

Acuity Indiana Mathematics - Diagnostic Blueprint

Mathematics Diagnostic Blueprints						
Grade	Indiana Standard	Indiana Indicator	Diagnostic 1	Diagnostic 2	Diagnostic 3	Diagnostic 4
		Testing Window	10/12-11/2/11	01/9-01/30/12	3/14-04/04/12	5/9-5/30/12
		Total # of Item	30	30	30	30
3	Standard 1: Number Sense	3.1.1 Count, read, and write whole numbers up to 1,000. Example: Write 349 for the number three hundred forty-nine.	3			
3	Standard 1: Number Sense	3.1.10 Given a pair of fractions, decide which is larger or smaller by using objects or pictures. Example: Is $\frac{3}{4}$ of a medium pizza larger or smaller than $\frac{1}{2}$ of a medium pizza? Explain your answer.			4	
3	Standard 1: Number Sense	3.1.2 Identify and interpret place value in whole numbers up to 1,000. Example: Understand that the 7 in 479 represents 7 tens or 70.	3			
3	Standard 1: Number Sense	3.1.3 Use words, models, and expanded form to represent numbers up to 1,000. Example: Recognize that $492 = 400 + 90 + 2$.	3			
3	Standard 1: Number Sense	3.1.4 Identify any number up to 1,000 in various combinations of hundreds, tens, and ones. Example: 325 can be written as 3 hundreds, 2 tens, and 5 ones, or as 2 hundreds, 12 tens, and 5 ones, etc.		3		
3	Standard 1: Number Sense	3.1.5 Compare whole numbers up to 1,000 and arrange them in numerical order. Example: What is the smallest whole number you can make using the digits 4, 9, and 1? Use each digit exactly once.		4		
3	Standard 1: Number Sense	3.1.6 Round numbers less than 1,000 to the nearest ten and the nearest hundred. Example: Round 548 to the nearest ten.	3			
3	Standard 1: Number Sense	3.1.15 Record the possible outcomes for a simple probability experiment.				3
3	Standard 1: Number Sense	3.1.7 Identify odd and even numbers up to 1,000 and describe their characteristics. Example: Find the even number: 47, 106, 357, 629.		3		
3	Standard 1: Number Sense	3.1.8 Show equivalent fractions using equal parts. Example: Draw pictures to show that $\frac{3}{5}$, $\frac{6}{10}$, and $\frac{9}{15}$ are equivalent fractions.			4	
3	Standard 2: Computation	3.2.1 Add and subtract whole numbers up to 1,000 with or without regrouping, using relevant properties of the number system. Example: $854 - 427 = ?$. Explain your method.	3			
3	Standard 2: Computation	3.2.2 Represent the concept of multiplication as repeated addition. Example: Lynn made 3 baskets each week for 4 weeks. Draw a picture to show how many baskets she made.			4	

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3	Standard 2: Computation	3.2.3 Represent the concept of division as repeated subtraction, equal sharing, and forming equal groups. Example: Bob shared 10 cookies among 5 friends. Draw a picture to show how many cookies each friend got.				3
3	Standard 2: Computation	3.2.4 Know and use the inverse relationship between multiplication and division facts, such as $6 \times 7 = 42$, $42 \div 7 = 6$, $7 \times 6 = 42$, $42 \div 6 = 7$. Example: Find other facts related to $8 \times 3 = 24$.		4		
3	Standard 2: Computation	3.2.5 Show mastery of multiplication facts for 2, 5, and 10. Example: Know the answer to 6×5 .				4
3	Standard 2: Computation	3.2.6 Add and subtract simple fractions with the same denominator. Example: Add $\frac{1}{4}$ and $\frac{2}{4}$. Explain your answer.			4	
3	Standard 3: Algebra and Functions	3.3.1 Represent relationships of quantities in the form of a numeric expression or equation. Example: Bill's mother gave him money to buy three drinks that cost 45 cents each at the concession stand. When he returned to the bleachers, he gave 25 cents change to his mother. Write an equation to find the amount of money Bill's mother originally gave him.			3	
3	Standard 3: Algebra and Functions	3.3.2 Solve problems involving numeric equations. Example: Use your equation from the last example to find the amount of money that Bill's mother gave him, and justify your answer.			3	
3	Standard 3: Algebra and Functions	3.3.3 Choose appropriate symbols for operations and relations to make a number sentence true. Example: What symbol is needed to make the number sentence $4 _ 3 = 12$ true?				
3	Standard 3: Algebra and Functions	3.3.4 Understand and use the commutative and associative properties of multiplication. Example: Multiply the numbers 7, 2, and 5 in this order. Now multiply them in the order 2, 5, and 7. Which was easier? Why?				3
3	Standard 3: Algebra and Functions	3.3.5 Create, describe, and extend number patterns using multiplication. Example: What is the next number: 3, 6, 12, 24, &? How did you find your answer?			4	
3	Standard 3: Algebra and Functions	3.3.7 Plot and label whole numbers on a number line up to 10. Example: Mark the position of 7 on a number line up to 10.				3
3	Standard 4: Geometry	3.4.1 Identify quadrilaterals as four-sided shapes. Example: Which of these are quadrilaterals: square, triangle, rectangle?				3
3	Standard 4: Geometry	3.4.2 Identify right angles in shapes and objects and decide whether other angles are greater or less than a right angle. Example: Identify right angles in your classroom. Open the classroom door until it makes a right angle with one wall and explain what you are doing.				2
3	Standard 4: Geometry	3.4.3 Identify, describe, and classify: cube, sphere, prism, pyramid, cone, and cylinder. Example: Describe the faces of a pyramid and identify its characteristics.	3			

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3	Standard 4: Geometry	3.4.5 Draw a shape that is congruent to another shape.				3
3	Standard 4: Geometry	3.4.7 Draw line segments and lines. Example: Draw a line segment three inches long.	3			
3	Standard 4: Geometry	3.4.8 Identify and draw lines of symmetry in geometric shapes (by hand or using technology). Example: Use pencil and paper or a drawing program to draw lines of symmetry in a square. Discuss your findings.				2
3	Standard 5: Measurement	3.5.1 Measure line segments to the nearest half-inch. Example: Measure the length of a side of a triangle.	2			
3	Standard 5: Measurement	3.5.11 Use play or real money to decide whether there is enough money to make a purchase.		3		
3	Standard 5: Measurement	3.5.12 Carry out simple unit conversions within a measurement system (e.g., centimeters to meters, hours to minutes). Example: How many minutes are in 3 hours?		3		
3	Standard 5: Measurement	3.5.2 Add units of length that may require regrouping of inches to feet or centimeters to meters. Example: Add the lengths of three sheets of paper. Give your answer in feet and inches.		3		
3	Standard 5: Measurement	3.5.3 Find the perimeter of a polygon. Example: Find the perimeter of a table in centimeters. Explain your method.	3			
3	Standard 5: Measurement	3.5.9 Tell time to the nearest minute and find how much time has elapsed. Example: You start a project at 9:10 a.m. and finish the project at 9:42 a.m. How much time has passed?		3		
3	Standard 6: Problem Solving	3.6.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, sequencing and prioritizing information, and observing patterns. Example: Solve the problem: Start with any number. If it is even, halve it. If it is odd, add 1. Do the same with the result and keep doing that. Find what happens by trying different numbers. Try two or three numbers and look for patterns.	4			
3	Standard 6: Problem Solving	3.6.4 Express solutions clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work. Example: In the first example, explain what happens to all the numbers that you tried.		4		
3	Standard 6: Problem Solving	3.6.7 Make precise calculations and check the validity of the results in the context of the problem. Example: In the first example, notice that the result of adding 1 to an odd number is always even. Use this to check your calculations.			4	

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3	Standard 6: Problem Solving	3.6.8 Decide whether a solution is reasonable in the context of the original situation. Example: In the example about fitting desks into a room, would an answer of 1,000 surprise you?				4
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		Total # of Item	30	30	30	30
4	Standard 1: Number Sense	4.1.1 Read and write whole numbers up to 1,000,000. Example: Read aloud the number 394,734.	3			
4	Standard 1: Number Sense	4.1.2 Identify and write whole numbers up to 1,000,000, given a place-value model. Example: Write the number that has 2 hundred thousands, 7 ten thousands, 4 thousands, 8 hundreds, 6 tens, and 2 ones.	3			
4	Standard 1: Number Sense	4.1.3 Round whole numbers up to 10,000 to the nearest ten, hundred, and thousand. Example: Is 7,683 closer to 7,600 or 7,700? Explain your answer.			3	
4	Standard 1: Number Sense	4.1.4 Order and compare whole numbers using symbols for less than (<), equal to (=), and greater than (>). Example: Put the correct symbol in $328 \underline{\quad} 142$.	3			
4	Standard 1: Number Sense	4.2.8 Add and subtract simple fractions with different denominators, using objects or pictures.			4	
4	Standard 1: Number Sense	4.1.6 Name and write mixed numbers, using objects or pictures. Example: You have 5 whole straws and half a straw. Write the number that represents these objects.	3			
4	Standard 1: Number Sense	4.1.8 Write tenths and hundredths in decimal and fraction notations. Know the fraction and decimal equivalents for halves and fourths (e.g., $1/2 = 0.5 = 0.50$, $7/4 = 1 \frac{3}{4} = 1.75$). Example: Write $26/100$ and $2 \frac{3}{4}$ as decimals.		4		
4	Standard 1: Number Sense	4.1.9 Round two-place decimals to tenths or to the nearest whole number. Example: You ran the 50-yard dash in 6.73 seconds. Round your time to the nearest tenth.		4		
4	Standard 2: Computation	4.2.1 Understand and use standard algorithms for addition and subtraction. Example: $45,329 + 6,984 = ?$, $36,296 - 12,075 = ?$.	3			
4	Standard 2: Computation	4.2.10 Use a standard algorithm to add and subtract decimals (to hundredths). Example: $0.74 + 0.80 = ?$.			3	
4	Standard 2: Computation	4.2.2 Represent as multiplication any situation involving repeated addition. Example: Each of the 20 students in your physical education class has 3 tennis balls. Find the total number of tennis balls in the class.			3	
4	Standard 2: Computation	4.2.3 Represent as division any situation involving the sharing of objects or the number of groups of shared objects. Example: Divide 12 cookies equally among 4 students. Divide 12 cookies equally to find out how many people can get 4 cookies. Compare your answers and methods.		3		

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4	Standard 2: Computation	4.2.4 Demonstrate mastery of the multiplication tables for numbers between 1 and 10 and of the corresponding division facts. Example: Know the answers to 9×4 and $35 \div 7$.			3	
4	Standard 2: Computation	4.2.5 Use a standard algorithm to multiply numbers up to 100 by numbers up to 10, using relevant properties of the number system. Example: $67 \times 3 = ?$.		4		
4	Standard 2: Computation	4.2.6 Use a standard algorithm to divide numbers up to 100 by numbers up to 10 without remainders, using relevant properties of the number system. Example: $69 \div 3 = ?$.		4		
4	Standard 3: Algebra and Functions	4.3.1 Use letters, boxes, or other symbols to represent any number in simple expressions, equations, or inequalities (i.e., demonstrate an understanding of and the use of the concept of a variable). Example: You read the expression three times some number added to 5 and you write $3x + 5$. What does x represent?	3			
4	Standard 3: Algebra and Functions	4.3.3 Understand that multiplication and division are performed before addition and subtraction in expressions without parentheses. Example: You go to a store with 90¢ and buy 3 pencils that cost 20¢ each. Write an expression for the amount of money you have left and find its value.			3	
4	Standard 3: Algebra and Functions	4.3.4 Understand that an equation such as $y = 3x + 5$ is a rule for finding a second number when a first number is given. Example: Use the formula $y = 3x + 5$ to find the value of y when $x = 6$.				4
4	Standard 3: Algebra and Functions	4.3.5 Continue number patterns using multiplication and division. Example: What is the next number: 160, 80, 40, 20, &? Explain your answer.				4
4	Standard 3: Algebra and Functions	4.3.7 Relate problem situations to number sentences involving multiplication and division. Example: You have 150 jelly beans to share among the 30 members of your class. Write a number sentence for this problem and use it to find the number of jelly beans each person will get.			3	
4	Standard 4: Geometry	4.4.1 Identify, describe, and draw rays, right angles, acute angles, obtuse angles, and straight angles using appropriate mathematical tools and technology. Example: Draw two rays that meet in an obtuse angle.	2			
4	Standard 4: Geometry	4.4.2 Identify, describe, and draw parallel, perpendicular, and oblique lines using appropriate mathematical tools and technology. Example: Use the markings on the gymnasium floor to identify two lines that are parallel. Place a jump rope across the parallel lines and identify any obtuse angles created by the jump rope and the lines.	3			

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4	Standard 4: Geometry	4.4.3 Identify, describe, and draw parallelograms, rhombuses, and trapezoids, using appropriate mathematical tools and technology. Example: Use a geoboard to make a parallelogram. How do you know it is a parallelogram?		2		
4	Standard 4: Geometry	4.4.4 Identify congruent quadrilaterals and give reasons for congruence using sides, angles, parallels, and perpendiculars. Example: In a collection of parallelograms, rhombuses, and trapezoids, pick out those that are the same shape and size and explain your decisions.		4		
4	Standard 5: Measurement	4.5.1 Measure length to the nearest quarter-inch, eighth-inch, and millimeter. Example: Measure the width of a sheet of paper to the nearest millimeter.			3	
4	Standard 5: Measurement	4.5.10 Determine the amount of change from a purchase. Example: You buy a chocolate bar priced at \$1.75. How much change do you get if you pay for it with a five-dollar bill?	2			
4	Standard 5: Measurement	4.5.2 Subtract units of length that may require renaming of feet to inches or meters to centimeters. Example: The shelf was 2 feet long. Jane shortened it by 8 inches. How long is the shelf now?			3	
4	Standard 5: Measurement	4.5.3 Know and use formulas for finding the perimeters of rectangles and squares. Example: The length of a rectangle is 4 cm and its perimeter is 20 cm. What is the width of the rectangle?	3			
4	Standard 5: Measurement	4.5.4 Know and use formulas for finding the areas of rectangles and squares. Example: Draw a rectangle 5 inches by 3 inches. Divide it into one-inch squares and count the squares to find its area. Can you see another way to find the area? Do this with other rectangles.		3		
4	Standard 5: Measurement	4.5.7 Find areas of shapes by dividing them into basic shapes such as rectangles. Example: Find the area of your school building.				4
4	Standard 5: Measurement	4.5.9 Add time intervals involving hours and minutes. Example: During the school week, you have 5 recess periods of 15 minutes. Find how long that is in hours and minutes.				4
4	Standard 6: Data Analysis and Probability	4.6.1 Represent data on a number line and in tables, including frequency tables. Example: The students in your class are growing plants in various parts of the classroom. Plan a survey to measure the height of each plant in centimeters on a certain day. Record your survey results on a line plot.				4
4	Standard 6: Data Analysis and Probability	4.6.2 Interpret data graphs to answer questions about a situation.				4

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4	Standard 6: Data Analysis and Probability	4.6.3 Summarize and display the results of probability experiments in a clear and organized way. Example: Roll a number cube 36 times and keep a tally of the number of times that 1, 2, 3, 4, 5, and 6 appear. Draw a bar graph to show your results.				4
4	Standard 7: Problem Solving	4.7.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, sequencing and prioritizing information, and observing patterns. Example: Solve the problem: Find a relationship between the number of faces, edges, and vertices of a solid shape with flat surfaces. Try two or three shapes and look for patterns.	2			
4	Standard 7: Problem Solving	4.7.4 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, tools, and models to solve problems, justify arguments, and make conjectures. Example: In the first example, make a table to help you explain your results to another student.		2		
4	Standard 7: Problem Solving	4.7.5 Express solutions clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work. Example: In the first example, explain what happens with all the shapes that you tried.			2	
4	Standard 7: Problem Solving	4.7.8 Make precise calculations and check the validity of the results in the context of the problem. Example: The buses you use for a school trip hold 55 people each. How many buses will you need to seat 180 people?				2

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		Testing Window	10/12-11/2/11	01/9-01/30/12	3/14-04/04/12	5/9-5/30/12
		Total # of Item	30	30	30	30
5	Standard 1: Number Sense	5.1.1 Convert between numbers in words and numbers in figures, for numbers up to millions and decimals to thousandths. Example: Write the number 198.536 in words.	4			
5	Standard 1: Number Sense	5.1.2 Round whole numbers and decimals to any place value. Example: Is 7,683,559 closer to 7,600,000 or 7,700,000? Explain your answer.			4	
5	Standard 1: Number Sense	5.1.3 Arrange in numerical order and compare whole numbers or decimals to two decimal places by using the symbols for less than (<), equals (=), and greater than (>). Example: Write from smallest to largest: 0.5, 0.26, 0.08.	4			
5	Standard 1: Number Sense	5.1.4 Interpret percents as a part of a hundred. Find decimal and percent equivalents for common fractions and explain why they represent the same value. Example: Shade a 100-square grid to show 30%. What fraction is this?		3		
5	Standard 1: Number Sense	5.1.5 Explain different interpretations of fractions: as parts of a whole, parts of a set, and division of whole numbers by whole numbers. Example: What fraction of a pizza will each person get when 3 pizzas are divided equally among 5 people?		3		
5	Standard 1: Number Sense	5.1.7 Identify on a number line the relative position of simple positive fractions, positive mixed numbers, and positive decimals. Example: Find the positions on a number line of $1\frac{1}{4}$ and 1.4.		3		
5	Standard 2: Computation	5.2.1 Solve problems involving multiplication and division of any whole numbers. Example: $2,867 \times 34 = ?$. Explain your method.	4			
5	Standard 2: Computation	5.2.2 Add and subtract fractions (including mixed numbers) with different denominators. Example: $3\frac{4}{5} - 2\frac{2}{3} = ?$.		4		
5	Standard 2: Computation	5.2.7 Use mental arithmetic to add or subtract simple decimals.				4
5	Standard 2: Computation	5.2.5 Add and subtract decimals and verify the reasonableness of the results. Example: Compute $39.46 - 20.89$ and check the answer by estimating.	4			
5	Standard 3: Algebra and Functions	5.3.1 Use a variable to represent an unknown number. Example: When a certain number is multiplied by 3 and then 5 is added, the result is 29. Let x stand for the unknown number and write an equation for the relationship.			4	

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5	Standard 3: Algebra and Functions	5.3.2 Write simple algebraic expressions in one or two variables and evaluate them by substitution. Example: Find the value of $5x + 2$ when $x = 3$.			4	
5	Standard 3: Algebra and Functions	5.3.4 Identify and graph ordered pairs of positive numbers. Example: Plot the points (3, 1), (6, 2), and (9, 3). What do you notice?				4
5	Standard 3: Algebra and Functions	5.3.5 Find ordered pairs (positive numbers only) that fit a linear equation, graph the ordered pairs, and draw the line they determine. Example: For $x = 1, 2, 3,$ and $4,$ find points that fit the equation $y = 2x + 1$. Plot those points on graph paper and join them with a straight line.				4
5	Standard 3: Algebra and Functions	5.3.7 Use information taken from a graph or equation to answer questions about a problem situation. Example: The speed (v feet per second) of a car t seconds after it starts is given by the formula $v = 12t$. Find the cars speed after 5 seconds.				4
5	Standard 4: Geometry	5.4.1 Measure, identify, and draw angles, perpendicular and parallel lines, rectangles, triangles, and circles by using appropriate tools (e.g., ruler, compass, protractor, appropriate technology, media tools). Example: Draw a rectangle with sides 5 inches and 3 inches.	3			
5	Standard 4: Geometry	5.4.2 Identify, describe, draw, and classify triangles as equilateral, isosceles, scalene, right, acute, obtuse, and equiangular. Example: Draw an isosceles right triangle.		3		
5	Standard 4: Geometry	5.4.3 Identify congruent triangles and justify your decisions by referring to sides and angles. Example: In a collection of triangles, pick out those that are the same shape and size and explain your decisions.	3			
5	Standard 4: Geometry	5.4.4 Identify, describe, draw, and classify polygons, such as pentagons and hexagons. Example: In a collection of polygons, pick out those with the same number of sides.		3		
5	Standard 4: Geometry	5.4.5 Identify and draw the radius and diameter of a circle and understand the relationship between the radius and diameter. Example: On a circle, draw a radius and a diameter and describe the differences and similarities between the two.			4	
5	Standard 4: Geometry	5.4.6 Identify shapes that have reflectional and rotational symmetry. Example: What kinds of symmetries have the letters M, N, and O?			4	
5	Standard 4: Geometry	5.4.7 Understand that $90^\circ, 180^\circ, 270^\circ,$ and 360° are associated with quarter, half, three-quarters, and full turns, respectively. Example: Face the front of the room. Turn through four right angles. Which way are you now facing?			4	

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5	Standard 5: Measurement	5.5.1 Understand and apply the formulas for the area of a triangle, parallelogram, and trapezoid. Example: Find the area of a triangle with base 4 m and height 5 m.		3		
5	Standard 5: Measurement	5.5.2 Solve problems involving perimeters and areas of rectangles, triangles, parallelograms, and trapezoids, using appropriate units. Example: A trapezoidal garden bed has parallel sides of lengths 14 m and 11 m and its width is 6 m. Find its area and the length of fencing needed to enclose it. Be sure to use correct units .	3			
5	Standard 5: Measurement	5.5.3 Use formulas for the areas of rectangles and triangles to find the area of complex shapes by dividing them into basic shapes. Example: A square room of length 17 feet has a tiled fireplace area that is 6 feet long and 4 feet wide. You want to carpet the floor of the room, except the fireplace area. Find the area to be carpeted .		3		
5	Standard 5: Measurement	5.5.4 Find the surface area and volume of rectangular solids using appropriate units. Example: Find the volume of a shoe box with length 30 cm, width 15 cm, and height 10 cm.		3		
5	Standard 5: Measurement	5.5.7 Add and subtract with money in decimal notation. Example: You buy articles that cost \$3.45, \$6.99, and \$7.95. How much change will you receive from \$20 ?	3			
5	Standard 6: Data Analysis and Probability	5.6.1 Explain which types of displays are appropriate for various sets of data. Example: Conduct a survey to find the favorite movies of the students in your class. Decide whether to use a bar, line, or picture graph to display the data. Explain your decision .			4	
5	Standard 6: Data Analysis and Probability	5.6.2 Find the mean, median, mode, and range of a set of data and describe what each does and does not tell about the data set. Example: Find the mean, median, and mode of a set of test results and describe how well each represents the data .				4
5	Standard 6: Data Analysis and Probability	5.6.3 Understand that probability can take any value between 0 and 1, events that are not going to occur have probability 0, events certain to occur have probability 1, and more likely events have a higher probability than less likely events. Example: What is the probability of rolling a 7 with a number cube?				4
5	Standard 6: Data Analysis and Probability	5.6.4 Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4, $\frac{3}{4}$). Example: What is the probability of rolling an odd number with a number cube?				4

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5	Standard 7: Problem Solving	5.7.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, sequencing and prioritizing information, and observing patterns. Example: Solve the problem: When you flip a coin 3 times, you can get 3 heads, 3 tails, 2 heads and 1 tail, or 1 head and 2 tails. Find the probability of each of these combinations. Notice that the case of 3 heads and the case of 3 tails are similar. Notice that the case of 2 heads and 1 tail and the case of 1 head and 2 tails are similar.	2			
5	Standard 7: Problem Solving	5.7.4 Express solutions clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work. Example: In the first example, make a table or tree diagram to show another student what is happening.		2		
5	Standard 7: Problem Solving	5.7.7 Make precise calculations and check the validity of the results in the context of the problem. Example: A recipe calls for $\frac{1}{2}$ of a cup of sugar. You plan to double the recipe for a party and you have only one cup of sugar in the house. Decide whether you have enough sugar and explain how you know.			2	
5	Standard 7: Problem Solving	5.7.8 Decide whether a solution is reasonable in the context of the original situation. Example: In the first example about flipping a coin, check that your probabilities add to 1 .				2

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		Total # of Item	35	35	35	35
6	Standard 1: Number Sense	6.1.1 Understand and apply the basic concept of negative numbers (e.g., on a number line, in counting, in temperature, in owing). Example: The temperature this morning was -6° and now it is 3° . How much has the temperature risen? Explain your answer.	4			
6	Standard 1: Number Sense	6.1.2 Interpret the absolute value of a number as the distance from zero on a number line and find the absolute value of real numbers. Example: Use a number line to explain the absolute values of -3 and of 7 .	4			
6	Standard 1: Number Sense	6.1.4 Convert between any two representations of numbers (fractions, decimals, and percents) without the use of a calculator. Example: Write $\frac{5}{8}$ as a decimal and as a percent.		3		
6	Standard 1: Number Sense	6.1.5 Recognize decimal equivalents for commonly used fractions without the use of a calculator. Example: Know that $\frac{1}{3} = 0.333\bar{3}$, $\frac{1}{2} = 0.5$, $\frac{2}{5} = 0.4$, etc.	4			
6	Standard 1: Number Sense	6.1.6 Use models to represent ratios. Example: Divide 27 pencils to represent the ratio 4:5.		4		
6	Standard 1: Number Sense	6.1.7 Find the least common multiple and the greatest common factor of whole numbers. Use them to solve problems with fractions (e.g., to find a common denominator to add two fractions or to find the reduced form for a fraction). Example: Find the smallest number that both 12 and 18 divide into. How does this help you add the fractions $\frac{5}{12}$ and $\frac{7}{18}$?			4	
6	Standard 1: Number Sense	6.1.3 Compare and represent on a number line positive and negative integers, fractions, decimals (to hundredths), and mixed numbers. Example: Find the positions on a number line of 3.56 , -2.5 , $1\frac{5}{6}$, and -4 .	4			
6	Standard 2: Computation	6.2.1 Add and subtract positive and negative integers. Example: $17 + -4 = ?$, $-8 - 5 = ?$.		3		
6	Standard 2: Computation	6.2.2 Multiply and divide positive and negative integers. Example: Continue the pattern: $3 \times 2 = ?$, $2 \times 2 = ?$, $1 \times 2 = ?$, $0 \times 2 = ?$, $-1 \times 2 = ?$, $-2 \times 2 = ?$, etc.			4	
6	Standard 2: Computation	6.2.3 Multiply and divide decimals. Example: $3.265 \times 0.96 = ?$, $56.79 \div 2.4 = ?$.	4			
6	Standard 2: Computation	6.2.4 Explain how to multiply and divide positive fractions and perform the calculations. Example: Explain why $\frac{5}{8} \div \frac{15}{16} = \frac{5}{8} \div \frac{16}{15} = \frac{2}{3}$.		3		

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6	Standard 2: Computation	6.2.5 Solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation. Example: You want to place a towel bar $9\frac{3}{4}$ inches long in the center of a door $27\frac{1}{2}$ inches wide. How far from each edge should you place the bar? Explain your method.		3		
6	Standard 2: Computation	6.2.6 Interpret and use ratios to show the relative sizes of two quantities. Use the notations: a/b , a to b , $a:b$. Example: A car moving at a constant speed travels 130 miles in 2 hours. Write the ratio of distance to time and use it to find how far the car will travel in 5 hours.			4	
6	Standard 2: Computation	6.2.7 Understand proportions and use them to solve problems. Example: Sam made 8 out of 24 free throws. Use a proportion to show how many free throws Sam would probably make out of 60 attempts.		4		
6	Standard 2: Computation	6.2.8 Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips. Example: In a sale, everything is reduced by 20%. Find the sale price of a shirt whose pre-sale price was \$30.				
6	Standard 3: Algebra and Functions	6.3.1 Write and solve one-step linear equations and inequalities in one variable and check the answers. Example: The area of a rectangle is 143 cm^2 and the length is 11 cm. Write an equation to find the width of the rectangle and use it to solve the problem. Describe how you will check to be sure that your answer is correct.				
6	Standard 3: Algebra and Functions	6.3.2 Write and use formulas with up to three variables to solve problems. Example: You have P dollars in a bank that gives $r\%$ simple interest per year. Write a formula for the amount of interest you will receive in one year. Use the formula to find the amount of interest on \$80 at 6% per year for one year.		3		
6	Standard 3: Algebra and Functions	6.3.4 Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations. Example: Write in symbols: add 19 and 34 and double the result.			4	
6	Standard 3: Algebra and Functions	6.3.6 Apply the correct order of operations and the properties of real numbers (e.g., identity, inverse, commutative, associative, and distributive properties) to evaluate numerical expressions. Justify each step in the process. Example: Simplify $3(4 - 1) + 2$. Explain your method.	4			
6	Standard 3: Algebra and Functions	6.3.7 Identify and graph ordered pairs in the four quadrants of the coordinate plane. Example: Plot the points $(3, -1)$, $(-6, 2)$ and $(9, -3)$. What do you notice?		3		

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6	Standard 3: Algebra and Functions	6.3.8 Solve problems involving linear functions with integer values. Write the equation and graph the resulting ordered pairs of integers on a grid. Example: A plant is 3 cm high the first time you measure it (on Day 0). Each day after that the plant grows by 2 cm. Write an equation connecting the height and the number of the day and draw its graph.			4	
6	Standard 4: Geometry	6.4.1 Identify and draw vertical, adjacent, complementary, and supplementary angles and describe these angle relationships. Example: Draw two parallel lines with another line across them. Identify all pairs of supplementary angles.				3
6	Standard 4: Geometry	6.4.4 Understand that the sum of the interior angles of any triangle is 180° and that the sum of the interior angles of any quadrilateral is 360° . Use this information to solve problems. Example: Find the size of the third angle of a triangle with angles of 73° and 49° .				4
6	Standard 4: Geometry	6.4.5 Identify and draw two-dimensional shapes that are similar. Example: Draw a rectangle similar to a given rectangle, but twice the size.				3
6	Standard 4: Geometry	6.4.6 Draw the translation (slide) and reflection (flip) of shapes. Example: Draw a square and then slide it 3 inches horizontally across your page. Draw the new square in a different color.				3
6	Standard 4: Geometry	6.4.2 Use the properties of complementary, supplementary, and vertical angles to solve problems involving an unknown angle. Justify solutions. Example: Find the size of the supplement to an angle that measures 122° . Explain how you obtain your answer.				3
6	Standard 5: Measureme nt	6.5.1 Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles. Example: A triangular sheet of metal is about 1 foot across. Describe the units and tools you would use to measure its weight, its angles, and the lengths of its sides.				
6	Standard 5: Measureme nt	6.5.10 Add, subtract, multiply, and divide with money in decimal notation. Example: Share \$7.25 among five people.			4	
6	Standard 5: Measureme nt	6.5.2 Understand and use larger units for measuring length by comparing miles to yards and kilometers to meters. Example: How many meters are in a kilometer?		3		
6	Standard 5: Measureme nt	6.5.4 Understand the concept of the constant Pi as the ratio of the circumference to the diameter of a circle. Develop and use the formulas for the circumference and area of a circle.			3	

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6	Standard 5: Measurement	6.5.5 Know common estimates of π (3.14, 22/7) and use these values to estimate and calculate the circumference and the area of circles. Compare with actual measurements. Example: Find the area of a circle of radius 15 cm.		3		
6	Standard 5: Measurement	6.5.8 Use strategies to find the surface area and volume of right prisms and cylinders using appropriate units. Example: Find the volume of a cylindrical can 15 cm high and with a diameter of 8 cm.			4	
6	Standard 6: Data Analysis and Probability	6.6.2 Make frequency tables for numerical data, grouping the data in different ways to investigate how different groupings describe the data. Understand and find relative and cumulative frequency for a data set. Use histograms of the data and of the relative frequency distribution, and a broken line graph for cumulative frequency, to interpret the data.	4			3
6	Standard 6: Data Analysis and Probability	6.6.3 Compare the mean, median, and mode for a set of data and explain which measure is most appropriate in a given context. Example: Twenty students were given a science test and the mean, median and mode were as follows: mean = 8.5, median = 9, mode = 10. What does the difference between the mean and the mode suggest about the twenty quiz scores?				3
6	Standard 6: Data Analysis and Probability	6.6.4 Show all possible outcomes for compound events in an organized way and find the theoretical probability of each outcome. Example: A box contains four cards with the numbers 1 through 4 written on them. Show a list of all the possible outcomes if you draw two cards from the box without looking. What is the theoretical probability that you will draw the numbers one and two? Explain your answer.	4			3
6	Standard 6: Data Analysis and Probability	6.6.5 Use data to estimate the probability of future events. Example: Teams A and B have played each other 3 times this season and Team A has won twice. When they play again, what is the probability of Team B winning? How accurate do you think this estimate is?				3
6	Standard 6: Data Analysis and Probability	6.6.6 Understand and represent probabilities as ratios, measures of relative frequency, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable. Example: The weather forecast says that the chance of rain today is 30%. Should you carry an umbrella? Explain your answer.				3
6	Standard 7: Problem Solving	6.7.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.	3			

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6	Standard 7: Problem Solving	6.7.10 Decide whether a solution is reasonable in the context of the original situation. Example: In the first example, decide whether your method was a good one did it find all the prime numbers efficiently?			2	
6	Standard 7: Problem Solving	6.7.2 Make and justify mathematical conjectures based on a general description of a mathematical question or problem.				2
6	Standard 7: Problem Solving	6.7.4 Apply strategies and results from simpler problems to solve more complex problems. Example: In the first example, begin by finding all the prime numbers up to 10.				2
6	Standard 7: Problem Solving	6.7.5 Express solutions clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work. Example: In the first example, use a hundreds chart to cross off all multiples of 2 (except 2), then all multiples of 3 (except 3), then all multiples of 5 (except 5), etc. Explain why you are doing this.		3		
6	Standard 7: Problem Solving	6.7.9 Make precise calculations and check the validity of the results in the context of the problem. Example: In the first example, check whether some of the numbers not crossed out are in fact primes.			2	

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Grade	Indiana Standard	Indiana Indicator	Diagnostic 1	Diagnostic 2	Diagnostic 3	Diagnostic 4
		Testing Window	10/12-11/2/11	01/9-01/30/12	3/14-04/04/12	5/9-5/30/12
		Total # of Item	35	35	35	35
7	Standard 1: Number Sense	7.1.1 Read, write, compare, and solve problems using whole numbers in scientific notation. Example: Write 300,000 in scientific notation.	3			3
7	Standard 1: Number Sense	7.1.2 Compare and order rational and common irrational numbers and place them on a number line. Example: Place in order: -2,], -2.45, 0.9, Å, -1¾.	3			
7	Standard 1: Number Sense	7.1.4 Understand and compute whole number powers of whole numbers. Example: $3^5 = 3 \times 3 \times 3 \times 3 \times 3 = ?$.			3	
7	Standard 1: Number Sense	7.1.5 Find the prime factorization of whole numbers and write the results using exponents. Example: $24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3$.		4		
7	Standard 1: Number Sense	7.1.7 Convert terminating decimals into reduced fractions. Example: Write 0.95 as a fraction.		4		2
7	Standard 2: Computation	7.2.1 Solve addition, subtraction, multiplication, and division problems that use integers, fractions, decimals, and combinations of the four operations. Example: The temperature one day is 5° . It then falls by 3° each day for 4 days and, after that, rises by 2° each day for 3 days. What is the temperature on the last day? Explain your method.	3		4	
7	Standard 2: Computation	7.2.2 Calculate the percentage increase and decrease of a quantity. Example: The population of a country was 36 million in 1990 and it rose to 41.4 million during the 1990s. What was the percentage increase in the population?	3		4	
7	Standard 2: Computation	7.2.3 Solve problems that involve discounts, markups, and commissions. Example: A merchant buys CDs for \$11 wholesale and marks up the price by 35%. What is the retail price?	3		4	
7	Standard 3: Algebra and Functions	7.3.1 Use variables and appropriate operations to write an expression, a formula, an equation, or an inequality that represents a verbal description. Example: Write in symbols the inequality: 5 less than twice the number is greater than 42.	3			
7	Standard 3: Algebra and Functions	7.3.10 Identify and describe situations with constant or varying rates of change and know that a constant rate of change describes a linear function. Example: In the last example, how will the graph be different if the plant s speed of growth changes?	3			

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7	Standard 3: Algebra and Functions	7.3.2 Write and solve two-step linear equations and inequalities in one variable and check the answers. Example: Solve the equation $4x - 7 = 12$ and check your answer in the original equation.	3		4	
7	Standard 3: Algebra and Functions	7.3.4 Evaluate numerical expressions and simplify algebraic expressions by applying the correct order of operations and the properties of rational numbers (e.g., identity, inverse, commutative, associative, distributive properties). Justify each step in the process. Example: Simplify $3(4x + 5x - 1) + 2(x + 3)$ by removing the parentheses and rearranging. Explain each step you take.	3		4	
7	Standard 3: Algebra and Functions	7.3.7 Find the slope of a line from its graph. Example: Draw the graph of $y = 2x - 1$. Choose two points on the graph and divide the change in y-value by the change in x-value. Repeat this for other pairs of points on the graph. What do you notice?		5		
7	Standard 3: Algebra and Functions	7.3.8 Draw the graph of a line given the slope and one point on the line, or two points on the line. Example: Draw the graph of the equation with slope of 3 and passing through the point with coordinates (0, -2).		5		
7	Standard 3: Algebra and Functions	7.3.9 Identify functions as linear or nonlinear and examine their characteristics in tables, graphs, and equations. Example: A plant is growing taller according to the formula $H = 2d + 3$, where H is the height after d days. Draw the graph of this function and explain what the point where it meets the vertical axis represents. Is this graph linear or nonlinear?		4		
7	Standard 4: Geometry	7.4.1 Understand coordinate graphs and use them to plot simple shapes, find lengths and areas related to the shapes, and find images under translations (slides), rotations (turns), and reflections (flips). Example: Draw the triangle with vertices (0, 0), (3, 0), and (0, 4). Find the lengths of the sides and the area of the triangle. Translate (slide) the triangle 2 units to the right. What are the coordinates of the new triangle?				4
7	Standard 4: Geometry	7.4.2 Understand that transformations such as slides, turns, and flips preserve the length of segments, and that figures resulting from slides, turns, and flips are congruent to the original figures. Example: In the last example, find the lengths of the sides and the area of the new triangle. Discuss your results.				4
7	Standard 5: Measurement	7.5.1 Compare lengths, areas, volumes, weights, capacities, times, and temperatures within measurement systems. Example: The area of the school field is 3 acres. How many square yards is that? Explain your method.			4	

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7	Standard 5: Measurement	7.5.2 Use experimentation and modeling to visualize similarity problems. Solve problems using similarity. Example: At a certain time, the shadow of your school building is 36 feet long. At the same time, the shadow of a yardstick held vertically is 4 feet long. How high is the school building?		4		
7	Standard 5: Measurement	7.5.3 Read and create drawings made to scale, construct scale models, and solve problems related to scale. Example: On a plan of your school, your classroom is 5 cm long and 3 cm wide. The actual classroom is 10 m long. How wide is it? Explain your answer.	3		4	
7	Standard 5: Measurement	7.5.4 Use formulas for finding the perimeter and area of basic two-dimensional shapes and the surface area and volume of basic three-dimensional shapes, including rectangles, parallelograms, trapezoids, triangles, circles, right prisms, and cylinders. Example: Find the surface area of a cylindrical can 15 cm high and with a diameter of 8 cm.		5		
7	Standard 5: Measurement	7.5.5 Estimate and compute the area of more complex or irregular two-dimensional shapes by dividing them into more basic shapes. Example: A room to be carpeted is a rectangle 5 m \times 4 m. A semicircular fireplace of diameter 1.5 m takes up some of the floor space. Find the area to be carpeted.	2			4
7	Standard 6: Data Analysis and Probability	7.6.1 Analyze, interpret, and display data in appropriate bar, line, and circle graphs and stem-and-leaf plots and justify the choice of display. Example: You survey the students in your school to find which of three designs for a magazine cover they prefer. To display the results, which would be more appropriate: a bar chart or a circle graph? Explain your answer.				3
7	Standard 6: Data Analysis and Probability	7.6.2 Make predictions from statistical data. Example: Record the temperature and weather conditions (sunny, cloudy, or rainy) at 1 p.m. each day for two weeks. In the third week, use your results to predict the temperature from the weather conditions.				3
7	Standard 6: Data Analysis and Probability	7.6.4 Analyze data displays, including ways that they can be misleading. Analyze ways in which the wording of questions can influence survey results. Example: On a bar graph of a company's sales, it appears that sales have more than doubled since last year. Then you notice that the vertical axis starts at \$5 million and can see that sales have in fact increased from \$5.5 million to \$6.2 million.				2
7	Standard 6: Data Analysis and Probability	7.6.5 Know that if P is the probability of an event occurring, the $1 - P$ is the probability of that event not occurring.				2

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7	Standard 6: Data Analysis and Probability	7.6.6 Understand that the probability of either one or the other of two disjoint events occurring is the sum of the two individual probabilities.				2
7	Standard 6: Data Analysis and Probability	7.6.7 Find the number of possible arrangements of several objects using a tree diagram. Example: A state's license plates contain 6 digits and one letter. How many different license plates can be made if the letter must always be in the third position and the first digit cannot be a zero?				3
7	Standard 7: Problem Solving	7.7.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.	3			
7	Standard 7: Problem Solving	7.7.10 Make precise calculations and check the validity of the results in the context of the problem.		2		
7	Standard 7: Problem Solving	7.7.11 Decide whether a solution is reasonable in the context of the original situation.			2	
7	Standard 7: Problem Solving	7.7.2 Make and justify mathematical conjectures based on a general description of a mathematical question or problem.				3
7	Standard 7: Problem Solving	7.7.4 Apply strategies and results from simpler problems to solve more complex problems.			2	
7	Standard 7: Problem Solving	7.7.6 Express solutions clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work.		2		

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Grade	Indiana Standard	Indiana Indicator	Diagnostic 1	Diagnostic 2	Diagnostic 3	Diagnostic 4
		Testing Window	10/12-11/2/11	01/9-01/30/12	3/14-04/04/12	5/9-5/30/12
		Total # of Item	35	35	35	35
8	Standard 1: Number Sense	8.1.1 Read, write, compare, and solve problems using decimals in scientific notation. Example: Write 0.00357 in scientific notation.	4		3	
8	Standard 1: Number Sense	8.1.2 Know that every rational number is either a terminating or repeating decimal and that every irrational number is a nonrepeating decimal. Example: Recognize that 2.375 is a terminating decimal, 5.121212& is a repeating decimal, and that $\sqrt{2} = 1.41421356237$ is a nonrepeating decimal. Name a rational number. Explain your reasoning.	3	3		
8	Standard 1: Number Sense	8.1.4 Understand and evaluate negative integer exponents. Example: Write 2^{-3} as a fraction.	3		4	
8	Standard 1: Number Sense	8.1.5 Use the laws of exponents for integer exponents. Example: Write $2^2 \times 2^3$ as $2 \times 2 \times 2 \times 2 \times 2$ and then as a single power of 2. Explain what you are doing.		4		
8	Standard 1: Number Sense	8.1.6 Use the inverse relationship between squaring and finding the square root of a perfect square integer. Example: Find the value of $(\sqrt{144})^2$.			4	
8	Standard 1: Number Sense	8.1.7 Calculate and find approximations of square roots. Example: For an integer that is not a perfect square, find the two integers (one larger, one smaller) that are closest to its square root and explain your reasoning.	4			
8	Standard 2: Computation	8.2.1 Add, subtract, multiply, and divide rational numbers (integers, fractions, and terminating decimals) in multi-step problems. Example: $-3.4 + 2.8 \times 5.75 = ?$, $1 \frac{4}{5} + -\frac{3}{8} \times 2 \frac{2}{9} = ?$, $81.04 \div 17.4$ $2.79 = ?$.	5	4		
8	Standard 3: Algebra and Functions	8.3.1 Write and solve linear equations and inequalities in one variable, interpret the solution or solutions in their context, and verify the reasonableness of the results. Example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be least \$100. Write an inequality for the number of sales you need to make, solve it, and check that your answer is reasonable.			4	
8	Standard 3: Algebra and Functions	8.3.3 Interpret positive integer powers as repeated multiplication and negative integer powers as repeated division or multiplication by the multiplicative inverse. Example: Use a spreadsheet to explore the relationship between positive and negative integer powers by making a table of values of powers of 3, from 3^{-5} to 3^5 .		4		

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8	Standard 3: Algebra and Functions	8.3.4 Use the correct order of operations to find the values of algebraic expressions involving powers. Example: Use a scientific calculator to find the value of $3(2x + 5)^2$ when $x = -35$.	5		4	
8	Standard 3: Algebra and Functions	8.3.5 Identify and graph linear functions and identify lines with positive and negative slope. Example: Draw the graphs of $y = 2x - 1$, $y = 3x - 1$, $y = -2x - 1$, and $y = -3x - 1$. Find the slope of each graph. What do you notice?		4		
8	Standard 3: Algebra and Functions	8.3.6 Find the slope of a linear function given the equation and write the equation of a line given the slope and any point on the line. Example: Write an equation of the line with slope 2 and y-intercept -4.			4	
8	Standard 3: Algebra and Functions	8.3.8 Demonstrate an understanding of the relationships among tables, equations, verbal expressions, and graphs of linear functions. Example: Write an equation that represents the verbal description: the perimeter of a square is four times the side length. Construct a table of values for this relationship and draw its graph.		4		
8	Standard 4: Geometry	8.4.1 Identify and describe basic properties of geometric shapes: altitudes, diagonals, angle and perpendicular bisectors, central angles, radii, diameters, and chords. Example: Describe a central angle of a circle in words and draw a diagram.				3
8	Standard 4: Geometry	8.4.5 Use the Pythagorean Theorem and its converse to solve problems in two and three dimensions. Example: Measure the dimensions of a shoe box and calculate the length of a diagonal from the top right to the bottom left of the box. Measure with a string to evaluate your solution.				3
8	Standard 5: Measureme nt	8.5.1 Convert common measurements for length, area, volume, weight, capacity, and time to equivalent measurements within the same system. Example: The area of a hall is 40 square yards. What is the area in square feet?	4			
8	Standard 5: Measureme nt	8.5.2 Solve simple problems involving rates and derived measurements for attributes such as velocity and density. Example: A car travels at 60 mph for 20 minutes. How far does it travel? What units are appropriate for distance? Explain your answer.		4		
8	Standard 5: Measureme nt	8.5.3 Solve problems involving scale factors, area, and volume using ratio and proportion. Example: Calculate the volume and surface area of cubes with side 1 cm, 2 cm, 3 cm, etc. Make a table of your results and describe any patterns in the table.	3		4	

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8	Standard 5: Measurement	8.5.4 Use formulas for finding the perimeter and area of basic two-dimensional shapes and the surface area and volume of basic three-dimensional shapes, including rectangles, parallelograms, trapezoids, triangles, circles, prisms, cylinders, spheres, cones, and pyramids. Example: Find the total surface area of a right triangular prism 14 feet high and with a base that measures 8 feet by 6 feet.		4		
8	Standard 5: Measurement	8.5.5 Estimate and compute the area of irregular two-dimensional shapes and the volume of irregular three-dimensional objects by breaking them down into more basic geometric objects. Example: Find the volume of a dog house that has a rectangular space that is 3 ft by 2 ft by 5 ft and has a triangular roof that is 1.5 ft higher than the walls of the house.			4	
8	Standard 6: Data Analysis and Probability	8.6.1 Identify claims based on statistical data and, in simple cases, evaluate the reasonableness of the claims. Design a study to investigate the claim. Example: A study shows that teenagers who use a certain brand of toothpaste have fewer cavities than those using other brands. Describe how you can test this claim in your school.				4
8	Standard 6: Data Analysis and Probability	8.6.2 Identify different methods of selecting samples, analyzing the strengths and weaknesses of each method, and the possible bias in a sample or display.				4
8	Standard 6: Data Analysis and Probability	8.6.3 Understand the meaning of, and be able to identify or compute the minimum value, the lower quartile, the median, the upper quartile, the interquartile range, and the maximum value of a data set. Example: Arrange a set of test scores in increasing order and find the lowest and highest scores, the median, and the upper and lower quartiles.				4
8	Standard 6: Data Analysis and Probability	8.6.4 Analyze, interpret, and display single- and two-variable data in appropriate bar, line, and circle graphs; stem-and-leaf plots; and box-and-whisker plots and explain which types of display are appropriate for various data sets.				3

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8	Standard 6: Data Analysis and Probability	8.6.5 Represent two-variable data with a scatter plot on the coordinate plane and describe how the data points are distributed. If the pattern appears to be linear, draw a line that appears to best fit the data and write the equation of that line. Example: Survey some of the students at each grade level in your school, asking them how much time they spend on homework. Plot the grade level and time of each student as a point (grade, time) on a scatter diagram. Describe and justify any relationship between grade and time spent on homework.				3
8	Standard 6: Data Analysis and Probability	8.6.6 Understand and recognize equally likely events. Example: When you roll a number cube, what is the probability that the number on the top face will be a 6? Explain your answer.				4
8	Standard 6: Data Analysis and Probability	8.6.7 Find the number of possible arrangements of several objects by using the Basic Counting Principle. Example: You are planning to place four pictures in a line on a shelf. Find the number of ways you can arrange the four pictures.				3
8	Standard 7: Problem Solving	8.7.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns. Example: Solve the problem: For computers, binary numbers are great because they are simple to work with and they use just two values of voltage, magnetism, or other signal. This makes hardware easier to design and more noise resistant. Binary numbers let you represent any amount you want using just two digits: 0 and 1. The number you get when you count ten objects is written 1010. In expanded notation, this is $1 \times 2^3 + 0 \times 2^2 + 1 \times 2^1 + 0 \times 2^0$. Write the number for thirteen in the binary (base 2) system. Decide to make an organized list.	4			
8	Standard 7: Problem Solving	8.7.10 Make precise calculations and check the validity of the results in the context of the problem. Example: In the first example, list the first thirteen numbers in base 2 notation. Use patterns or expanded notation to confirm your list.		2		
8	Standard 7: Problem Solving	8.7.11 Decide whether a solution is reasonable in the context of the original situation. Example: In the basketball court example, does the accuracy of your answer depend on your initial measuring?			2	

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8	Standard 7: Problem Solving	8.7.2 Make and justify mathematical conjectures based on a general description of a mathematical question or problem. Example: In the first example, if you have only two symbols, 0 and 1, then one object: 1, two objects: 10, three objects: 11, four objects: 100. Predict the symbol for five objects.				2
8	Standard 7: Problem Solving	8.7.4 Apply strategies and results from simpler problems to solve more complex problems. Example: In the first example, write the first five numbers in base 2 notation and look for a pattern.			2	
8	Standard 7: Problem Solving	8.7.5 Make and test conjectures using inductive reasoning. Example: In the first example, predict the base 2 notation for six objects, then use expanded notation to test your prediction.		2		
8	Standard 7: Problem Solving	8.7.6 Express solutions clearly and logically using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work. Example: In the first example, explain how you will find the base two notation for thirteen objects.				2