estimate and measure the mass of objects in grams (g) and kilograms (kg) and the volume of objects in quarts (qt), gallons (gal), and liters (l). Add, subtract, multiply, or divide to solve one-step real-world 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).	Add to solve one-step word problems using pounds, gallons, quarts, liters, (grams).	Y	Y	Y
3.M.3: Tell and write time to the nearest minute from analog clocks, using a.m. and p.m., and measure time intervals in minutes. Solve real-world problems involving addition and subtraction of time intervals in minutes.	Solve real-world word problems involving the addition and subtraction of time intervals to whole hours or within an hour (whole hours: 5:00 to 8:00, within hours: 7:15 to 7:45). Using manipulatives/pictures of clock	Y	Y	
3.M.4: Find the value of any collection of coins and bills. Write amounts less than a dollar using the ¢ symbol and write larger amounts using the \$ symbol in the form of dollars and cents (e.g., \$4.59). Solve real-world problems to determine whether there is enough money to make a purchase.	Solve real-world problems to determine whether there is enough money to make a purchase using the next dollar strategy (round up to the next whole dollar)	Y	Y	Y
3.M.7: Find perimeters of polygons given the side lengths or by finding an unknown side length.	Identify a figure as getting larger or smaller when the dimensions of the figure change.		Y	Y
	Use addition to find the perimeter of a rectangle, (triangle for tier 2)		Y	Y
Data Analysis				
3.DA.1: Create scaled picture graphs, scaled bar graphs, and frequency tables to represent a data set—including data collected through observations, surveys, and experiments—with several categories. Solve one- and two-step “how many more” and “how many less” problems regarding the data and make predictions based on the data.	Organize given data into picture or bar graph.		Y	Y
	Select the appropriate statement that describes the data representations based on a given graph (picture/bar).		Y	Y

Indiana Academic Standard for Grade 4 Mathematics 2014	Content Connectors	Part		
		1	2	3
Number Sense				
4.NS.1: Read and write whole numbers up to 1,000,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 1,000,000.	Read, write and demonstrate (show) whole numbers up to 500.	Y	Y	Y
4.NS.2: Compare two whole numbers up to 1,000,000 using $>$, $=$, and $<$ symbols.	Compare two whole numbers up to five-digits using symbols ($>$, $=$, and $<$) and words.	Y	Y	Y
4.NS.3: Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. Name and write mixed numbers using objects or pictures. Name and write mixed numbers as improper fractions using objects or pictures.	Using a model, express a whole number as a fractions.			Y
4.NS.8: 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.	Identify two numbers that when multiplied together create a certain product (multiples of 5, up to 100)		Y	Y
Computation				
4.C.1: Add and subtract multi-digit whole numbers fluently using a standard algorithmic approach.	Grouping up to 10 objects with another set of up to 10 objects, and determining the final result.	Y	Y	Y
4.C.2: 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. Describe the strategy and explain the reasoning.	Relate multiplication to skip counting to enable to students to solve multiplication problems up to two digits by 0, 1, 2, 5 and 10.	Y	Y	Y
4.C.3: Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning.	Able to group a set of objects no more than 50 objects into smaller sets of equal proportions.		Y	Y
4.C.4: Multiply fluently within 100.	Multiplying whole numbers within 100.	Y	Y	Y

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Algebraic Thinking				
4.AT.1: Solve real-world problems involving addition and subtraction of multi-digit whole numbers (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).	Solve or solve and check one- or two-step word problems requiring addition, subtraction	Y	Y	Y
Geometry				
4.G.5: Classify triangles and quadrilaterals based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse).	Classify shapes based on attributes (angles, parallel and perpendicular lines).			Y
Measurement				
4.M.2: Know relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb., oz.; l, ml; hr., min, sec. Express measurements in a larger unit in terms of a smaller unit within a single system of measurement. Record measurement equivalents in a two-column table.	Identify the appropriate units of measurement for different purposes in a real life context (e.g., measure a wall using feet, not inches).	Y	Y	Y
4.M.3: Use the four operations (addition, subtraction, multiplication and division) to solve real-world problems involving distances, intervals of time, volumes, masses of objects, and money. Include addition and subtraction problems involving simple fractions and problems that require expressing measurements given in a larger unit in terms of a smaller unit.	Solve real world problems using interval of time to the half-hour.	Y	Y	Y
	Solve real world problems using money up to the value of one dollar.	Y	Y	Y
Data Analysis				
4.DA.1: Formulate questions that can be addressed with data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, and bar graphs.	Interpret data from a table or bar graph.			
4.DA.3: Interpret data displayed in a circle graph.	Use the circle graph to estimate about how many people/items are in a section. Limit measurements (1/2, 1/4)	Y		Y

Indiana Academic Standard for Grade 5 Mathematics 2014	Content Connectors	Part		
		1	2	3
Number Sense				
5.NS.1: Use a number line to compare and order fractions, mixed numbers, and decimals to thousandths. Write the results using $>$, $=$, and $<$ symbols.	Read, write, or select a decimal to the hundredths place.	Y	Y	
	Compare two decimals to the hundredths place with a value of less than 1. Make relationship to money. Use symbols $<$, $>$, and $=$ & vocabulary. Model with coins	Y	Y	
5.NS.5: Use place value understanding to round decimal numbers up to thousandths to any given place value.	Round decimals to the next whole number. Use next dollar up strategy.		Y	
Computation				
5.C.1: Multiply multi-digit whole numbers fluently using a standard algorithmic approach.	Use fact families to help multiply factors up to 10 (0-10)	Y	Y	Y
5.C.2: Find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning used.	Solve word problems that require division.		Y	Y
	Solve word problems that require multiplication.		Y	Y
5.C.8: Add, subtract, multiply, and divide decimals to hundredths, using models or drawings and strategies based on place value or the properties of operations. Describe the strategy and explain the reasoning.	Solve 1 step problems using decimals.	Y	Y	Y
Algebraic Thinking				
5.AT.1: Solve real-world problems involving multiplication and division of whole numbers (e.g. by using equations to represent the problem). In division problems that involve a remainder, explain how the remainder affects the solution to the problem.	Solve problems or word problems using up to 3-digit multiplication or 3-digit division with no remainder.		Y	
5.AT.5: Solve real-world problems involving addition, subtraction, multiplication, and division with decimals to hundredths, including problems that involve money in decimal notation (e.g. by using equations to represent the problem).	Solve real-world problems involving addition, subtraction, multiplication, and division with decimals to hundredths, including problems that involve money in decimal notation.	Y	Y	Y

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Geometry				
5.G.1: Identify, describe, and draw triangles (right, acute, obtuse) and circles using appropriate tools (e.g., ruler or straightedge, compass and technology). Understand the relationship between radius and diameter.	Categorize angles as right, acute, or obtuse.			Y
	Identify the diameter & radius of a circle.			Y
5.G.2: Identify and classify polygons including quadrilaterals, pentagons, hexagons, and triangles (equilateral, isosceles, scalene, right, acute and obtuse) based on angle measures and sides. Classify polygons in a hierarchy based on properties.	Recognize properties of simple plane figures by counting the number of sides.			Y
	Distinguish plane figures by the name of the shape and number of sides.			Y
Measurement				
5.M.1: Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step real-world problems.	Convert measurements of time. (day in a week, hours in a day, months in a year, minutes in an hour, seconds in a minute)	Y	Y	Y
	Solve problems involving when finding time lapse.	Y	Y	Y
Data Analysis and Statistics				
5.DS.1: Formulate questions that can be addressed with data and make predictions about the data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, bar graphs, and line graphs. Recognize the differences in representing categorical and numerical data.	Use graph data (bar graph) to determine questions that could be answered with the graph or answer a simple question about the graph (e.g., average height among 3 classrooms, # of boys and girls).		Y	

Indiana Academic Standard for Grade 6 Mathematics 2014	Content Connector	Part		
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Number Sense				
6.NS.3: Compare and order rational numbers and plot them on a number line. Write, interpret, and explain statements of order for rational numbers in real-world contexts.	Plot positive and negative integers on a number line.	Y		
	Compare/order a given set of integers	Y		
6.NS.5: Know commonly used fractions (halves, thirds, fourths, fifths, eighths, tenths) and their decimal and percent equivalents. Convert between any two representations (fractions, decimals, percent's) of positive rational numbers without the use of a calculator.	Identify equivalent fractions, decimals, and percents.	Y	Y	
6.NS.9: Understand the concept of a unit rate and use terms related to rate in the context of a ratio relationship.	Determine the unit rate in a variety of contextual situations.		Y	
6.NS.10: Use reasoning involving rates and ratios to model real-world and other mathematical problems (e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations).	Solve one step real world problems involving unit rates with ratios of whole numbers when given the unit rate (3 inches of snow falls per hour, how much in 6 hours).			Y
Computation				
6.C.1: Divide multi-digit whole numbers fluently using a standard algorithmic approach.	Divide multi-digit whole numbers.	Y	Y	
Algebra and Functions				
6.AF.1: Evaluate expressions for specific values of their variables, including expressions with whole-number exponents and those that arise from formulas used in real-world problems.	Given a real world problem evaluate the expressions for the specific values of their variables			Y
6.AF.2: Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions and to justify whether two linear expressions are equivalent when the two expressions name the same number regardless of which value is substituted into them.	Use properties to produce equivalent expressions		Y	
6.AF.3: Define and use multiple variables when writing expressions to represent real-world and other mathematical problems, and evaluate them for given values.	Given a real-world problem evaluate the expressions for the specific values of two variables.		Y	

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6.AF.4: Understand that solving an equation or inequality is the process of answering the following 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.	Use substitution to determine validity of an equation			Y
6.AF.5: Solve equations of the form $x + p = q$, $x - p = q$, $px = q$, and $x/p = q$ fluently for cases in which p , q and x are all nonnegative rational numbers. Represent real world problems using equations of these forms and solve such problems.	Solve real-world, single step linear equations.			Y
6.AF.6: Write an inequality of the form $x > c$, $x \geq c$, $x < c$, or $x \leq c$, where c is a rational number, to represent a constraint or condition in a real-world or other mathematical problem. Recognize inequalities have infinitely many solutions and represent solutions on a number line diagram.	Given a real world problem, write an inequality.		Y	
6.AF.7: Understand that signs of numbers in ordered pairs indicate the quadrant containing the point; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Graph points with rational number coordinates on a coordinate plane.	Graph a point on a coordinate plane	Y	Y	
Geometry and Measurement				
6.GM.1: Convert between measurement systems (English to metric and metric to English) given conversion factors, and use these conversions in solving real-world problems.	Complete a conversion table for length and time	Y	Y	
6.GM.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 to solve real-world and other mathematical problems.	Know the attributes of a polygon	Y	Y	
Data Analysis and Statistics				
6.DS.3: Formulate statistical questions; collect and organize the data (e.g., using technology); display and interpret the data with graphical representations (e.g., using technology).	Collect and graph data: bar graph, line plots.	Y	Y	

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<p>6.DS.4: Summarize numerical data sets in relation to their context in multiple ways, such as: report the number of observations; describe the nature of the attribute under investigation, including how it was measured and its units of measurement; determine quantitative measures of center (mean and/or median) and spread (range and interquartile range), as well as describe any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered; and relate the choice of measures of center and spread to the shape of the data distribution and the context in which the data were gathered.</p>	<p>Select statement that matches mean, mode, and spread of data for 1 measure of central tendency for a given data set.</p>		Y	Y

Indiana Academic Standard for Grade 7 Mathematics 2014	Content Connector	Part		
		1	2	3
Number Sense				
7.NS.2: Understand the inverse relationship between squaring and finding the square root of a perfect square integer. Find square roots of perfect square integers.	Identify the square of a whole number		Y	
7.NS.3: Know there are rational and irrational numbers. Identify, compare, and order rational and common irrational numbers ($\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, \square) and plot them on a number line.	Understand the definition of rational and irrational numbers		Y	Y
	Order or compare rational and irrational numbers		Y	Y
Computation				
7.C.1: Understand $p + q$ as the number located a distance $ q $ from p , in the positive or negative direction, depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	Add a positive and negative integer.	Y	Y	
MA.7.C.6: Use proportional relationships to solve ratio and percent problems with multiple operations, such as the following: simple interest, tax, markups, markdowns, gratuities, commissions, fees, conversions within and across measurement systems, percent increase and decrease, and percent error.	Use proportions to solve ratio problems.			Y
	Solve word problems involving ratios			Y
	Use proportional relationships to solve multistep percent problems.			Y
7.C.8: Solve real-world problems with rational numbers by using one or two operations.	Understand the order of operations to solve real-world multi-step problems using whole numbers.		Y	
Algebra and Functions				
7.AF.2: Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems.	Solve equations with 1 variable based on real-world problems.	Y	Y	Y
	Use variables to represent quantities in a real-world or mathematical problem to solve problems by reasoning about the quantities.	Y	Y	Y

Indiana Academic Standard for Grade 7 Mathematics 2014	Content Connector	Part		
		1	2	3
Geometry and Measurement				
7.GM.1: Draw triangles (freehand, with ruler and protractor, and using technology) with given conditions from three measures of angles or sides, and notice when the conditions determine a unique triangle, more than one triangle, or no triangle.	Students will be able to name if the triangle is obtuse, acute, or right.	Y		Y
7.GM.4: Solve real-world and other mathematical problems that involve vertical, adjacent, complementary, and supplementary angles.	Identify adjacent and vertical in a real world situation.	Y	Y	
Data Analysis, Statistics, and Probability				
7.DSP.6: Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its relative frequency from a large sample.	Make a prediction regarding the probability of an event occurring; conduct simple probability experiments.	Y		Y

Indiana Academic Standards for Grade 8 Mathematics 2014	Content Connector	Part		
		1	2	3
Number Sense				
8.NS.2: Use rational approximations of irrational numbers to compare the size of irrational numbers, plot them approximately on a number line, and estimate the value of expressions involving irrational numbers.	Use approximations of irrational numbers to locate them on a number line.	Y	Y	
Computation				
8.C.1: Solve real-world problems with rational numbers by using multiple operations.	Solve real-world problems with rational numbers by using two operations.	Y	Y	
Algebra and Functions				
8.AF.1: Solve linear equations with rational number coefficients fluently, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. Represent real-world problems using linear equations and inequalities in one variable and solve such problems.	Solve linear equations with 1 variable.	Y	Y	
8.AF.4: Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear, has a maximum or minimum value). Sketch a graph that exhibits the qualitative features of a function that has been verbally described.	Given multiple graphs, describe the function as linear and not linear.		Y	
	Given a verbal description of a situation, create or identify a graph to model the situation.		Y	
	Describe or select the relationship between the two quantities given a line graph of a situation.		Y	
8.AF.8: Understand that solutions to a system of two linear equations correspond to points of intersection of their graphs because points of intersection satisfy both equations simultaneously. Approximate the solution of a system of equations by graphing and interpreting the reasonableness of the approximation.	Identify the solution to a system of linear equations given a graph	Y		Y
Geometry and Measurement				
8.GM.3: Verify experimentally the properties of rotations, reflections, and translations, including: lines are mapped to lines, and line segments to line segments of the same length; angles are mapped to angles of the same measure; and parallel lines are mapped to parallel lines.	Recognize a rotation, reflection, or translation of a figure.	Y	Y	Y

Indiana Academic Standards for Grade 8 Mathematics 2014	Content Connector	Part		
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Data Analysis, Statistics, and Probability				
8.DSP.1: Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantitative variables. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	Graph bivariate data using scatter plots and identify possible associations between the variables.			Y

Indiana Academic Standards for Grade 10 Mathematics 2014	Content Connector	Part		
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Numbers Sense, Expressions and Computation				
AI.RNE.2: Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	Identify the pattern for the sum or product for combinations of rational numbers.	Y	Y	
AI.RNE.3: Rewrite and evaluate numeric expressions with positive rational exponents using the properties of exponents.	Use properties of integer exponents to produce equivalent expressions.			Y
AI.RNE.4: Simplify square roots of non-perfect square integers and algebraic monomials.	Solve equations using square root properties	Y		Y
Data Analysis and Statistics, Statistics and Probability				
AI.DS.5: 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 (including joint, marginal, and conditional relative frequencies) to describe possible associations and trends in the data.	Examine the study using categorical data.	Y		Y
Linear Equations, Inequalities, and Functions				
AI.F.1: Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. Understand that if f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . Understand the graph of f is the graph of the equation $y = f(x)$.	Distinguish between functions and non-functions, graphs, or tables.		Y	
AI.L.1: Understand that the steps taken when solving linear equations create new equations that have the same solution as the original. Solve fluently linear equations and inequalities in one variable with integers, fractions, and decimals as coefficients. Explain and justify each step in solving an equation, starting from the assumption that the original equation has a solution. Justify the choice of a solution method.	Solve equations with one or two variables using equations or graphs.	Y	Y	

Indiana Academic Standards for Grade 10 Mathematics 2014	Content Connector	Part		
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AI.L.11: Solve equations and formulas for a specified variable, including equations with coefficients represented by variables.	Solve linear equations with 1 variable.	Y	Y	
Systems of Equations and Inequalities				
SEI.1 Understand the relationship between a solution of a pair of linear equations in two variables and the graphs of the corresponding lines. Solve pairs of linear equations in two variables by graphing; approximate solutions when the coordinates of the solution are non-integer numbers.	Identify the solution to a system of linear equations given a graph			Y
Quadratic and Exponential Equations and Functions				
AI.QE.3: Graph exponential and quadratic equations in two variables with and without technology.	Determine if the points lie on a graph of an exponential or quadratic function			Y
AI.QE.6: Use the process of factoring to determine zeros, lines of symmetry, and extreme values in real-world and other mathematical problems involving quadratic functions; interpret the results in the real-world contexts.	Identify zeros of a quadratic function			Y
AI.QE.7: Describe the relationships among the solutions of a quadratic equation, the zeros of the function, the x-intercepts of the graph, and the factors of the expression.	Identify zeros of a quadratic function			Y