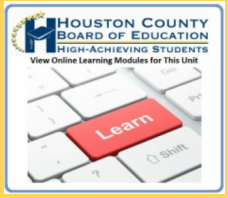
6th Grade
Accelerated Mathematics

Key Instructional Activities

In 6th grade Accelerated Math, your child will learn the concept of rates and ratios and use these tools to solve word problems. Students will work on quickly and accurately dividing multi-digit whole numbers and adding, subtracting, multiplying, and dividing multi-digit decimals. Students will also work on quickly and accurately solving problems involving positive and negative rational numbers—any number that can be made by dividing one integer by another, such as ½, 0.75, or 2. Students will also learn how to write and solve equations—mathematical statements using symbols, such as 20+x = 35—and apply these skills in solving multi-step word problems.

Activities in these areas will include:

- Understanding and applying the concepts of ratios and unit rates, and using the correct language to describe them (for example, the ratio of wings to beaks in a flock of birds is 2 to 1, because for every 2 wings there is 1 beak)
- Determining whether two quantities are in a proportional relationship and using knowledge of rates, ratios, proportions, and percentages to solve multi-step problems
- Identifying the unit rate of change (the constant rate at which the value of a variable changes) in tables, graphs, equations, and verbal descriptions
- Calculating the unit rates associated with ratios of fractions, including quantities measured in different units (for example, the ratio of ½ a mile for every ¼ of an hour means that you travel 2 miles in an hour)
- Building on knowledge of multiplication and division to divide fractions by fractions
- Understanding that positive and negative numbers are located on opposite sides of 0 on a number line
- Using pairs of numbers, including negative numbers, as coordinates for locating or placing a point on a graph
- Writing and determining the value of expressions with whole-number exponents (such as $15+3^2$)
- Identifying and writing equivalent mathematical expressions by applying the properties of operations. For example, recognizing that 2(3+x) is the same as 6+2x
- Solving problems using equations to find the value of one missing variable
- Representing and analyzing the relationships between independent and dependent variables
- Solving problems involving area and volume



What is the Learn Button on the Weebly Site? *Link to Georgia Virtual School Modules for instructional videos, examples, and practice by unit.*

Houston County Board of Education
High-Achieving Students

What resources are available for students and parents?

https://hcbemath.weebly.com/

- ✓ Online Math Textbook
- ✓ Parent Portal
- ✓ Overview of Units and Pacing
- ✓ The Learn Button!

6th Grade Accelerated Math Course Overview

Unit 1: Number System Fluency
Expected Dates: Beginning of School Year to Mid-September

Students develop a unified understanding of number, recognizing whole numbers, fractions, decimals that terminate or repeat, and percentages as different representations of rational numbers. They perform multi-digit division and decimal operations. Students relate multiplication and division to understand and explain how to divide fractions by fractions. They divide fractions to find their decimal equivalents. They also use factors and multiples to solve real-world problems.

Unit 2a: Rational Explorations
Expected Dates: Mid-September to Early October

Students extend their understandings of number to the full system of rational numbers, which includes negative integers. They understand the meaning of negative numbers in real-world applications. They compare, order, and find the absolute value of rational numbers as well as graph points on number lines and in all four quadrants of the coordinate plane.

Unit 2b: Rational Operations
Expected Dates: Early October to Early November

Students extend their knowledge of addition, subtraction, multiplication, and division to compute with rational numbers, particularly with negatives. They apply properties of operations to explain and interpret strategies to add, subtract, multiply, and divide negative integers. Students solve real-world and math problems involving the four operations.

Unit 3: Expressions
Expected Dates: Early November to Early December

Students understand the use of variables in algebraic expressions. They write expressions that correspond to given situations, identify parts of expressions, and both evaluate and simplify expressions. They include exponents in solving problems with order of operations. Students understand that expressions can be rewritten in different, equivalent forms using properties of numbers. Rewriting expressions in equivalent forms can clarify a real-world problem, leading to new insight.

Unit 4: One-Step Equations and Inequalities
Expected Dates: December

Students identify that solving an equation or inequality means finding the value(s) that make that equation or inequality true. They know a variable can represent an unknown value or any value from a set of numbers. They solve one-step equations and inequalities with rational numbers. They also graph the solution set of inequalities on a number line.

Unit 5a: Rate, Ratio, and Proportional Reasoning (Models to Equations)
Expected Dates: January

Students understand the concepts of ratio, rate, and unit rate. They use ratios to solve real-world and math problems using strategies such as equivalent ratio tables and model drawings. Students solve unit rate problems, percentage problems, and measurement conversions.

Unit 5b: Applying Proportional Relationships
Expected Dates: Late January to Late February

Students graph proportional relationships and interpret the unit rate. They distinguish proportional relationships from other relationships. In addition, students identify the independent and dependent variable on the graph. They write equations for proportional relationships, identifying the constant of proportionality (unit rate) and interpreting the points on the graph in context of the problem.

Unit 6: Area and Volume
Expected Dates: Late February to Mid-March

Students determine area, surface area, and volume of geometric figures. They develop and justify formulas for areas of triangles. Using this information, they find areas of special quadrilaterals and polygons by composing them into rectangles or decomposing them into triangles. Students find surface areas of prisms and pyramids by using their nets. They apply the formula for the volume of a right rectangular prism to find the volume of prisms with fractional edge lengths filled with fractional unit cubes.

Unit 7: Statistics
Expected Dates: Mid-March to Early April

Building on and reinforcing their understanding of number, students begin to develop their ability to think statistically. They recognize statistical questions. Students analyze numerical data distributions, which include dot plots, histograms, and box plots. They summarize these data distributions based on their center, spread, and shape. Because shape often affects the measures of center and measures of variability, students will decide which summary measures are most accurate based on the shape of a graph and the context in which the data was gathered.

Unit 8: Equations and Proportional Relationships
Expected Dates: Mid-April to May

Students solve multi-step problems with rational numbers, including solving more complex equations and inequalities. For equations, students solve and identify the operations required to solve. For inequalities, students solve and graph the solution set on a number line. Finally, students use proportional reasoning to solve problems about percentages and scale drawings. They are able to work with percentages in taxes, tips, interest, and commissions. They relate an object to its scale drawing using a scale factor, which allows them to compute lengths and areas of the object.

Helpful Tips for Parents and Guardians

Believe that every child can be successful in math. It takes good teaching, coaching, encouragement and practice.

Partnering with your child's teacher

• Get to know your child's math teacher! Being hands-on does not end after 5th grade! Your child will thank you (someday) for being involved in his or her learning. Also – know about the online resources that are available!

• Don't be afraid to reach out to your child's teacher—you are an important part of your child's education. Ask to see a sample of your child's work or bring a sample with you.

• Talk with your child's teacher about difficulties he/she may be experiencing. When teachers and parents work together, children benefit.

• Ask the teacher questions like:

  • Where is my child excelling? How can I support this success?

  • What do you think is giving my child the most trouble? How can I help my child improve in this area?

  • What can I do to help my child with upcoming work?

Helping your child learn outside of school

• Talk about math in a positive way. A positive attitude about math is infectious. Encourage your child to stick with it whenever a problem seems difficult. This will help your child see that everyone can learn math.

• Encourage persistence. Some problems take time to solve. Praise your child when he or she makes an effort, and share in the excitement when he or she solves a problem or understands something for the first time

• Encourage your child to experiment with different approaches to mathematics. There is often more than one way to solve a math problem.

• Encourage your child to talk about and show a math problem in a way that makes sense

• When your child is solving math problems ask questions such as: Why did you...? What can you do next? Do you see any patterns? Does the answer make sense? How do you know? This helps to encourage thinking about mathematics.

• Connect math to everyday life and help your child understand how math influences them (i.e. shapes of traffic signs, walking distance to school, telling time).

• Play family math games together that add excitement such as checkers, junior monopoly, math bingo and uno.

• Computers + math = fun! There are great computer math games available on the internet that you can discover with your child.