

## Objective

Relate addition and subtraction facts.

## Common Core State Standards

- **1.OA.6** Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g.,  $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$ ); decomposing a number leading to a ten (e.g.,  $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$ ); using the relationship between addition and subtraction (e.g., knowing that  $8 + 4 = 12$ , one knows  $12 - 8 = 4$ ); and creating equivalent but easier or known sums (e.g., adding  $6 + 7$  by creating the known equivalent  $6 + 6 + 1 = 12 + 1 = 13$ ).

## Operations and Algebraic Thinking

## Connecting Addition and Subtraction

Through modeling and meaningful connections, children develop the understanding that addition and subtraction are concepts directly related to one another. With repeated practice and teacher reinforcement, children will realize the correlation of these inverse operations. This will help them form a better understanding of both operations.

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

## Talk About It

Discuss the Try It! activity.

- **Ask:** How many yellow Snap Cubes were there? How many red cubes were there? What number sentence shows how many cubes there were in all?
- **Ask:** What subtraction sentence did you write to show what happened when you took 5 cubes away?
- **Ask:** What is the same in both number sentences? Guide children to note that both have the same numbers. Emphasize that subtraction takes apart what addition joins, so the same numbers have to be in both operations.

## Solve It

With children, reread the problem. Have children draw a picture to show the addition problem and write the addition sentence ( $5 + 3 = 8$ ). Then have children draw a picture to show the subtraction problem and write the subtraction sentence ( $8 - 3 = 5$ ).

## More Ideas

For other ways to teach about connecting addition and subtraction—

- Have each child grab a handful of Snap Cubes®. Then have pairs write two addition and two subtraction problems using the numbers represented by the cubes. Then have them write the answers.
- Have children use Cuisenaire® Rods to show problems. For example, say: *There were 2 bugs on a leaf. Then 4 more bugs landed on the leaf.* **Ask:** *How many bugs were there in all? What if 2 bugs flew away?* Have children write addition and subtraction sentences for each problem.

## Formative Assessment

Have children try the following problem.

Sara had 3 crayons. Then Tim gave her 4 more.  $3 + 4 = \underline{\quad}$   
How many crayons did Sara have in all?

Later, Sara gave 3 crayons to Ned. How many  $7 - 3 = \underline{\quad}$   
crayons did Sara have left?

## Try It! 30 minutes | Pairs

Here is a problem about connecting addition and subtraction.

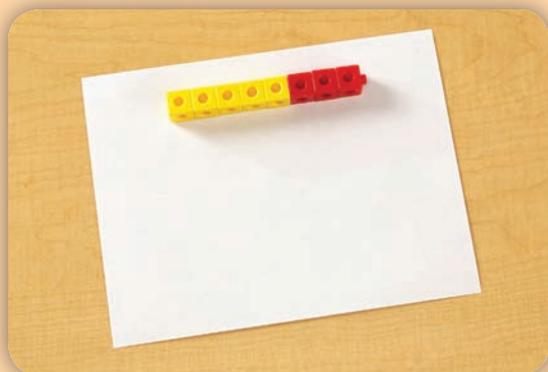
*At recess, 5 children are playing tag. Then 3 more children join the game. How many children are playing tag? What will happen if 5 children leave the game?*

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

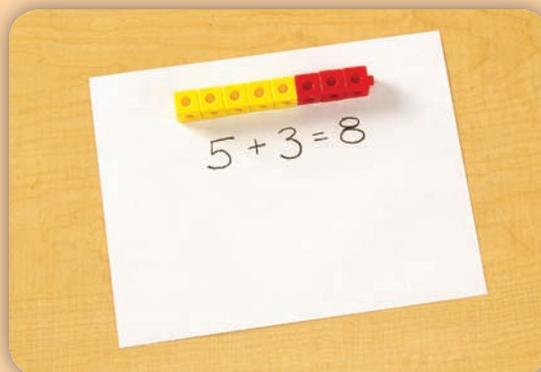
Give Snap Cubes®, pencil, and paper to each pair of children.

### Materials

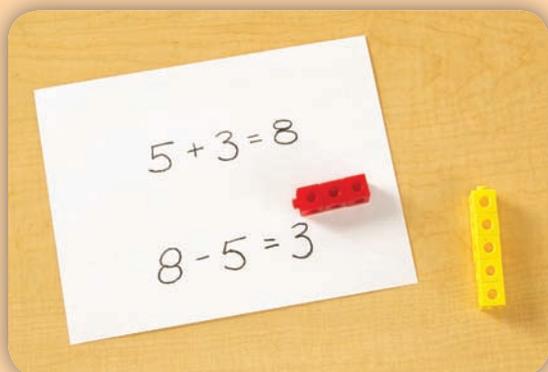
- Snap Cubes® (10 yellow and 6 red per pair)
- paper (1 sheet per pair)
- pencils (1 per pair)



**1.** Have children make two trains: one of 5 yellow cubes and another of 3 red cubes. Ask children to add the red train to the yellow train. **Say:** *Now you have a train with 5 yellow cubes and 3 red cubes.*



**2. Ask:** *How many cubes does the train have in all?* **Say:** *Write an addition sentence that shows how you added 5 yellow cubes and 3 red cubes.*

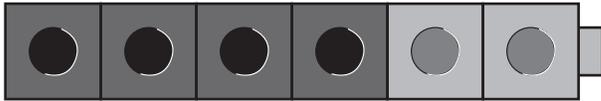
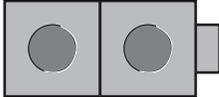


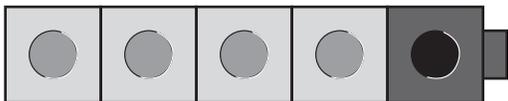
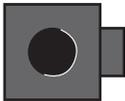
**3.** Have children build another train of 3 red and 5 yellow cubes (8 cubes total). **Say:** *Now take away 5 yellow cubes from this train.* **Ask:** *What subtraction sentence shows this?* Have children write the subtraction sentence and compare it to the addition sentence. **Say:** *Every time we write an addition sentence, we can find a related subtraction sentence. We can use addition to check our subtraction, and subtraction to check our addition.*

### ! Look Out!

In the addition part of the activity, children may come up with the number sentence  $3 + 5 = 8$  instead of  $5 + 3 = 8$ . While this is not wrong, you may wish to remind children that their number sentences should describe what happens to match the order of events in the problem, in which 3 children join 5 children who are already playing on the playground. This applies to the subtraction part of the activity as well; you will want to emphasize to children that their number sentences should show 5 children leaving the game, or  $8 - 5 = 3$ .

Use Snap Cubes. Make each model. Write an addition sentence. Then write the related subtraction sentence. (Check students' work.)

1.   $\underline{4} + \underline{2} = \underline{6}$   
 $\underline{\quad} - \underline{\quad} = \underline{\quad}$    $\underline{6} - \underline{4} = \underline{2}$

2.   $\underline{4} + \underline{1} = \underline{5}$   
 $\underline{\quad} - \underline{\quad} = \underline{\quad}$    $\underline{5} - \underline{4} = \underline{1}$

Use Snap Cubes. Build an addition sentence. Build a subtraction sentence. Draw the models. Write the sentences.

3.  $3 + 6 = \underline{9}$   $\underline{9} - \underline{6} = \underline{3}$   
 $\underline{9} - \underline{3} = \underline{6}$

4.  $5 + 2 = \underline{7}$   $\underline{7} - \underline{2} = \underline{5}$   
 $\underline{7} - \underline{5} = \underline{2}$

5.  $9 + 1 = \underline{10}$   $\underline{10} - \underline{1} = \underline{9}$   
 $\underline{10} - \underline{9} = \underline{1}$

## Answer Key

**Challenge!** Write two subtraction sentences that are related to the addition sentence  $3 + 8 = 11$ . Explain.

Challenge:  $11 - 3 = 8$ ;  $11 - 8 = 3$

(Check students' work.)

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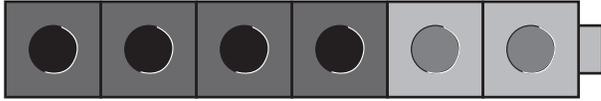
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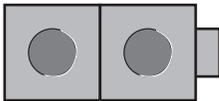
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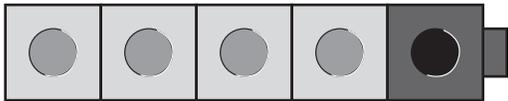
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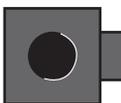


**Use Snap Cubes. Make each model. Write an addition sentence. Then write the related subtraction sentence.**

1.  \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ =  \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

2.  \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ =  \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

**Use Snap Cubes. Build an addition sentence. Build a subtraction sentence. Draw the models. Write the sentences.**

3.  $3 + 6 =$  \_\_\_\_\_  $\quad$  \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

4.  $5 + 2 =$  \_\_\_\_\_  $\quad$  \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

5.  $9 + 1 =$  \_\_\_\_\_  $\quad$  \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

Name \_\_\_\_\_

**Challenge!** Write two subtraction sentences that are related to the addition sentence  $3 + 8 = 11$ . Explain.

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