

KEY CONCEPT OVERVIEW

In Lessons 1 through 7, students multiply a whole number by a fraction or a mixed number, solve word problems involving fractions, and create **dot plots**.

You can expect to see homework that asks your child to do the following:

- Write expressions in unit form to solve (e.g., $6 \times \frac{2}{5} = 6 \times 2$ fifths).
- Rewrite repeated addition problems as multiplication problems (e.g., $\frac{1}{2} + \frac{1}{2} + \frac{1}{2} = 3 \times \frac{1}{2}$).
- Multiply a whole number by a fraction (e.g., $3 \times \frac{1}{2}$).
- Use the **distributive property** to multiply a whole number by a mixed number. (See Sample Problem.)
- Use the **RDW process** to solve word problems involving multiplication of a whole number by a fraction or a mixed number.
- Interpret information from a chart and create a dot plot.

Solve the following by using the distributive property.

$$3 \times 2\frac{4}{6} = 3 \times \left(2 + \frac{4}{6}\right)$$
$$= (3 \times 2) + \left(3 \times \frac{4}{6}\right)$$
$$= 6 + \frac{12}{6}$$
$$= 6 + 2$$
$$= 8$$



- Choose one ingredient from your child's favorite recipe. Ask him to determine how much of that ingredient you would need if you made the recipe four times. Choose another ingredient and repeat the activity.
- Ask your child to use a measuring cup (e.g., $\frac{1}{4}$ cup, $\frac{1}{3}$ cup, $\frac{2}{3}$ cup, or $\frac{3}{4}$ cup) to count how many measures of water are required to fill a larger container such as a jar, a drinking glass, or a bowl. Ask her to write a multiplication expression that could be used to find the amount of water needed to fill the container, and then ask her to solve. For example, if a drinking glass can hold three $\frac{3}{4}$ -cup measures worth of water, the capacity of the drinking glass can be expressed as $3 \times \frac{3}{4}$ cup, which is equal to $2\frac{1}{4}$ cups.

TERMS

Distributive property: A property of multiplication that can be used to break apart a problem into an easier problem. For example, $4 \times 6\frac{2}{3} = (4 \times 6) + \left(4 \times \frac{2}{3}\right)$.

RDW process: Read, Draw, Write—A three-step process used in solving word problems that requires students to **R**ead the problem for understanding; **D**raw a model (e.g., a strip diagram) to help make sense of the problem; and **W**rite an equation and a statement of the answer.

MODELS

Dot Plot

Distance Run During Practice



Distance (in miles)



• = 1 team member



KEY CONCEPT OVERVIEW

In Lessons 8 through 11, students learn to multiply a fraction by a whole number.

You can expect to see homework that asks your child to do the following:

- Draw a picture and a strip diagram to represent multiplication of a fraction by a whole number, and then solve.
- Solve measurement conversion problems.
- Solve word problems that involve multiplying a fraction by a whole number and finding a fraction of a measurement.

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SAMPLE PROBLEM (From Lesson 9)
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Solve by using a strip diagram.

 $\frac{2}{3}$ of 18







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- Use fruits or vegetables to illustrate fractions. If necessary, help your child put the fruits or vegetables into equal groups and then count them. Some examples include the following:
 - There are 18 strawberries in a box. What is $\frac{1}{2}$ of 18 strawberries? (6 strawberries)
 - There are 25 blueberries in a box. What is $\frac{3}{5}$ of 25 blueberries? (15 blueberries)
 - There are 30 grape tomatoes in a box. What is $\frac{5}{6}$ of 30 grape tomatoes? (25 grape tomatoes)
- Play the Fraction Multiplication card game with your child.
 - 1. Take out the jacks, queens, kings, aces, and jokers.
 - 2. Put the stack of remaining cards facedown.
 - 3. Flip two cards to represent a fraction. Use the smaller number as the numerator and the larger number as the denominator.
 - 4. Have your child flip one card to represent a whole number.
 - 5. Write the multiplication expression of the fraction times the whole number, and ask your child to solve.

For example, you flip the numbers 3 and 5. They represent the fraction $\frac{3}{5}$. Your child flips the number 7. You write $\frac{3}{5} \times 7$. He writes $\frac{3}{5} \times 7 = \frac{3 \times 7}{5} = \frac{21}{5} = 4\frac{1}{5}$.





KEY CONCEPT OVERVIEW

In Lessons 12 through 16, students learn to write and evaluate numerical expressions.

You can expect to see homework that asks your child to do the following:

- Write expressions that match given diagrams, and then evaluate them.
- Compare number sentences by using less than (<), greater than (>), or equal to (=) without calculating.
- Create and solve story problems with fractions by using a given strip diagram or expression.
- Solve word problems involving addition, subtraction, and multiplication.

SAMPLE PROBLEM (From Lesson 12)

Write an expression to match, and then evaluate.

3 times as much as the sum of $\frac{2}{5}$ and $\frac{1}{2}$.

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3 \times \left(\frac{2}{5} + \frac{1}{2}\right)= 3 \times \left(\frac{4}{10} + \frac{5}{10}\right)= 3 \times \frac{9}{10}= \frac{27}{10}= 2\frac{7}{10}
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- Review fraction addition, subtraction, and multiplication with your child. Ask your child to pick one of each of these types of fraction problems from his previous work and explain how he solved each problem.
- Ask your child to write out a descriptive sentence for an expression containing fractions, such as $3 \times \left(\frac{3}{4} + \frac{4}{6}\right)$.

(Answer: Three times the sum of $\frac{3}{4}$ and $\frac{4}{6}$.)





KEY CONCEPT OVERVIEW

In Lessons 17 through 20, students learn to divide fractions and decimals. They use strip diagrams and number lines to help them solve problems. They also apply their skills in real-world contexts.

You can expect to see homework that asks your child to do the following:

- Solve division problems involving fractions and decimals by drawing strip diagrams and number lines.
- Estimate the value of a decimal divided by a a two-digit whole number, and then solve.
- Create and solve division word problems that are modeled by a strip diagram or an expression.

SAMPLE PROBLEM (From Lesson 17)

1. Draw a strip diagram and a number line to solve. You may draw the model that makes the most sense to you. Fill in the blanks that follow. Use the example to help.



There are 3 thirds in 1 whole.

There are 6 thirds in 2 wholes.

If 2 is $\frac{1}{3}$, what it is the whole? <u>6</u>



- Practice skip-counting by fractions and decimals with your child. For example,
 - Count by 2 tenths from 2 tenths to 20 tenths.

 $\frac{2}{10}, \frac{4}{10}, \frac{6}{10}, \frac{8}{10}, \frac{10}{10}, \frac{12}{10}, \frac{14}{10}, \frac{16}{10}, \frac{18}{10}, \frac{20}{10}.$ 0.2, 0.4, 0.6, 0.8, 1, 1.2, 1.4, 1.6, 1.8, 2.

• Count by 5 tenths from 5 tenths to 50 tenths.

 $\frac{5}{10}, \frac{10}{10}, \frac{15}{10}, \frac{20}{10}, \frac{25}{10}, \frac{30}{10}, \frac{35}{10}, \frac{40}{10}, \frac{45}{10}, \frac{50}{10}.$ 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5.

Play the Fraction Division card game with your child to practice dividing a whole number by a fraction and dividing a fraction by a whole number. The game may also be played by writing the digits 1-9 on small pieces of paper.

- 1. Take out the jacks, queens, kings, aces, and jokers.
- 2. Put the stack of remaining cards facedown.
- 3. Flip a card to represent a whole number.
- 4. Have your child flip a card to represent a fraction. The number flipped represents the denominator; the numerator will be 1.
- 5. Write the division expression as the whole number divided by the fraction, and ask your child to solve.
- 6. Play again, and let your card represent a fraction and your child's card represent a whole number.

For example, you flip the number 4. It represents the whole number 4. Your child flips the

number 9. It represents the fraction $\frac{1}{9}$. You write the division expression $4 \div \frac{1}{9}$. He writes

 $4 \div \frac{1}{9} = 36$. For the second round, the division expression is $\frac{1}{4} \div 9$. The answer is $\frac{1}{36}$.





KEY CONCEPT OVERVIEW

In Lessons 21 through 24, students learn about the concept of **personal financial literacy**. Students explore real-world scenarios to learn how to balance a simple **budget**. They also learn about the differences between **gross income** and **net income**. In addition, students explore the different types of taxes that can affect personal finances, including **income tax, payroll tax, sales tax,** and **property tax.** Students use what they know about fraction multiplication to calculate simple tax amounts. They also discuss the advantages and disadvantages of various forms of payment, including check, credit card, debit card, and electronic payments. Finally, students explore ways to balance a budget, including by increasing income and/or decreasing **expenses**.

You can expect to see homework that asks your child to do the following:

- Create a **balanced budget** by using a table and a strip diagram.
- Use strip diagrams and fraction and decimal multiplication to determine the difference between gross income and net income.
- Use strip diagrams and fraction and decimal multiplication to calculate property tax and sales tax (as shown in the Sample Problem below).
- Explain the advantages and disadvantages of different forms of payment by using a Cash– Credit graphic organizer.

SAMPLE PROBLEM (From Lesson 23) _

1. Vincent saved \$100 to buy a bike. The sales tax where Vincent lives is $\frac{1}{10}$ of the price of the

bike. Vincent goes to the bike shop and sees a bike with a price tag of \$100. Does he have enough money to buy the bike? Why or why not? Draw a strip diagram to support your thinking.



Vincent does not have enough money for the bik because he also has to pay the sales tax.



- Play the Take That to the Bean Bank game with your child. This game demonstrates how spending and budgeting are linked. For materials, gather several cups and some dried beans. Begin with a set amount of beans and label each cup with a spending category.
 - 1. Give your child a set number of beans that represents how much allowance they might reasonably receive in one week or month. Explain that 1 bean represents \$1 in this game.
 - 2. Work with your child to develop spending categories such as savings, clothing, entertainment, toys and games, sports, and lunch money. Label the cups with the name of each category.
 - 3. Determine what fraction of the allowance must be assigned to the savings category (for example, $\frac{1}{10}$). Help your child determine how many beans must be assigned to the savings category based on the fraction you choose.
 - 4. Have your child "pay the piggy bank" first by placing the correct number of beans in the savings cup.
 - 5. To reinforce the concept of a balanced budget, help your child determine how the remaining beans should be allocated among the cups that represent the other spending categories.
 - 6. Then have your child look in the newspaper or online for the prices of items they would like to purchase. Help your child decide whether they have adequately budgeted for these items. If not, discuss whether it is appropriate to use some of the beans from the savings category to make the purchase.
 - 7. For each item purchased, have your child remove the correct number of beans from the cup labeled with that spending category. This helps your child simulate paying for the purchased items.
 - To extend this activity, help your child use a calculator to figure sales tax on any purchases.
 - For additional fun, have your child cut out ads from newspapers or print shopping carts from online stores.
 - 8. Talk with your child about things they want versus things they need, and help them classify each of the spending categories as a want or a need.



TERMS

Balanced Budget: A budget with expenses that are exactly equal to income.

Budget: A plan for saving and spending money.

Expenses: Categories of spending; in a budget this might include the designation of a savings category.

Gross income: The total amount of money in a paycheck before taxes and other expenses are deducted.

Income: The amount of money received for work or services rendered

Income tax: The money the government collects based on how much one earns.

Net income: The amount of money left in a paycheck after taxes and other expenses are deducted.

Payroll tax: Money deducted from one's paycheck by the government to help fund some programs that help people when they retire.

Personal financial literacy: The application of mathematical process standards to manage one's financial resources effectively for lifetime financial security.

Property tax: A tax collected on property owned (e.g., house, land) to support local communities.

Sales tax: A tax collected on items purchased.

MODELS

Strip Diagram

Gross Income

Net Income

Taxes





KEY CONCEPT OVERVIEW

In Lesson 25, students interpret and evaluate numerical expressions that involve fractions. They also apply their skills in real-world contexts.

You can expect to see homework that asks your child to do the following:

- Write and evaluate numerical expressions.
- Solve word problems involving the multiplication and division of fractions and decimals.

SAMPLE PROBLEM (From Lesson 25) _

Write an equivalent expression in numerical form.

Half as much as the difference of $2\frac{5}{6}$ and $\frac{1}{3}$. $\left(2\frac{5}{6}-\frac{1}{3}\right) \div 2$



- Review your child's homework with her. Choose a couple of different problems. Ask her to explain her thinking on those problems and the steps she used to work through them.
- Play the Multiply Decimals by 10, 100, and 1,000 dice game to review the multiplication of decimals with your child. Use one die to represent tenths, two dice to represent hundredths, and three dice to represent thousandths. *If dice are not available, write the digits 1-6 on pieces of paper and place them face-down on a surface. Have your child choose a card, write the digit and replace the card. This may be repeated for the desired number of digits to play the game.*
 - 1. Your child rolls the die or dice.
 - 2. Using the number(s) rolled, you write the multiplication expressions ($\times 10$, $\times 100$, $\times 1,000$) and ask her to evaluate the expressions.

For example, your child rolls the number 5. It represents the decimal number 0.5. You write the multiplication expressions 0.5×10 , 0.5×100 , and $0.5 \times 1,000$. She evaluates them as $0.5 \times 10 = 5$, $0.5 \times 100 = 50$, and $0.5 \times 1,000 = 500$.

Your child rolls the numbers 2 and 3. They represent the decimal number 0.23. The evaluated multiplication sentences will be $0.23 \times 10 = 2.3$, $0.23 \times 100 = 23$, and $0.23 \times 1,000 = 230$.

Your child rolls the numbers 6, 1, and 4. They represent the decimal number 0.614. The evaluated multiplication sentences will be $0.614 \times 10 = 6.14$, $0.614 \times 100 = 61.4$, and $0.614 \times 1,000 = 614$.

If dice are not available, the game may be played using a random number generator on a smart phone.

