A Guide to the Colorado Academic Standards

Working Together

To support families and teachers in realizing the goals of the Colorado Academic Standards, this guide provides an overview of the learning expectations for seventh grade mathematics and offers some possible learning experiences students may engage in during this school year.

Why Standards?

Created by Coloradans for Colorado students, the Colorado Academic Standards provide a grade-by-grade road map to help ensure students are ultimately successful in college, careers, and life. The standards aim to improve what students learn and how they learn in ten content areas, emphasizing critical-thinking, creativity, problem solving, collaboration, and communication as important life skills in the 21st century.

Mathematics for Middle Schools (6-8)

The mathematics standards throughout middle and high school build on the strong foundation of number developed during elementary school. Students begin to branch into other areas of mathematics such as probability, statistics and algebra. The study of geometry and geometric proof is also formalized during these years. The work of geometric proof is also extended to all parts of mathematics as students construct viable arguments and critique the reasoning of others. In each grade students investigate the world around them through mathematics. They confront problems and persevere in solving them as they strategically apply mathematical tools and techniques.

Where can I learn more?

- Contact your school district regarding local decisions related to standards, curriculum, resources, and instruction.
- Colorado Academic Standards Booklets: http://www.cde.state.co.us/standardsandinstruction/GradeLevelBooks.asp
- Mary Pittman, Mathematics Content Specialist at 303-854-4560, Pittman_m@cde.state.co.us

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At the end of Seventh Grade, students can...

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Mathematics Learning Expectations for Seventh Grade

Number Sense, Properties, and Operations
Fluently add, subtract, multiply and divide with both positive and negative numbers, including fractions and decimals; solve problems involving percentages and other types of proportions; explain operations with positive and negative numbers; change fractions to decimals and explain when a fraction will be a repeating or terminating decimal.

Patterns, Functions, and Algebraic Structures
Recognize and analyze proportional relationships in tables, graphs and equations; connect ratios to the concept of slope; create equations and inequalities for real-life situations.

Data Analysis, Statistics, and Probability
Find the probability of an event and connect probability to sampling; explore the importance of randomness when creating a sample; describe a population based on data from a random-sample; compare two different populations using averages and measures of variability.

Shape, Dimension, and Geometric Relationships
Create drawings to scale; find the measures of angles formed by the intersection of lines; explain how to tell if two triangles are congruent; explore shapes created when slicing a three-dimensional object; calculate the area and circumference of circles.

Throughout the Seventh Grade, you may find students…

- Finding the wholesale price of a shirt with a 12% markup.

- Determining a 20% tip for dinner at a restaurant.

- Exploring when a $20 discount is better than a 20% discount.

- Calculating the temperature after a 7 degree drop from -15 degrees.

- Explaining why negative two multiplied by negative six equals positive twelve.

- Creating scale models of a zoo to connect the concept of scale to proportions.

- Conducting a study to determine if the average height of seventh grade boys is different from the average height of seventh grade girls.

- Calculating the probability of getting a heads when flipping a coin or getting the sum of seven when tossing number cubes.

- Explaining the meaning of a weather forecast with a 50% chance of rain.

- Describing shapes formed when slicing a variety of fruit.