

Objectives

- Demonstrate an understanding of the Zero Property of Subtraction
- Subtract 2- and 3-digit numbers with renaming
- Estimate the difference by rounding to the place with the greatest value
- Solve a missing addend equation

Teacher Materials

- Chart 5: *Problem-Solving Plan*
- Place Value Kit
- Multiplication flashcards: 3 as a factor, and previously reviewed multiplication facts

Student Materials

- Place Value Mats
- Place Value Kits
- Number Cards: 0–9

Practice and Review

Even and odd numbers

Write numbers with 6 or fewer digits for display. Choose students to tell whether the numbers are *even* or *odd*. Direct each student to explain the reason for his answer.

Multiplication facts: 3 as a factor

Use the multiplication flashcards and Number Cards 0–9 to review facts with 3 as a factor and multiplication facts reviewed in previous lessons.

Teach for Understanding

Demonstrate an understanding of the Zero Property of Subtraction

There were 7 shrimp on the platter. Captain Bailey and the crew ate none of the shrimp. How many shrimp were left on the platter?

- ▶ **What is the question asking you to find?** *how many shrimp were left on the platter*
- ▶ **What information is given?** *There were 7 shrimp; no shrimp were eaten.*
- ▶ **What operation do you use?** *subtraction*
- ▶ **What is your equation?** $7 - 0 = \underline{\quad}$
Write the equation for display.
- ▶ **What is $7 - 0$?** *7*
- ▶ **What do you know about the answer when you subtract zero?** *The answer is the same as the number you are subtracting from.*
- ▶ **What property of subtraction proves or tells us this?** *Zero Property of Subtraction*
- ▶ **What does the Zero Property of Subtraction tell us?** *When 0 is subtracted from a number, the answer will be that same number.*

Subtract 2- and 3-digit numbers with renaming

1. Display the *Problem-Solving Plan* chart. Distribute the Place Value Mats and Place Value Kits.

Mendoza and his crew went deep-sea fishing. They caught 346 fish on Monday and 238 fish on Tuesday. How many more fish did they catch on Monday than on Tuesday?

- ▶ **What is the question asking you to find?** *how many more fish were caught on Monday than on Tuesday*
 - ▶ **What information is given?** *346 fish were caught on Monday, and 238 fish were caught on Tuesday.*
 - ▶ **What operation do you use? Why?** *Subtraction; elicit that you are comparing the amount of fish caught on Monday with the amount of fish caught on Tuesday by finding the difference.*
 - ▶ **What is your equation?** $346 - 238 = \underline{\quad}$
2. Write the equation for display and then write it in vertical form.
 - ▶ **What number should you show on your mat?** *346*
 - ▶ **How do you show 346?** *3 hundreds, 4 tens, and 6 ones*
 3. Place 3 hundreds, 4 tens, and 6 ones in a Place Value frame drawn for display. Direct the students to do the same on their mats.
 - ▶ **How do you find the difference between the 2 amounts of fish caught?** *Subtract or remove 238.*
 - ▶ **Which place do you subtract first?** *Ones*
 - ▶ **Can you remove 8 ones from your mat?** *no* **What must you do?** *Rename 1 ten as 10 ones.*
Direct each student to remove 1 ten from his mat and rename it as 10 ones. Demonstrate each step.
 - ▶ **How many ones do you have now?** *16*
Instruct each student to subtract 8 ones.
 - ▶ **What is $16 \text{ ones} - 8 \text{ ones}$?** *8 ones* Write 8 in the Ones place.
 - ▶ **Which place do you subtract next?** *Tens*
Direct each student to subtract the tens.
 - ▶ **What is $3 \text{ tens} - 3 \text{ tens}$?** *0 tens* Write 0 in the Tens place. Instruct each student to subtract the hundreds.
 - ▶ **What is $3 \text{ hundreds} - 2 \text{ hundreds}$?** *1 hundred* Write 1 in the Hundreds place of the problem.
 - ▶ **How many more fish did Mendoza's crew catch on Monday than on Tuesday?** *108 fish*
 4. Complete the equation and label the answer.
 - ▶ **Does the answer "108 fish" make sense? Why do you think so?** *Accept any reasonable answer.*
 5. Follow a similar procedure for $236 - 145 = \underline{\quad}$, $78 - 29 = \underline{\quad}$, and $620 - 459 = \underline{\quad}$.
 6. Write $302 - 154 = \underline{\quad}$ vertically for display. Place 3 hundreds and 2 ones in the Place Value frame. Direct the students to do the same on their mats. Demonstrate each step.
 - ▶ **Which place do you subtract first?** *Ones*
 - ▶ **Can you subtract 4 ones from 2 ones?** *no* **What must you do?** *Rename 1 ten as 10 ones.*
 - ▶ **Do you have any tens to rename?** *no* **How can you get some tens?** *Rename 1 hundred as 10 tens.*
Guide the students in renaming 1 hundred as 10 tens.
 - ▶ **Now how many hundreds do you have?** *2 tens? 10*
Cross out the 3 and write 2 above the Hundreds place of the problem; then cross out the 0 and write 10 above the Tens place.
 - ▶ **What can you do now?** *Rename 1 ten as 10 ones.*
Direct the students to rename 1 ten as 10 ones. Cross out the 10 and write 9 above the Tens place of the problem; then cross out the 2 and write 12 above the Ones place.
 - ▶ **Now can you subtract the ones?** *yes* Instruct each student to subtract 8 ones.

2- & 3-Digit Subtraction

Name _____

Round to the place with the greatest value. Circle the estimated answer. Solve.

1. **Estimate**

$$\begin{array}{r} 40 \\ 50 \\ 60 \\ \hline \end{array} \begin{array}{r} 6\ 14 \\ 74 \\ -28 \\ \hline 46 \end{array}$$

2. **Estimate**

$$\begin{array}{r} 200 \\ 300 \\ 400 \\ \hline \end{array} \begin{array}{r} 4\ 12 \\ 529 \\ -146 \\ \hline 383 \end{array}$$

3. **Estimate**

$$\begin{array}{r} 300 \\ 400 \\ 500 \\ \hline \end{array} \begin{array}{r} 7\ 4\ 15 \\ 855 \\ -489 \\ \hline 366 \end{array}$$

Write the difference.

$$\begin{array}{r} 9 \\ 5\ 10\ 18 \\ 608 \\ -259 \\ \hline 349 \end{array}$$

4. $\begin{array}{r} 9 \\ 6\ 10\ 15 \\ 705 \\ -167 \\ \hline 538 \end{array}$

5. $\begin{array}{r} 9 \\ 3\ 10\ 11 \\ 401 \\ -96 \\ \hline 305 \end{array}$

6. $\begin{array}{r} 9 \\ 7\ 10\ 14 \\ 804 \\ -348 \\ \hline 456 \end{array}$

7. $\begin{array}{r} 11 \\ 4\ 12\ 13 \\ 523 \\ -476 \\ \hline 47 \end{array}$

8. $\begin{array}{r} 7\ 16 \\ 86 \\ -48 \\ \hline 38 \end{array}$

9. $\begin{array}{r} 1\ 14 \\ 247 \\ -67 \\ \hline 180 \end{array}$

10. $\begin{array}{r} 4\ 14 \\ 354 \\ -107 \\ \hline 247 \end{array}$

11. $\begin{array}{r} 7\ 4\ 16 \\ 856 \\ -487 \\ \hline 369 \end{array}$

12. $\begin{array}{r} 6\ 12 \\ 72 \\ -29 \\ \hline 43 \end{array}$

13. $\begin{array}{r} 9 \\ 5\ 10\ 15 \\ 605 \\ -38 \\ \hline 567 \end{array}$

Write the related subtraction equation. Write the value for n .

14. $n + 26 = 70$
 $70 - 26 = 44$
 $n = 44$

15. $186 + n = 375$
 $375 - 186 = 189$
 $n = 189$

16. $498 + n = 616$
 $616 - 498 = 118$
 $n = 118$

Solve and label.

17. The crew of the shrimp boat caught 172 pounds of shrimp yesterday. Today they brought in 208 pounds of shrimp. How many more pounds did they bring in today than yesterday?

$$208 - 172 = 36 \text{ pounds}$$



Math 4 Worktext, Chapter 2, Lesson 18

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- What is $12 - 4$? 8 Write 8 in the Ones place of the problem.
 - Which place do you subtract next? Tens How many tens do you have? 9 How many must you subtract? 5 Direct each student to subtract the tens.
 - How many tens are left? 4 Write 4 in the Tens place.
 - Which place should you subtract next? Hundreds Instruct each student to subtract the hundreds.
 - How many are left? 1 Write 1 in the Hundreds place.
 - What does $302 - 154$ equal? 148
7. Repeat the procedure for $408 - 249 = 159$, $206 - 199 = 7$, and $103 - 87 = 16$.

Estimate the difference by rounding

- Remind the students that estimating helps you to find out approximately what your answer will be and that rounding is a way to estimate.
- Write this problem for display. Write the estimates and answer as students answer the following questions. (*Note:* You may want to draw number lines similar to the ones on the Vertical Number Lines transparency used in Lesson 15 to aid the students in rounding.)

$$\begin{array}{r} 800 \leftarrow 783 \\ -400 \leftarrow -416 \\ \hline 400 \quad 367 \end{array}$$
 - Is 783 nearer to 700 or 800? 800
 - Is 416 nearer to 400 or 500? 400
 - What is the estimated difference for $783 - 416$? 400
- Choose a student to solve the problem.
 - What is the exact answer? 367

Estimate by rounding to the place with the greatest value. Solve.

1. **Estimate**

$$\begin{array}{r} 900 \\ -300 \\ \hline 600 \end{array} \begin{array}{r} 10 \\ 8\ 0\ 16 \\ 916 \\ -347 \\ \hline 569 \end{array}$$

2. **Estimate**

$$\begin{array}{r} 70 \\ -40 \\ \hline 30 \end{array} \begin{array}{r} 6\ 12 \\ 72 \\ -39 \\ \hline 33 \end{array}$$

3. **Estimate**

$$\begin{array}{r} 600 \\ -300 \\ \hline 300 \end{array} \begin{array}{r} 9 \\ 5\ 10\ 15 \\ 605 \\ -296 \\ \hline 309 \end{array}$$

Write the difference.

4. $\begin{array}{r} 2\ 14 \\ 634 \\ -208 \\ \hline 426 \end{array}$

5. $\begin{array}{r} 8\ 10\ 12 \\ 902 \\ -456 \\ \hline 446 \end{array}$

6. $\begin{array}{r} 4\ 15 \\ 55 \\ -18 \\ \hline 37 \end{array}$

7. $\begin{array}{r} 9 \\ 7\ 10\ 16 \\ 806 \\ -378 \\ \hline 428 \end{array}$

8. $\begin{array}{r} 15 \\ 0\ 16\ 15 \\ 165 \\ -96 \\ \hline 69 \end{array}$

9. $\begin{array}{r} 9 \\ 6\ 10\ 18 \\ 708 \\ -519 \\ \hline 189 \end{array}$

Write the related subtraction equation. Write the value for p .

10. $428 + p = 703$
 $703 - 428 = 275$
 $p = 275$

11. $258 + p = 850$
 $850 - 258 = 592$
 $p = 592$

12. $59 + p = 90$
 $90 - 59 = 31$
 $p = 31$

Add.

13. $\begin{array}{r} 1\ 1\ 1 \\ 56,284 \\ +27,096 \\ \hline 83,380 \end{array}$

14. $\begin{array}{r} 1\ 1\ 1 \\ \$49.86 \\ +\$57.29 \\ \hline \$107.15 \end{array}$

15. $\begin{array}{r} 1\ 1\ 1 \\ 6,082 \\ 2,926 \\ +4,258 \\ \hline 13,266 \end{array}$

16. $\begin{array}{r} 1\ 1\ 1 \\ \$76.24 \\ \$54.58 \\ +\$26.32 \\ \hline \$157.14 \end{array}$

Solve and label.

The Lander and Turley families are camping in the mountains of Tennessee.

17. The Landers traveled 658 miles to the campground. The Turleys traveled 395 miles. How many miles did both families travel in all?

$$658 + 395 = 1,053 \text{ miles}$$

18. How many more miles did the Landers travel than the Turleys?

$$658 - 395 = 263 \text{ miles}$$



Complete **Daily Review** on page 58.

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- Is 367 a reasonable answer? Why do you think so? Answers will vary, but elicit that when you are adding hundreds a difference of 33 is considered reasonable.

4. Repeat the procedure using these problems.

$$\begin{array}{r} 80 \leftarrow 79 \\ -30 \leftarrow -25 \\ \hline 50 \quad 54 \end{array} \quad \begin{array}{r} 900 \leftarrow 935 \\ -600 \leftarrow -596 \\ \hline 300 \quad 339 \end{array}$$

Solve a missing addend equation

- Write $s + 322 = 467$ for display.
 - What related subtraction equation can you solve to find the value of the variable s ? $467 - 322 = s$ Write the equation for display.
- Explain that this related subtraction equation can be used to find the value of s because you have an unknown part, s , plus a known part, 322, equaling the total or whole amount, 467; therefore, the whole amount minus the known part equals the unknown part.
- Instruct the students to write the related subtraction equation vertically on paper and solve it.
 - What is the value of s ? 145
- Erase s in the equation and write 145 in its place. Explain that you can check your answer by substituting 145 for s in the original equation. Guide the students in checking the addition in the equation.
- Follow the procedure for $m + 126 = 405$ $405 - 126 = m$, $m = 279$ and $435 + y = 592$ $592 - 435 = y$, $y = 157$.



Worktext pages 43–44, 58 (e)