

NAME: _____

Purpose

To add a few more to a number

Math Words

add on

I can start with 28 shells and add on 2 more to make 30.

sum

When you add 8 and 5, you get 13 as the sum.

Starter Problem

Think about the meaning. Solve.

$$68 + 7 = \underline{\quad}$$

NAME: _____

Starter Problem

Think about the meaning. Solve.

$$68 + 7 = \underline{\quad}$$

Student Thinking



Katie

I added 7 in my head using easy steps. 68 and 2 more made 70. Then 5 more made 75. I could add on paper too.



$$68 + 7 = \underline{75}$$



Sam

I just lined them up and added. It's 138.



$$\begin{array}{r} 68 \\ + 7 \\ \hline 138 \end{array}$$

Things to Remember

- * _____
- _____
- * _____
- _____



NAME: _____

Our Turn

Write the sum for each problem.

1. $45 + 8 =$ _____

2. $59 + 3 =$ _____

3. $4 + 60 =$ _____

NAME: _____

My Turn

Write the sum for each problem.

1. $48 + 6 =$ _____

2. $70 + 5 =$ _____

3. $8 + 39 =$ _____

NAME: _____

Multiple Choice Mini Lesson

Fill in the circle next to the answer you choose.

1. $63 + 8 =$ _____

 143 61 71

2. $59 + 6 =$ _____

 55 65 119

NAME: _____

Multiple Choice Mini Lesson

Fill in the circle next to the answer you choose.

1. $63 + 8 =$ _____

 143 61 71

2. $59 + 6 =$ _____

 55 65 119

NAME: _____

Writing Task Mini Lesson

Explain how to add $36 + 7$ in easy steps. You may draw on this number line to help you explain.



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NAME: _____

Writing Task Mini Lesson

Explain how to add $36 + 7$ in easy steps. You may draw on this number line to help you explain.



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Add a Few

Lesson at a Glance

Prior Learning Needed

- Use a number line
- Add 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

- * Increase a number by a specific amount
- * Count forward from one decade to the next

Mathematical language and reasoning goals

- * Use a mental number line to add
- * Count up in easy steps using benchmarks

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 ○ Place value materials (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"> ○ Student Pages 5 and 6 ○ Teaching Guide ○ Base ten blocks, beans or counters, copies of number lines (suggested)

Lesson Foundation

LESSON SNAPSHOT

Starter Problem

Think about the meaning. Solve.

$$68 + 7 = \underline{\quad}$$

Student Thinking



Katie

I added 7 in my head using easy steps. 68 and 2 more made 70. Then 5 more made 75. I could add on paper too.



$$68 + 7 = \underline{75}$$



Sam

I just lined them up and added. It's 138.



$$\begin{array}{r} 68 \\ + 7 \\ \hline 138 \end{array}$$

MATHEMATICAL INSIGHTS & TEACHING TIPS

Adding Using a Mental Number Line

Katie thought of a number line in her head to visualize adding $68 + 7$. She added on 2 units to 68 to get to 70. Then, she added on 5 more units to get to 75. So, $68 + 7$ (or $68 + 2 + 5$) equals 75. Notice that she added on in easy steps, taking advantage of the benchmark number 70, which is a multiple of 10.

She also could have added $68 + 1 + 6$. In fact, she could have used hops for any combination of 7, such as $5 + 2$, $4 + 3$, or $3 + 3 + 1$, because 7 more than 68 is always 75. Since the addition operation is commutative, the order of the hops doesn't matter. So, she could have made a hop for 5, then a hop for 2, and still have gotten the sum of 75. A mental number line is a powerful model that helps students visualize addition whether they are computing with whole numbers, fractions, or decimals.

Oops!

Sam used the addition algorithm to add 68 and 7, but when he wrote down the numbers, he lined them up beginning with the digits on the left instead of the right.

MATHEMATICAL INSIGHTS & TEACHING TIPS (CONTINUED)



Katie's number line shows a long hop for 68 and two little short hops for +2 and +5. Encourage students to make the hops somewhat proportional to the size of the numbers, but do not require them to be exact in their drawing. In this lesson, the drawing is used as a tool to help students visualize and support their reasoning.

Place Value and Addition Algorithm Pitfalls

Sam used the traditional addition algorithm to add 68 and 7. However, he lined up the digits beginning on the left side rather than the right so that digits with different place values were added together. In other words, he mistakenly added 70, not 7, by placing the 7 under the 6 (tens) instead of under the 8 (ones).

Gaining Facility with Both Mental and Paper-and-Pencil Methods

Katie solved the problem mentally, and she said she could have added on paper too. Sam used a paper-and-pencil algorithm but did it incorrectly. Sam also failed to use number sense to realize that 138 is not a reasonable sum when adding 68 and 7. Students should gain facility with both methods and monitor how reasonable their answers are, regardless of the method they choose. Mental math is an efficient way to calculate many problems and is often used to check if an answer makes sense. Paper-and-pencil algorithms are helpful in more complicated multidigit computation.



Students need to be convinced that counting up on a mental number line results in the same sum as when they add using the paper-and-pencil algorithm. Ask them to prove it (perhaps using base ten blocks or expanded notation) and to explain why.

MATHEMATICAL DISCUSSION SUPPORT

Ask students questions that prompt them to use place value ideas and reasoning to explain or show why it doesn't make sense to get 138 as the sum of 68 and 7.

Remind students that Katie used a mental number line to add 7 in easy steps by keeping in mind benchmarks like multiples of 5 and 10. Draw number lines using numbers similar to the ones in the Starter Problem so that the size of each hop is related to benchmark numbers.



Help students understand the relationship between the hops on the number line and what Katie refers to as "easy steps."

Have students trace the long hop that Katie drew, which gets her to 68. Ask what the next hop is. Where does it land? Explain that the hops represent easy steps because they got Katie to benchmark numbers like 70, which are easy to work with.

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 words. Ask students to repeat them aloud or silently.

Read the sentence containing the words.

Give an example using objects or drawings.

Repeat for the other math word.

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 more than 100.

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

Purpose

To add a few more to a number

Math Words

add on I can start with 28 shells and add on 2 more to make 30.

sum When you add 8 and 5, you get 13 as the sum.

Starter Problem


Think about the meaning. Solve.

$$68 + 7 = \underline{\quad}$$

Discussion


Student Thinking


STUDENT PAGE 2



Katie

I added 7 in my head using easy steps. 68 and 2 more made 70. Then 5 more made 75. I could add on paper too.





$68 + 7 = \underline{75}$

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 Katie showed 68 on her number line?

She drew two hops after 68. Who can explain what the two hops stand for?

Who can come up and explain how she showed that 68 plus 7 is 75?

Talk to your neighbor about what Katie meant by "I added using easy steps." 

Why do you think she first added on 2 more in her head and then added 5 more?

Why is it easy to add 5 to 70?

What would happen if Katie started at 68 and made a hop for 1 and a hop for 6 more? Why is that like adding 7 all at once? Would she still get 75?

How could we use Katie's way to add $54 + 8$? What is another way?

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



Sam

I just lined them up and added. It's 138.

$$\begin{array}{r} 68 \\ + 7 \\ \hline 138 \end{array}$$

Oops!

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



Sam made a pitfall when he wrote the 7 under the 6 instead of under the 8. Talk with your neighbor about why his answer doesn't make sense. 

Did Sam line up the 7 with the tens place or the ones place? Explain how he mistakenly added 70 instead of 7.

Write the following problems on the board. Ask students to talk with a neighbor about which two of these problems show how to add $3 + 59$ by lining up the digits with the same place values. Remind students to look out for pitfalls. Call on students to explain.

$$\begin{array}{r} 3 \\ + 59 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ + 59 \\ \hline \end{array}$$

$$\begin{array}{r} 59 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} 59 \\ + 3 \\ \hline \end{array}$$

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. To add on a few in your head, think of a number line and add using easy steps and benchmarks.
2. To add using paper, line up the numbers so you add ones to ones and tens to tens.

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



Katie

I added 7 in my head using easy steps. 68 and 2 more made 70. Then 5 more made 75. I could add on paper too.

OK

$$68 + 7 = 75$$

Diagram showing a number line from 0 to 75. A jump of 2 is shown from 68 to 70, and a jump of 5 is shown from 70 to 75.



Sam

I just lined them up and added. It's 138.

Oops!

$$\begin{array}{r} 68 \\ + 7 \\ \hline 138 \end{array}$$

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. 53
Key 2. 62
3. 64

STUDENT PAGE 3

Our Turn

Write the sum for each problem.

1. $45 + 8 = \underline{\quad}$

2. $59 + 3 = \underline{\quad}$

3. $4 + 60 = \underline{\quad}$

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. 54
Key 2. 75
3. 47

STUDENT PAGE 4

My Turn

Write the sum for each problem.

1. $48 + 6 = \underline{\quad}$

2. $70 + 5 = \underline{\quad}$

3. $8 + 39 = \underline{\quad}$

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. 

What is the correct choice?

Who can show why 71 is the correct choice?



Remind students that they can use benchmark numbers to add on mentally in easy steps. Help them see that 63 and 7 more is equal to 70, plus 1 more is 71.

Problem 2



Read the problem and find the correct choice. 

Which response is correct? Explain why.

How can you use a number line to check that $59 + 6$ is 65? Explain.

STUDENT PAGE 5

Multiple Choice Mini Lesson

Fill in the circle next to the answer you choose.

1. $63 + 8 =$ _____

143

61

71

2. $59 + 6 =$ _____

55

65

119

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 to add $36 + 7$ in easy steps. You may draw on this number line to help you explain.



Sample Explanation: I start with 36 and need to add on 7. First, I draw a hop of 4 to show that I used an easy step to get from 36 to 40. Then, I need to add on 3 more, which is easy. So, I've really added 7. That's 43.



Mathematical Discussion Support

When generating ideas, invite students to use drawings or materials such as number lines or base ten blocks to help them describe their thinking.

Ask students to explain what using easy steps and benchmark numbers mean. Ask them to write or give oral examples of benchmark numbers.