Grade 6 math GLEs

Number & Operations

1. Understand numbers, ways of representing numbers, relationships among numbers and number systems.
   A. Read, write and compare numbers
      *read, write and compare whole numbers less than 1000
         DOK 1, MA-5 1.10
   B. Represent and use rational numbers
      *recognize and generate equivalent forms of fractions, decimals and benchmark percents
         DOK 2, MA-5 1.10
   C. Compose and decompose numbers
      *recognize equivalent representations for the same number and generate them by decomposing and composing numbers
         DOK 1, MA-5 1.6

2. Understand meanings of operations and how they relate to one another
   B. Describe effects of operations
      * describe the effects of multiplication and division on fractions and decimals
         DOK 2, MA-1 1.10
   C. Apply properties of operations
      * apply properties of operations (including order of operations) to positive rational numbers
         DOK 1, MA-2, 1.10
   D. Apply operations on real and complex numbers
      * identify square and cubic numbers and determine whole number roots and cubes
         DOK 1, MA-2, 1.10

3. Compute fluently and make reasonable estimates
   C. Compute problems
      * multiply and divide positive rational numbers
         DOK 1, MA-1, 3.1
   D. Estimate and justify solutions
      * estimate and justify the results of multiplication and division of positive rational numbers
         DOK 1, MA-3, 3.2
   E. Use proportional reasoning
      * solve problems using ratios and rates
         DOK 1, MA-2, 3.2
Algebraic Relationships (grade 6)

1. Understand patterns, relations and functions
   B. Create and analyze patterns
      * represent and describe patterns with tables, graphs, pictures, symbolic rules or words
        DOK 1, MA-4, 1.6
   C. Classify objects and representations
      * compare various forms of representations to identify patterns
        DOK 2, MA-4, 1.6
   D. Identify and compare functions
      * identify functions as linear or nonlinear from tables or graphs
        DOK 1, MA-4 1.6

2. Represent and analyze mathematical situations and structures using algebraic symbols
   A. use symbolic algebra to represent unknown quantities in expressions or equations and solve one-step equations
      * describe the effects of multiplication and division on fractions and decimals
        DOK 2, MA-4, 3.3
   B. Describe and use mathematical manipulation
      * use the commutative, distributive and associative properties to generate equivalent forms for simple algebraic expressions
        DOK 1, MA-4, 3.2

3. Use mathematical models to represent and understand quantitative relationships
   A. Use mathematical models
      * model and solve problems, using multiple representations such as tables, expressions and one-step equations
        DOK 2, MA-4, 3.6

4. Analyze change in various contexts
   A. Analyze change
      * construct and analyze -representations to compare situations with constant or varying rates of change
        DOK 3, MA-4, 1.6

Geometric & Spatial Relationships (grade 6)

1. Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
   A. Describe and use geometric relationships
      * Identify similar & congruent shapes
        DOK 1, MA-2 1.10
2. Specify locations and describe spatial relationships using coordinate geometry and other representational systems
   A. Use coordinate systems
      * use coordinate systems to construct geometric shapes
        DOK 2, MA-2 1.10

3. Apply transformations and use symmetry to analyze mathematical situations
   A. Use transformations on objects
      * describe the transformation from a given pre-image using the terms reflection/flip, rotation/turn, and translation/slide
        DOK 3, MA-2, 3.3
   C. Use symmetry
      * create polygons and designs with rotational symmetry
        DOK 2, MA-2, 1.6

4. Use visualization, spatial reasoning and geometric modeling to solve problems
   A. Recognize and draw three-dimensional representations
      * use spatial visualization to identify isometric representations of mat plans
        DOK 2, MA-2, 3.3
   B. Draw and use visual models
      * draw or use visual models to represent and solve problems
        DOK 3, MA-2, 3.3

Measurement (grade 6)
1. Understand measurable attributes of objects and the units, systems and processes of measurement
   A. Determine unit of measurement
      * identify and justify the unit of measure for area and volume (customary and metric)
        DOK 3, MA-2 3.1
   C. Tell and use units of time
      * solve problems involving elapsed time (hours and minutes)
        DOK 2, MA-5 3.1

2. Apply appropriate techniques, tools and formulas to determine measurements
   B. Use angle measurement
      * identify and justify an angle as acute, obtuse, straight, or right
        DOK 2, MA-2, 3.2
   C. Apply geometric measurements
      * solve problems involving the area or perimeter of polygons
        DOK 2, MA-2, 1.10
   E. Use relationships within a measurement system
      * convert from one unit to another within a system of measurement (mass and weight)
        DOK 1, MA-2, 1.6
Data & Probability (grade 6)

1. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.
   A. Formulate questions
      * formulate questions, design studies and collect data about a characteristic
        DOK 3, MA-3  1.2
   C. Represent and interpret data
      * interpret circle graphs; create and interpret stem-and-leaf plots
        DOK 2, MA-3  1.8

2. Select and use appropriate statistical methods to analyze data.
   A. Describe and analyze data
      * find the range and measures of center, including median, mode and mean
        DOK 2, MA-3,  1.10

3. Develop and evaluate inferences and predictions that are based on data.
   A. Develop and evaluate inferences
      * use observations about differences between 2 samples to make conjectures about the populations from which the samples were taken
        DOK 3, MA-3,  3.5

4. Understand and apply basic concepts of probability
   A. Apply basic concepts of probability
      * use a model (diagrams, list, sample space, or area model) to illustrate the possible outcomes of an event
        DOK 2, MA-3 1.10 & 3.2