

NAME: _____

Purpose

To find a difference using counting strategies or subtraction

Math Words

difference The difference between two numbers can be found by subtracting.

find the difference To find the difference between 15 and 10, you can count the units from 10 up to 15 on the number line.



benchmark numbers Numbers that are easy to use, like 10, 50, 100, and 200, are benchmark numbers.

Starter Problem

Alisha read to page 198 the first week. Then, she read to page 304 the second week. How many pages did she read the second week? _____

NAME: _____

Starter Problem

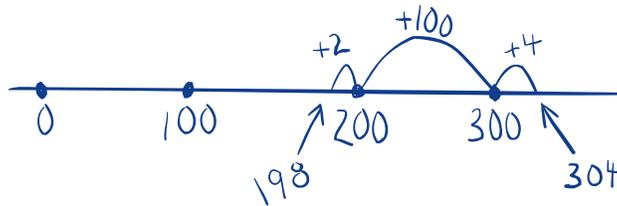
Alisha read to page 198 the first week. Then, she read to page 304 the second week. How many pages did she read the second week? _____

Student Thinking



Yolanda

To find the difference, I started at 198 and added on to make 304. It's 106 pages. I can subtract to check.



Raymond

I subtracted to find the difference.



$$\begin{array}{r} 304 \\ -198 \\ \hline 106 \end{array}$$

Things to Remember

- * _____
- * _____



NAME: _____

Our Turn

Solve each problem. Write the answer.

1. Kelly's team made 197 paper flowers in the morning and the rest in the afternoon. At the end of the day, they had 405 flowers. How many flowers did they make in the afternoon? _____

2. Sarah made a chain with 86 paper clips. Then, her friend put on more to make a chain with 212 paper clips. How many did the friend put on? _____

3.
$$\begin{array}{r} 302 \\ - 185 \\ \hline \end{array}$$

NAME: _____

My Turn

Solve each problem. Write the answer.

1. J.R. had 280 pennies last year. Now, he has 402 pennies.
How many pennies did he get this year? _____

2. John made a chain with 77 paper clips. Then, his friends
put on more to make a chain with 315 paper clips. How many
did the friends put on? _____

3.
$$\begin{array}{r} 502 \\ - 175 \\ \hline \end{array}$$

NAME: _____

Multiple Choice Mini Lesson

Fill in the circle next to the answer you choose.

1. Alice baked 36 cookies. She needs 100 for the bake sale. How many cookies does she still need to bake?

136 64 74

2. Allen had 280 trading cards last year. Now he has 410. How many more trading cards did he get this year?

410 130 270



NAME: _____

Multiple Choice Mini Lesson

Fill in the circle next to the answer you choose.

1. Alice baked 36 cookies. She needs 100 for the bake sale. How many cookies does she still need to bake?

136 64 74

2. Allen had 280 trading cards last year. Now he has 410. How many more trading cards did he get this year?

410 130 270

NAME:

Writing Task Mini Lesson

Explain how you know that the difference between 405 and 296 is 109.

Draw a picture on the back to show how you know.



NAME:

Writing Task Mini Lesson

Explain how you know that the difference between 405 and 296 is 109.

Draw a picture on the back to show how you know.

Finding the Difference

Lesson at a Glance

Prior Learning Needed

- Use a number line
- Use mental math and basic addition facts
- Subtract using an algorithm

Lesson Preparation

- Study Lesson Foundation
- Review Teaching Guide and Student Pages
- Prepare stapled packet of Student Pages 1–4 for each student
- Copy and cut in half Student Pages 5 and 6
- Post *Discussion Builders* poster

Mathematical goals

- * Find the difference between two numbers by counting up and by subtracting
- * Regroup across 0 when using the subtraction algorithm

Mathematical language and reasoning goals

- * Recognize and solve word problems that require finding the difference
- * Count up in easy steps using benchmarks, such as multiples of 10

LESSON ROADMAP			MATERIALS
CORE LESSON: DAY 1	GROUPING	TIME	
Opener <i>Discussion Builders</i> Purpose Math Words Starter Problem	 	 	<ul style="list-style-type: none"> ○ <i>Discussion Builders</i> poster ○ Projector (optional) ○ Student Page 1 ○ Student Page 2 ○ Teaching Guide ○ Paper for drawing number lines, rulers (suggested)
Discussion Student Thinking Things to Remember Reflection	 	 	
CORE LESSON: DAY 2			
Review and Practice Review Day 1 Lesson Our Turn My Turn	  	  	
MINI LESSONS: 2–3 DAYS LATER			
Assess and Reinforce Multiple Choice Mini Lesson Writing Task Mini Lesson	 	 	
			<ul style="list-style-type: none"> ○ Clipboard Prompts, page 37 ○ Student Page 2 (completed day 1) ○ Student Pages 3 and 4 ○ Teaching Guide ○ Paper for drawing number lines, rulers (suggested)
			<ul style="list-style-type: none"> ○ Student Pages 5 and 6 ○ Teaching Guide ○ Paper for drawing number lines, rulers (suggested)

Lesson Foundation

LESSON SNAPSHOT

Starter Problem

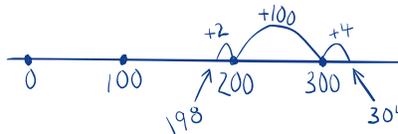
Alisha read to page 198 the first week. Then, she read to page 304 the second week. How many pages did she read the second week? _____

Student Thinking



Yolanda

To find the difference, I started at 198 and added on to make 304. It's 106 pages. I can subtract to check.



Raymond

I subtracted to find the difference.



$$\begin{array}{r} 304 \\ -198 \\ \hline 196 \end{array}$$

MATHEMATICAL INSIGHTS & TEACHING TIPS

Adding On to Find the Difference

Yolanda added on using a number line to find the difference between 198 and 304. She started at 198 and then added 2 more to get to 200, 100 more to get to 300, and 4 more to get to 304. The benchmark numbers 200 and 300 helped her add on in easy steps. She understood that $2 + 100 + 4$ is equal to 106, the number of pages Alisha read the second week. Many students develop a mental image of a number line to help them visualize the adding-on process. This strategy can be used to find exact answers and estimates.

Oops!

Raymond realized that he could subtract to find the difference, but he regrouped across 0 incorrectly. He also didn't notice that his answer was unreasonable.

MATHEMATICAL INSIGHTS & TEACHING TIPS (CONTINUED)

Finding the Difference or Missing Addend

This problem can be viewed either as a difference ($304 - 198 = \underline{\quad}$) or a missing addend problem ($198 + \underline{\quad} = 304$). In other words, one way to think about the problem is to find the difference between reading 304 pages and 198 pages. Or you can think about starting with 198 pages (the first addend) and reading some more (the missing addend) to get to 304 pages (the total). Yolanda added on to find the difference, or missing addend, a method that follows the structure of the problem situation. Both Yolanda and Raymond realized that subtraction could be used to find the difference between 304 and 198. However, Raymond made a regrouping error when subtracting.



Take-away, the most common model for subtraction and the one usually associated with the standard algorithm, does not fit well with this problem. Nothing is being taken away. Most students will need explicit instruction to help them relate a difference or missing addend situation with subtraction.

Regrouping Across 0

Students often make errors when using the standard subtraction algorithm and regrouping with a number that has a 0. Raymond knew the sequence of steps for regrouping but skipped over the tens place, which has 0 tens. Although the long-term goal is to automatically carry out the steps, during the learning phase Raymond should think about the values of the digits and the meaning of regrouping. Regrouping is a special form of breaking numbers apart; we take a unit such as 1 hundred and break it into 10 units of ten. In fact, some students with a robust understanding of place value are able to think of the 30 in 304 as representing 30 tens, which can be regrouped into 29 tens and 1 more ten. Regardless of the method and skill, it is important for all students to pause and make sense of an answer and self-correct if necessary.

MATHEMATICAL DISCUSSION SUPPORT

Students commonly associate subtraction with taking something away. However, it is also important for them to associate subtraction with comparing two numbers to find a difference and with finding how much is added on to one number to get a total (missing addend). Ask students to verbalize the situation in the word problem in different ways.



Promote flexibility in the way students think about and talk about subtraction. Use terms and phrases such as “compare,” “find the difference,” “subtract,” and “add on to find the difference” when you talk about subtraction problems. This provides students a variety of words and ideas to use when they deal with subtraction.

**Core Lesson
Day 1**

Opener

Review Discussion Builders

Read the poster. Suggest a section to focus on today:
Presenting Our Ideas, Adding to Others' Ideas, or Asking More Questions.

Purpose

Distribute stapled packets of Student Pages 1–4. Project an image of page 1 (optional).

Call on a student to read the purpose.

Math Words

Point to and say the first math word.

Ask students to repeat it aloud or silently.

Read the sentence containing the word.

Give an example using objects or drawings.

Repeat for the other math words.

Starter Problem

Read the Starter Problem. Call on a student to restate it in his/her own words.



Please use what you already know to help you solve this problem on your own. This will prepare you to talk about the math and how to avoid pitfalls in our discussion later on.

I'll walk around and make notes about things we need to discuss.

Look out for oops, or pitfalls! 

Look at your work. It's easy to have an oops, or pitfall, in this type of problem. You might also have made a pitfall if your answer is not between 100 and 110.

Don't worry. Next we'll discuss how two imaginary students solved this problem. One has a pitfall! You may keep your solution private, but bring up your ideas in the discussion.

STUDENT PAGE 1

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benchmark numbers Numbers that are easy to use, like 10, 50, 100, and 200, are benchmark numbers.

Starter Problem

Alisha read to page 198 the first week. Then, she read to page 304 the second week. How many pages did she read the second week? _____

Discussion

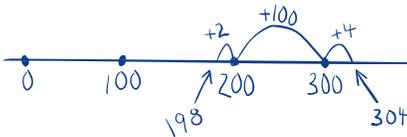
Student Thinking

STUDENT PAGE 2



Yolanda

To find the difference, I started at 198 and added on to make 304. It's 106 pages. I can subtract to check.



OK

Ask students to refer to page 2. **Read** the statement marked OK.

Explain that this statement is about the same problem students worked on earlier.



We can learn a lot about the math by studying what this student did.

Read each sentence silently and look at the drawing. Think about what they mean. 

Now talk with a partner about what each sentence and each part of the drawing means.

Listen in, ask questions, and observe. **Note** potential contributions for the discussion.



Who can come up to explain how Yolanda showed how many pages were read the first week? How did she show the total number of pages read in two weeks?

Why could she add on from 198 to 304 to solve the problem? Why did she make hops of 2, 100, and 4 to find how many pages from 198 to 304? If she made just one hop, how long would it be? What other hops could she have made to find the number of pages between 198 and 304?

Will Yolanda get the same answer if she subtracts? Explain why.

Talk to your neighbor about what Yolanda meant by "find the difference." 

How does the number line picture show the difference between 304 and 198?

How could you use Yolanda's method to subtract $402 - 299$?

Call on students to state things to remember about solving problems like this.

Start a Things to Remember list on the board.



MORE DAY 1

**Core Lesson
Day 1
(continued)**

Discussion

Student Thinking, continued

STUDENT PAGE 2



I subtracted to find the difference.

$$\begin{array}{r} 304 \\ - 198 \\ \hline 196 \end{array}$$

Oops!

Read the statement marked Oops. Remind students that this is a common pitfall.



Raymond made a pitfall when he regrouped across the 0 incorrectly. Talk with your neighbor about why this is incorrect. 

Who would like to come up and explain how Raymond regrouped incorrectly? Explain why his answer should be closer to 100 than 200.

Why is it easy to have a pitfall in this problem?

Who can show a correct way to subtract? How could we check by adding?

Write the following problem on the board. Ask students to solve it at least two different ways. Remind them to look out for pitfalls. Call on students to explain why their answer makes sense.

$$\begin{array}{r} 105 \\ - 98 \\ \hline \end{array}$$

Things to Remember

Call on students to add to the Things to Remember list on the board. Read the list.

Help students summarize and record two important Things to Remember.

Things to Remember List (sample)

1. Adding on can help you find the difference between two numbers.
2. Check your answer when there are zeros in subtraction problems, especially if you need to regroup.

Reflection

Ask students to reflect on the discussion process using one of the sample prompts.

Reflection Prompts (sample)

- Name a *Discussion Builder* that we used today. How did it help the discussion?
- What *Discussion Builder* could we use next time to make the discussion even better?
- What did someone do or say today that helped you understand the math?

Review and Practice

Review

Ask students to review page 2 to jog their memory.

Read the statement marked OK. Call on a student to explain how the problem was solved.

Read the statement marked Oops. Call on a student to explain why it is incorrect or doesn't make sense.

Call on two or three students to read an item on their Things to Remember list.

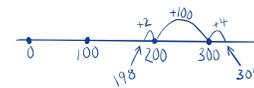
STUDENT PAGE 2



Yolanda

To find the difference, I started at 198 and added on to make 304. It's 106 pages. I can subtract to check.

OK



Raymond

I subtracted to find the difference.

Oops!

$$\begin{array}{r} 304 \\ -198 \\ \hline 196 \end{array}$$

Our Turn

Ask students to refer to page 3.

Use the procedure below and the Clipboard Prompts to discuss students' solutions. Discuss the problems one at a time.

Read the problem.

Ask students to work with a neighbor to solve it.

Discuss one or two students' solutions.

Answer 1. 208
Key 2. 126
3. 117

STUDENT PAGE 3

Our Turn

Solve each problem. Write the answer.

- Kelly's team made 197 paper flowers in the morning and the rest in the afternoon. At the end of the day, they had 405 flowers. How many flowers did they make in the afternoon? _____
- Sarah made a chain with 86 paper clips. Then, her friend put on more to make a chain with 212 paper clips. How many did the friend put on? _____

$$\begin{array}{r} 302 \\ -185 \\ \hline \end{array}$$

My Turn

Ask students to solve the problems on page 4. Remind them to watch out for pitfalls!

After allowing time to work, read the answers. Have students mark and revise their papers using ink or crayon.

Answer 1. 122
Key 2. 238
3. 327

STUDENT PAGE 4

My Turn

Solve each problem. Write the answer.

- J.R. had 280 pennies last year. Now, he has 402 pennies. How many pennies did he get this year? _____
- John made a chain with 77 paper clips. Then, his friends put on more to make a chain with 315 paper clips. How many did the friends put on? _____

$$\begin{array}{r} 502 \\ -175 \\ \hline \end{array}$$

Mini Lessons
(2–3 Days Later)

Assess and Reinforce

Multiple Choice Mini Lesson

Distribute Student Page 5.

Problem 1



Please read problem 1.

Talk with your neighbor about which choices don't make sense. 

How could you prove that 64 is the missing number?



Suggest students count up using a number line or benchmarks like 40 and 100 to find the difference.

Problem 2



Read the problem and find the correct choice. 

Which response is correct? Explain why.

Is it easier to subtract on paper or count up on a number line for this problem? Explain.

STUDENT PAGE 5

Multiple Choice Mini Lesson

Fill in the circle next to the answer you choose.

1. Alice baked 36 cookies. She needs 100 for the bake sale. How many cookies does she still need to bake?

- 136 64 74

2. Allen had 280 trading cards last year. Now he has 410. How many more trading cards did he get this year?

- 410 130 270

Writing Task Mini Lesson

Distribute Student Page 6.

Ask a student to read the task. Call on students to respond with their ideas.

Jot the ideas on the board.

Write an explanation together using their ideas. Read it aloud.

Ask students to write an explanation on their page.

STUDENT PAGE 6

Writing Task Mini Lesson

Explain how you know that the difference between 405 and 296 is 109. Draw a picture on the back to show how you know.

Sample Explanation: I can use 300 and 400 as benchmarks. I start at 296 and count up to 300. Then I count to 400. Then I count to 405. It's $4 + 100 + 5$, or 109.



Mathematical Discussion Support

Ask students to explain the special meaning of the term "difference" in this problem and how the term might be used another way outside of math class. For example, we might say the difference between two shirts is their color.