Algebra - Grade 8

Jordan Small Middle School

Curriculum Guide

Jordan Small Middle School

Grade 8, Algebra

This class will focus on the algebra standards using the CPM curriculum and materials. This course matches teh Algebra course taught at Windham High School.

Standards and Performance Indicators

Number and Quantity

- ❏ Students will extend the properties of exponents to rational exponents. (N-RN-1, 2)
- ❏ Students will choose and use units consistently to understand and solve problems. (NQ-A-1)
- ❏ Students will Define appropriate level of accuracy and quantities for the purpose of descriptive modeling. (N-A-2, 3)

Algebra

- ❏ Students will Interpret the structure of expressions. (A-SSE-1, 2)
- ❏ Students will write expressions in equivalent forms to solve problems. (A-SSE-3, 4)
- ❏ Students will understand the relationship between zeros and factors of polynomials. (A-PPR-2, 3)
- ❏ Students will rewrite rational expressions. (A-PPR-6)
- ❏ Students will create equations that describe numbers or relationships. (A-CED-1, 2, 3, 4)
- ❏ Students will explain solving equations as a process of reasoning. (A-REI-1, 2)
- ❏ Students will solve equations and inequalities in one variable (A-REI 3, 4)
- ❏ Students will solve systems of equations. (A-REI-5, 6, 7)
- ❏ Students will represent and solve equations and inequalities graphically (A-REI-10, 11, 12)

Functions

- ❏ Students will represent and solve equations and inequalities graphically (A-REI-10, 11, 12)
- ❏ Students will interpret functions that arise in applications in terms of context.(F-IF-4, 5, 6)
- ❏ Students will analyze functions using different representations.(F-IF-7, 8, 9)
- ❏ Students will build a function that models a relationship between two quantities. (F-BF-1, 2)
- ❏ Students will build new functions from existing functions. (F-BF-3, 4)
- ❏ Students will construct, compare and interpret linear, quadratic, and exponential models and solve problems. (F-LE-1, 2, 3, 4)
- ❏ Students will interpret expressions for functions in terms of the situation they model. (F-LE-5)

Geometry

- ❏ Students will experiment with transformations in the plane. (G-CO-1, 2, 3, 4, 5)
- ❏ Students will show congruence in terms of translations, rotation and reflections. (G-C)-6, 7, 8)
- ❏ Students will apply similarity and its properties to different figures. (G-SRT-1, 2,)
- ❏ Students will apply trigonometric ratios and solve problems involving right triangles. (G-SRT-6, 7)
- ❏ Students will calculate arc lengths and areas of sectors of circles. (G-C-5)
- ❏ Students will use coordinates to prove simple geometric theorems algebraically. (G-GPE-4, 5, 6, 7)

- ❏ Students will explain volume formulas and use them to solve problems. (G-GMD-1, 3)
- ❏ Students will apply geometric concepts in modeling situations. (G-MG-1, 2, 3)

Statistics and Probability

- ❏ Students will show congruence in terms of translations, rotation and reflections. (G-C)-6, 7, 8)
- ❏ Students will summarize, represent, and interpret data on two categorical and quantitative variables. (S-ID-5, 6)
- ❏ Students will interpret linear models. (S-ID-7, 8, 9)
- ❏ Students will understand and evaluate random processes underlying statistical experiments. (S-IC-1, 2)
- ❏ Students will make inferences and justify conclusions from sample surveys, experiments, and observational studies. (S-IC-3, 4, 5)
- ❏ Students will understand independence and conditional probability and use them to interpret data. (S-CP-1, 2, 3, 4, 5)
- ❏ Students will use the rules of probability to compute probabilities of compound events in a uniform probability model. (S-CP-6, 7)

21st Century Skills/Guiding Principles

- ❏ **Clear and Effective Communicator**
- ❏ **Self-Directed and Lifelong Learner**
- ❏ **Creative and Practical Problem Solver**
- ❏ **Responsible and Involved Citizen**
- ❏ **Integrative and Informed Thinker**

Units and Course Activities

Units

- ❏ Functions
- ❏ Linear Relationships
- ❏ Simplifying and Solving
- ❏ Systems and Equations
- ❏ Sequences
- ❏ Modeling Two-Variable Data
- ❏ Exponential Functions
- ❏ Quadratic Functions
- ❏ Solving Quadratic and Inequalities
- ❏ Solving Complex Equations
- ❏ Functions and Data

Curriculum Materials/Activities may include:

CPM (College Preparatory Mathematics)
Classroom Resources
Online Resources - eTools - Desmos