

MIDDLE SCHOOL

7TH MATH

Mathematical Practices

The Standards for Mathematical Practice are essential in the extension of mathematical thinking. Students develop these habits of mind through specific, intentional experiences of writing, reading, talking, and reasoning that connect mathematics to their daily lives and career situations. All of the Standards are important for all quality math courses:

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

Elementary school mathematics is primarily focused on the study of numbers and it is very concrete; where as, 7th grade mathematics develops (1) an understanding of and applying proportional relationships to solve a variety of percent problems. Students graph proportional relationships and understand the unit rate as a measure of steepness or slope; (2) an 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. Students also gain familiarity with relationships between angles formed by intersecting lines; (4) drawing inferences about populations based on samples.

Content Area: Number System		
• Apply and extend previous understanding of operations to add, subtract, multiply, and divide rational numbers.		
Standards	Strands	Goals and Performance Objectives
7.M.NS.1	Chps. 1 & 2	Apply and extend previous understanding of operations with fractions to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line.
7.M.NS.2	Chps. 1 & 2	Apply and extend previous understanding of operations with fractions to multiply and divide rational numbers.
7.M.NS.3	Chps. 1 & 2	Solve real-world and mathematical problems from a variety of cultural contexts involving the four operations with rational numbers.

Content Area: Ratio and Proportional Relationships

- Understand Ratio Concepts; Use Ratio Reasoning

7.M.RP.1	Chps. 5 & 6 Ratios and Proportional Relationships	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
7.M.RP.2	Chps. 5 & 6 Ratios and Proportional Relationships	Recognize and represent proportional relationships between quantities.
7.M.RP.3	Chps. 5 & 6 Ratios and Proportional Relationships	Use proportional relationships to solve multistep ratio and percent problems within cultural contexts.

Content Area: Expressions and Equations

- Write, interpret, and use expressions, equations, and inequalities..

7.M.EE.1	Chps. 3 & 4 Expressions and Equations	Use properties of operations to generate equivalent expressions.
7.M.EE.2	Chps. 3 & 4 Expressions and Equations	Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

Content Area: Geometry

- Understand geometric relationships; solve problems involving angles, surface area, and volume.

7.M.G.1	Chps. 7, 8, 9 Geometry	Draw Construct, and describe geometrical figures and describe the relationships between them.
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7.M.G.2	Chps. 7, 8, 9 Geometry	Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.
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Content Area: Statistics and Probability

- Analyze and compare populations; Find probabilities of events.

7.M.SP.1	Chp. 10 Statistics and Probability	Use random sampling to draw inferences about a population.
7.M.SP.2	Chp. 10 Statistics and Probability	Draw informal comparative inferences about two populations.