

Math GLE's Version 2.0 - Grade 8

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
 - Compare and order all rational numbers including percents, and find their approximate location on a number line
 - B. Represent and use rational numbers: MA 5 3.3 DOK 2
 - Use fractions, decimals and percents to solve problems
 - 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, including scientific notation
 - D. Classify and describe numeric relationships: none
2. Understand meanings of operations and how they relate to one another
 - A. Represent operations: none
 - B. Describe effects of operations: none
 - C. Apply properties of operations: MA 1 1.10 DOK 2
 - Apply properties of operations to all rational numbers including order of operations and inverse operations
 - D. Apply operations on real and complex numbers: none

3. Compute fluently and make reasonable estimates
 - A. Describe or represent mental strategies: none
 - B. Develop and demonstrate fluency: none
 - C. Compute problems: none
 - D. Estimate and justify solutions: none
 - E. Use proportional reasoning: none

Strand 2: Algebraic Relationships

1. Understand patterns, relations and functions
 - A. Recognize and extend patterns: None
 - B. Create and analyze patterns: MA 4 1.6 DOK 2
 - General patterns represented graphically or numerically with words or symbolic rules, using explicit notation
 - C. Classify objects and representations: MA 4 1.6 DOK 3
 - Compare and contrast various forms of representations of patterns
 - D. Identify and compare functions: MA 4 1.6 DOK 1
 - Identify functions as linear or nonlinear from tables , graphs, or equations
 - 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 3.3 DOK 3
 - Use symbolic algebra to represent and solve linear relationships
 - B. Describe and use mathematical manipulation: MA 4 3.2 DOK 2
 - Use properties to generate equivalent forms for simple algebraic expressions that include all rationals
 - 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 3.6 DOK 2

- Model and solve problems, using multiple representations such as graphs, tables, and linear equations

4. Analyze change in various contexts.

A. Analyze change: MA 4 1.6 DOK 3

- Analyze the nature of changes (including slope and intercepts) in quantities in linear relationships

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 1.6 DOK 3

- Describe, classify and generalize relationships between and among types of 2 dimensional objects and 3 dimensional objects using their defining properties including Pythagorean Theorem

B. Apply geometric relationships: none

C. Compose and decompose shapes: none

2. Specify locations and describe spatial relationships using coordinate geometry and other representational systems.

A. Use coordinate systems: MA 2 3.2 DOK 2

- Use coordinate geometry to analyze properties of right triangles and quadrilaterals (including the use of the Pythagorean Theorem)

3. Apply transformations and use symmetry to analyze mathematical situations

A. Use transformations on objects: MA 2 3.3 DOK 2

- Reposition shapes under formal transformations such as reflection, rotation and translation

B. Use transformations on functions: not given

- Describe the relationship between the scale factor and the area of the image using a dilation (stretching/ shrinking)

C. Use symmetry: MA 2 1.6 DOK 1

- Identify the number of rotational symmetries of regular polygons

4. Use visualizations, spatial reasoning and geometric modeling to solve problems

A. Recognize and draw three dimensional representations: MA 2 3.3 DOK 3

- Create isometric drawings from a given net plan

B. Draw and use visual models: MA 2 3.3 DOK 3

- Draw or use visual models to represent and solve problems

Strand 4: Measurement

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

- A. Determine unit of measurement: none
- B. Identify equivalent measures: none
- 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: MA 2 3.2 DOK 1

- Solve problems of angle measure, including those involving triangles and parallel lines cut by a transversal

C. Apply geometric measurements: none

D. Analyze precision: MA 2 1.7 DOK 2

- Analyze precision and accuracy in measurement situations and determine number of significant digits

E. Use relationships within a measurement system: none

Strand 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: *none*
 - B. Classify and organize data: *none*
 - C. Represent and interpret data: MA 3 1.8 DOK 2
 - Select, create and use appropriate graphical representation of data, including scatter plots and box plots- box and whiskers

2. Select and use appropriate statistical methods to analyze data
 - A. Describe and analyze data: MA 3 1.10 DOK 2
 - Find and use and interpret measures of center, outliers and spread, including range and interquartile range
 - B. Compare data representations: MA 3 1.10 DOK 3
 - Compare different representations of the same data and evaluate how well each representation shows important aspects of the data
 - 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
 - Make conjectures about possible relationships between 2 characteristics of a sample on the basis of scatter plots of the data and approximate lines of fit

 - B. Analyze basic statistical techniques: *none*

4. Understand and apply basic concepts of probability
 - A. Apply basic concepts of probability: *none*
 - B. Use and describe compound events: *none*