

Using Addition to Subtract

Mathematical Goals

- Understand that one strategy for finding the difference between two numbers is to “think addition”
- Understand a subtraction problem as a missing addend problem
- Use math drawings, diagrams, and equations to represent and solve problems involving addition and subtraction situations

Materials Needed

- ✓ Student pages and markers (two colors per student)
- ✓ Response boards
- ✓ Show Me Cards AS5-1 through AS5-6

Misconceptions Addressed



- Fails to link addition and subtraction as inverse operations

**show me****RESPONSE
BOARDS**

Begin the lesson by using Show Me Cards AS5-1 through AS5-6. During today's show me, students will get practice with selected facts that lend themselves to the "think addition" strategy. Have students answer the following questions on their response boards.

- Write the equation and show me your answer.
 - AS5-1 Eight plus 6 equals what number?
Answer: $8 + 6 = \underline{14}$
 - AS5-2 What number equals 3 plus 11?
Answer: $\underline{14} = 3 + 11$
 - AS5-3 What number equals 14 minus 2?
Answer: $12 = 14 - 2$
 - AS5-4 Thirteen minus 8 equals what number?
Answer: $13 - 8 = \underline{5}$
 - AS5-5 Fourteen equals what number plus 7?
Answer: $14 = \underline{7} + 7$
- Write an equation and show me your answer.
 - AS5-6 Anna had 10 pencils in a cup. She added some more. Now there are 13 pencils in the cup. How many pencils did Anna add?
Answer: $10 + \underline{3} = 13$ or $13 - 10 = \underline{3}$



To finish, have students complete the show me problem.

show me

Gabby had 12 stuffed animals on her bed. Then she put 7 of them on a shelf. How many stuffed animals were left on the bed? Write an equation that goes with this math story.

Possible answer:

$$12 - 7 = ?$$



Student page 25

**teaching strategies**

In this lesson, students will be working on the strategy of "think addition," which can be particularly helpful for harder subtraction facts. Be aware that although the lesson does not formally introduce the fact that addition and subtraction are inverse operations, that concept is the mathematics behind the strategy.

setting the direction



Introducing Today's Lesson

Read the example problem to students.

As you ask questions and have students help you answer them.

setting the direction

There were 15 apples in a bag.

Mr. Gomez put 7 of the apples into the refrigerator.

How many apples were left in the bag?

Student page 25

- Let's use "Ask Myself" questions to get started.

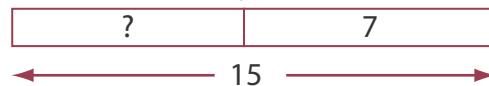
- What is the problem asking? Can I state the problem in my own words?

Answer: If Mr. Gomez put 7 of his 15 apples in the refrigerator, how many apples were left?

- What is being counted or measured?

Answer: Apples

- Can I make a tape diagram to represent the story?



- Have I solved other problems like this one?

Remind students that they sometimes used addition to think about problems where one of the parts is unknown.

- I could use addition now: 7 and what makes 15?

Write "7 + ___ = 15" for students to see.

Record as you think aloud:

- I know that 7 and 7 is 14. "7 + 7 = 14"
- 15 is one more, so this is 7 plus 8. "7 + 8 = 15"

Tell students that this strategy is sometimes called "think addition."

- For this problem, could I have used subtraction to find the answer?

Answer: Yes. One solution for 15 take away 7 is: break the 7 into 5 and 2, subtract the 5 ($15 - 5 = 10$), and then subtract the 2 ($10 - 2 = 8$).

- Today you will solve four problems. For each one, try using the "think addition" strategy. We will talk about whether you think this is a good way to solve these problems.



teaching strategies

The "think addition" strategy is a strong one and frequently easier to use than take-away or counting-down strategies. You will find that students use a variety of "adding up" strategies when they "think addition."



work time



Present the four work time problems one at a time. For each problem, use the same procedure and types of probing questions.

Presenting the Task

Read the problem to students while they follow along on the student page.

Point out the reminders and make sure students understand that they should:

- Draw a tape diagram.
- Use the “think addition” strategy, and write an addition equation.
- Show how they add.
- Write the answer as a sentence.



Ask students to begin the problem working solo.



Tell students to complete their work on the problem with their partners using the partner work ritual.

As you observe students, note any whose work you want to use in the probing for understanding discussion.

Students are engaged in modeling with mathematics as they mathematize real-world situations. Students are also using appropriate tools as they represent quantities with diagrams.

work time

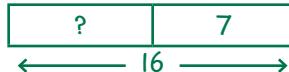
1. Malaya had some toy cars.

Josh gave her 7 more toy cars.

Now she has 16 toy cars.

How many toy cars did Malaya have to start with?

Possible answer:



$$\underline{\quad} + 7 = 16$$

$$10 + 7 = 17$$

$$9 + 7 = 16$$

Malaya had 9 cars to start with.

Draw a tape diagram.

Write an equation.

Show how you add.

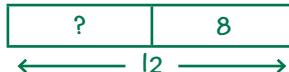
Write your answer as a sentence.

2. Amir had 12 marbles. He gave some to Anthony.

Then he had 8 marbles left.

How many marbles did Amir give to Anthony?

Possible answer:



$$12 - 8 = ?$$

$$8 + ? = 12$$

$$8 + 2 = 10$$

$$10 + 2 = 12$$

Amir gave 4 marbles to Anthony.

Draw a tape diagram.

Write an equation.

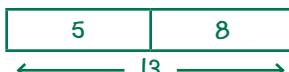
Show how you add.

Write your answer as a sentence.

3. Maria has 13 pencils. 5 are red and the rest are blue.

How many blue pencils does Maria have?

Possible answer:



$$5 + \underline{\quad} = 13$$

$$5 + 5 = 10$$

$$10 + 3 = 13$$

$$5 + 3 = 8$$

Maria has 8 blue pencils.

Draw a tape diagram.

Write an equation.

Show how you add.

Write your answer as a sentence.

Student pages 26–28



probing for understanding

Ask questions similar to these:

- How did you “think addition” to solve this problem?
- How does your tape diagram represent the story?
- How does your equation show how you thought about the problem?
- Did using the “think addition” strategy make the problem easier to solve?

4. Tran had 16 football cards. He gave 9 to his friend.
How many football cards did Tran have left?

Possible answer:

$$\begin{array}{c} 9 \quad ? \\ \hline \leftarrow \qquad \rightarrow \end{array} \quad 16$$

$$9 + \underline{\quad} = 16$$

$$9 + 1 = 10$$

$$9 + 1 + 6 = 16$$

$$9 + 7 = 16$$

Tran had 7 football cards left.

Draw a tape diagram.

Write an equation.

Show how you add.

Write your answer as a sentence.



Student page 29



reflection



Writing the Reflection

Have students respond to the reflection prompt.

Finally, have students fill in the shaded squares in the addition table.

reflection

Something I learned today is ...

Fill in the sums in the shaded squares.

| + | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 3 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 5 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 6 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 7 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 8 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 9 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 10 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |

Student pages 29–30

Using Addition to Subtract

show me

Gabby had 12 stuffed animals on her bed.

Then she put 7 of them on a shelf.

How many stuffed animals were left on the bed?

Write an equation that goes with this math story.



setting the direction

There were 15 apples in a bag.

Mr. Gomez put 7 of the apples into the refrigerator.

How many apples were left in the bag?



 work time

1. Malaya had some toy cars.

Josh gave her 7 more toy cars.

Now she has 16 toy cars.

How many toy cars did Malaya have to start with?

Ⓐ Draw a tape diagram.

Ⓑ Write an equation.

Ⓒ Show how you add.

Ⓓ Write your answer as a sentence.



2. Amir had **12** marbles. He gave some to Anthony.

Then he had **8** marbles left.

How many marbles did Amir give to Anthony?

Ⓐ Draw a tape diagram.

Ⓑ Write an equation.

Ⓒ Show how you add.

Ⓓ Write your answer as a sentence.



3. Maria has 13 pencils. 5 are red and the rest are blue.

How many blue pencils does Maria have?

Ⓐ Draw a tape diagram.

Ⓑ Write an equation.

Ⓒ Show how you add.

Ⓓ Write your answer as a sentence.



4. Tran had **16** football cards. He gave **9** to his friend.
How many football cards did Tran have left?

- Ⓐ Draw a tape diagram.
- Ⓑ Write an equation.
- Ⓒ Show how you add.
- Ⓓ Write your answer as a sentence.



⌚ reflection

Something I learned today is ...

Fill in the sums in the shaded squares.

| + | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----|---|----|----|----|----|----|----|----|----|----|----|
| 0 | | | | | | | | | | | |
| 1 | | | | | | | | | | | 11 |
| 2 | | | | | | | | | | 11 | 12 |
| 3 | | | | | | | | | 11 | 12 | 13 |
| 4 | | | | | | | | 11 | 12 | 13 | 14 |
| 5 | | | | | | | 11 | 12 | 13 | 14 | 15 |
| 6 | | | | | | 11 | 12 | 13 | 14 | 15 | 16 |
| 7 | | | | | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 8 | | | | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 9 | | | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 10 | | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |

Eight plus 6 equals
what number? Write
the equation and show
me your answer.

$$8 + 6$$

Correct Answer

$$8 + 6 = \underline{14}$$

Instructional Strategies

Correct Answer

- Use near doubles:
- Count on from 8.

$8 + 6 = 12$; $12 + 2 = 14$ or
 $8 + 8 = 16$; $16 - 2 = 14$ or

Addition and Subtraction

Show Me Card AS 5-1

Fold
Here

What number equals
3 plus 11? Write the
equation and show
me your answer.

$$= 3 + 11$$

Correct Answer

$$\underline{14} = 3 + 11$$

Instructional Strategies

- Use the known fact $3 + 1$ and then add 10.
- Add $3 + 10$ and then add 1.
- Count on from 3 or 11.

SHOW ME CARD AS 5-2

ADDITION AND SUBTRACTION

Fold
Here

$$\underline{\hspace{2cm}} = 3 + 11$$

What number equals 14 minus 2? Write the equation and show me your answer.

$$\boxed{\quad} = 14 - 2$$

Correct Answer

$$\underline{12} = 14 - 2$$

Instructional Strategies

- Use the known fact $4 - 2$ and then add 10.
- Count back from 14.

SHOW ME CARD AS 5-3

ADDITION AND SUBTRACTION

Fold
Here

Thirteen minus 8 equals
what number? Write
the equation and show
me your answer.

- Use the addition fact $? + 8 = 13$.
- Count back from 13 or count on from 8 to 13.

Instructional Strategies

$$13 - 8 = \underline{5}$$

Correct Answer

$$13 - 8 = ?$$

ADDITION AND SUBTRACTION

SHOW ME CARD AS 5-4

Fold
Here

$$13 - 8 = ?$$

Fourteen equals what number plus 7? Write the equation and show me your answer.

$$14 = ? + 7$$

Correct Answer

Instructional Strategies

- Recognize that 14 is double 7.
- Count on from 7 to 14.

$$14 = 7 + 7$$

Correct Answer

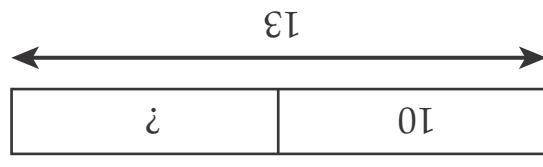
ADDITION AND SUBTRACTION

SHOW ME CARD AS 5-5

Fold
Here

$$14 = ? + 7$$

me your answer.
an equation and show
did Anna add? Write
How many pencils
13 pencils in the cup.
Now there are
more. She added some
a cup. She had 10 pencils
13 pencils in



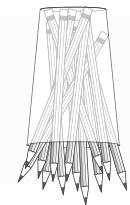
- Use a tape diagram:
- Count on from 10.

Instructional Strategies

$$10 + \underline{3} = 13 \text{ or } 13 - 10 = \underline{3}$$

Correct Answer

ADDITION AND SUBTRACTION



SHOW ME CARD AS 5-6

Fold
Here

