**MATHEMATICS**

**Operations and Algebraic Thinking**

1. Writes and interprets numerical expressions

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:  Use logical reasoning and mathematical vocabulary to interpret the meaning of mathematical expressions involving more than one operation | Student is beginning to:  Use logical reasoning and mathematical vocabulary to interpret the meaning of mathematical expressions involving more than one operation | Student is able to consistently and independently:  Use logical reasoning and mathematical vocabulary to interpret the meaning of mathematical expressions involving more than one operation | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates:  Use logical reasoning and mathematical vocabulary to interpret the meaning of mathematical expressions involving more than one operation |

2. Analyzes patterns and relationships

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:   |  | | --- | | Analyze number patterns and relationships. | | Student is beginning to:   |  | | --- | | Analyze number patterns and relationships. | | |  | | --- | | Student is able to consistently and independently:  Analyze patterns using two given rules, identify relationships between numbers, form ordered pairs from patterns and graph the ordered pairs on a coordinate plane. | | |  | | --- | | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates:  Analyze number patterns and relationships independently using various strategies and can apply to a real world situations. Student can apply understanding of number patterns to non-routine and complex problems, explain mathematical thinking, and interpret the mathematical thinking of others. | |

**Numbers & Operations In Base Ten**

3. Understands the place value system

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:  Represent quantities in a number of forms including words, base-ten numerals, and expanded form. Compare decimals to thousandths in equalities and inequalities and appropriately use symbols for equality and inequality. | Student is beginning to:  Represent quantities in a number of forms including words, base-ten numerals, and expanded form. Compare decimals to thousandths in equalities and inequalities and appropriately use symbols for equality and inequality. | Student is able to consistently and independently:  Represent quantities in a number of forms including words, base-ten numerals, and expanded form. Compare decimals to thousandths in equalities and inequalities and appropriately use symbols for equality and inequality. | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates ability to:  Represent quantities in a number of forms including words, base-ten numerals, and expanded form Compare decimals to thousandths in equalities and inequalities and appropriately use symbols for equality and inequality |

4. Performs all four mathematical operations with multi-digit whole numbers and with decimal to the hundredths

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:  Strategically choose and apply appropriate strategies for adding, subtracting, multiplying, and dividing; accurately finds solutions using manipulatives, standard algorithms, and/or visual models. | Student is beginning to:  Strategically choose and apply appropriate strategies for adding, subtracting, multiplying, and dividing; accurately finds solutions using manipulatives, standard algorithms, and/or visual models. | Student is able to consistently and independently:  Strategically choose and apply appropriate strategies for adding, subtracting, multiplying, and dividing; accurately finds solutions using manipulatives, standard algorithms, and/or visual models. | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates:  Strategic choice and application of appropriate strategies for adding, subtracting, multiplying, and dividing; shows accuracy in finding solutions using all methods. |

**Numbers & Operations In Base Ten**

5. Uses equivalent fractions as a strategy to add and subtract fractions

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:  Generate equivalent fractions using the generalization a/b = (n x a)/(n x b) Accurately add and subtract like fractions | Student is beginning to:  Generate equivalent fractions using the generalization a/b = (n x a)/(n x b) Accurately add and subtract like fractions | Student is able to consistently and independently:  Generate equivalent fractions using the generalization a/b = (n x a)/(n x b) Accurately add and subtract like fractions | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates ability to:  Generate equivalent fractions using the generalization a/b = (n x a)/(n x b) Accurately add and subtract like fractions |

6. Applies and extends previous understandings of multiplication and division to multiply and divide fractions.

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:  Multiply and divide fractions | Student is beginning to:  Multiply and divide fractions | Student is able to consistently and independently:  Solve real-world problems, by multiplying a mixed number by a fraction, a fraction by a fraction, and a whole number by a fraction; dividing a fraction by a whole number (greater than 0) and a whole number by a fraction using visual fraction models, including rectangular areas; and interpreting the product and/or quotient. Example: Thomas reads of a book on Monday and 9 2 6 1 on Tuesday. He reads twice as many pages on Wednesday as on Tuesday. What fraction of the book is not read? Student can interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates ability to:  Solve non-routine and complex word problems involving the multiplication and division of fractions and whole numbers, explain mathematical thinking, and interpret the thinking of others. |

**The Number System**

7. Gains familiarity of concepts of positive and negative integers.

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:  Identify and represent decimals, fractions, mixed numbers, and positive and negative integers on a number line. | Student is beginning to:  Identify and represent decimals, fractions, mixed numbers, and positive and negative integers on a number line. | Student is able to consistently and independently:  Identify and represent decimals, fractions, mixed numbers, and positive and negative integers on a number line. | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates:  Identify and represent decimals, fractions, mixed numbers, and positive and negative integers on a number line. |

**Measurement and Data**

8. Coverts like measurement units within a given measurement system, e.g., Standard American, metric, time, and money.

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:  Strategically choose an appropriate common unit to use for computations when working the problems that contain measurements in different units.  Strategically choose and apply representations and computation techniques for solving real life mathematical problems.  Accurately compute solutions Use logical reasoning to justify solution paths | Student is beginning to:  Strategically choose an appropriate common unit to use for computations when working the problems that contain measurements in different units.  Strategically choose and apply representations and computation techniques for solving real life mathematical problems.  Accurately compute solutions Use logical reasoning to justify solution paths | Student is able to consistently and independently:  Strategically choose an appropriate common unit to use for computations when working the problems that contain measurements in different units.  Strategically choose and apply representations and computation techniques for solving real life mathematical problems.  Accurately compute solutions Use logical reasoning to justify solution paths | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates:  Strategically choose an appropriate common unit to use for computations when working the problems that contain measurements in different units.  Strategically choose and apply representations and computation techniques for solving real life mathematical problems.  Accurately compute solutions Use logical reasoning to justify solution paths |

9. Represents and interprets data

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:  Analyzes numerical data and interprets its meaning. Composes questions related to the data obtained.  Constructs visual representations of data including line plots, bar graphs, etc.  Given a real word context, identifies which tool of analysis‐mean, median, or mode is the most useful for a set of data points. Solves real world problem involving mean, median, and mode.  Creates a line plot to display a data set of measurements in fractions with any denominator. Creates and solves problems using the information provided in the line plots. | Student is beginning to:  Analyzes numerical data and interprets its meaning. Composes questions related to the data obtained.  Constructs visual representations of data including line plots, bar graphs, etc.  Given a real word context, identifies which tool of analysis‐mean, median, or mode is the most useful for a set of data points. Solves real world problem involving mean, median, and mode.  Creates a line plot to display a data set of measurements in fractions with any denominator. Creates and solves problems using the information provided in the line plots | Student is able to consistently and independently:  Analyzes numerical data and interprets its meaning. Composes questions related to the data obtained.  Constructs visual representations of data including line plots, bar graphs, etc.  Given a real word context, identifies which tool of analysis‐mean, median, or mode is the most useful for a set of data points. Solves real world problem involving mean, median, and mode.  Creates a line plot to display a data set of measurements in fractions with any denominator. Creates and solves problems using the information provided in the line plots | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates:  Analyzes numerical data and interprets its meaning. Composes questions related to the data obtained.  Constructs visual representations of data including line plots, bar graphs, etc.  Given a real word context, identifies which tool of analysis‐mean, median, or mode is the most useful for a set of data points. Solves real world problem involving mean, median, and mode.  Creates a line plot to display a data set of measurements in fractions with any denominator. Creates and solves problems using the information provided in the line plots |

10. Geometric measurement: Understands concepts of volume and relates volume to multiplication and to addition.

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:  Understand concepts of volume.  Relate volume to multiplication and addition | Student is beginning to:  Understand concepts of volume.  Relate volume to multiplication and addition | Student is able to consistently and independently:  Understand volume as an attribute of solid figures, volume is measured using cubic units, and that volume can be found by packing a solid figure with unit cubes and counting them.  Solve real-world and mathematical problems by applying the formulas for volume, relating volume to the operations of multiplication and addition, and recognizes that volume can be found by adding the volume of solid figures of two non-overlapping parts. | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates:  An understanding to solve complex and non-routine problems involving the volume of solid figures.  An understanding to solve complex and non-routine problems involving the application of the volume formula, explain mathematical thinking, and interpret the thinking of others. |

**Geometry**

11. Graphs points on the coordinate plane to solve real world and mathematical problems.

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:  Explain how to identify the coordinates of a point on a coordinate system  Graph points corresponding to ordered pairs  Represent real word and mathematical problems on a coordinate plane  Interpret coordinate values of points in the context of real word/mathematical situations  Construct a coordinate system | Student is beginning to:  Explain how to identify the coordinates of a point on a coordinate system  Graph points corresponding to ordered pairs  Represent real word and mathematical problems on a coordinate plane  Interpret coordinate values of points in the context of real word/mathematical situations  Construct a coordinate system | Student is able to consistently and independently:  Explain how to identify the coordinates of a point on a coordinate system  Graph points corresponding to ordered pairs  Represent real word and mathematical problems on a coordinate plane  Interpret coordinate values of points in the context of real word/mathematical situations  Construct a coordinate system | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates:  Explain how to identify the coordinates of a point on a coordinate system  Graph points corresponding to ordered pairs  Represent real word and mathematical problems on a coordinate plane  Interpret coordinate values of points in the context of real word/mathematical situations  Construct a coordinate system |

12. Classifies two-dimensional figures into categories based on their properties.

| Trimester | 1 | 2 | 3 | 4 |
| --- | --- | --- | --- | --- |
| All | Requires significant support to:  Justify the classification of a shape into a category and successive subcategories based on the identification of additional or specific attributes  Explain the relationship among categories and subcategories of shape | Student is beginning to:  Justify the classification of a shape into a category and successive subcategories based on the identification of additional or specific attributes  Explain the relationship among categories and subcategories of shape | Student is able to consistently and independently:  Justify the classification of a shape into a category and successive subcategories based on the identification of additional or specific attributes  Explain the relationship among categories and subcategories of shape | Student is able to extend concept beyond grade level standards, and/or is able to independently create a project or lesson that demonstrates:  Justify the classification of a shape into a category and successive subcategories based on the identification of additional or specific attributes  Explain the relationship among categories and subcategories of shape |