LESSON 7

Objective

Identify and create fact families.

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).

Fact Families

Fact families provide a method for children to compute fluently with whole numbers. Addition and subtraction fact families help children develop number sense as they see the relationships among numbers and between the operations. Using fact families helps children develop the skill of relating parts to a whole.

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

Talk About It

Discuss the Try It! activity.

- **Say:** *Describe the first train you made.* **Ask:** *How many Snap Cubes® of one color did you use? How many cubes of the other color did you use?*
- **Ask:** *What were the addition sentences for your first train? What were the subtraction sentences?*
- **Ask:** *What was the same about the addition sentences and the subtraction sentences?* Help children realize that the same three numbers were used in all four sentences.

Solve It

With children, reread the problem. Then have children choose a number between 4 and 10 and tell how many dolls and trucks might be in a box with that total. Then have children write a fact family of four number sentences for the number they chose.

More Ideas

For other ways to teach about fact families—

- Have children use Two-Color Counters to show fact families in the range 11–20. For example, ask children to show all the fact families for the number 15. Have them line up 15 red counters to represent the total and then use combinations of yellow counters to show the parts that make up the total.
- Use Cuisenaire® Rods to represent fact families. Have children choose one rod and then find as many two-rod combinations that make the same value.

Formative Assessment

Have children try the following problem.

Fill in the missing number in each number sentence.

2 + _____ = 7

5 + 2 = _____

7 – _____ = 5

_____ – 5 = 2

Try It! 30 minutes | Groups of 3

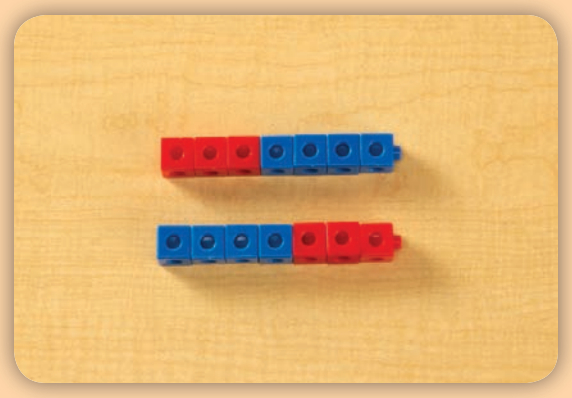
Here is a problem about fact families.

Mrs. Eguchi's class is making boxes of toys to give to another school. Each box can have 4, 5, 6, 7, 8, 9, or 10 toys. Each box will have dolls and trucks. How many dolls and trucks can be in each box?

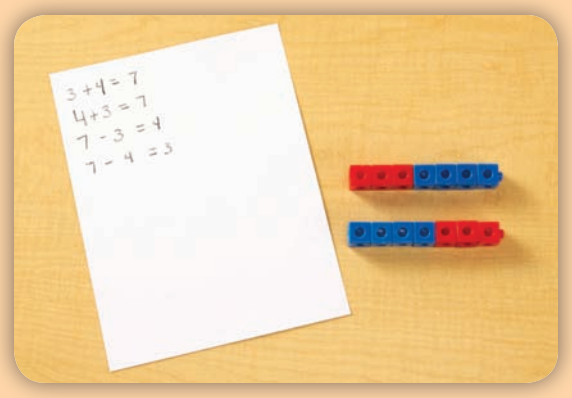
Introduce the problem. Then have children do the activity to solve the problem. Give 40 Snap Cubes® and paper to each group. Assign each group a number from 4 to 10 to represent the number of toys in a box.

Materials

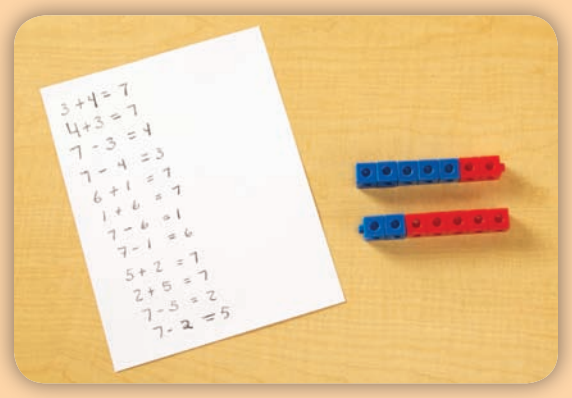
- Snap Cubes® (40 in two colors per group)
- paper (3 sheets per group)
- pencils (1 per child)



1. Ask children to make a train of cubes using two different colors. The total number of cubes in the train should be the same as the number you assigned the group. Children may use any combination of the two colors. Then have children make a second train with the same total, but reverse the numbers of the two colors.



2. Help children to find two addition sentences that describe their trains. Then help them find two subtraction sentences that show what happens if one color is removed from each train that shows the total. Elicit that the same three numbers appear in all the sentences. You may explain that this group of numbers is called a *fact family.* Use your discretion.



3. Encourage children to find all the fact families for their assigned number. Have them make cube trains to show each fact family.

⚠ Look Out!

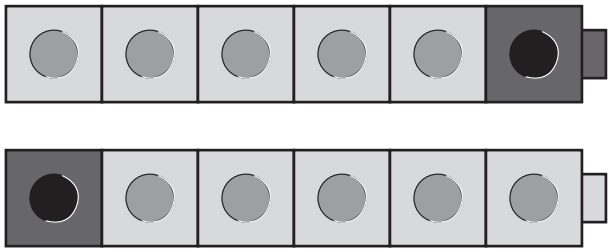
Some children might struggle with the subtraction sentences in the fact family. Reinforce subtraction by using the manipulatives to model how subtraction is part of the family. Also, watch out for children who want to combine three numbers in any which way, such as 3 + 7 = 4. Emphasize that there are two addition facts and two subtraction facts for each set of numbers.

Answer Key

Use Snap Cubes. Build the facts shown. Write two addition sentences. Then write two subtraction sentences.

(Check students' work.)

1.



5 + 1 = 6

1 + 5 = 6

6 − 1 = 5

6 − 5 = 1

Use Snap Cubes. Model two addition sentences. Draw the models. Write a family of sentences.

2. 3, 5, and 8

3 + 5 = 8

5 + 3 = 8

8 − 3 = 5

8 − 5 = 3

3. 6, 4, and 10

6 + 4 = 10

4 + 6 = 10

10 − 4 = 6

10 − 6 = 4

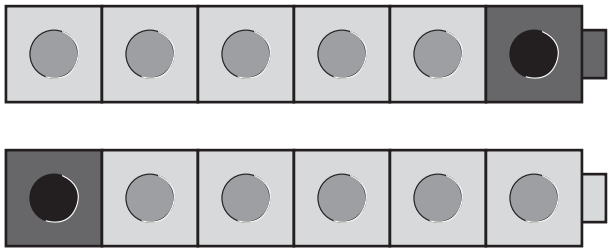
Answer Key

Challenge! Think of two numbers that make a sum of 13. Draw a model to show the sum. Write a family of number sentences.

Challenge: (Sample)
6 + 7 = 13
7 + 6 = 13
13 – 7 = 6
13 – 6 = 7

Name _____

Use Snap Cubes. Build the facts shown. Write two addition sentences. Then write two subtraction sentences.

1. 

_____ + _____ = _____

_____ + _____ = _____

_____ – _____ = _____

_____ – _____ = _____

Use Snap Cubes. Model two addition sentences. Draw the models. Write a family of sentences.

2. 3, 5, and 8

____ + ____ = _____

____ + ____ = _____

____ – ____ = _____

____ – ____ = _____

3. 6, 4, and 10

____ + ____ = _____

____ + ____ = _____

____ – ____ = _____

____ – ____ = _____

Name _____

Challenge! Think of two numbers that make a sum of 13. Draw a model to show the sum. Write a family of number sentences.