

LESSON 5

Objective

Explore the Commutative Property of Addition.

Common Core State Standards

- **1.OA.3** Apply properties of operations as strategies to add and subtract. *Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.)*

Operations and Algebraic Thinking

Commutative Property I

Children's number sense develops as they understand the size of numbers, develop different ways of representing numbers, and use numbers with operations. Exploring the Commutative Property of Addition—whereby children learn that $1 + 2 = 3$ means the same thing as $2 + 1 = 3$ —helps develop children's understanding of the operation of addition.

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

Talk About It

Discuss the Try It! activity.

- **Ask:** What do you notice about the numbers you added in each number sentence? How are they different? How are they the same?
- **Ask:** What do you notice about the sum in each number sentence?
- **Ask:** How can you show that when you add, you can switch the order of the numbers you are adding and still get the same sum? Have students break apart their Snap Cube® trains and model switching the order of the numbers they added.

Solve It

With children, reread the problem. Invite children to draw pictures of red and blue stars to model Janie and Tyrone's addition sentences. Have children write two or three sentences to explain why Janie and Tyrone were both right.

More Ideas

For other ways to teach about the Commutative Property of Addition—

- Write several addition sentences on the board. Tell children that in your addition sentences, the first number is always red and the second is always yellow. Have children use Two-Color Counters to model each one, then flip all the counters over and write the new addition sentence represented by them.
- Have children make a row of 4 red and 6 blue Color Tiles. Then ask children to make another row beneath it of 6 red tiles and 4 blue tiles. Tell children to count the tiles in each row and compare their lengths to show that $4 + 6 = 10$ and $6 + 4 = 10$. Invite children to use the tiles to model more examples.

Formative Assessment

Have children try the following problem.

The picture below shows $3 + 1 = 4$. What is another number sentence that matches the picture below? Circle the answer.



A. $2 + 2 = 4$

B. $4 + 1 = 5$

C. $1 + 3 = 4$

Try It! 20 minutes | Pairs

Here is a problem that involves the Commutative Property of Addition.

Mr. Andrew will give 2 blue star stickers and 3 red star stickers to students who get A's on their math quizzes. Janie and Tyrone both got A's. They want to know how many stars they will each get. Tyrone wrote $2 + 3 = 5$, and Janie wrote $3 + 2 = 5$. Who wrote the correct number sentence?

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

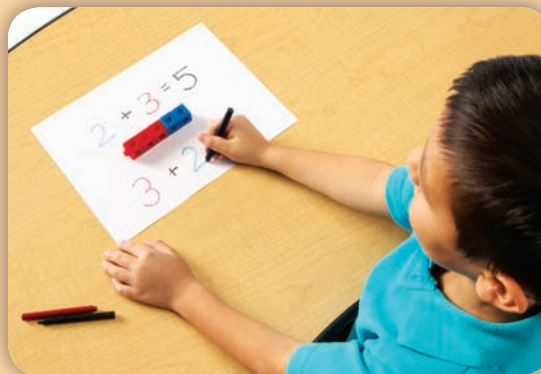
Distribute Snap Cubes®, paper, and crayons to children. Explain to children that they will use the cubes to model two addition sentences.

Materials

- Snap Cubes® (3 blue and 3 red per pair)
- paper (1 sheet per pair)
- crayons (1 red, 1 blue, and 1 black per pair)



1. Have children build a train of two blue cubes and then three red cubes. Then have children write the number sentence the train models ($2 + 3 = 5$) below it using crayon colors to match the cubes in the model.



2. Ask pairs to flip their cube trains over. Have them write the new number sentence modeled by the cube train ($3 + 2 = 5$) below it.



3. Have pairs examine the number sentences they wrote for each model and compare the two sums. Repeat with more examples as time permits.

! Look Out!

Watch for children who think they can interchange all the numbers in an entire addition number sentence, not just the numbers they are adding. For example, $3 + 5 = 8$ would become $8 + 5 = 3$. Stress that the sum never changes, just the order of the numbers being added.



**Use Snap Cubes. Build the addition sentence.
Write a number sentence for each row.**

(Check students' work.)

1.

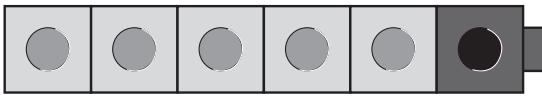


$$\underline{4} + \underline{2} = \underline{6}$$

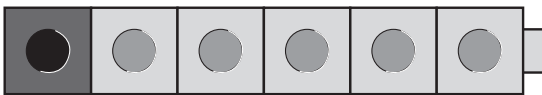


$$\underline{2} + \underline{4} = \underline{6}$$

2.



$$\underline{5} + \underline{1} = \underline{6}$$



$$\underline{1} + \underline{5} = \underline{6}$$

**Use Snap Cubes. Build two addition problems
with the numbers. Write both sentences.**

3. 5 and 4

$$\underline{5} + \underline{4} = \underline{9}$$

$$\underline{4} + \underline{5} = \underline{9}$$

Write two addition sentences.

4. 2 and 9

$$\underline{2} + \underline{9} = \underline{11}$$

$$\underline{9} + \underline{2} = \underline{11}$$

5. 3 and 7

$$\underline{3} + \underline{7} = \underline{10}$$

$$\underline{7} + \underline{3} = \underline{10}$$

Answer Key

Challenge! What did writing two number sentences for each pair of numbers tell you about adding two numbers?

Challenge: (Sample) The order you add numbers does not change the sum.

© ETA hand2mind™

**Use Snap Cubes. Build the addition sentence.
Write a number sentence for each row.**

1.

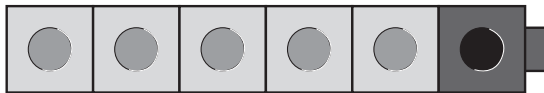


$$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$$

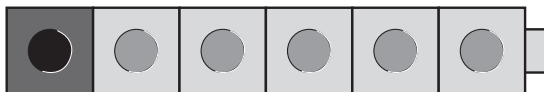


$$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$$

2.



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



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

**Use Snap Cubes. Build two addition problems
with the numbers. Write both sentences.**

3. 5 and 4

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

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

Write two addition sentences.

4. 2 and 9

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

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

5. 3 and 7

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

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

Name _____

Challenge! What did writing two number sentences for each pair of numbers tell you about adding two numbers?

© ETA hand2mind™