

LESSON 15

Objective

Add or subtract using a make-a-10 strategy.

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

Making 10 to Add or Subtract

A foundational skill for adding and subtracting is the use of number recognition strategies. And many such strategies depend on the idea that a number can be composed and decomposed in a variety of ways. Manipulatives are good for helping children get their hands on this idea through concrete experimentation. With the number sense that is derived from these experiences, children will be able to compose and decompose numbers with purpose.

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

Talk About It

Discuss the Try It! activity.

- **Ask:** *How did you find the total number of juice bottles?* Discuss the different possible answers.
- **Ask:** *How can you make $7 + 8$ easier to do?* Reiterate that 3 can be added to 7 first. Then the problem becomes $10 + 5$, which is easy to do mentally.
- Ask children to identify the decomposition they would use if Peyton only brought 6 bottles of juice. Help them realize they would use $8 = 4 + 4$. They would add 4 to 6 to make 10 and mentally do the computation $10 + 4 = 14$.
- Discuss the fourth Try It! step with children. The subtraction is just the reverse of the addition.

Solve It

With children, reread the problem. Instruct children to draw a picture that shows how the problem is solved using the make-a-10 strategy. Then have children draw the reverse process—that is, $15 - 8 = 7$.

More Ideas

For other ways to teach the strategy making 10 to add or subtract—

- Have children use Cuisenaire® Rods to solve the problem. Children use a black rod to represent the 7 bottles of orange juice and a brown rod to represent the 8 bottles of apple juice. Then below that, children use an orange rod plus a yellow rod to represent the converted problem $10 + 5 = 15$. A green rod and yellow rod can be used to show the decomposition of 8 into 3 and 5.
- Have children use Base Ten Blocks to solve the problem. Children use 7 units to represent the 7 bottles of orange juice and 8 units to represent the 8 bottles of apple juice. Then the converted problem can be shown using one rod and 5 units.

Formative Assessment

Have children try the following problem.

Which number sentence shows how to find $6 + 8$ by making 10? Circle the correct answer.

A. $6 + 3 + 5 = 14$

B. $6 + 4 + 4 = 14$

C. $6 + 2 + 6 = 14$

Try It! 20 minutes | Pairs

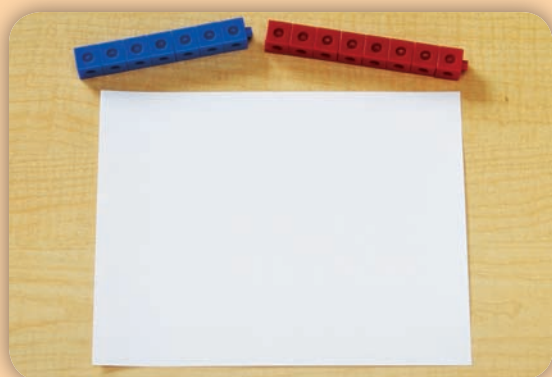
Here is a problem about making 10 to add or subtract.

Peyton and Julie are bringing juice to the class picnic. Peyton is bringing 7 bottles of orange juice. Julie is bringing 8 bottles of apple juice. How many bottles are they bringing in all?

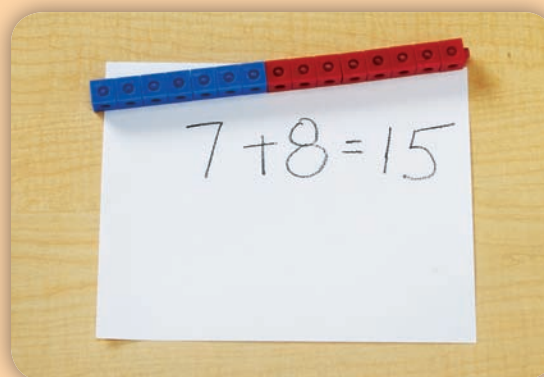
Introduce the problem. Then have children do the activity to solve the problem. Distribute Snap Cubes® and paper to children.

Materials

- Snap Cubes® (20 of 2 different colors per pair)
- paper (1 sheet per child)
- pencils (1 per pair)



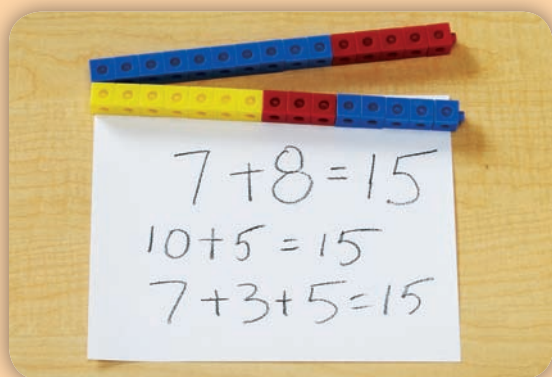
1. Have children build a train of cubes, all the same color, to model the 7 bottles of orange juice. Then have them build a second train, using a second color, to model the 8 bottles of apple juice.



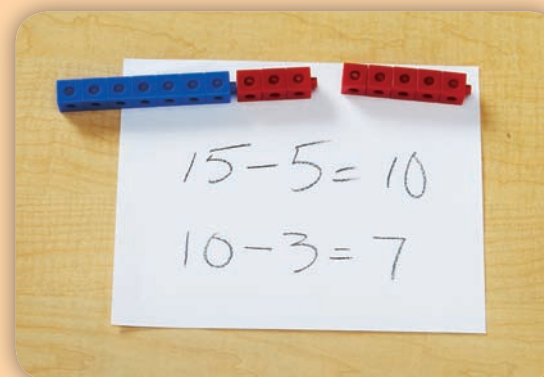
2. **Ask:** What did the problem ask us to find?

Elicit that the problem asks for the total number of bottles. Then have children put the two trains together to model the sum.

Say: Write a number sentence that shows how you add all the bottles together. You can count all the cubes to find the sum.

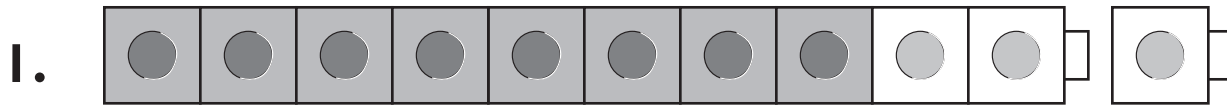


3. Have children break the train after the tenth cube. Elicit that the new lengths are 10 and 5 but the total is still 15. **Ask:** Which is easier to do mentally, $10 + 5$ or $7 + 8$? Point out that the 10-cube train has 3 cubes of the second color. Ask children where those 3 cubes came from. Elicit that they came from breaking 8 into 3 and 5. Help children write number sentences.



4. Have children put the 10-cube and 5-cube trains back together. **Say:** Let's pretend we want to take away the 8 bottles of apple juice to see how many orange juice bottles there are. But, let's start by taking away 5. **Ask:** Why would we take away only 5 first? Elicit that subtracting 5 leaves 10, and then it is easy to take 3 from 10 to get the answer. Help children write number sentences.

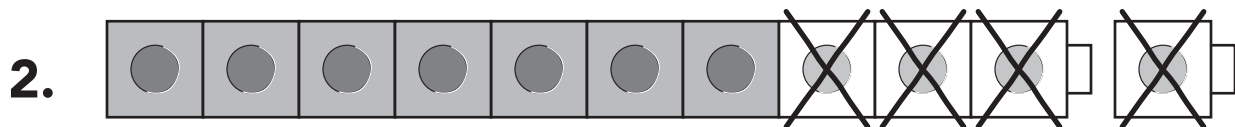
Use Snap Cubes. Build the cube train. Write the addition two ways.



$$\underline{8} + \underline{3} = \underline{11}$$

$$\underline{8} + \underline{2} + \underline{1} = \underline{11}$$

Use Snap Cubes. Build the cube train. Write the subtraction two ways.



$$\underline{11} - \underline{4} = \underline{7}$$

$$\underline{11} - \underline{1} - \underline{3} = \underline{7}$$

Add or subtract. Make a 10 first.

3. $8 + 5$

$$\underline{8} + \underline{2} + \underline{3} = \underline{13}$$

4. $11 - 2$

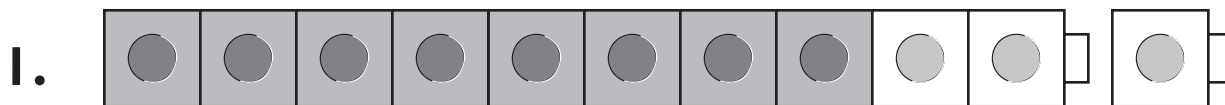
$$\underline{11} - \underline{1} - \underline{1} = \underline{9}$$

Answer Key

Challenge! Making a 10 can help you add. It can help you subtract, too. Describe other tricks you use to add or subtract.

Challenge: (Sample) If I know $8 + 7 = 15$, then I can think of that to know $15 - 7 = 8$. When I add 9, I can think of adding 10 and then taking away 1.

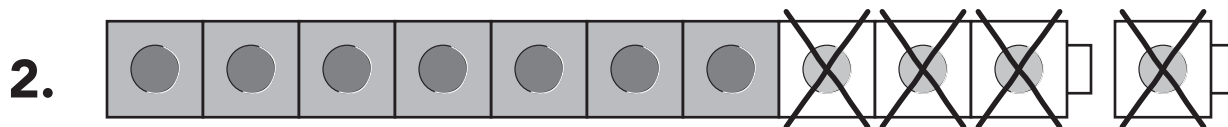
Use Snap Cubes. Build the cube train. Write the addition two ways.



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

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

Use Snap Cubes. Build the cube train. Write the subtraction two ways.



$$\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$$

$$\underline{\quad\quad} - \underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$$

Add or subtract. Make a 10 first.

3. $8 + 5$

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

4. $11 - 2$

$$\underline{\quad\quad} - \underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$$

Name _____

Challenge! Making a 10 can help you add. It can help you subtract, too. Describe other tricks you use to add or subtract.

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