Course Overview

Content Area: **Mathematics**
Course(s): **Math 7**
Time Period: **Year**
Length: **180**
Status: **Published**

Course Overview

Aligned to Standards: NJSLS 2023

Revision Date: 2024

In compliance with the NJ Student Learning Standards, climate change, career readiness, DEI (Diversity, Equity, & Inclusivity), as well as other standards have been integrated within the NBCRSD curricula (NJ Administrative Code Title 6A: chapter 8; Title 18A: chapter 35).

Course Overview

Sequence- Unit Titles, Summaries, and Number of weeks per unit (total = 18 semester/36 year)

Unit 1: Proportional Relationships - 17 days

- Unit Goal: Students will analyze multiple representations of proportional relationships including tables, graphs and equations.
- In this unit, Proportional Relationships, students will use their prior knowledge of ratios and rates to develop understanding of proportional relationships. They use this understanding to build fluency with proportional relationships by representing them with tables, graphs and equations and finding the constant of proportionality. Proportional reasoning is a foundational topic for middle school mathematics, with applications in algebra, geometry, probability, statistics, and everyday life!

Unit 2: Solving Percent Problems - 14 days

- Unit Goal: Students will solve multi-step percent problems.
- In this unit, Solve Percent Problems, students will use their prior knowledge of proportional relationships to build fluency using ratio reasoning and properties of operations to solve algebraic equations involving percents. They apply their fluency to solve multi-step ratio and percent problems. Becoming fluent in solving percent problems empowers students to use percents easily and confidently in everyday life.

Unit 3: Operations with Integers - 16 days

- Unit Goal: Students will add, subtract, multiply and divide integers.
- In this unit, Operations with Integers, students will draw on their prior knowledge of addition, subtraction, multiplication and division and apply it to operations with both positive and negative integers. They use this understanding to build fluency with Integer operations and the order of operations. They will apply their fluency to solve multi-step problems involving integer operations. By building fluency with computation, they will be better prepared to study more advanced mathematical concepts in later courses, without being weighed down by the lack of these skills.

Unit 4: Operations with Rational Numbers - 15 days

- Unit Goal: Students will perform addition, subtraction, multiplication, and division of rational numbers.
- In this unit, Operations with Rational Numbers, students will use their prior knowledge of rational numbers (fractions, decimals and integers) to understand repeating and terminating decimals and to build fluency in calculating with fractions, mixed numbers and decimals, especially as they occur in combination.

Unit 5: Simplify Algebraic Expressions - 14 days

- Unit Goal: Students will use properties of operations to simplify algebraic expressions.

- In this unit, Simplify Algebraic Expressions, students will use their prior knowledge of operations with algebraic expressions, greatest common factors, and the distributive property to simplify algebraic expressions which includes distributing integers across algebraic expressions, adding and subtracting algebraic expressions, combining like terms, and factoring algebraic expressions. By simplifying algebraic expressions, students will be able to make sense of complex algebraic models and be ready to solve multi-step algebraic equations.

Unit 6: Write and Solve Equations - 14 days

- Unit Goal: Students will write and solve one-step equations and two -step equations.

- In this unit, students will draw on their knowledge of solving one-step equations to develop an understanding of solving two-step equations and equations with rational numbers. They will use both algebraic and arithmetic solving strategies and compare the structure of the two methods. They will use this understanding to gain fluency in writing and solving two-step equations. They will apply their understanding to gain fluency in writing and solving two step equations. They will apply their understanding to solve real-world problems.

Unit 7: Write and Solve Inequalities - 13 days

- Unit Goal: Students will write and solve one-step and two-step inequalities.

- In this unit, students will draw on their knowledge of inequalities and equations to build an understanding of writing, solving and graphing one-and two-step inequalities. They will use this understanding to build fluency in solving and graphing one and two step inequalities. They will apply their fluency to write, solve and graph one and two step inequalities that represent real-world situations.

Unit 8 Geometric Figures - 17 days

- Unit Goal: Students will draw, describe and solve problems involving geometric figures.

- In this unit, students will draw on their knowledge of lines and angles, and equivalent ratios to gain understanding of angles, triangles and scale drawings. They will use this understanding to develop fluency with vertical, adjacent, complementary and supplementary angles, classifying and drawing triangles, and scale drawings. Geometric figures is an important topic for middle school mathematics, with applications in algebra, geometry, probability, statistics, and everyday life! They will apply their fluency to solve real world problems.

Unit 9: Measure Figures - 18 days

- Unit Goal: Students will solve real-world and mathematical problems involving area, volume and surface area.

- In this unit, students will develop an understanding of radius and diameter, and how they relate to finding the circumference and area of circles. They will also draw on their knowledge of finding the area of triangles and quadrilaterals to gain fluency in finding the area of composite figures, volume and surface area. They will use this knowledge to gain fluency in finding the volume and surface area of composite 3D figures. They will also apply their fluency to solve real-world problems.

Unit 10: Probability - 10 days

- Unit Goal: Students will understand probability, find probability of simple events and compound events, and design simulations.

- In this unit, students will develop an understanding of probability of simple and compound events. They will use this understanding to develop fluency in finding likelihoods, relative frequencies, and determining the sample space for compound events. They will also compare probabilities, design simulations, and apply their understanding of probability to solve real-world problems.

Unit 11: Sampling and Statistics - 10 days

- Unit Goal: Students will analyze samples and interpret the data.

- In this module, students draw upon their knowledge of measures of center, measure of variation, and ratios to develop understanding about statistical sampling and making inferences and predictions. Making generalizations, responding to surveys, comparing measures of center and variation of data are all skills that carry through life when making decisions and judging the validity of statements. Students come to understand that taking multiple samples can help them gauge the variation in their predictions. Students build fluency in using ratio reasoning to make predictions about a population and in using the measure of center and variation to compare two sample distributions. They apply their understanding to the mean and mean absolute deviation to informally assess the degree of visual overlap between two distributions to infer how close the population means might be.

Reporting Student Progress (link to NB's Assessment System)
All courses follow a balanced assessment system with Practice and Assessments.
Each category includes formative, summative and alternative assessments.

Accommodations and Modifications (link to menu)
Integrated accommodations and modifications for special education students, English language learners, students at risk of school failure, gifted and talented students, and students with 504 plans.