

## COURSE OVERVIEW

**Grade 7** builds on Grade 6 work by extending students' understanding of ratio to a more formal understanding of rate and its application to percents. Students extend their understanding of operations with rational numbers to include negative rational numbers. Students then continue the work they started in Grade 6 in writing expressions and equations, laying the groundwork for their Grade 8 work with functions. The course then turns to more formal methods for writing and solving multi-step equations and inequalities. Students also build on the Grade 6 work with proportional reasoning as they learn to scale 2-dimensional figures and to apply proportional reasoning to probability and statistical situations. Students gain fluency with area, surface area, and volume of 2- and 3-dimensional shapes composed of polygons, including right prisms and pyramids. They use the formulas for area and circumference of a circle to solve problems and understand the relationships among the components of a circle. The final unit of study lays the groundwork for high school Geometry as students investigate informal proofs of key geometric relationships among triangles.

## CRITICAL AREAS

In Grade 7, instructional time should focus on four critical areas:

1. developing understanding of and applying proportional relationships;
2. developing understanding of operations with rational numbers and working with expressions and linear equations;
3. solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and
4. drawing inferences about populations based on samples.

## CORE 7 STANDARDS

### Ratios and Proportional Relationships

- Analyze proportional relationships and use them to solve real-world and mathematical problems.

### The Number System

- Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

### Expressions and Equations

- Use properties of operations to generate equivalent expressions.
- Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

### Geometry

- Draw, construct and describe geometrical figures and describe the relationships between them.
- Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

### Statistics and Probability

- Use random sampling to draw inferences about a population.
- Draw informal comparative inferences about two populations.
- Investigate chance processes and develop, use, and evaluate probability models.

### Standards for Mathematical Practice (SMP)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

### **EXPECTED OUTCOMES**

Students are expected to perform at a proficient level on a variety of tasks and assessments addressing the Standards for Mathematical Practice and the Maryland College and Career Readiness Standards addressed in Core Math 7.

### **RECOMMENDED GRADING ELEMENTS**

<b>Grading Element</b>	<b>Classroom Grading Policies</b>
<b>Product</b>	Graded work assessing a student's mastery of mathematics such as: Tests, quizzes, project work that assesses a student's understanding
<b>Process</b>	Graded work that provides for practice and allows teachers to elicit evidence of student thinking: In class assignments, notes, warm-ups, participation, homework