Examples of how students will learn about and work with fractions in Sixth Grade

Grade Five Mathematics	Grade Six Mathematics	Grade Seventh Mathematics
•Interpret a fraction as division of the numerator (the top number) by the denominator (the bottom number)	•Divide fractions by fractions using visual models and equations to show the problem	•Add, subtract, multiply, and divide rational numbers in any form, including whole numbers, fractions, and decimals
•Add and subtract fractions with different denominators		•Solve multi-step problems involving positive and negative rational numbers
•Multiply a fraction by a whole number or another fraction		•Understand ordering and absolute value of rational numbers
•Divide fractions by whole numbers and whole numbers by fractions		

Example of a problem involving the division of fractions

Ann has 3 ½ lbs of peanuts for the party. She wants to put them in small bags each containing ½ lb. How many small bags of peanuts will she have?

Students use their knowledge of fractions to see that there are 7 halves in 3 ½ lbs, so there will be 7 bags of peanuts.

ALTERNATE ROUTE

Students can also find how many halves are in 3 ½ by applying the traditional procedure of dividing 3 ½ by ½.

$3\frac{1}{2} = \frac{7}{2}$

$\frac{7}{2} \div \frac{1}{2} = \frac{7}{2} \times \frac{2}{1} = \frac{14}{2} = 7$

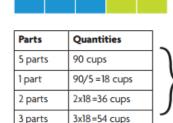💡 ***Real-world problems give students a context for dividing fractions by fractions.***

Examples of how students will develop an understanding of ratios and proportions

Grade Five Mathematics	Grade Six Mathematics	Grade Seven Mathematics
•Explain why a fraction is equal to another fraction	•Understand the concept of a ratio and use the correct language to describe it	•Analyze proportional relationships and use them to solve real-world problems
•Interpret multiplication as scaling (resizing)	•Understand the concept of a unit rate (the rate per unit, or a ratio with the denominator of 1) and use the correct language to describe it	•Calculate the unit rates associated with ratios of fractions, such as the ratio of ½ a mile for every ¼ of an hour
	•Use ratio and rates to solve real-world problems	•Recognize and represent proportional relationships in various ways, including using tables, graphs, and equations
		•Identify the unit rate in tables, graphs, equations, and verbal descriptions of proportional relationships

Example of a problem involving ratios

A slime mixture is made by mixing glue and liquid laundry starch in a ratio of 3 to 2. How much glue and how much starch are needed to make 90 cups of slime?

Glue   **Starch**

Parts	Quantities
5 parts	90 cups
1 part	90/5 =18 cups
2 parts	2x18=36 cups
3 parts	3x18=54 cups

Using knowledge of ratios and proportions, students see that if each cup of slime is made up of 3 parts glue and 2 parts starch, there are 5 parts in each cup. They can then compute the quantity of one, two, and three parts of 90 cups to determine the exact amounts of glue and starch needed.

💡 ***Students use diagrams and tables to think through and solve real-world problems involving ratios.***

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A Parent's Guide to Mathematics Curriculum

"Tell me and I'll forget.
Show me and I'll remember.
Involve me and I'll understand."
-Confucius

SIXTH GRADE

Students Need Skills To Be Successful In the 21st Century!

In order for students to be 21st Century scholars Orange Unified School District is committed to ensuring that all students graduate high school with the skills they need to be successful in a global society. In mathematics, there are three shifts that will help prepare students for success in the 21st Century. First, instruction will concentrate on a more focused set of major math concepts and skills. This will allow students time to master these skills at a level of depth that leads to application and innovation. Second, concepts and skills are presented in a more organized way throughout the year and from one grade level to the next. This ensures a coherent learning sequence that supports students' mathematical development. Third, rich and challenging math content will be used to engage students in solving real-world problems in order to make math more relevant and meaningful.

The complete Math California Common Core State Standards for each grade level are available on the Orange Unified School District's website:
www.orangeusd.org

What Your Child Will Learn In Sixth Grade

In grade six, 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 extend their previous work with fractions and decimals to understand the concept of 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)
- 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 $6+2x$
- Understanding that solving an equation such as $2+x = 12$ means answering the question, "What number does x have to be to make this statement true?"
- Representing and analyzing the relationships between independent and dependent variables
- Solving problems involving area and volume

Collaborating With Your Child's Teacher

You are an important part of your child's education! Reaching out to your child's teacher is highly encouraged and welcomed. Ask to see a sample of your child's work or bring a sample with you. Ask the teacher questions like:
- ✔ Is my child at the level where he/she should be at this point of the school year?
- ✔ What are my child's strengths in math?
- ✔ What do you think is giving my child the most trouble? How can I help my child grow in this area? What resources are available for support?
- ✔ What can I do to help my child with upcoming work?

Helping Your Child Learn Outside Of School

- ✔ Ask your child to calculate the unit rates of items purchased from the grocery store. For example, if 2 pounds of flour cost $3.00, how much does flour cost per pound?
- ✔ Have your child determine the amount of ingredients needed when cooking. For example, if a recipe calls for 8 cups of rice to serve 4 people, how many cups of rice do you need to serve 6 people?
- ✔ Encourage your child to try to make sense of problems and persevering when a problem seems difficult.
- ✔ Make generalizations based on structures or patterns of previous learning.