### C2.0 Mathematics 6 Marking Period 4 Course Outline

#### Geometric and Statistical Relationships

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<th>Topic</th>
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| **Topic 1: Relating Area and Volume** | Students develop the formula for the area of triangles. They apply their knowledge of the area of triangular and/or rectangular regions to determine the area of quadrilaterals, polygons, and composite figures in real-life contexts. Students build on their understanding of how to find the volume of a right rectangular prism to include those with fractional edge lengths. They explore how the volume of a shape can be found by composing or decomposing shapes including when the edge lengths are fractional. Students apply formulas and use their previous experience with solving equations to find the values of missing volumes or missing dimensions. **Concepts:**  
- Explore rectangles and the attributes of other two-dimensional figures.  
- Develop the area formulas for right triangles and parallelograms.  
- Determine the area of any triangle.  
- Determine the area of special quadrilaterals.  
- Determine the area of polygons by decomposing the region into triangles and rectangles.  
- Determine the area of composite figures using decomposition and composition of polygons.  
- Model volume.  
- Examine the relationship between the area of the base and the height of a prism to derive a formula for volume.  
- Apply the volume formula. |
| **Topic 2: Surface Area** | Students deconstruct solid figures into nets to identify the measurement of the solids’ face edges and area. They use nets to develop, then apply the formula for surface area of prisms. **Concepts:**  
- Construct three-dimensional figures using nets.  
- Construct nets of three-dimensional objects using measurements of a solid’s edges.  
- Use nets to determine the surface area of three-dimensional figures.  
- Determine the surface area of rectangular and triangular prisms using nets.  
- Determine the surface area of three-dimensional figures. |
### Topic 3: Multi-Digit Computation

Students are expected to demonstrate fluency with multi-digit numbers and decimals by the end of Grade 6. During the fourth marking period, students use the standard algorithm to fluently operate with multi-digit numbers and decimals. A spectrum of multi-step word problems of varying complexity levels are purposefully incorporated in this topic as new learning is developed and applied.

**Concept:**
- Use the standard algorithm to fluently add, subtract, multiply, divide multi-digit decimals and divide whole numbers.

### Topic 4: Statistical Questions

In Grade 6, students progress from representing data to interpreting data. Students begin by differentiating between statistical and non-statistical types of questions. Statistical questions anticipate variability in the question which needs to be accounted for in the answer. Variability is explored in terms of the context, the statistical question being asked, measures of center and spread, and the display of the data.

**Concepts:**
- Explore data displays.
- Distinguish between statistical and non-statistical questions.
- Write examples of statistical questions.

### Topic 5: Analyzing Data Distributions

Students recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. Students display numerical data in plots on a number line, including dot plots, histograms, and box plots. They learn to describe and summarize numerical data sets by identifying clusters, peaks, gaps, symmetry, skew, and outliers considering the context in which the data were collected. Exploring variation with the mean absolute deviation (MAD) sets the stage for introducing the standard deviation in later grades. Reason about measures of center and spread.

**Concepts:**
- Determine and analyze measures of center and spread.
- Investigate possible data sets when provided with measures of center and spread.
- Explore the mean absolute deviation.
- Construct and interpret histograms to analyze a data set.
- Analyze variability by exploring box plots.
- Analyze box plots.
- Identify the data display that best describes measures of center, spread, and the overall shape of the distribution.