

## Math GLE's - Grade 5

### Strand 1: Number and Operations

1. Understanding numbers, ways of representing numbers, relationships among numbers and number systems
  - A. Read, write and compare numbers: **MA 5 1.10 DOK 1**
    - \*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: **MA 5 1.10 DOK 2**
    - \*recognize and generate equivalent forms of commonly used fractions, decimals
  - C. Compose and Decompose Numbers: **MA 5 1.6 DOK 2**
    - recognize equivalent representations for the same number and generate them by decomposing and composing numbers
  - D. Classify and describe numeric relationships: **MA 5 1.10 DOK 2**
    - Describe numbers according to their characteristics, including whole number \*common factors, multiples, prime, composite, odd, even and square numbers
2. Understand meanings of operations and how they relate to one another
  - A. Represent operations **MA 1 1.10 DOK 2**
    - Represent and recognize division using various models, including quotative and partitive
  - B. Describe effects of operations: **MA 1 1.10 DOK 2**
    - \*Describe the effects of addition and subtraction on fractions and decimals

C. Apply properties of operations:

- \*none

D. Apply operations on real and complex numbers: None

3. Compute fluently and make reasonable estimates

A. Describe or represent mental strategies: MA 1 3.2 DOK 2

- 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: MA 1 1.6 DOK 1

- Demonstrate fluency with efficient procedures for adding and subtracting decimals and fractions (with unlike denominators) and division of whole numbers

C. Compute problems: MA 1 3.2 DOK 2

- \*Apply and describe the strategy used to compute a given division up to a 3-digit by 2-digit and addition and subtraction of fractions and decimals

D. Estimate and justify solutions: MA 1 3.2 DOK 3

- \* Estimate and justify quotients of whole numbers and sums and differences of decimals and fractions

E. Use proportional reasoning: None

## Strand 2: Algebraic Relationships

### 1. Understand patterns, relations and functions

#### A. Recognize and extend patterns: MA 4 1.6 DOK 2

- Make and describe generalizations about geometric and numeric patterns

#### B. Create and analyze patterns: MA 4 1.6 DOK 3

- Represent and analyze patterns using words, tables and graphs

#### C. Classify objects and representations: None

#### D. Identify and compare functions: None

#### E. Describe the effects of parameter changes: None

### 2. Represent and analyze mathematical situations and structures using algebraic symbols

#### A. Represent mathematical situations: MA 4 1.10 DOK 2

- \* Using all operations, represent a mathematical situation as an expression or number sentence using a letter or symbol

#### B. Describe and use mathematical manipulation: MA 4 3.2 DOK 2

- \* Use the commutative, distributive and associative properties for fractions and decimals

#### C. Utilize equivalent forms: None

#### D. Utilize systems: None

### 3. Use mathematical models to represent and understand quantitative relationships

#### A. Use mathematical models: MA 4 1.6 DOK 3

- model problem situations and draw conclusions, using representations such as graphs, tables or number sentence

### 4. Analyze change in various contexts.

#### A. Analyze change: MA 4 1.6 DOK 3

- Identify, model and describe situations with constant or varying rates of change

### Strand 3: 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: **MA 2 1.10 DOK 2**
    - Analyze 2- and 3-dimensional shapes by describing the attributes
  - B. Apply geometric relationships: None
  - C. Compose and decompose shapes: **MA 2 1.6 DOK 3**
    - 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: **MA 2 1.10 DOK 2**
    - 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: **MA 2 3.6 DOK 3**
    - Predict, draw, and describe the results of sliding/translating, flipping/reflecting and turning/rotating around a center point of a polygon
  - B. Use transformations on functions: None
  - C. Use symmetry: **MA 2 1.6 DOK 1**
    - Identify polygons and designs with rotational symmetry
  
4. Use visualizations, spatial reasoning and geometric modeling to solve problems
  - A. Recognize and draw three dimensional representations: **MA 2 3.3 DOK 2**
    - Given a net of a prism or cylinder, identify the 3-dimensional shape
  - B. Draw and use visual models: None

## Strand 4: Measurement

1. Understand measurable attributes of objects and the units, systems and processes of measurement.

A. Determine unit of measurement: **MA 2 3.1 DOK 3**

- Identify and justify the unit of measure for area (customary and metric)

B. Identify equivalent measures: **MA 2 1.6 DOK 1**

- Identify the equivalent weights and equivalent capacities within a system of measurement

C. Tell and use units of time: none

D. Count and compute money: None

2. Apply appropriate techniques, tools and formulas to determine measurements

A. Use standard or non standard measurement: None

B. Use angle measurement: None

C. Apply geometric measurements: **MA 2 1.10 DOK 2**

- \* Determine volume by finding the total number of the same size units needed to fill a space without gaps or overlaps

D. Analyze precision: None

E. Use relationships within a measurement system: **MA 2 1.6 DOK 1**

- Convert from one unit to another within a system of measurement (customary and metric)

## Strand 5: Data and Probability

1. Formulate questions that can be addresses with data and collect, organize and display relevant data to answer them.

A. Formulate questions: MA 3 1.2 DOK 3

- Evaluate data-collection methods

B. Classify and organize data: None

C. Represent and interpret data: MA 3 1.2 DOK 2

- 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: MA 3 1.6 DOK 2

- Compare related data sets

B. Compare data representations:

- \* none

C. Represent data algebraically: None

3. Develop and evaluate inferences and predictions that are based on data.

A. Develop and evaluate inferences: MA 3 3.5 DOK 3

- Given a set of data make and justify prediction(s)

B. Analyze basic statistical techniques: None

4. Understand and apply basic concepts of probability

A. Apply basic concepts of probability: MA 3 1.10 DOK 2

- Describe the degree of likelihood of events using such words as certain, equally likely and impossible

B. Use and describe compound events: None