Grade 5 math GLEs

**Number and Operations**

* means assess locally

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 1,000,000, unit fractions and decimals to hundredths (including location on the number line)
   B. Represent and use rational numbers
      recognize and generate equivalent forms of commonly used fractions and decimals
   C. Compose and decompose numbers
      *recognize equivalent representations for the same number and generate them by decomposing and composing numbers,
   D. Classify and describe numeric relationships
      *describe numbers according to their characteristics, including whole number common factors and multiples, prime or composite, and square numbers

2. Understand meanings of operations and how they relate to one another
   A. Represent operations
      represent and recognize division using various models, including quotative and partitive
   B. Describe effects of operations
      *describe the effects of addition and subtraction on fractions and decimals

3. Compute fluently and make reasonable estimates
   A. Describe or represent mental strategies
      *describe a mental strategy used to compute a given division problem, where the quotient is a multiple of 10 and the divisor is a 1-digit number (e.g., 350 /7)
   B. Develop and demonstrate fluency
      demonstrate fluency with efficient procedures for adding and subtracting decimals and fractions (with unlike denominators) and division of whole numbers
   C. Compute problems
      apply and describe the strategy used to compute a division problem up to a 3-digit by 2-digit and addition and subtraction of fractions and decimals
   D. Estimate and justify solutions
      estimate and justify products, and quotients of whole numbers and sums differences of decimals and fractions

**Grade 5: Algebraic Relationships**

1. Understand patterns, relations and functions
   A. Recognize and extend patterns
      make and describe generalizations about geometric and numeric patterns
   B. Create and analyze patterns
      represent and analyze patterns using words, tables and graphs

2. Represent and analyze mathematical situations and structures using algebraic symbols
   A. Represent mathematical situations
      using all operations, represent a mathematical situation as an expression or number sentence using a letter or symbol
   B. Describe and use mathematical manipulation
      *use the commutative, distributive and associative properties for fractions and decimals
3. Use mathematical models to represent and understand quantitative relationships
   A. Use mathematical models
   model problem situations and draw conclusions, using representations such as graphs, tables or number sentence

4. Analyze change in various contexts
   A. Analyze change
   *identify, model and describe situations with constant or varying rates of change

   **Grade 5: Geometric and Spatial Relationships**

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
   *analyze and classify 2- and 3-dimensional shapes by describing the attributes
   C. compose shapes
   predict and justify the results of subdividing, combining and transforming shapes

2. Specify locations and describe spatial relationships using coordinate geometry and other representational systems
   A. Use coordinate systems
   *use coordinate systems to specify locations, describe paths and find the distance between points along horizontal and vertical lines

3. Apply transformations and use symmetry to analyze mathematical situations
   A. Use transformations on objects
   *predict, draw and describe the results of sliding/ translating, flipping/ reflecting and turning/ rotating around a center point of a polygon
   C. Use symmetry
   identify polygons and designs with rotational symmetry

4. Use visualization, spatial reasoning and geometric modeling to solve problems
   A. Recognize and draw three-dimensional representations
   given a net of a prism or cylinder, identify the 3-dimensional shape

   **Grade 5: Measurement**

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 (customary and metric)
   B. Identify equivalent measures
   identify the equivalent weights and equivalent capacities within a system of measurement

2. Apply appropriate techniques, tools and formulas to determine measurements
   C. Apply geometric measurements
   determine volume by finding the total number of the same size units needed to fill a space without gaps or overlaps
   E. Use relationships within a measurement system
   convert from one unit to another within a system of linear measurement (customary and metric)
Grade 5: Data and Probability

1. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them
   A. Formulate questions
   evaluate data-collection methods
   C. Represent and interpret data
   *describe methods to collect, organize and represent categorical and numerical data

2. Select and use appropriate statistical methods to analyze data
   A. Describe and analyze data
   compare related data sets

3. Develop and evaluate inferences and predictions that are based on data
   A. Develop and evaluate inferences
   given a set of data make and justify predictions

4. Understand and apply basic concepts of probability
   A. Apply basic concepts of probability
   *describe the degree of likelihood of events using such words as certain, equally likely and impossible