



## 6<sup>th</sup> Grade

## Parent Guide for Understanding the Math Common Core

	Ratios and Proportional Relationships	The Number System	Expressions and Equations	Geometry	Statistics and Probability
<b>Students will be able to:</b>	<ul style="list-style-type: none"> <li>Solve word problems with ratios and proportions.</li> <li>Understand and apply the concept of a unit rate.</li> <li>Use the vocabulary of ratios and rates to describe relationships.</li> </ul>	<ul style="list-style-type: none"> <li>Solve word problems requiring the division of fractions.</li> <li>Extend number sense to include fractions and integers.</li> <li>Represent and compare integers on a number line.</li> <li>Graph (x, y) points in all four quadrants of the coordinate plane.</li> <li>Fluently add, subtract, multiply, and divide multi-digit decimals.</li> <li>Fluently divide multi-digit whole numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate expressions and formulas, including those with whole number exponents, for given quantities (<math>5x^2 - 1</math> for <math>x = 3</math>).</li> <li>Use properties of operations to identify and create equivalent algebraic expressions.</li> <li>Connect real-world problems to a written equation or inequality with one variable.</li> </ul>	<ul style="list-style-type: none"> <li>Find areas of composite polygons by decomposing them into triangles and rectangles.</li> <li>Find volume of right rectangular prisms with fractional length edges.</li> <li>Represent polygons on the coordinate plane by plotting points as vertices.</li> <li>Represent three dimensional figures in nets composed of triangles and rectangles.</li> <li>Solve real world problems.</li> </ul>	<ul style="list-style-type: none"> <li>Understand the purpose of asking statistical questions</li> <li>Use the vocabulary of statistics such as center, spread, median, mean, quartile and deviation.</li> <li>Display and summarize a variety of statistical data including dot and box plots and histograms.</li> </ul>
<b>Schools will support by providing opportunities to:</b>	<ul style="list-style-type: none"> <li>Use tables, equations, tape diagrams, drawings, double number lines and coordinate graphs, to solve real-world problems.</li> <li>Reason with addition and multiplication to work with ratios, unit rates, and proportional relationships.</li> <li>Practice correctly using terms such as <i>for every</i>, <i>for each</i>, and <i>per</i>.</li> </ul>	<ul style="list-style-type: none"> <li>Learn multiple ways for division of rational numbers (fractions).</li> <li>Solve problems involving the division of fractions by fractions using fraction models, drawings and equations</li> <li>Understand integers (positive and negative numbers) and how they relate to absolute value, number operations, comparisons of length and position.</li> <li>Use manipulatives such as counters, integer tiles, and number lines to understand properties of integers.</li> </ul>	<ul style="list-style-type: none"> <li>Substitute values into common formulas to find quantities.</li> <li>Create mathematical models for situations that occur in and out of the classroom using expressions, equations or inequalities.</li> <li>Analyze models to draw conclusions and improve the model, if necessary.</li> <li>Create logical arguments to explain why a pair of expressions that appear different are actually the same (ex: <math>2(x + 7)</math> is the same as <math>2x + 14</math>) and understand why each form could be useful in a given context.</li> <li>Use estimation to check for reasonableness and justify solutions.</li> </ul>	<ul style="list-style-type: none"> <li>Partition polygons using multiple approaches into familiar shapes to find area.</li> <li>Fill right rectangular prisms with unit cubes to understand and derive the volume formula (<math>V = lwh</math>).</li> <li>Use the coordinate plane to find vertical and horizontal side lengths of polygons.</li> </ul>	<ul style="list-style-type: none"> <li>Make conjectures and test hypotheses by exploring questions relevant to students.</li> <li>Collecting, displaying and analyzing data regarding their questions</li> <li>Summarize, create and defend arguments based on findings.</li> </ul>
<b>Parents can support by:</b>	<ul style="list-style-type: none"> <li>Ask your child to calculate the best value when shopping by using unit rates (e.g. 5 lbs. of bananas for \$2.00 is a better buy than 3 lbs. of bananas for \$1.50)</li> <li>Ask your child questions while in the car such as "If we're driving 45mph, how long will it take to get to Grandma's house 20 miles away?"</li> </ul>	<ul style="list-style-type: none"> <li>Practice balancing a checkbook seeing money spent as negative numbers and deposits as positive numbers.</li> <li>Watch football together and calculate how many yards it is to the goal line.</li> </ul>	<ul style="list-style-type: none"> <li>Keep track of cell phone costs with talk time fees and text fees.</li> </ul>	<ul style="list-style-type: none"> <li>Fill a rectangular storage container with sugar cubes or same size Legos to find volume.</li> <li>Assemble and disassemble pizza, gift, or cardboard storage boxes to see how their sections fit together to form a prism.</li> </ul>	<ul style="list-style-type: none"> <li>Survey the family about their favorite food, color, or animals.</li> </ul>

## Sixth Grade Students:

- Apply concepts of proportional reasoning to solve word problems using ratios, rates, and unit rates.
- Expand their understanding of multiplication and division to include dividing fractions when solving word problems.
- Extend number sense by comparing integers and plotting ordered pairs on four quadrants of a coordinate plane.
- Write and interpret expressions and equations.
- Develop statistical thinking and display.

## Resources:

*Sacramento City Unified School District*

<http://www.scusd.edu/commoncoredept>

- ✓ Links to documents for California (CCS) Common Core Standards, including videos for the Standards for Mathematical Practice

*Parent-Teacher Association*

<http://www.pta.org/446.htm>

- ✓ Parent Guides including key items that children should be learning in mathematics in each grade.

*California Department of Education*

<http://www.cde.ca.gov/re/cc/index.asp>

- ✓ Informational flyers provide overviews and highlights of the Math CCS
- ✓ Handouts for parents on transitioning to CCS
- ✓ Link to *Council of Great City Schools Parent Roadmaps*
- ✓ Links to *Smarter Balanced Assessments*

## How Parents Can Support:

- Go bargain hunting in the grocery store with your child. Calculate the unit cost of items to find the best values.
- Keep track of changes in temperature using a thermometer as a vertical number line.
- Using two different-shaped drinking glasses, estimate which will hold the most volume. Find their actual volumes using a measuring cup.
- Plan a birthday party with your child. Have your child ask his friends for their favorite cupcake flavor and display the data in a way that makes sense.
- Share how you use math in your daily life.
- Encourage your child to be persistent if a problem seems difficult.
- When your child gets stuck on their homework, some questions to ask are:
  - 1) Can you tell me what you know now?
  - 2) What do you need to find out?
  - 3) Can you make a drawing or picture to get started?
  - 4) Can you show me what you did that didn't work?

## How Things Have Changed:

Expectations of students have changed a great deal with the adoption of the Common Core State Standards in Mathematics. While getting the right answer is still a great achievement, students are now required to think mathematically, communicate their thinking, and justify their reasoning while continuing to develop a greater level of understanding of how math works.

### Previous California Standards Assessment:

A car gets 24 miles per gallon of gasoline (mi/gal). How many gallons of gasoline would the car need to travel 144 miles?

*Answer: 6 gallons*

### Common Core Standards Assessment:

-AN/PN sells gasoline for \$3.08/gallon with an extra \$0.45 surcharge for using a credit card.

-Union 67 sells gasoline for \$3.12/gallon with no charge for using a credit card.

You want the best deal possible and have to use your credit card. Which gas station will you stop at to fill your empty tank and why?

*Answer:*

The best deal depends on the amount of gas you buy. If you are getting 10 gallons it costs \$31.25 at AN/PN, and \$31.20 at Union 6; Union 67 is cheaper. If you are getting 12 gallons it costs \$37.41 at AN/PN, and \$37.44 at Union 67; AN/PN is cheaper.