

St. Clement's School
Course Outline
Eighth Grade Algebra I
Fall Semester

This course outline is a general guide to familiarize students and parents with an overview of the course. It is an approximation of the content and objectives of the course for the fall semester. The rate of progress may vary depending upon the learning pace that the students can accomplish this semester.

I. Unit I

A. Content

1. Use verbal and mathematical expressions
2. Solve problems by using patterns
3. Use mathematical properties to solve expressions\
4. Use and interpret stem-and-leaf plots, tables, graphs, and functions

B. Learning objectives

1. Translate verbal expressions into mathematical expressions and vice versa
2. Extend sequences
3. Use order of operation
4. Display and interpret data on a stem-and-leaf plot
5. Solve open sentences
6. Identify properties
7. Use distributive property to simplify expressions
8. Recognize and use the associative and commutative property
9. Sketch and interpret graphs

II. Unit 2

A. Contents

1. Display and interpret statistical data on line plots
2. Add, subtract, multiply and divide rational numbers
3. Find square roots
4. Write equations and formulas

B. Learning objectives

1. Name coordinates of a point on a number line
2. Graph integers on a number line
3. Add integers by using a number line
4. Interpret and display data on a number line or table
5. Find absolute value of a number
6. Add or subtract integers
7. Compare and order rational numbers
8. Find numbers between two rational numbers
9. Add and subtract rational numbers
10. Simplify expressions that contain rational numbers
11. Multiply and divide rational numbers
12. Find square roots

13. Graph solutions of inequalities on a number line
14. Write equations and formulas

III. Unit 3

A. Contents

1. Solve equations using one or more operations
2. Define and study angles and triangles
3. Find measures of central tendency

B. Learning objectives

1. Solve equations by using addition, subtraction, multiplication and division
2. Solve problems by using one or more operations
3. Solve problems by working backward
4. Find complimentary and supplementary angles
5. Find measure of angles
6. Solve equations using variables on both sides
7. Solve formulas using specified variables
8. Find and interpret mean, median and mode

IV. Unit 4

A. Contents

1. Solve proportions
2. Work with similar triangles
3. Use trigonometric ratios to solve right triangles
4. Solve percent problems
5. Find probability and odds of a simple event
6. Solve problems involving direct and inverse variation

B. Learning objectives

1. Solve proportions
2. Find the unknown measure of the sides of two similar triangles
3. Use trig ratios to solve right triangles
4. Solve percent problems
5. Solve problems using simple interest
6. Solve problems using percent of increase/decrease
7. Solve problems involving discount and sales tax
8. Find the probability and odds of a simple event
9. Solve mixture problems
10. Solve problems involving direct and inverse variation

V. Unit 5

A. Contents

1. Graph ordered pairs, relations, and equations
2. Solve problems by making a table
3. Identify the domain, range and inverse of a relation
4. Write an equation to represent a relation
5. Calculate and interpret the range, quartiles and interquartile range of a set of data

B. Learning objectives

1. Graph ordered pairs on a coordinate plane
2. Solve problems by making a table

3. Identify the domain, range and inverse of a relation
4. Show relations as sets of ordered pairs, tables, mapping and graphs
5. Determine the range for a given domain
6. Graph the solution set for the given domain
7. Graph linear equations
8. Determine whether a given relation is a function
9. Write equations to represent relations
10. Calculate and interpret the range, quartiles, and interquartile range of sets of data

VI. Unit 6

A. Contents

1. Find the slope of a line
2. Write linear equations in point-slope, standard, and slope-intercept form
3. Draw a scatter plot and write the equation for the best-fit line
4. Graph linear equations
5. Use slope to determine if two lines are parallel or perpendicular

B. Learning objectives

1. Find the slope of a line
2. Write a linear equation in point-slope and standard form
3. Graph and interpret points on a scatter plot
4. Draw and write an equation for a best fit line
5. Determine x- and y-intercept of linear graphs from their equations
6. Write equations in slope-intercept form
7. Write and solve direct variation
8. Determine if two lines are parallel or perpendicular by their slopes
9. Write equations of lines that pass through given points
10. Find the coordinates of the midpoint of a line segment

VII. Grading policy

A. Students are expected to demonstrate understanding of concepts

B. Areas of evaluation

1. Class participation
2. Quizzes
3. Class and homework assignments
4. Tests

C. Weighting

1. Tests will be weighted at 60%
2. Assignments, quizzes and participation will be weighted at 40%

VIII. Class policies

A. Students are expected to arrive to class on time.

B. They will have their completed assignment, neatly done in pencil.

C. They also need to bring their covered math book, notebook, pencil, eraser, red or blue grading pen and a scientific calculator.

D. Any work that is not in class when grading begins will be a "0". The student will still have to complete the assignment. A parent signature will be required on the late paper and the student's grade will remain a "0".

- E. When a student is absent from school because of illness, it is the responsibility of the student to call the school office and arrange to pick up homework.
- F. At the end of each semester, the students will be given a cumulative final.