

# Counting On and Back by 1s for Numbers 1 to 20

## Mathematical Goals

- Understand that counting on or counting back gives the same result as “counting all” or “counting all that remain.”
- Understand that relationships like “the number after” or “2 less than” can be expressed as equations.

## Misconceptions Addressed



- Misapplies the counting sequence when counting

## Materials Needed

- ✓ Student pages and markers (two colors per student)
- ✓ Response boards
- ✓ Show Me Cards AS1-1 through AS1-6

## Optional Materials

- ✓ Counters (10 per student)

## Focus on Language

Model the use of these words and encourage students to use them throughout the lesson. Consider displaying the words so students can see them as they work. Spanish cognates are in parentheses.

- count back
- count on
- equals
- equation (*ecuación*)
- number after
- number before



### english language learners

Developing and deepening a student’s understanding of new mathematical words is essential for English language learners. Make a point of modeling and/or interacting with new vocabulary throughout each lesson. If appropriate, use graphic organizers and manipulatives to review mathematical concepts and vocabulary.

**show me**

Use Show Me Cards AS1-1 through AS1-6. During today's show me, students will complete equations involving the addition and subtraction of 0 and 1.



Ask students to take out their response boards. Have students answer the following questions on their response boards. (Note that the answers are on the backs of the cards.)

- Write the equation and show me your answer.
- AS1-1 Two plus 0 equals what number?  
**Answer:**  $2 + 0 = \underline{2}$
- AS1-2 What number equals 3 minus 1?  
**Answer:**  $\underline{3} - 1 = 2$
- AS1-3 Five equals what number minus 0?  
**Answer:**  $5 = \underline{5} - 0$
- AS1-4 Four equals 3 plus what number?  
**Answer:**  $4 = 3 + \underline{1}$
- AS1-5 What number plus 0 equals 6?  
**Answer:**  $\underline{6} + 0 = 6$
- AS1-6 Ten minus 0 equals what number?  
**Answer:**  $10 - 0 = \underline{10}$



To finish, have students complete the show me problem. Be sure to allow time for this final show me problem. If necessary, omit some of the designated Show Me Cards. Read the problem to students. Make sure that everyone knows what to do. Then ask students to respond to the problem.

1

**Counting On and Back by 1s for  
Numbers 1 to 20**

 **show me**

**8**

$= 8 + 0$

Student page 1

## setting the direction



### Introducing the Lesson

Introduce counting on or counting back using the procedure of putting the starting number in your head and then counting up or back while you keep track using a method that makes sense to you—number lines, objects, and fingers all work well.

Use the examples in setting the direction to illustrate these procedures.

- Let's look at the example problems together. Does everyone see the number after the number 3? (Put your finger on that number so that we know that everyone is in the same place.) The number *after* 3 is what number?

**Answer:** 4

- One way to get that number is by counting on 1 from 3.

Hold up one finger. Say "3," and then count on to 4 as you put that finger down.

- The number *after* 3 is 4. That is why the number 4 is written in the box.
- Another way to record this information is in an equation. Does anyone know what an equation is?

**Answer:** An equation is a mathematical statement that says that the numbers represented on the two sides of an equals sign mean the same amount.

- How does this equation tell us that the number after 3 is 4?

**Answer:** The number *after* a given whole number is 1 more than that number. "One more than that number" means to add 1.

Repeat this type of discussion for the second example problem.

 setting the direction

 **example**

Count on or count back to find each number.  
Then write as a + 1 or - 1 equation.

$3, \boxed{4}$	$\rightarrow$	$3 + \boxed{1} = \boxed{4}$
$\boxed{12}, 13$	$\rightarrow$	$13 - \boxed{1} = \boxed{12}$

Student page 1

The part that makes counting on or back difficult for some students is that they have to keep track of two different sets of numbers—the sequence that yields the answer and the numbers that tell them when to stop. It helps initially if the students can identify the number of hops, objects, or fingers they will use to keep track before they start the counting up or back sequence. For example, to add 6 plus 2, the student might hold up 2 fingers first. Then he *thinks* the number 6 (possibly even tapping his head to “put” the number there) and counts 7, 8 while pointing to or moving each finger. Or a student might find 6 on the number line and draw 2 hops to the right. Then she *thinks* 6 and counts 7, 8 while tracing out the hops.

Counting on and counting back are especially good strategies when the number being added or subtracted is small. This lesson, adding and subtracting 1 or 2, lends itself to counting on and counting back.

When both addends are larger numbers, say greater than 3, the strategy becomes inefficient. Other strategies are better for problems of that type.



## work time



### Presenting the Task

Read the directions for problem 1 to students.

- I want you to do problems 1a through 1d working solo—that means working by yourself. If you finish before I ask you to stop, you can turn to a partner and compare your answers.
- You may begin.



Students work individually on problems 1a through 1d. If time permits, you can allow students to compare their answers as informal partner work.

### work time

1. Count on or count back to find each number. Then write as a + 1 or - 1 equation.

a. 8, <span style="border: 1px solid black; padding: 2px;">9</span>	$\rightarrow$	<span style="border: 1px solid black; padding: 2px;">8</span> + <span style="border: 1px solid black; padding: 2px;">1</span> = <span style="border: 1px solid black; padding: 2px;">9</span>
b. <span style="border: 1px solid black; padding: 2px;">2</span> , 3	$\rightarrow$	<span style="border: 1px solid black; padding: 2px;">3</span> - <span style="border: 1px solid black; padding: 2px;">1</span> = <span style="border: 1px solid black; padding: 2px;">2</span>
c. 16, <span style="border: 1px solid black; padding: 2px;">17</span>	$\rightarrow$	<span style="border: 1px solid black; padding: 2px;">16</span> + <span style="border: 1px solid black; padding: 2px;">1</span> = <span style="border: 1px solid black; padding: 2px;">17</span>
d. <span style="border: 1px solid black; padding: 2px;">18</span> , 19	$\rightarrow$	<span style="border: 1px solid black; padding: 2px;">19</span> - <span style="border: 1px solid black; padding: 2px;">1</span> = <span style="border: 1px solid black; padding: 2px;">18</span>

Student page 2

Remind students to use counting on and counting back to complete these exercises. Refer them to the example problems if they get stuck.

## probing for understanding



Ask questions similar to these:

- How do you know when to count on and when to count back?
- Tell us how to use counting on (or counting back) to find the missing number.
- How does your equation match the problem?

## work time



### Presenting the Task

Read problem 2 to students. Make sure that they know that this time they are adding or subtracting 2 and that they need only complete the equations.



Ask students to work solo to complete all parts of problem 2.

2. Count on or count back to find out how many.

a.  $5 + 2 =$

b.  $11 - 2 =$

c.  $8 - 2 =$

d.  $10 + 2 =$

Student page 2

## probing for understanding



Ask questions similar to these:

- How do you know when to count on and when to count back for these problems?
- Tell us how to use counting on (or counting back) to find the missing number.

Before you have students move on to problem 3, take a few minutes of probing time to introduce different ways to record their thinking.

- Sometimes, a problem asks us to show or tell how we know we are right. How can we show what we did if we used counting on or counting back?

Demonstrate several ways of recording; create a chart of these methods to post. One way to record is with symbols only:

6 ... 7, 8

A second way to record is with pictures:



Another way to record is to use a number line. (Note that many first grade students are not ready to create number lines yet, but we use them all the time at this level as a tool for adding and subtracting, so there is nothing wrong with including them.)





## work time



### Presenting the Task

Read the story in problem 3 to students.

Tell students that after you present the problem or task, you might ask them to do solo work (work alone). Today, you are going to model working solo. During solo work, students work by themselves quietly. Look at problem 3 together.

### "Ask Myself" Questions

- If I looked at this problem, I would start by asking myself questions to help me understand the task or problem. I am going to do this aloud, and I will ask you to help me answer my questions.
- Math stories usually talk about something that you count or measure. What are we counting in this problem?

**Answer:** CDs

- Can I explain the story in my own words?

**Answer:** Maria has a box for her CDs. She has 1 CD in it, and she is putting 4 more in. How many CDs is that altogether?

- Is this an adding to story or a taking away story?

**Answer:** It is an adding to story.

- Can I use any of the problems or strategies that I have done before to help me find the answer?

**Answer:** Since this is an "adding to" story and the numbers are small, I can count on.

Note: Consider posting a list of "Ask Myself" questions similar to these.

- I want you to finish problem 3 working solo. As you work, ask yourself the same kinds of questions that I asked myself. You may begin."



Emphasize that students need to include an equation, and they need to answer the question using a complete sentence.

You may have to spend a few moments talking about what it means to answer the question using a complete sentence.

If students struggle with finding ways to "show or tell how you know," refer them to the chart that you made earlier and ask them to pick a method from the chart.

3. Maria has 1 CD in a box.  
She puts 4 more CDs into the box.  
How many CDs does she have in the box now?  
Make a math drawing:

+=

Write the answer as a sentence:  
**Maria has 5 CDs in the box.**

Student page 3



## probing for understanding



Ask questions similar to these:

- How did you know this was an adding story?
- Tell us how your math drawing shows what you did.
- Look at your math drawing and your equation.
  - Where do you see the 1 CD that was in the box to start in your drawing? In your equation?
  - Where do you see the 4 CDs that were added in your equation? In your drawing?
  - Where do you see the answer in both places?

If students forgot to include a math drawing, an equation, or a “show or tell,” ask them to add it to their solution now.



## work time

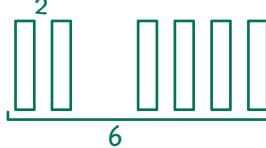


### Presenting the Task

Read the story in problem 4 to students. Be sure that everyone understands the situation. Remind students that they need to include an equation, a “show or tell,” and the answer as part of a complete sentence.

- I want you to start problem 4 working solo. Use “Ask Myself” questions like the ones we used in problem 3 to help you get started.
- In a few minutes, you can work with your partner to finish the problem. I will tell you when to begin to work with a partner.

**4.** Tran had 2 books on the shelf.  
 He put some more books on the shelf.  
 Now there are 6 books on the shelf.  
 How many more books did he put on the shelf?  
 Make a math drawing:



Write an equation: 2 + 4 = 6

Write the answer as a sentence:  
**Tran put 4 more books on the shelf.**





Have students work solo on the problem for about 1 minute. Then have students work with partners to compare results and finish working on the problem.



## probing for understanding



Ask questions such as:

- What types of “Ask Myself” questions did you use to get started? How did they help you?
- How did you decide to solve the problem? Why did you choose that method?



## reflection



### Modeling the Reflection

Read the reflection prompt to students and ask them to circle the icon that indicates their response.

Finally, have students fill in the shaded squares in the addition table. You may need to help students understand the addition table before they begin.

### reflection

Adding 1 is (circle one)  
easy for me. hard for me.

Fill in the sums in the shaded squares.

+	0	1	2	3	4	5	6	7	8	9	10
0		$0+1$ 	$0+2$ 								
1	$1+0$ 	$1+1$ 	$1+2$ 	$1+3$ 	$1+4$ 	$1+5$ 	$1+6$ 	$1+7$ 	$1+8$ 	$1+9$ 	$1+10$ 
2	$2+0$ 	$2+1$ 	$2+2$ 	$2+3$ 	$2+4$ 	$2+5$ 	$2+6$ 	$2+7$ 	$2+8$ 	$2+9$ 	$2+10$ 
3		$3+1$ 	$3+2$ 								
4		$4+1$ 	$4+2$ 								
5		$5+1$ 	$5+2$ 								
6		$6+1$ 	$6+2$ 								
7		$7+1$ 	$7+2$ 								
8		$8+1$ 	$8+2$ 								
9		$9+1$ 	$9+2$ 								
10		$10+1$ 	$10+2$ 								

Student pages 4–5

# Counting On and Back by 1s for Numbers 1 to 20

## show me

$$\boxed{\phantom{0}} = 8 + 0$$

## setting the direction



Count on or count back to find each number.

Then write as a + 1 or - 1 equation.

$$3, \boxed{4} \rightarrow \boxed{3} + \boxed{1} = \boxed{4}$$

$$\boxed{12}, 13 \rightarrow \boxed{13} - \boxed{1} = \boxed{12}$$

 work time

1. Count on or count back to find each number.

Then write as a + 1 or - 1 equation.

a. 8,    8 +  1 =

b. , 3   -  1 =

c. 16,    +  1 =

d. , 19   -  =

2. Count on or count back to find out how many.

a.  $5 + 2 =$

b.  $11 - 2 =$

c.  $8 - 2 =$

d.  $10 + 2 =$

3. Maria has 1 CD in a box.

She puts 4 more CDs into the box.

How many CDs does she have in the box now?

Make a math drawing:

Write an equation:

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{\phantom{0}}$$

Write the answer as a sentence:



4.

Tran had **2** books on the shelf.

He put some more books on the shelf.

Now there are **6** books on the shelf.

How many more books did he put on the shelf?

Make a math drawing:

Write an equation:

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{\phantom{0}}$$

Write the answer as a sentence:



### reflection

Adding 1 is



(circle one)

easy for me. hard for me.

Fill in the sums in the shaded squares.

<b>+</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	
<b>0</b>		$0 + 1$ <b>1</b>	$0 + 2$ <b>2</b>									
<b>1</b>		$1 + 0$	$1 + 1$	$1 + 2$	$1 + 3$	$1 + 4$	$1 + 5$	$1 + 6$	$1 + 7$	$1 + 8$	$1 + 9$	$1 + 10$
<b>2</b>		$2 + 0$	$2 + 1$	$2 + 2$	$2 + 3$	$2 + 4$	$2 + 5$	$2 + 6$	$2 + 7$	$2 + 8$	$2 + 9$ <b>11</b>	$2 + 10$
<b>3</b>			$3 + 1$	$3 + 2$								
<b>4</b>			$4 + 1$	$4 + 2$								
<b>5</b>			$5 + 1$	$5 + 2$								
<b>6</b>			$6 + 1$	$6 + 2$								
<b>7</b>			$7 + 1$	$7 + 2$								
<b>8</b>			$8 + 1$ <b>9</b>	$8 + 2$								
<b>9</b>			$9 + 1$	$9 + 2$								
<b>10</b>			$10 + 1$	$10 + 2$								

Two plus 0 equals  
what number? Write  
the equation and show  
me your answer.

- Any number plus 0 equals the original number (identity property for addition).
- Use the strategy of counting all.

#### Instructional Strategies

$$2 + 0 = \underline{2}$$

Correct Answer

$$2 + 0$$

ADDITION AND SUBTRACTION

SHOW ME CARD AS 1-1

Fold  
Here

What number equals  
3 minus 1? Write the  
equation and show  
me your answer.

$$= 3 - 1$$

Correct Answer

$$\bar{2} = 3 - 1$$

### Instructional Strategies

- Count back from 3 using a 100s chart or a number line.
- Count back from 3 using 3 objects. Separate 1 of the 3 from the rest.
- Count the remaining objects.

SHOW ME CARD AS 1-2

ADDITION AND SUBTRACTION

Fold  
Here

$$= 3 - 1$$

Five equals what  
number minus 0? Write  
the equation and show  
me your answer.

- Any number minus 0 equals the original number (identity property for addition).
- Use objects to model the situation.
- Count on from 0 to 5 using a 100s chart or a number line.

#### Instructional Strategies

$$5 = ? - 0$$

Correct Answer

$$5 = 5 - 0$$

ADDITION AND SUBTRACTION

SHOW ME CARD AS 1-3

Fold  
Here

- Count on from 3 using a 100s chart or a number line.
- Use objects to model the situation.

#### Instructional Strategies

$$4 = 3 + \underline{1}$$

Correct Answer

Four equals 3 plus  
what number? Write  
the equation and show  
me your answer.

$$\square + 3 = 4$$

ADDITION AND SUBTRACTION

SHOW ME CARD AS 1-4

Fold  
Here

$$4 = 3 + \underline{\hspace{2cm}}$$

What number plus 0 equals 6? Write the equation and show me your answer.

- Use objects to model the situation.
- Any number plus 0 equals the original number (identity property for addition).

#### Instructional Strategies

$$\bar{6} + 0 = 6$$

Correct Answer

$$9 = 0 + \boxed{\phantom{0}}$$

Fold Here SHOW ME CARD AS 1-5

ADDITION AND SUBTRACTION

Then minus 0 equals  
what number? Write  
the equation and show  
me your answer.

- Use objects to model the situation.
- Any number plus 0 equals the original number (identity property for addition).

#### Instructional Strategies

$$10 - 0 = \underline{10}$$

Correct Answer

$$10 - 0 = ?$$

ADDITION AND SUBTRACTION

SHOW ME CARD AS 1-6

Fold  
Here