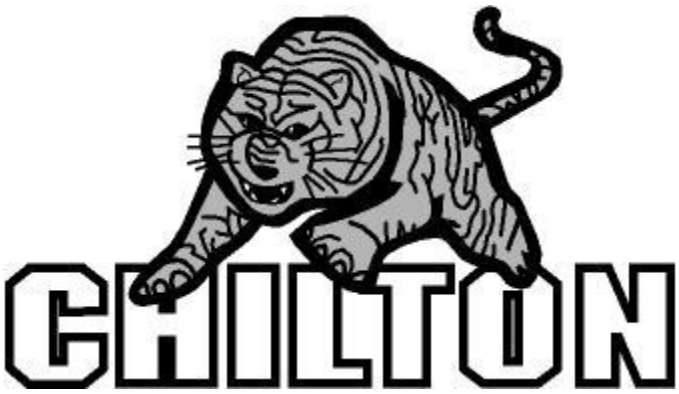

Curriculum Document for Mathematics
Course Title: middle school Grade: 7

Learner Objective #1: Students will use appropriate vocabulary and reasoning skills when solving and presenting problems.

- Read and understand mathematical symbols, and use them appropriately to solve problems
- Explain and demonstrate the four-step problem solving method
- Analyze non-routine problems using strategies like: guessing, working backwards, illustrating, etc.
- Use reasoning abilities to formulate responses to real-life problems

Learner Objective #2: Students will effectively use numbers for measuring, estimating, and problem solving.

- Solve problems with rational numbers (whole numbers, decimals, fractions and integers) using the four basic mathematical operations
- Use percent and proportion to solve problems
- Estimate sums, differences, products and quotients in problem solving
- Apply number theory concepts like divisibility, primes and composites, GCF and LCM in problem solving situations

Learner Objective #3: Students will use geometric concepts and relationships to interpret, represent, and solve problems.

- Identify basic two and three-dimensional geometric figures, and their parts and properties
- Use geometric figures to solve problems, including perimeter, circumference, area, surface area and volume
- Plot points in the coordinate plane and examine solutions with two variables
- Perform transformations (translation, reflection, and rotation) of two-dimensional shapes in the coordinate plane
- Construct basic geometric shapes using protractors, compasses and rulers

Learner Objective #4: Students will use appropriate tools to measure accurately. Students will use measurements in problem-solving situations.

- Measure length, weight and volume in the customary measurement system
- Measure length, weight and volume in the metric measurement system
- Use appropriate units of measurement when estimating length, weight and volume
- Use trigonometry to find indirect missing measurements
- Use the Pythagorean Theorem to find missing measurements in right triangle problems

Learner Objective #5: Students will use data and statistics in problem-solving situations.

- Organize and display data using tables, graphs and charts
- Make predictions and draw conclusions based on analysis and interpretation of data
- Use mean, median, mode, range and outliers to describe data
- Determine simple probability in experiments of chance
- Find total outcomes for simple events using tree diagrams, fundamental counting principles, combinations and permutations

Learner Objective #6: Students will use algebraic patterns and generalizations to define and solve problems.

- Simplify and evaluate algebraic expressions using order of operations
- Identify and apply basic mathematical properties
- Solve equations and inequalities that contain whole numbers, fractions, decimals and integers
- Solve equations dealing with ratio and proportions
- Use graphs and linear relationships to solve problems