**Washington**

**Math Grades 6-8**

**Final by Grade**

**Prepared by Marzano Research Laboratory**

**2010**

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| **Measurement Topic** | **6** | **7** | **8** |
| **Strand: Geometry/Measurement** |  |  |  |
| Perimeter, Area, Surface Area and Volume | + | + |  |
| Properties of Geometric Figures | + |  |  |
| Lines/Angles |  |  | + |
| Pythagorean Theorem |  |  | + |
| Pi | + |  |  |
| Measurement using Standard and Metric Systems – length, weight, mass, capacity |  | + |  |
| Transformations |  |  | + |
| Proportions/Scale |  | + |  |
| **Strand: Number** |  |  |  |
| Place Value | + |  |  |
| Comparing/Ordering | + | + |  |
| Factors |  | + |  |
| Number Representations (Exponents, Scientific Notation) |  |  | + |
| Number Systems |  | + | + |
| Ratio/Proportions | + | + |  |
| Percents | + |  |  |
| Square Roots |  |  | + |
| **Strand: Operation** |  |  |  |
| Alternate and Mental strategies | + | + |  |
| Estimation | + |  |  |
| Multiple Representations/Models | + | + |  |
| Performing Operations Using Fractions and Other Components of the Number System | + | + |  |
| Order of Operations | + |  |  |
| Multiplication and Division | + |  |  |
| **Strand: Algebra** |  |  |  |
| Representations of Linear Inequalities |  |  | + |
| Writing/Evaluating Expressions, Equations and Inequalities | + | + | + |
| Graphing | + | + | + |
| Slope |  | + | + |
| **Strand: Data Analysis, Statistics and Probability** |  |  |  |
| Data Displays |  | + | + |
| Analysis of Data |  | + | + |
| Measures of Variability |  | + | + |
| Theoretical and Experimental Probability | + | + | + |
| Data Collection |  |  | + |
| **Strand: Processes** |  |  |  |
| Problem Solving | + | + | + |
| Communicating the Results of a Problem | + | + | + |
| Mathematical Experimentation | + | + | + |

# Sixth Grade

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| **Strand: Geometry** |
| **Topic: Perimeter, Area, Surface Area and Volume** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
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|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| * 6.4.A determine the circumference and area of circles
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| * 6.4.B determine the perimeter and area of a composite figure that can be divided into triangles, rectangles, and parts of circles
* 6.4.C solve single- and multi-step word problems involving the relationships among radius, diameter, circumference, and area of circles, and verify the solutions
 |
| * 6.4.E determine the surface area and volume of rectangular prisms using appropriate formulas and explain why the formulas work
 |
| * 6.4.F determine the surface area of a pyramid
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ circle, circumference, composite figure, perimeter, surface area, volume, pyramid, rectangular prism, radius, diameter, two and three dimensional
* performs basic processes, such as:
	+ correctly performs all tasks with two dimensional figures
	+ correctly identifies appropriate measures for the specific task
	+ given the formula, determines the circumference and area of circles
	+ separates a composite figure into triangles, rectangles, and parts of circles
	+ given the formula, determines the surface area and volume of rectangular prisms
	+ given the formula, determines the surface area of a pyramid
	+ solves single-step word problems involving the relationships among radius, diameter, circumference, and area of circles

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Geometry/Measurement** |
| **Topic: Properties of Geometric Figures** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
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|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| * 6.4.D recognize and draw two-dimensional representations of three-dimensional figures
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| * 6.4.G describe and sort polyhedra by their attributes: parallel faces, types of faces, number of faces, edges, and vertices
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**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ polyhedra, face, edges, vertices, constant, parallel, perpendicular
* performs basic processes, such as:
	+ matches a two-dimensional representation with the three-dimensional figure
	+ provides a simple description of polyhedras using their attributes *(e.g., number of faces, number of edges…)*

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Geometry/Measurement** |
| **Topic: Pi** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
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|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| * 6.3.E identify the ratio of the circumference to the diameter of a circle as the constant π, and recognize 22/7 and 3.14 as common approximations of π
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ pi, ratio, circumference, diameter, radius
* performs basic processes, such as:
	+ recognizes or recalls the value of pi as approximately 3.14

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Number** |
| **Topic: Place Value** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
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|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:*** 6.1.E multiply and divide whole numbers and decimals by 1000, 100, 10, 1, 0.1, 0.01, and 0.001

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ decimal, place value, and digit
* performs basic processes, such as:
	+ multiplies and divides whole numbers by 1000, 100, 10, 1, 0.1, 0.01, and 0.001

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Number** |
| **Topic: Comparing/Ordering** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
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|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

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| **The students are expected to:*** 6.1.A compare and order non-negative fractions, decimals, and integers using the number line, lists, and the symbols <, >, or =
* 6.5.B locate positive and negative integers on the number line and use integers to represent quantities in various contexts
* 6.5.C compare and order positive and negative integers using the number line, lists, and the symbols <, >, or =
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ hundredths, tenths, integers, fractions, mixed numbers, decimals, negative, positive
* performs basic processes, such as:
	+ compares and orders non-negative fractions, decimals, and integers using one of the following: number line, lists, and the symbols <, >, or =
	+ compares and orders positive and negative integers using one of the following: number line, lists, and the symbols <, >, or =

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | * Place the following fractions and decimals on the

number line below: 3/2, 0.6, 2/3, 1.04, 2.25**2****3****0****1** |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Number** |
| **Topic: Ratio/Proportions** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
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|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

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| **The students are expected to:*** 6.3.A identify and write ratios as comparisons of part-to-part and part-to-whole relationships
 |
| * 6.3.B write ratios to represent a variety of rates.
* 6.3.D solve single- and multi-step word problems involving ratios, rates, and percents, and verify the solutions
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ ratio, rate, part-part, part-whole
* performs basic processes, such as:
	+ recognizes or recalls ratios in equivalent forms that represent part to part and part to whole relationships
	+ recognizes or recalls ratios written to represent rates

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Number** |
| **Topic: Percents** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
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|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

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| **The students are expected to:*** 6.3.C represent percents visually and numerically, and convert between the fractional, decimal, and percent representations of a number
* 6.3.D solve single- and multi-step word problems involving ratios, rates, and percents, and verify the solutions
 |

**The student exhibits no major errors or omissions.** | * An item is advertised as being 25% off the regular price. If the sale price is $42, what was the original regular price? Verify your solution.
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ fraction, decimal, percent, equivalent values
* performs basic processes, such as:
	+ represents percents visually and numerically

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Operation** |
| **Topic: Alternate and Mental Strategies** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

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| **The students are expected to:*** 6.5.A use strategies for mental computations with non-negative whole numbers, fractions and decimals
 |

**The student exhibits no major errors or omissions.** | * NOTE – Sample item should reflect the student sharing their thinking with the teacher.
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * performs basic processes, such as:
	+ describes the strategies that could be used for mental computations with non-negative whole numbers

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Operation** |
| **Topic: Estimation** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

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| **The students are expected to:*** 6.1.C estimate products and quotients of fractions and decimals
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ product, quotient
* performs basic processes, such as:
	+ estimates products and quotients of simple fractions and decimals (e.g., ½ ,.25, ¼)

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Number** |
| **Topic: Multiple Representations/ Models of Operations** |
| **Grade:6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

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| **The students are expected to:*** 6.1.B represent multiplication and division of non-negative fractions and decimals using area models and the number line, and connect each representation to the related equation
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ array, number line, equation
* performs basic processes, such as:
	+ demonstrates use of number line
	+ matches an equation to a given situation

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Operations** |
| **Topic:** Performing Operations Using Fractions and Other Components of the Number System |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

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| **The students are expected to:*** 6.1.D fluently and accurately multiply and divide non-negative fractions and explains the inverse relationship between multiplication and division with fractions
* 6.1.H solve single- and multi-step word problems involving operations with fractions and decimals and verify the solutions
 |

**The student exhibits no major errors or omissions.** | * 4/5 ÷ 2/3
* Every day has 24 hours. Ali sleeps 3/8 of the day. Dawson sleeps 1/3 of the day. Maddie sleeps 7.2 hours in a day. Who sleeps the longest? By how much?
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ inverse property, rational numbers, mixed number
* performs basic processes, such as:
	+ multiplies and divides non-negative simple fractions *(e.g. ¾, ½)*
	+ recognizes the inverse relationship between multiplication and division by rewriting multiplication equations as division equations (and vice versa)
	+ solves single-step word problems involving operations with fractions

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | * Every day has 24 hours. Dawson sleeps 1/3 of the day. How many hours does he sleep?
* ½ x 1/3
 |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Operations** |
| **Topic: Multiplication and Division** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The student are expected to:**

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| * 6.1.F fluently and accurately multiply and divide non-negative decimals
 |
| * 6.1.G describe the effect of multiplying or dividing a number by one, by zero, by a number between zero and one, and by a number greater than one
* 6.1.H solve single- and multi-step word problems involving operations with fractions and decimals and verify the solutions
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * performs basic processes, such as:
	+ identifies correct decimal placement of the result of multiplication or division of non-negative decimals
	+ describes the effect of multiplying or dividing a number by one, by zero, and by powers of 10
	+ solves single-step word problems involving operations with decimals

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Operation** |
| **Topic: Order of Operations** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The student are expected to:**

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| * 6.2.D apply the commutative, associative, and distributive properties, and the order of operations to evaluate mathematical expressions
* 6.2.C evaluate mathematical expressions when the value for each variable is given
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ variable, expression, evaluate
* performs basic processes, such as:
	+ uses the distributive, associative, and commutative properties and the order of operations to write equivalent expressions

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Algebra** |
| **Topic: Writing/Evaluating Expressions, Equations and Inequalities** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:*** 6.2.A write a mathematical expression or equation with variables to represent information in a table or given situation
* 6.2.E solve one-step equations and verify solutions
* 6.2.F solve word problems using mathematical expressions and equations and verify solutions

**The student exhibits no major errors or omissions.** | * Zane and his friends drove across the United States at an average speed of 55 mph. Write expressions to show how far they traveled in 12 hours, in 18 hours, and in n hours. How long did it take them to drive 1,430 miles? Verify your solution.
* 6.2.D Apply the commutative, associative, and distributive properties, and the order of operations to evaluate mathematical expressions.
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ expression, equation, variable, equivalent, verify
* performs basic processes, such as:
	+ recognizes examples of expressions or equations with variables that represent information in a table or given situation
	+ solves word problems using simple mathematical expressions and equations
	+ solves simple one-step equations

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | * Zane and his friends drove across the United States at an average speed of 55 mph. Write an expression that will show how far they traveled in 10 hours.
 |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Algebra** |
| **Topic: Graphing** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| --- |
| * 6.2.B draw a first-quadrant graph in the coordinate plane to represent information in a table or given situation
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ axes, quadrant, coordinate, scale, origin
* performs basic processes, such as:
	+ draws a first-quadrant graph with appropriate scales on both axes
	+ names the (x,y) coordinates of the table or situation

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Data Analysis, Statistics and Probability** |
| **Topic: Theoretical and Experimental Probability** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| * 6.3.F determine the experimental probability of a simple event using data collected in an experiment
 |
| * 6.3.G determine the theoretical probability of an event and its complement and represent the probability as a fraction or decimal from 0 to 1 or as a percent from 0 to 100
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ experimental and theoretical probability, frequency
* performs basic processes, such as:
	+ recognizes or recalls accurate statements about experimental and theoretical probability
	+ represents frequency data collected in an experiment from which probability can be determined

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Processes** |
| **Topic: Problem Solving** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught such as:*** 6.6.F Apply a previously used problem-solving strategy in a new context
 | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The student are expected to:*** use the steps of the problem solving process to solve grade level appropriate problems:

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| * + 6.6.A analyze a problem situation to determine the question(s) to be answered
	+ 6.6.B identify relevant, missing, and extraneous information related to the solution to a problem
	+ 6.6.C analyze and compare mathematical strategies for solving problems, and select and use one or more strategies to solve a problem
 |

 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ relevant and extraneous information, analyze, compare
* performs basic processes, such as:
	+ recognizes or recalls accurate statements about grade level appropriate problem solving processes

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Processes** |
| **Topic: Communicating the Results of a Problem** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| * communicate the results of a grade level appropriate problem:
	+ 6.6.D represent a problem situation, describe the process used to solve the problem, and verify the reasonableness of the solution
	+ 6.6.E communicate the answer(s) to the question(s) in a problem using appropriate representations, including symbols and informal and formal mathematical language
	+ 6.6.G extract and organize mathematical information from symbols, diagrams and graphs to make inferences, draw conclusions, and justify reasoning
 |

**The student exhibits no major errors or omissions.** | * As part of her exercise routine, Carmen jogs twice around the perimeter of a square park that measures 5/8 of a mile on each side. On Monday, she started at one corner of the park and jogged 2/3 of the way around in 17 minutes before stopping at a small pond in the park to feed some ducks. How far had Carmen run when she reached the pond? What percent of her planned total distance had Carmen completed when she stopped to feed the ducks? If it took Carmen 17 minutes to jog to the point where she stopped, assuming that she continued running in the same direction at the same pace and did not stop again, how long would it have taken her to get back to her starting point? Explain your answers.

Answers: A) Carmen had run 1.65 miles when she reached the pond. B) 33% C) 35 minutes It takes Carmen 52 minutes to run the whole thing (5 miles). She had already run for 17 minutes therefore she had 35 minutes left in the run. |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ grade level appropriate mathematical language as it applies to the problem solving situation
* performs basic processes, such as:
	+ communicates the results of grade appropriate problems using a teacher provided an outline

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | * As part of her exercise routine, Carmen jogs twice around the perimeter of a square park that measures 5/8 of a mile on each side. On Monday she completed her total run. How far did she run?

ANSWER: 5 miles  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Processes** |
| **Topic: Mathematical Experimentation** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| * 6.6.H make and test grade level appropriate conjectures based on data (or information) collected from explorations and experiments
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ grade level appropriate mathematical language as it applies to data collection and the given situation
* performs basic processes, such as:
	+ makes grade level appropriate conjectures given a data set

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

# Seventh Grade

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| **Strand: Geometry** |
| **Topic: Perimeter, Area, Surface Area and Volume** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
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|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| * 7.3.A determine the surface area and volume of cylinders using the appropriate formulas and explain why the formulas work
 |
| * 7.3.B determine the volume of pyramids and cones using formulas
* 7.3.C describe the effect that a change in scale factor on one attribute of a two- or three-dimensional figure has on other attributes of the figure, such as the side or edge length, perimeter, area, surface area, or volume of a geometric figure
 |
| * 7.3.D solve single- and multi-step word problems involving surface area or volume and verify the solutions
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ surface area, volume, cylinders, pyramid, cones, scale factor, attributes, edge length, geometric figure
* performs basic processes, such as:
	+ determines the surface area and volume of cylinders and explain how they were found
	+ given models, selects those that represent a change in scale factor on one attribute of a two- or three-dimensional figure
	+ determines the volume of pyramids and cones given the formulas
	+ solves single step word problems involving surface area or volume

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Geometry/Measurement** |
| **Topic: Measurement using Standard and Metric Systems – length, weight, mass, capacity** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| * 7.2.I solve single- and multi-step problems involving conversions within or between measurement systems and verify the solutions
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls basic measurement terminology such as:
	+ centimeter, meter, kilometer, inches, feet, yards, kilometers, miles etc.
* performs basic processes, such as:
	+ solves single-step problems involving conversions within or between measurement systems (*e.g., converting inches to feet, linear feet to square feet, centimeters to inches, kilometers to miles)*

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Geometry/Measurement** |
| **Topic: Proportion/Scale** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| * 7.2.C describe proportional relationships in similar figures and solve problems involving similar figures
* 7.2.D make scale drawings and solve problems related to scale
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ ratio, similar figures, proportion, scale factor
* performs basic processes, such as:
	+ recognizes or recalls accurate statements about scale drawings
	+ recognizes or recalls constant ratios in similar figures

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Number** |
| **Topic: Comparing/Ordering** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

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| --- |
| **The students are expected to:*** 7.1.A compare and order rational numbers using the number line, lists, and the symbols <, >, or =
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ rational number, hundredths, tenths, integers, negative, fractions, mixed numbers, decimals
* performs basic processes, such as:
	+ compares and orders rational numbers using one of the following: the number line, lists, and the symbols <, >, or =

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Number** |
| **Topic: Factors** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

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| **The students are expected to:*** 7.5.B write the prime factorization of whole numbers greater than 1, using exponents when appropriate
 |

**The student exhibits no major errors or omissions.** | * Write the prime factorization of 360 using exponents.
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ prime number, exponent, factor
* performs basic processes, such as:
	+ recognizes the prime factorization of a whole number greater than 1

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | * Use a factor tree to find the prime factorization of 120.
 |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Number** |
| **Topic: Ratio/Proportions** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

|  |
| --- |
| **The students are expected to:*** 7.2.B solve single- and multi-step problems involving proportional relationships and verify the solutions
* 7.2.H determine whether or not a relationship is proportional and explain your reasoning
* 7.2.G determine the unit rate in a proportional relationship and relate it to the slope of the associated line
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ rate, percent of increase or decrease, discount, markup, profit, interest, tax, proportion, ratio
* performs basic processes, such as:
	+ solves single-step problems involving proportional relationships
	+ determines whether or not a relationship is proportional
	+ determines the unit rate in a proportional relationship

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Number** |
| **Topic: Number Systems** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

|  |
| --- |
| **The students are expected to:*** 7.1.D define and determine the absolute value of a number
 |

**The student exhibits no major errors or omissions.** | * Explain why 5 and -5 have the same absolute value.
* Evaluate |7.8 – 10.3|.
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * performs basic processes, such as:
	+ recognizes or recalls accurate statements about absolute value *(e.g., absolute value is the distance of the number from zero)*

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Operation** |
| **Topic: Alternate and Mental Strategies** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

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| --- |
| **The students are expected to:*** 7.2.A mentally add, subtract, multiply, and divide simple fractions, decimals, and percents (e.g., ½, .5, 50%, ¼, .25, 25%)
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * performs basic processes, such as:
	+ describes one strategy that could be used to mentally add, subtract, multiply, and divide simple fractions, decimals, and percents

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Operations** |
| **Topic: Multiple Representations/Models**  |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:*** 7.1.B represent addition, subtraction, multiplication, and division of positive and negative integers visually and numerically

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ additive inverse, array, number line, equation
* performs basic processes, such as:
	+ represents addition, subtraction, multiplication, and division of positive and negative integers in a visual format *(e.g., number line, 2 color chips)*

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Operations** |
| **Topic:** Performing Operations Using Fractions and Other Components of the Number System |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

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| --- |
| **The students are expected to:*** 7.1.C fluently and accurately add, subtract, multiply, and divide rational numbers
* 7.1.G solve single- and multi-step word problems involving rational numbers and verify the solutions
 |
|  |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ rational number, fraction, decimal
* performs basic processes, such as:
	+ adds, subtracts, multiplies and divides non-negative fractions and decimals
	+ recognizes and represents equivalent numerical representations of operations
	+ solves single-step word problems involving rational numbers

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | * Example: -4/3 – ¾ = -4/3 +(-3/4)
 |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Algebra** |
| **Topic: Writing/Evaluating Expressions, Equations and Inequalities** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| --- |
| * 7.1.E solve two-step linear equations
* 7.1.F write an equation that corresponds to a given problem situation, and describe a problem situation that corresponds to a given equation
* 7.2.E represent proportional relationships using graphs, tables, and equations, and make connections among the representations
 |
|  |

**The student exhibits no major errors or omissions.** | * Solve for x
* 2 x – 12 = 5
* - 4/7 x – 9 = 1
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ linear equation, proportional relationship
* performs basic processes, such as:
	+ solves one step linear equations
	+ recognizes an equation that corresponds to a given problem situation
	+ represents proportional relationships using one of the following: table, graph, or equation

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | * Solve for x
	+ 2 x = 12
 |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Algebra** |
| **Topic: Graphing** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 7.5.A graph ordered pairs of rational numbers and determine the coordinates of a given point in the coordinate plane
 |

**The student exhibits no major errors or omissions.** | * Graph and label the points A(1,-2), B(-4,-2), and C(-4,3). Determine the coordinates of the fourth point (D) that will complete the figure to form a square.
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ rational number, coordinate plane, ordered pair
* performs basic processes, such as:
	+ draws a coordinate plane with appropriate scales on both axes
	+ graphs ordered pairs of integers and determine the coordinates of a given point in the coordinate plane

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | * Graph and label the points A(1,2); B (-1,5); C(-3,2), and D(-1,-5). Connect the points in order listed and identify the figure formed by the four points.
 |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Algebra** |
| **Topic: Slope** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 7.2.F determine the slope of a line corresponding to the graph of a proportional relationship and relate slope to similar triangles
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ similar, proportional, slope
* performs basic processes, such as:
	+ recognizes or recalls accurate statements about slope
	+ recognizes or recalls accurate statements about similar triangles

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Data Analysis, Statistics and Probability** |
| **Topic: Data Displays** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 7.4.D construct and interpret histograms, stem-and-leaf plots, and circle graphs
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ histogram, stem and leaf plot, circle graph, interval
* performs basic processes, such as:
	+ recognizes examples of histograms, stem-and-leaf plots and circle graphs
	+ matches appropriate graphs to data sets (or vice versa)
	+ constructs one of the following: histogram, stem and leaf plot, circle graph

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Data Analysis, Statistics and Probability Strand:** |
|  **Topic: Analysis of Data** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The student are expected to:**

|  |
| --- |
| * 7.4.E evaluate different displays of the same data for effectiveness and bias, and explain reasoning
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ bias
* performs basic processes, such as:
	+ recognizes examples of bias in data
	+ recognizes or recalls accurate statements about the effectiveness and bias in data displays

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Data Analysis, Statistics and Probability**  |
| **Topic: Measures of Variability** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 7.4.C describe a data set using measures of center (median, mean, and mode) and variability (maximum, minimum, and range) and evaluate the suitability and limitations of using each measure for different situations
 |

**The student exhibits no major errors or omissions.** | *
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ median, mean, mode, variability, and range
* performs basic processes, such as:
	+ calculates measures of center or variability given a set of data

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Data Analysis, Statistics and Probability** |
| **Topic: Theoretical and Experimental Probability** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 7.4.B determine the theoretical probability of a particular event and use theoretical probability to predict experimental outcomes
 |
| * 7.4.A represent the sample space of probability experiments in multiple ways, including tree diagrams and organized lists
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ sample space, theoretical and experimental probability, tree diagram
* performs basic processes, such as:
	+ represents the sample space of probability experiment in an organized list

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | * List all of the possible outcomes when 2 dice are thrown once.
 |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Processes** |
| **Topic: Problem Solving** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:*** use the steps of the problem solving process to solve grade level appropriate problems:

|  |
| --- |
| * 7.6.A analyze a problem situation to determine the question(s) to be answered
* 7.6.B identify relevant, missing, and extraneous information related to the solution to a problem
* 7.6.C analyze and compare mathematical strategies for solving problems, and select and use one or more strategies to solve a problem
* 7.6.F apply to a previously used problem solving strategy in a new context
 |

**The student exhibits no major errors or omissions.** | * When working on a report for class, Catrina read that a person over the age of 30 can lose approximately 0.06 centimeters of height per year. Catrina’s 80- year-old grandfather is 5 feet 7 inches tall. Assuming her grandfather’s height has decreased at this rate about how tall was he at age 30? Catrina’s cousin Richard, is 30 years old and is 6 feet 3 inches tall. Assuming his height also decreases approximately 0.06 centimeters per year after the age of 30, about how tall will you expect him to be at the age of 55? (Remember that 1 inch ≈ 2.54 centimeters.) Justify your solution.
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ relevant and extraneous information, analyze, compare
* performs basic processes, such as:
	+ recognizes or recalls accurate statements about grade level appropriate problem solving processes

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Processes** |
| **Topic: Communicating the Results of a Problem** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 7.6.D represent a problem situation, describe the process used to solve the problem, and verify the reasonableness of the solution
* 7.6.E communicate the answer(s) to the question(s) in a problem using appropriate representations, including symbols and informal and formal mathematical language
* 7.6.G extract and organize mathematical information from symbols, diagrams, and graphs to make inferences, draw conclusions, and justify reasoning
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ grade level appropriate mathematical language as it applies to the problem solving situation.
* performs basic processes, such as:
	+ communicates the results of grade appropriate problems using a teacher provided outline

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | *
 |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

|  |
| --- |
| **Strand: Processes** |
| **Topic: Mathematical Experimentation** |
| **Grade: 7** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 7.6.H make and test grade level appropriate conjectures based on data (or information) collected from explorations and experiments
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ grade level appropriate mathematical language as it applies to data collection and the given situation
* performs basic processes, such as:
	+ makes grade level appropriate conjectures given a data set

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

# Eighth Grade

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| **Strand: Geometry/Measurement** |
| **Topic: Lines/Angles** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 8.2.A use the relationships complementary, supplementary, adjacent, or vertical to determine missing angle measures
* 8.2.B determine missing angle measures using the relationships among the angles formed by parallel lines and transversals
* 8.2.C demonstrate that the sum of the angle measures in a triangle is 180 degrees, and apply this fact to determine the sum of the angle measures of polygons and to determine unknown angle measures
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ complementary, supplementary, adjacent or vertical angles, transversals, polygon
* performs basic processes, such as:
	+ identifies pairs of angles as complementary, supplementary, adjacent, or vertical
	+ recognizes or recalls that all angle measurements in a triangle add up to 180 degrees
	+ recognizes or recalls the symbolic representations of basic geometric elements (e.g., angle measure (∠), line segment (), parallel lines (∥), line (, ray (), triangle (△), right angle (∟) )

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Geometry/Measurement** |
| **Topic: Pythagorean Theorem** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| --- |
| * 8.2.F demonstrate the Pythagorean Theorem and its converse and apply them to solve problems
 |
| * 8.2.G apply the Pythagorean Theorem to determine the distance between two points on the coordinate plane
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ coordinate plane, theorem, leg, hypotenuse, point, and converse
* performs basic processes, such as:
	+ recognizes or recalls the Pythagorean Theorem as and how it can be used (*e.g., to find the measurement of the length of an unknown side of a right triangle)*

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Geometry/Measurement** |
| **Topic: Transformations** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 8.2.D represent and explain the effect of one or more translations, rotations, reflections, or dilations (centered at the origin) of a geometric figure on the coordinate plane
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ translations, rotations, reflections or dilations, origin
* performs basic processes, such as:
	+ recognizes or recalls accurate statements about translations, rotations, reflections and dilations and their effect on geometric figures

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Number** |
| **Topic: Number Representations (Exponents, Scientific Notation)** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

|  |
| --- |
| **The students are expected to:*** 8.4.A represent numbers in scientific notation, and translate numbers written in scientific notation into standard form
 |
| * 8.4.B solve problems involving operations with numbers in scientific notation and verify solutions
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:*** performs basic processes, such as:
	+ recognizes or recalls examples of numbers written in scientific notation and the equivalent standard form
	+ computes with numbers in scientific notation

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Number** |
| **Topic: Square Roots** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

|  |
| --- |
| **The students are expected to:*** 8.2.E quickly recall the square roots of the perfect squares from 1 through 225 and estimate the square roots of other positive numbers
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ perfect square, integers, square root
* performs basic processes, such as:
	+ quickly recall the square roots of the perfect squares from 1 through 225
	+ demonstrate the use of tools to find the square roots of positive numbers

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Number** |
| **Topic: Number Systems** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** |

|  |
| --- |
| **The students are expected to:*** 8.4.D identify rational and irrational numbers
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ rational, irrational, terminate

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| --- |
| **Strand: Algebra** |
| **Topic: Writing/Evaluating Expressions, Equations and Inequalities** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The student are expected to:**

|  |
| --- |
| * 8.1.B solve one- and two-step linear inequalities and graph the solutions on the number line
 |
| * 8.4.C evaluate numerical expressions involving non-negative integer exponents using the laws of exponents and the order of operations
 |
| * 8.1.A solve one-variable linear equations
 |

**The student exhibits no major errors or omissions.** | * Solve the inequality and graph it on the number line
	+ -4 - 5v < -29
	+ http://www.helpingwithmath.com/printables/others/numbers0_10.gif
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ inequality, exponent
* performs basic processes, such as:
	+ solves simple one- and two-step linear inequalities
	+ recognizes or recalls accurate statements about the laws of exponents
	+ selects the correct solution to a one-variable linear equation

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | * Solve the inequality
	+ 3x - 10 > 14
 |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

|  |
| --- |
| **Strand: Algebra** |
| **Topic: Functions** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 8.1.C represent a linear function with a verbal description, table, graph, or symbolic expression, and make connections among these representations
 |
| * 8.1.F solve single- and multi-step word problems involving linear functions and verify the solutions
* 8.1.G determine and justify whether a given verbal description, table, graph, or symbolic expression represents a linear relationship
 |

**The student exhibits no major errors or omissions.** | * Does y=-3x+1 represent a linear relationship? Explain your reasoning.
* Miranda’s phone service contract ends this month. She is looking for ways to save money and is considering changing phone companies. Her current cell phone provider, X-Cell, calculates the monthly bill using the equation c = $15.00 + $0.07*m*, where c represents the total monthly cost and *m* represents the number of minutes of talk time during a monthly billing cycle. Another company, Prism Cell, offers 300 free minutes of talk time each month for a base fee of $30.00 with an additional $.15 for every minute over 300 minutes. Miranda’s average phone usage is 450 minutes. Should Miranda switch companies? Justify your answer.
 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ function, solution
* performs basic processes, such as:
	+ recognizes examples of linear functions represented by : a verbal description, table, graph, or symbolic expression
	+ solves single- step word problems involving linear functions
	+ represents a linear function with one of the following: a verbal description, table, graph, or symbolic expression

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Algebra** |
| **Topic: Representations of Linear Inequalities** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
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| * 8.1.B solve one- and two-step linear inequalities and graph the solutions on the number line
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ linear inequality, solution
* performs basic processes, such as:
	+ graphs solutions to linear inequalities on the number line

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | Graph the following inequalities on a number line:* X < -2
* X
 |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Algebra** |
| **Topic: Slope** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:*** 8.1.D determine the slope and *y*-intercept of a linear function described by a symbolic expression, table, or graph
* 8.1.E interpret the slope and *y*-intercept of the graph of a linear function representing a contextual situation

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ slope, y-intercept
* performs basic processes, such as:
	+ recognizes or recalls accurate statements about slope and y-intercept in a contextual situation
	+ recognizes or recalls accurate statements about slope and y-intercept’s relationship to a graph or equation

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Data Analysis, Statistics and Probability** |
| **Topic: Data Displays** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| * 8.3.B select, construct, and analyze data displays, including box-and-whisker plots, to compare two sets of data
 |
| * 8.3.C create a scatterplot for a two-variable data set, and, when appropriate, sketch and use a trend line to make predictions
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ quartile, median,
* performs basic processes, such as:
	+ recognizes examples of box-and-whisker plots and scatterplots and describes when these are best used
	+ creates a scatterplot for a two variable data set

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |
| **Strand: Data Analysis, Statistics and Probability Strand:** |
| **Topic: Analysis of Data** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The student are expected to:**

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| * 8.3.E determine whether conclusions of statistical studies reported in the media are reasonable
* 8.3.G solve single- and multi-step problems using counting techniques and Venn diagrams and verify the solutions
* 8.5.G extract and organize mathematical information from symbols, diagrams, and graphs to make inferences, draw conclusions, and justify reasoning
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ Venn diagram, fundamental counting principal, tree diagram, inference
* performs basic processes, such as:
	+ organizes information in a table, list, Venn or tree diagrams
	+ solves single-step problems using counting techniques and

 Venn diagrams* recognizes or recalls accurate statements about the conclusions of statistical studies

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |
| **Strand: Data Analysis, Statistics and Probability**  |
| **Topic: Measures of Variability** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

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| * 8.3.A summarize and compare data sets in terms of variability and measures of center
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ mean, median, mode, range, interquartile range and outlier
* performs basic processes, such as:
	+ describes a single data set using measures of center and variability

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Data Analysis, Statistics and Probability** |
| **Topic: Data Collection** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to :**

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| --- |
| * 8.3.D describe different methods of selecting statistical samples and analyze the strengths and weaknesses of each method
 |

**The student exhibits no major errors or omissions.** | Benita and Jeff each surveyed some of the students in their eighth-grade homerooms to determine whether chicken or hamburgers should be served at the class picnic. The survey forms are shown below. Benita reported that 100 percent of those in her survey wanted chicken. Jeff reported that 75 percent of those in his survey wanted hamburger. Which survey, Benita's or Jeff's, would probably be better to use when making the decision about what to serve? |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ sampling (random, census, convenience, representative)
* performs basic processes, such as:
	+ recognizes or recalls accurate statements about different methods of selecting statistical samples

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Data Analysis, Statistics and Probability** |
| **Topic: Theoretical and Experimental Probability** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected:**

|  |
| --- |
| * 8.3.F determine probabilities for mutually exclusive, dependent, and independent events for small sample spaces
 |
|  |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ probability, events (mutually exclusive, dependent, and independent)
* performs basic processes, such as:
	+ matches given probabilities to various events (mutually exclusive, dependent and independent)

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Processes** |
| **Topic: Problem Solving** |
| **Grade:8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:*** use the steps of the problem solving process to solve grade level appropriate problems:

|  |
| --- |
| * + 8.5.A analyze a problem situation to determine the question(s) to be answered
	+ 8.5.B identify relevant, missing, and extraneous information related to the solution to a problem
	+ 8.5.C analyze and compare mathematical strategies for solving problems, and select and use one or more strategies to solve a problem
	+ 8.5.F apply a previously used problem solving strategy in a new context
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ relevant and extraneous information, analyze, compare
* performs basic processes, such as:
	+ recognizes or recalls accurate statements about grade level appropriate problem solving processes

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Processes** |
| **Topic: Communicating the Results of a Problem** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 8.5.D represent a problem situation, describe the process used to solve the problem, and verify the reasonableness of the solution
* 8.5.E communicate the answer(s) to the question(s) in a problem using appropriate representations, including symbols and informal and formal mathematical language
* 8.5.G extract and organize mathematical information from symbols, diagrams, and graphs to make inferences, draw conclusions, and justify reasoning
 |

**The student exhibits no major errors or omissions.** |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ grade level appropriate mathematical language as it applies to the problem solving situation
* performs basic processes, such as:
	+ communicates the results of grade appropriate problems using a teacher provided outline

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** |  |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |

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| **Strand: Processes** |
| **Topic: Mathematical Experimentation** |
| **Grade: 8** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**

|  |
| --- |
| * 8.5.H make and test grade level appropriate conjectures based on data (or information) collected from explorations and experiments
 |

**The student exhibits no major errors or omissions.** | * Miranda’s phone service contract ends this month. She is looking for ways to save money and is considering changing phone companies. Her current cell phone carrier, X-Cell, calculates the monthly bill using the equation c = $15.00 + $0.07m, where c represents the total monthly cost and m represents the number of minutes of talk time during a monthly billing cycle. Another company, Prism Cell, offers 300 free minutes of talk time each month for a base fee of $30.00 with an additional $0.15 for every minute over 300 minutes. Miranda’s last five phone bills were $34.95, $ $36.70, $37.82, $62.18, and $36.28. Using the data from the last five months, help Miranda decide whether she should switch companies. Justify your answer.

ANSWER: Miranda should stay with X-Cell because she would have paid $4.17 more for the same 5 months of service based on her minutes used on the bills from X-Cell. However if Miranda could keep her call minutes close to 300 per month it would save her money to switch to Prism Cell. |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:** * recognizes or recalls specific terminology such as:
	+ grade level appropriate mathematical language as it applies to data collection and the given situation
* performs basic processes, such as:
	+ makes grade level appropriate conjectures given a data set

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | *
 |
|   | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** |