

# Addition and Subtraction Inverse Operations

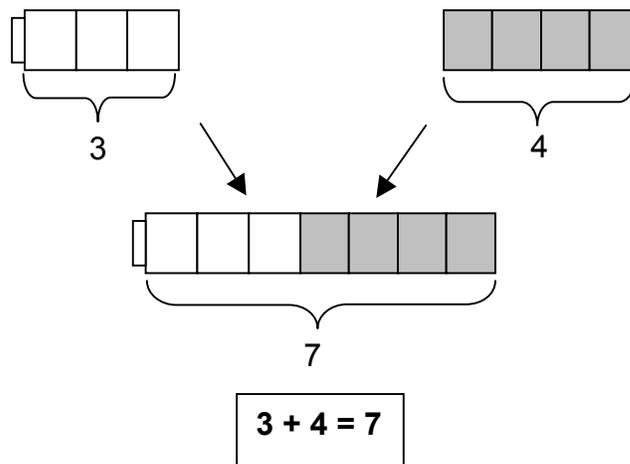
Vocabulary: Add, Sum, Subtract, Difference, Undo, Inverse Operations

\*\*\*\*\*Part One—Start with Addition\*\*\*\*\*

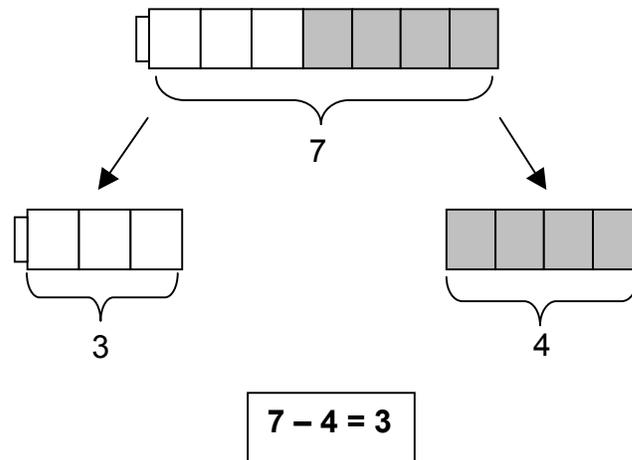
**Teacher Model:**  $3 + 4 = 7$  and  $7 - 4 = 3$

(Tell the story as you model with linker cubes. Then write the equations.)

**Maria had 3 carrots. Her mom gave her 4 more carrots. How many carrots does she have now?**

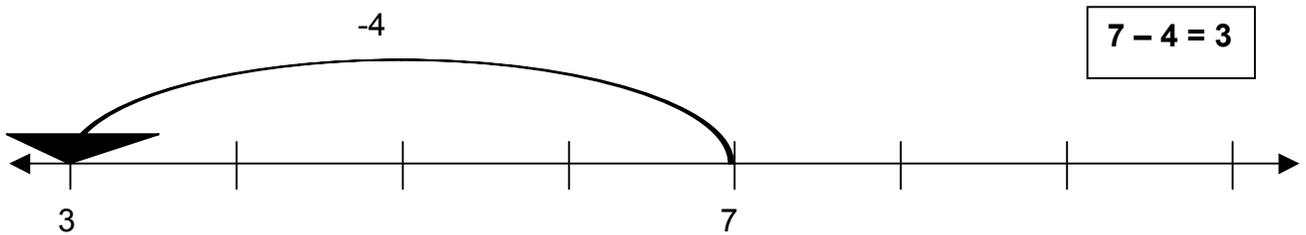
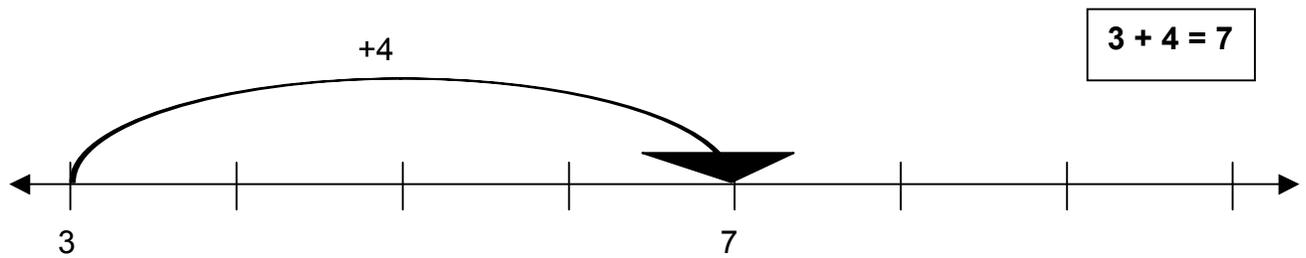


**Now Maria has 7 carrots, and her mom needs her to give 4 back. How many carrots does Maria have after she gives 4 back to her mom?**



First we added. Then we undid our adding when we subtracted. Now we have the same number we started with.

**We can show this using an open number line, too.**(Retell the story as you record the hops on the number line.)



**So, when we add we can undo subtraction, and when we subtract, we can undo addition. Say that with me.**

**Mathematicians say it this way: Subtraction is the inverse operation of addition. That means they are opposites. They undo each other.**

**Guided Practice:  $5 + 3 = 8$  and  $8 - 3 = 5$**

(Students begin to build models with linker cubes, complete open number lines, and write equations with teacher guidance. )

***Frank had 5 crayons. His sister gave him 3 more crayons. How many crayons does he have now?***

***Now Frank has 8 crayons. He gives 3 crayons back to his sister. How many crayons does Frank have now?***

$$5 + 3 = 8 \text{ and } 8 - 3 = 5$$

**We started with 5 and added 3 to get 8. Then we subtracted the 3 and ended up with 5 again.**

(Remind students addition and subtraction undo each other, as in the teacher model.)

**You Try:  $2 + 6 = 8$  and  $8 - 6 = 2$**

(Note how students do these problems and give more practice if needed, either for whole group or for a small group.)

**Dreshaun has 2 cats. His neighbor has 6 cats. How many cats do they have all together?**

**Then...If his neighbor moves and takes his 6 cats away, how many cats will be left?**

\*\*\*\*\*Part Two—Start with Subtraction\*\*\*\*\*

**Teacher Model:**  $9 - 5 = 4$  and  $4 + 5 = 9$

Last time we worked with addition and subtraction, we added first. This time we're going to subtract first, and see what we get when we add back together.

*Katie has 9 bracelets. She gave 5 bracelets to her friend. How many does she have now? This time we're taking away, not putting together first.*

(Model building and drawing linking cubes. Write the equation.)

*She has 4 left. Let's see what happens if her friend gives them back.*

(Model with linking cubes. Solve the equation.)

First we subtracted 5 from 9, and we got 4. Then we added 5 back together with the 4, and we got 9 again. We added to undo the subtraction.

So..the inverse operation is true even when you start with subtraction. If you add back the number you just subtracted, you'll get back to the number you started with.

**Guided Practice:**

(Guide students through building and recording linker cube model, recording the number line model, and writing the equations.)

$10 - 6 = 4$  and  $4 + 6 = 10$

$11 - 3 = 8$  and  $8 + 3 = 11$

**You Tries:**

(Students show with linking cubes and open number lines and record on paper or white boards. They may work the first one with a partner. The second should be on their own providing a chance for formative assessment. Note who needs reteaching.)

$5 + 1 = 6$  and  $6 - 1 = 5$

$12 - 7 = 5$  and  $5 + 7 = 12$