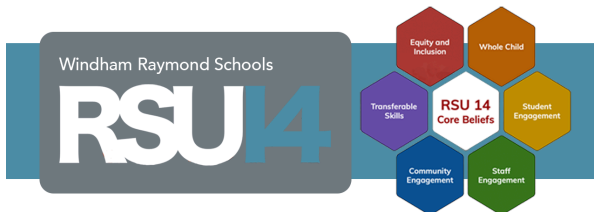


# Algebra - Grade 8



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 the 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