Unit 5
Lesson
17

Leftover Players

Interpreting Remainders in Division Problems

Let's solve two-step division problems with fluency and make sense of remainders.

Student Edition pages and **Presentation Screens** support learning in this lesson.

Lesson Goals

1. **Goal:** Solve two-step division problems that involve remainders.
2. **Language Goal:** Explain how to interpret the remainders in division problems and decide how to use them. **(Listening and Speaking)** ELPS 2.I, 3.H

Connections and Coherence

Students solve two-step division story problems that involve interpreting remainders. They analyze the given information to determine the best strategy to solve, and explain how to use a remainder based on the context of a problem. After solving, students justify their answers and use known strategies to determine whether their answer is reasonable. **(4.1.A, 4.1.B, 4.1.C)**

Prior Learning

In Lesson 16, students solved division problems with remainders that required them to interpret the remainders in different ways depending on the context.

Future Learning

In Lesson 18, students will solve division problems that require them to interpret the same remainder in 2 different ways.

Integrating Rigor in Student Thinking

- Students further their **conceptual understanding** of ways to interpret remainders in two-step division problems.
- Students **apply** their understanding of division with remainders to solve problems with real-world contexts.

Vocabulary

Review Vocabulary

- *quotient*
- *remainder*

TEKS

Addressing

4.4.H

Solve with fluency one- and **two-step problems involving** multiplication and **division, including interpreting remainders.**

Math Process Standards: 4.1.A, 4.1.B, 4.1.C

ELPS: 2.I, 3.B, 3.C, 3.H, 4.F, 4.G

Building On	Building Toward
3.4.K	5.3.C

Building Math Identity

I am a doer of math.

What ways can you be flexible in math class today?

Invite students to reflect on this question as they complete this lesson.

Lesson at a Glance 60 min

TEKS: 4.1.A, 4.1.B, 4.1.C, 4.4.H

Warm-Up

Whole Class | 10 min

Students use the **Notice and Wonder** routine to share what they notice and wonder about a set of equations involving multiplying by 3 to activate their prior knowledge about how division problems can be represented with multiplication and to consider how to represent a remainder.

*MPS: Pick-up the first Warm-UP Screen from TE WU page & place here, with Annos removed

Activity 1 Fluency

Small Groups | 35 min

Students solve two-step division problems based on real-world situations. They analyze the context of each story problem to determine how to interpret the remainders.

SE Print inset (remove 1 page for single page Activity) | SE Print inset

Synthesis

Whole Class | 10 min

Students review and reflect on different ways to interpret a remainder in a division problem depending on the context.

Lesson Synthesis

Show What You Know

Independent | 5 min

Students demonstrate their understanding by solving a two-step story problem involving division in which the remainder must be interpreted to solve the problem.

Materials: *Show What You Know* PDF

SWYK PDF

Math Language Development

Emergent Bilinguals

Consider using the Math Language Development Resources with the Activity 1, Monitor to support math language acquisition. Cognates Sentence frames and word bank

ELPS 1.E, 2.B, 2.C, 2.D, 2.E, 2.F

Grade X Math Language Development Resources

Pre-Production	Beginning	Intermediate	High Intermediate	Advanced
Students listen to spoken English and respond using their primary languages and gestures.	Students listen to spoken English and speak using their primary languages, gestures, and single words or short phrases.	Students listen to spoken English and speak using short phrases or simple sentences.	Students listen to spoken English and speak using a variety of sentence types.	Students listen to spoken English and speak using longer sentences. Exemplar responses are provided.

Small Groups | 35 min

Activity 1 How Many Teams? Fluency

Purpose: Students analyze story problems to fluently solve two-step division problems and interpret remainders.

Presentation Screens

Launch

Launch Storyboard Art FPO

[L] MLR6: Three Reads ELPS 1.E, 2.F, 3.A, 3.F, 3.G, 3.H

To help build reading fluency, invite students to read the problem 3 times.
- Read 1: Say, "Describe this story without using any numbers."
- Read 2: Say, "Name 1 number and tell me what it means in the story."
- Read 3: Ask, "What other important information is in the story?"

Say, "You will work with your group to complete Problems 1–4."

[A] Accessibility: Executive functioning Invite students to tell their group their plan for how they will solve Problem 1.

Short on time? Consider omitting problem 4.

Monitor

Monitor Storyboard Art FPO

**NOTE:* *The Monitor Storyboard Art must be spec'd by Curriculum and include Asset ID's.*

After students have completed **Problem 2**, refer to the ***Differentiation | Teacher Moves*** table on the following page.

If students need help getting started . . .

- Ask, "How can the context of the story help determine what to do first?"
- Ask, "What steps are needed to solve the problem?"

Connect

Connect Storyboard Art FPO

Use the Think-Pair-Share routine. Ask:

- "What does the remainder represent in Problem 2?"
- "How did you decide what to do with the remainder based on the context of the problem?"

Repeat for Problem 3.
Have students share their responses to Problem 4.

Emergent Bilinguals: As students share, provide sentence frames such as:
- I know the answer makes sense because . . .
- The context of the story problem helped me . . .
- My answer is reasonable because . . . ELPS 1.E, 2.C, 2.E

Key Takeaway: Say, "Sometimes the final calculation in a two-step division story problem results in a remainder. It is necessary to use the context of the story problem to interpret the remainder. Once you have a solution to the story problem, you should revisit the context of the problem to determine if the solution is reasonable."

Student Edition

SE Print inset

SE Print inset

Teacher Presentation Screens

Differentiation | Teacher Moves

Look for students who . . .	For example . . .	Provide support . . .
Almost there Solve one step of the story problem.	35 8 | 280 -24 40 - 40 0 35 teams	**Support:** Ask, "What is the difference between the 8 when used for groups and when used for teams?"
Almost there Solve both steps of the story problem and determine the solution is the final quotient.	35 8 | 280 -24 40 - 40 0 4 8 | 35 -32 3 4 teams with 3 leftover	**Support:** Ask, "Your final quotient has a remainder. How can you use the final quotient and what you know about interpreting remainders to solve the story problem?"
Solve both steps of the story problem and interpret the remainder to determine the solution.	4 teams	**Stretch:** Ask, "How do you know your answer is reasonable?

Whole Class | 10 min

Synthesis

Lesson Takeaway: To fluently solve two-step division story problems you may need to analyze and interpret remainders. There are many ways to interpret a remainder in a division problem depending on the context. In some problems, the remainder may be the solution to the problem.

Lesson Synthesis

Ask, "What are some different ways you have interpreted remainders to solve story problems?"

Record students' responses.

Say, "When using division to fluently solve two-step story problems, sometimes the final calculation results in a remainder. When there is a remainder, it is necessary to use the context of the story problem to interpret the remainder. Interpreting the remainder means thinking about what the remainder represents in the story problems and how it relates to the question being asked. Sometimes you may need to start with the whole number portion of the quotient and add another group to account for the remainder. Other times, the remainder may not be needed to answer the story problem. In some instances, the remainder may be the answer to the problem."

Invite students to refer to the **Summary** during Practice or anytime during the year.

Show What You Know

5.17

There are 208 students in the cafeteria for lunch.

- The students are split equally among 4 grades.
- Each grade shares 6 lunch tables equally.

How many students in each grade would still need a seat after the tables are filled?

Show your thinking. Sample work shown.

```
   52
4 | 208
  -20
  ---
   08
  - 8
  ---
    0
```

```
    8
6 | 52
  -48
  ---
    4
```

answer: 4 students

I can . . .

Solve two-step division problems and interpret remainders.

Differentiation Use after Lesson 17

Lesson Goal: Solve two-step division problems that involve remainders.

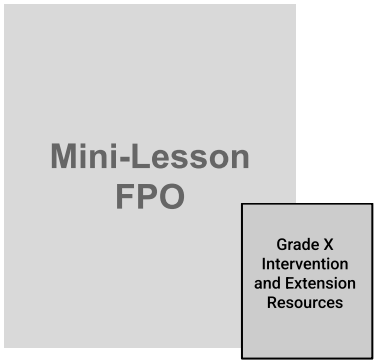
Support

Provide targeted intervention for students by using these resources.

If students solve one step of the story problem:

Respond:

- Assign the *Using Multiplication and Addition to Solve Division Problems* Mini-Lesson. | 15 min
- Revisit Lesson 16.



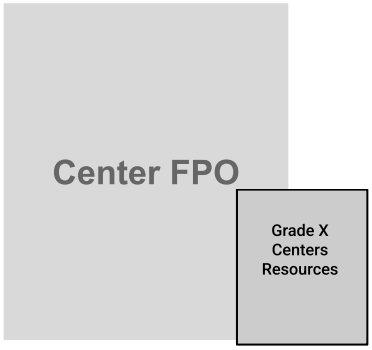
Strengthen

Reinforce students' understanding of the concepts assessed by using these resources.

If students solve both steps of the story problem and determine the solution is the final quotient:

Respond:

- Invite students to play the **Center.** | 15 min
  Compare: Multi-Digit Operations
- Have students complete **Lesson 17 Practice.** | 15 min
- **Item Bank**



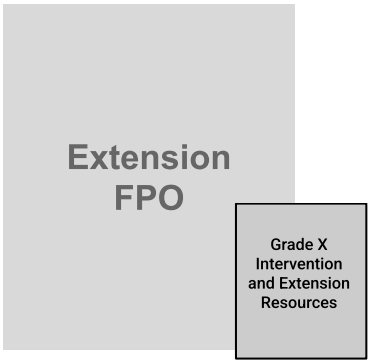
Stretch

Challenge students and extend their learning with these resources.

If students solve both steps of the story problem and determine the solution is the remainder:

Respond:

- Invite students to explore the **Sub-Unit 3 Extension Activities.** | 15 min
- Revisit Activity 1 and invite students to respond to the **Stretch** question from the *Differentiation: Teacher Moves* table. | 5 min

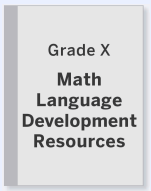


Support, strengthen, and **stretch** learning by assigning these digital resources that adjust to each student's current level of skill and understanding.
Boost Personalized Practice **Fluency Practice** **Math Adventures**

Math Language Development

Use the ***Math Language Development Resources*** for further language support with all your students, including those building English proficiency.

- English/Spanish cognates
- English/Spanish Glossary, e.g., *remainder / resto*
- Frayer Model templates
- Math Language Routine display structures, e.g., **MLR6: Three Reads**
- Vocabulary routines



Professional Learning

How have you seen each student grow as a mathematician throughout the work from this lesson? How can you continue to support them?