Day 6 of 20

# 2D Divide by Tens

**Learning Objective(s)**

- Divide by tens with and without a remainder.

**Material(s)**

- I set of place-value chips
- I number cube

**DIVIDE BY TENS WITH AND WITHOUT REMAINDER**
(Student Book, pages 55 to 58)

## Lesson Opener

**Task** (Student Book, page 55)

Show your student the **Lesson Opener** and cover the rest of the page. Discuss the question with your student. Do not show your student how to do the task and allow him/her to explore the problem using place-value chips.

Refer your student to **Learn** and **Learn Together** in the Student Book for reflection after your student has explored the concepts. Use questions to build understanding and direct instruction to refine understanding.

## Lesson Development

**Learn** (Student Book, page 55)

Invite your student to use place-value chips to show 80 as 8 tens. Ask your student to consider what 80 ÷ 20 means in the word problem by making groups of 20 with the place-value chips. You may wish to ask these questions:

**What is happening in the problem?** *There are 80 cookies being divided into boxes of 20 cookies.* **What are you trying to find?** *the number of boxes needed* **What operation should you use to solve the problem? Why?** *division; to find the number of groups of 20 that can be made*

Invite your student to solve the problem using place-value chips, a related multiplication fact, or using long division. Remind your student that he/she can also think of the division problem as an unknown factor multiplication problem to mentally divide.

**Teaching Tip**

Encourage your student to think about the word form of each problem.

8 tens divided into groups of 2 tens = _____ groups

84 tens divided into groups of 4 tens = _____ groups

**Focus Question**

**How do you divide by tens?**
Invite your student to ponder this question as you go through the lesson. Revisit this question when you reach the end of the lesson to check his/her understanding.

**Learn Answers** (Student Book, page 55)

4; 4; 4

$$\begin{array}{r} 4 \\ 20\overline{)\,80} \\ \underline{80} \\ 0 \end{array}$$

Day 12 of 20

# Chapter Wrap Up

Before your student works on **Performance Task**, help him/her recap the key learning objectives and develop a concept map to reflect the concepts and skills of the chapter. Use the following key terms to start constructing the concept map.

- Order of operations
- Multiplication and division
- Word problems with all four operations

Encourage your student to complete the **Chapter Self-Reflection** on page 77 as a form of self-reflection.

# Performance Task (Student Book, pages 83 to 86)

Refer your student to the **Performance Task** to consolidate and deepen his/her understanding of the chapter through tasks that require him/her to show, explain, and/or apply thinking. You may use the rubric on page 74 to encourage your student to set his/her own goals.

- **QUESTION (a)** requires your student to use division and multiplication to find the cost of Package A.
  **What does "$250 for each pair of students" mean? How can that help you find the cost of Package A?**

- **QUESTION (b)** requires your student to find the cost of Package B and determine whether Package A or Package B is the better deal.
  **What information will help you find the total cost of Package B? What do you need to consider when determining the cost of the lunch sets? How can you find the total cost of Package B? Which is a better deal?**

- **QUESTION (c)** requires your student to use the four operations to determine the total cost of Package C.
  **What information is needed to carry out this task? What steps do you need to take to find the answer? What are you unclear about and what can you do about it? Are you satisfied with your work?**

- **QUESTION (d)** requires your student to use the order of operations to determine the best package deal if the number of students changes to 50.
  **How would each package change with 50 students? How does the cost for lunches change in Packages B and C? How will this factor into the total cost?**

**For Additional Support**

Provide a template to support your student in creating his/her concept maps.

## Performance Task Answers

(Student Book, pages 83 to 86)

**(a)** 28 ÷ 2 = 14
There are 14 pairs of students.
14 × 250 = 3,500
He will need to pay $3,500 for Package A.

**(b)** 28 × 120 = 3,360
Package B costs $3,360 without lunch.
28 ÷ 5 = 5 R 3
6 × 45 = 270
6 lunch sets are needed for 28 students.
3,360 + 270 = 3,630
Package B costs $3,630 with lunch.
Package A is a better deal as it is cheaper.

**(c)** 28 × 99 = 2,772
Package C costs $2,772 without lunch.
28 ÷ 10 = 2 R 8
3 × 50 = 150
3 lunch sets are needed for 28 students.
2,772 + 150 = 2,922
2,922 + 1,000 = 3,922
He will need to pay $3,922 for Package C.

**(d)** Package A: 250 × (50 ÷ 2) = 6,250
Package B: 50 × 120 + (50 ÷ 5 × 45) = 6,450
Package C: 99 × 50 + (50 ÷ 10 × 50) + 1,000 = 6,200
Package C is the best deal.

**Teaching Tip**

During the **Performance Task**, your student will be using all the strategies learned in this chapter. Remind your student to use place-value chips and area models as supports to multiplying and dividing, if necessary.

## Learn Together (Student Book, pages 98 to 100)

Provide your student with Rectangular Fraction Strips (TR06), Fraction Model I (TR07), and Bar Model Strips (TR05) to model the problems in **Learn Together**. Encourage your student to consider how using equivalent fractions can help them add unlike fractions. Remind your student that each answer should be expressed in simplest form. Point out that benchmarks such as 0, $\frac{1}{2}$, and I can help him/her to estimate the sum by considering whether it will be closer to $\frac{1}{2}$, I, or greater than I. Remind your student that estimation is a great way to check if an answer is reasonable.

Through questioning, lead your student to add unlike fractions in **Learn Together**. You may wish to ask the following questions:

**What do you have to remember when adding unlike fractions?** *I can only add like fractions; the fractions must have the same denominator so I need to find an equivalent fraction to add unlike fractions.* **What strategies did you use to find a common denominator?** *Look for common multiples or multiply the denominators and then simplify.* **How did you ensure that your answer is correct?** *I used benchmark fractions to see whether the answer is reasonable.*

After your student has explored the concepts in the **Lesson Opener**, **Learn**, And **Learn Together**, you may wish to ask the following questions to encourage further reflection:

**What different models do you see? How do these models show equivalent fractions? How do these models show the addition of unlike fractions?**

You may wish to have your student summarize his/her learning in a math journal. Invite your student to explain the necessary steps to add unlike fractions by writing a letter to a friend.

In QUESTIONS I to 3, your student will see that both fractions will need to be converted to an equivalent fraction to add through the use of different models. Invite your student to use multiplication to find an equivalent fraction and show how the models would change. Encourage your student to explore these different models using fraction circles, tiles, and area models to develop strong conceptual understanding.

- **QUESTION I** requires your student to add two unlike and unrelated unit fractions by finding a common multiple.
- **QUESTION 2** requires your student to find the sum of two unlike fractions where only one is a unit fraction.
- **QUESTION 3** requires your student to add two unlike fractions whose sum is greater than I whole.
- **QUESTION 4** requires your student to use two methods to find a common denominator before adding the unlike fractions.

In QUESTION 4, your student will see that there are two methods to finding a common denominator. The first method finds the least common multiple to convert the fractions to a common denominator. The second method requires your student to multiply the denominators by each other to find a common denominator. Encourage your student to try both methods and see which requires simplifying. Have your student reflect on which strategy makes the most sense to him/her. You may wish to ask the following questions:

**How do these methods differ? Which one requires more steps? Which one takes more time for you to solve?**

### Digging Deeper

Provide your student with two paper strips. Have your student fold one paper strip into fourths and color in $\frac{2}{4}$. Then have your student fold another paper strip into thirds and shade in $\frac{1}{3}$. Ask your student to explain what would happen if these two fractions were combined.

**What would happen if you combined these two fractions?** *It would almost be a whole.* **How can you prove that?** *The one-third shaded strip would fit in the unshaded part of the fourths strip.* **How can you use equivalent fractions to check your answer?**

## Learn Together Answers

(Student Book, pages 98 to 100)

**I.** 3; 2; 5; 3; 2; $\frac{5}{6}$

**2.** $\frac{5}{15}$; $\frac{6}{15}$; $\frac{5}{15}$; $\frac{6}{15}$; $\frac{11}{15}$

**3.** $\frac{9}{12}$; $\frac{8}{12}$; $\frac{9}{12}$; $\frac{8}{12}$; $\frac{17}{12}$; $1\frac{5}{12}$

**4.** **Method I:** $\frac{15}{24}$; $\frac{4}{24}$; $\frac{19}{24}$

**Method 2:** $\frac{30}{48}$; $\frac{8}{48}$; $\frac{38}{48}$; $\frac{19}{24}$

Thought bubble: $\frac{30}{48}$; $\frac{8}{48}$

**5.** $\frac{3}{4} + \frac{1}{6} = \frac{9}{12} + \frac{2}{12} = \frac{11}{12}$; $\frac{11}{12}$

Day 6 of 13

# 3C Word Problems (1)

**Learning Objective(s)**

- Solve two-part word problems involving addition and subtraction of fractions.

**Material(s)**

- 2 copies of Bar Model Strips (TR05)

**TWO-PART WORD PROBLEMS** (Student Book, pages 123 to 130)

## Lesson Opener

**Task** (Student Book, page 123)

Show your student the **Lesson Opener** and cover the rest of the page. Discuss the question with your student. Do not show your student how to do the task and allow him/her to explore the problem. Encourage your student to draw a model and record the equation. Provide a copy of Bar Model Strips (TR05) for your student if needed.

Refer your student to **Learn** and **Learn Together** in the Student Book for reflection after your student has explored the concepts. Use questions to build understanding and direct instruction to refine understanding.

## Lesson Development

**Learn** (Student Book, pages 123 and 124)

Encourage your student to consider the word problem on page 123 of the Student Book using the four-step problem-solving model: Understand, Plan, Solve, and Check.

**Step 1 Understand**

Have your student explain what is happening in the problem in his/her own words. Encourage your student to use fraction manipulatives to model the problem. You may wish to ask these questions:

- **What do you know about the problem?** *There are 2 pizzas. Ms. Ariana gave* $\frac{2}{9}$ *of a pizza and* $\frac{1}{3}$ *of another pizza away.* **What are you trying to find out?** *the fraction of pizza she gave away and the fraction of the pizzas she had left*

**Step 2 Plan**

Encourage your student to draw a bar model to represent the problem. Ask your student to consider how each part of the problem can be shown. You may wish to ask these questions:

- **What do you need to do first?** *find the total fraction of pizza that was given away* **What should you do next?** *find the fraction of the remaining pizza*

Remind your student that in a two-part word problem, he/she will need to label the bar model with (a) and (b) to show both questions. Encourage your student to use the strategies from the previous lessons to add and subtract.

**Step 3 Solve**

Have your student write an equation and solve it. Remind him/her to express the answer in simplest form.

**Step 4 Check**

Prompt your student to look back and check the answer using estimation.

### Focus Question

- **How do bar models help you solve two-part word problems involving addition and subtraction of fractions?**

Invite your student to ponder this question as you go through the lesson. Revisit this question when you reach the end of the lesson to check his/her understanding.

### Teaching Tip

In two-step word problems, your student may wish to draw two separate bar models to show each step of the problem. Encourage your student to label each bar model and explain how these models explain the parts of the problem.

## Learn Answers

(Student Book, page 124)

**Step 3:** **(a)** $\frac{2}{9} + \frac{1}{3} = \frac{2}{9} + \underline{\quad\frac{3}{9}\quad}$

$= \underline{\quad\frac{5}{9}\quad}$

Ms. Ariana gave $\underline{\quad\frac{5}{9}\quad}$ of a pizza away.

**(b)** $2 - \underline{\quad\frac{5}{9}\quad} = \underline{\quad 1\frac{9}{9}\quad} - \underline{\quad\frac{5}{9}\quad}$

$= \underline{\quad 1\frac{4}{9}\quad}$

Ms. Ariana had $\underline{\quad 1\frac{4}{9}\quad}$ of the pizzas left.

# Recall (Student Book, pages 148 to 150)

**Material(s)**

- 1 set of fraction circles or fraction tiles
- 1 copy of Number Lines (TRII)

Before moving on to the problems on pages 148 to 150 of the Student Book, have your student model similar tasks using concrete materials, such as fraction circles or fraction tiles. Once you are convinced of his/her proficiency, move on to asking your student to draw models to represent the tasks.

### Make it a Game!

Invite your student to represent a mixed number using fraction circles or tiles. Then, encourage your student to express the mixed number as an improper fraction and draw it on a number line.
Have your student represent the mixed number in simplest form.

**How can you show the mixed number with a model and on a number line? How do you convert it to an improper fraction? What strategies do you use to simplify the fraction? How would the fraction change if you multiplied it by 2?**

After this review, your student should be able to complete the tasks on pages 148 to 150 of the Student Book independently.

- **QUESTION 1** assesses your student's ability to find equivalent fractions.
- **QUESTION 2** assesses your student's ability to identify the improper fraction represented by the fraction circles.
- **QUESTION 3** assesses your student's ability to identify a fraction on a number line.
- **QUESTION 4** assesses your student's ability to express the fractions in simplest form.
- **QUESTION 5** assesses your student's ability to express mixed numbers as improper fractions.
- **QUESTION 6** assesses your student's ability to express improper fractions as mixed numbers.
- **QUESTION 7** assesses your student's ability to multiply a fraction by a whole number and express the product in simplest form.
- **QUESTION 8** assesses your student's ability to solve a one-step word problem involving finding a fraction of a set.

### For Additional Support

It will be important that your student has a strong understanding of converting mixed numbers and improper fractions. Invite your student to consider the size of each whole and use that when converting. Encourage the use of a related addition sentence to help your student do it quickly.

For example:
$\frac{6}{4} = \frac{4}{4} + \frac{2}{4} = 1\frac{2}{4} = 1\frac{1}{2}$

### Teaching Tip

As your student work on the problems in **Recall**, provide him/her with fraction circles, fraction tiles, and Number Lines (TRII) to represent mixed numbers and improper fractions.

## Recall Answers

(Student Book, pages 148 to 150)

1. Options A and B
2. Option B
3. Option C
4. (a) $\frac{3}{4}$
   (b) $2\frac{3}{8}$
5. (a) $\frac{9}{5}$
   (b) $\frac{17}{7}$
6. (a) $5\frac{5}{6}$
   (b) $8\frac{2}{5}$
7. (a) $= \frac{12}{4}$
   $= 3$
   (b) $= \frac{60}{5}$
   $= 12$
8. $\frac{3}{4} \times 28 = 21$
   21 apples are red.

### Digging Deeper

Challenge your student to consider different models when solving the problems in **Recall**. In some problems, fraction circles are given. Challenge your student to consider how the problem would look with fraction tiles or on a number line. Invite your student to explain which model makes the most sense to him/her.

## Practice On Your Own (Student Book, pages 203 and 204)

- **QUESTION 1** assesses your student's ability to solve a one-step word problem involving dividing whole numbers with a fractional quotient.
- **QUESTION 2** assesses your student's ability to solve a one-step word problem involving dividing a unit fraction by a whole number.
- **QUESTIONS 3** and **4** assess your student's ability to solve one-step word problems involving dividing proper fractions by whole numbers.

### For Additional Support

Encourage your student to use mathematical language to describe that when dividing a fraction by a whole number "*n*," it can be seen as multiplying by "$\frac{1}{n}$".

Use the following prompts:

_____ divided by _____ is the same as finding _____ of _____.

$\frac{2}{3}$ divided by 4 is the same as finding $\frac{1}{4}$ of $\frac{2}{3}$.

## More Resources

- Refer to **Do More at Home** below and **Reteach 5, Exercise 4E (3)** if your student needs additional support.
- When your student is ready, have him/her work on **Additional Practice 5A, Exercise 4E (3)**.
- To provide your student with a challenge, have him/her work on **Extension 5, Exercise 4E (3)**.
- You may also assign **Mastery and Beyond 5A, Chapter 4, Practice 6** to provide further support and development to sustain learning.

### Do More at Home

Invite your student to partition a piece of paper into four equal parts. Encourage your student to choose one problem and represent it in different ways.

| | |
|---|---|
| What do you know about the problem? | How can it be represented as a model? |
| How can it be represented as an equation? | How can you check the answer? |

## Practice On Your Own Answers

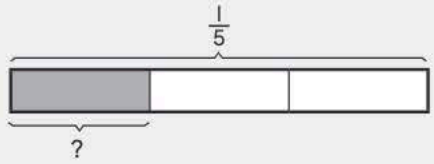
(Student Book, pages 203 and 204)

**1.** $8 \div 5 = \frac{8}{5}$

$= 1\frac{3}{5}$

Each student received $1\frac{3}{5}$ packs of clay.

**2.**

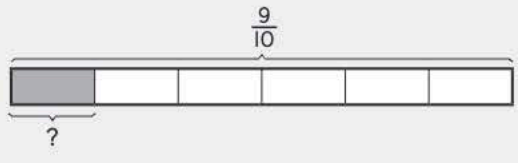



$\frac{1}{5} \div 3 = \frac{1}{5} \times \frac{1}{3}$

$= \frac{1}{15}$

She read $\frac{1}{15}$ of the book each day.

**3.**

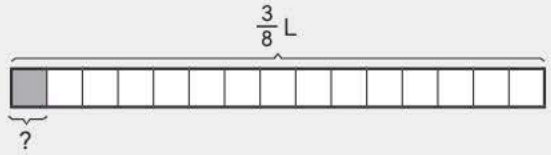



$\frac{9}{10} \div 6 = \frac{9}{10} \times \frac{1}{6}$

$= \frac{3}{20}$

Lorenzo ate $\frac{3}{20}$ of the pack of cookies each day.

**4.**




$\frac{3}{8} \div 15 = \frac{3}{8} \times \frac{1}{15}$

$= \frac{1}{40}$

Mya used $\frac{1}{40}$ liter of olive oil for each portion of dough.