

Objective

Identify missing addends by calculating the difference between an addend and the sum.

Common Core State Standards

- **1.OA.4** Understand subtraction as an unknown-addend problem. *For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.*
- **1.OA.8** Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.*

Operations and Algebraic Thinking

Finding Missing Addends

In addition, the two numbers being combined are addends, and their total is the sum. Addition problems are usually represented by two known addends and an unknown sum; however, problems can have a missing addend, which can be represented by an algebraic unknown, as in the problem $6 + a = 12$. When an addend is unknown, compute the difference between the known addend and the sum. This process is referred to as using the inverse operation of addition. This process is a building block for algebraic thinking. Some children may be able to solve this type of equation intuitively using fact families.

Try It! Perform the Try It! activity on the next page.

Talk About It

Discuss the Try It! activity.

- Have children look at the DecaDots® tiles used in the Try It! activity.
- **Ask:** Which tiles show the dollars Carson has already saved? Which tiles show the dollars that Carson wants to save?
- **Say:** Count on or find a tile to show the difference between the amount Carson has saved and what he wants to save in all.
- **Ask:** How much more money does Carson need to save? How do you know?

Solve It

With children, reread the problem. Ask children to draw pictures of Carson's savings and what he needs to save. Then, have them write a sentence explaining how much more Carson needs to save.

More Ideas

For other ways to teach about missing addends—

- Use Cuisenaire® Rods to find missing addends. Make a train for the sum and then place the given addend along the bottom of the train. Have students fill in the length with the fewest number of rods possible to find the missing addend.
- Have children use Snap Cubes® to find missing addends. Create a train of cubes for the given sum. Then have children create another train all the same color using the given addend. Have children line up the two trains and then build the missing part of the train to find the missing addend.

Formative Assessment

Have children try the following problem.

Draw pictures to solve the problem. Hannah's mother asked her to wash 11 potatoes for dinner. She already washed 5. How many more potatoes should she wash? Write a number sentence to explain your picture.

Try It! 30 minutes | Pairs

Here is a problem using missing addends.

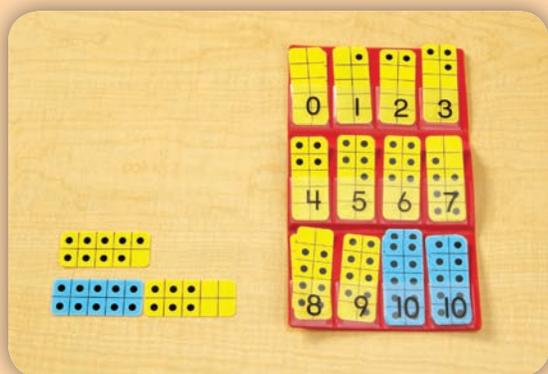
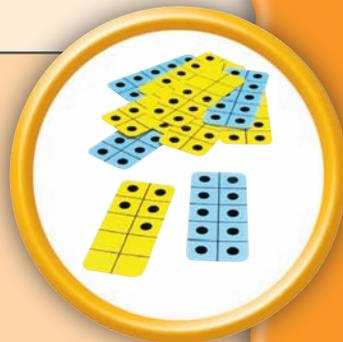
Carson has \$9 in the bank. He wants to save \$16 to buy a new game. How much more money does he need to save to buy the game?

Introduce the story problem. Then have children do the activity to solve the problem.

Say: Show Carson how much money he needs to save.

Materials

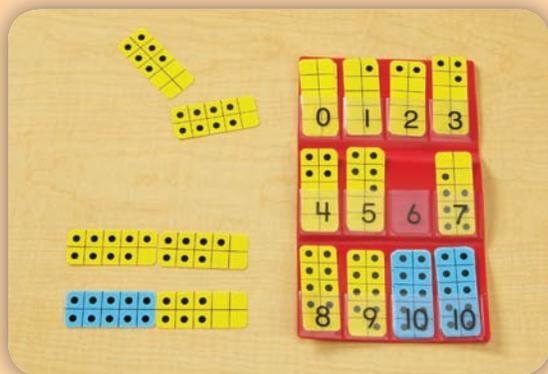
- DecaDots® wallet (1 per pair)



1. To begin, place tiles in one row to show how much money Carson has in the bank. Place tiles in another row to show how much money he wants to save. Children will have to combine two tiles to show numbers greater than 10. Lay these tiles with their empty boxes facing outward.



2. Have children compare tiles on top of the row of tiles that represents the money Carson has in the bank until the row of tiles has the same number of dots as the row of tiles showing the amount of money he wants to save. Children may have to “guess and check.”



3. **Ask:** How many more dollars does Carson need to add to his \$9 to have \$16?

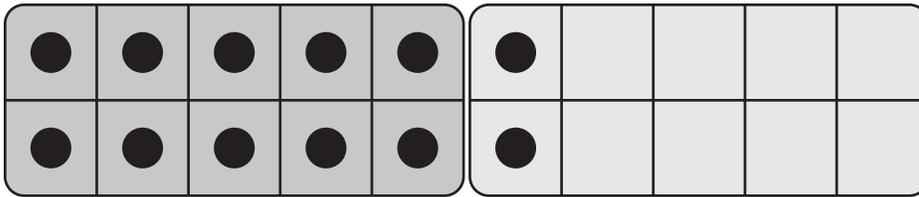
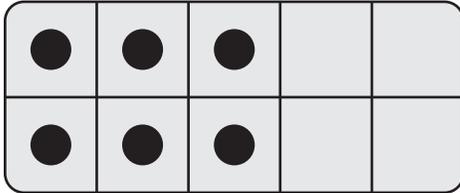
Look Out!

Watch for children who add the addend and sum. Remind children that they already know the sum; the missing addend and 9 must equal 16. Ask children if it would make sense for $9 + 25$ to equal 16.

Use DecaDots. Build the sentence.
Find the missing number.

(Check students' work.)

1.



$$6 + \underline{6} = 12$$

Use DecaDots. Draw the model. Find the missing number.

$$2. \quad 7 + \underline{5} = 12$$

Find each missing number.

$$3. \quad 9 + \underline{4} = 13$$

$$4. \quad 5 + \underline{12} = 17$$

$$5. \quad 11 + \underline{4} = 15$$

$$6. \quad 9 + \underline{9} = 18$$



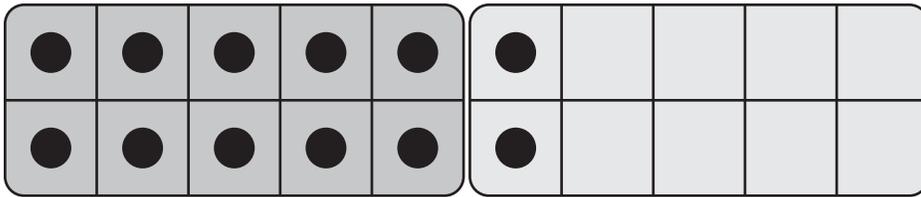
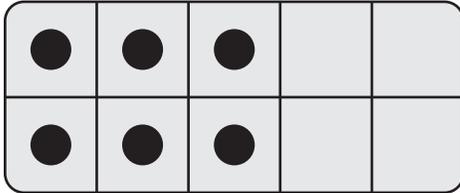
Answer Key

Challenge! Describe how the dots on the DecaDots help you find the missing number. Draw a picture to help.

Challenge: (Sample) They help to show how many have to be added to make the total. It is easy to try different tiles and see which one works.

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Find the missing number.**

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Name _____

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