

Name \_\_\_\_\_

# Modeling Addition and Subtraction

## Adding and Subtracting with Two Colors

**You need**

- 10 two-color counters, paper cup

Put all the counters in the cup.

**STEP 1 Spilling the Counters**

How many counters are red? \_\_\_\_\_

How many counters are yellow? \_\_\_\_\_

**STEP 2 Writing Addition Sentences**

Write an addition sentence to match the counters.

\_\_\_\_\_

Is there another addition sentence you can write? Explain.

\_\_\_\_\_

\_\_\_\_\_

**STEP 3 Writing Subtraction Sentences**

Write a subtraction sentence to match the counters.

\_\_\_\_\_

Is there another subtraction sentence you can write? Explain.

\_\_\_\_\_

\_\_\_\_\_





# School-Home Connection

## Dear Family,

Today we started Chapter 9 of *Think Math!* In this chapter, I will add and subtract using Cuisenaire® Rods, rule machines, and Stair-Step Numbers. There are NOTES on some of the Lesson Activity Book pages to explain what I am learning every day.

Here are some activities for us to do together at home. These activities will help me practice addition and subtraction.

Love,

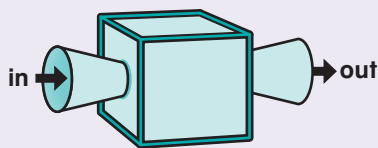
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## Family Fun

### Guess the Rule

Work with your child to play a game called *Guess the Rule*. Your child will play this game in Lesson 3.

- Think of a secret rule for the rule machine, such as add 4, subtract 3, 1 hour later, spend a nickel, or double. Tell your child if the rule involves time, money, or numbers.



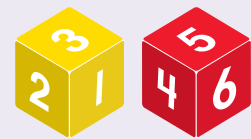
- Have your child say an input. Then you say the output. Continue until your child is ready to guess your rule. You may wish to record the numbers in an input/output table.

in	5	8	2	1	10
out	9	12	6	5	14

### Fact Family Toss

Work with your child to practice writing addition and subtraction fact families.

- Have your child toss two number cubes labeled 1 through 6. Ask your child to find the sum of the numbers tossed.



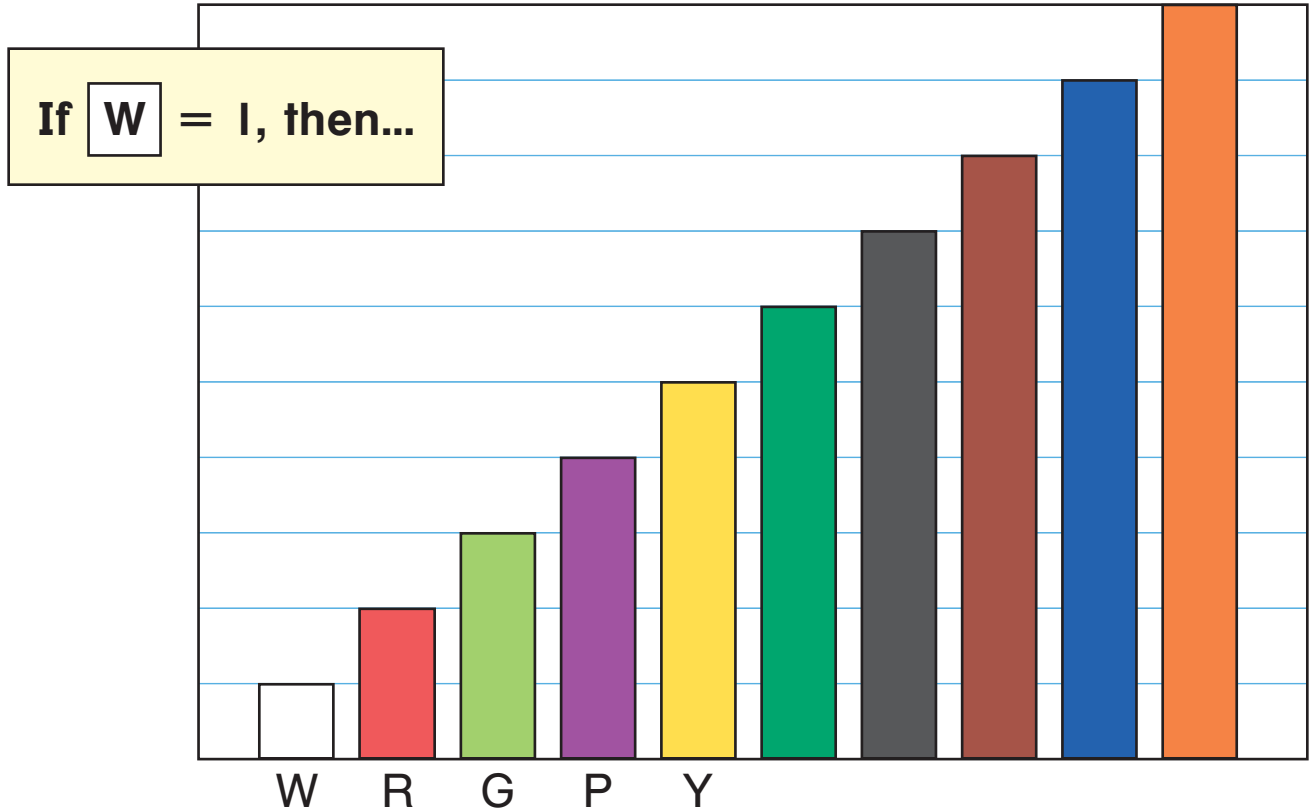
- Then have your child write a fact family for these numbers.

$$\begin{array}{l} 3 + 5 = 8 \quad 8 - 5 = 3 \\ 5 + 3 = 8 \quad 8 - 3 = 5 \end{array}$$

- You might ask what the fact family will look like if two of the same numbers are tossed.
- Have your child repeat this activity a few more times for extra practice.

# Exploring Addition with Cuisenaire® Rods

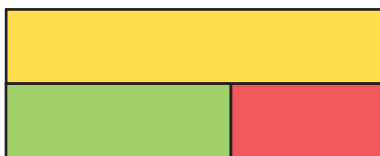
NCTM Standards 1, 2, 6, 9, 10



- Complete the code.  
Use a different letter for each rod.

W	R	G	P	Y					
1	2								

- Complete the number sentence.



$$\begin{array}{c} \text{G} \\ \hline \end{array} + \frac{\quad}{\quad} = \frac{\quad}{\quad}$$
  

$$\square + \square = \square \text{ 5}$$

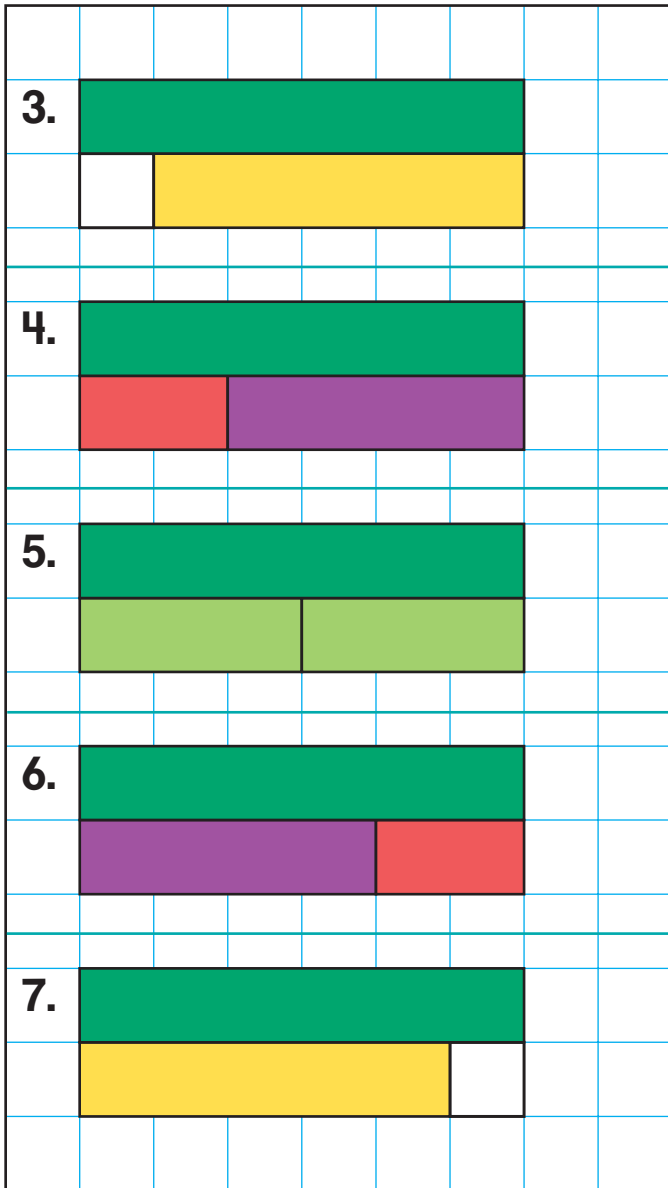
© Education Development Center, Inc.



**NOTE:** Your child is learning to write addition sentences about Cuisenaire® Rods. Ask your child to write an addition sentence about any two rods.

Complete each addition sentence.

If  $W = 1$ , then...



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

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{6}$$

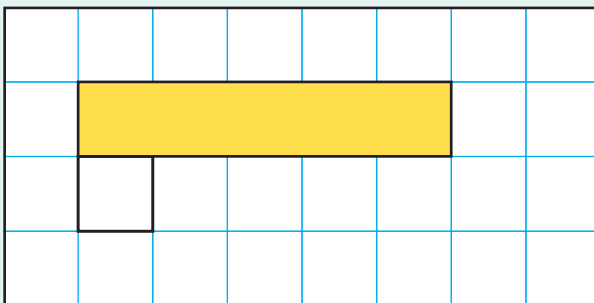
$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{6}$$

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{6}$$

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{6}$$

### Challenge

8. What rod is missing? Complete the addition sentence.



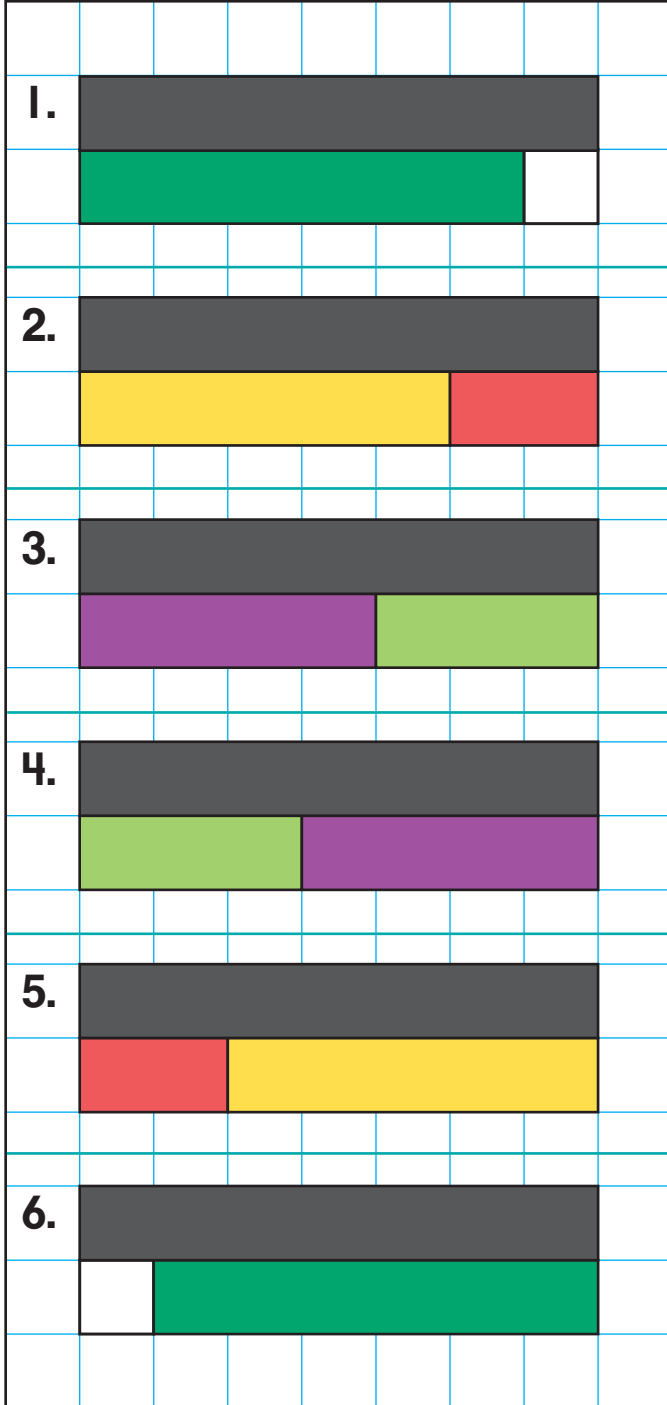
$$\underline{\phantom{0}} + \underline{\phantom{0}} = \underline{Y}$$

# Recording Addition Sentences

NCTM Standards 1, 2, 6, 9, 10

Complete each addition sentence.

If  $\boxed{W} = 1$ , then...



$$\boxed{6} + \boxed{1} = \boxed{7}$$

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{7}$$

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{7}$$

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{7}$$

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{7}$$

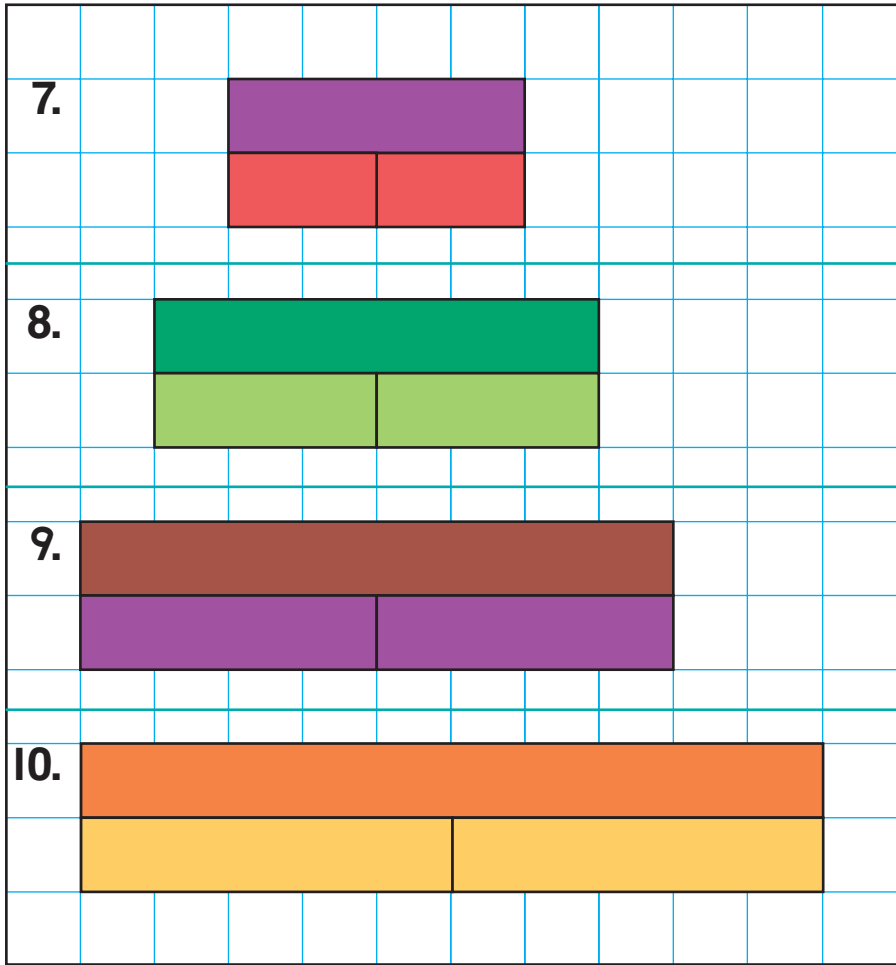
$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{7}$$



**NOTE:** Your child is learning to find different ways to make the same number. Ask your child to find at least two ways to make a sum of 5.

Complete each addition sentence.

If  $\boxed{W} = 1$ , then...



$$\boxed{2} + \boxed{2} = \boxed{4}$$

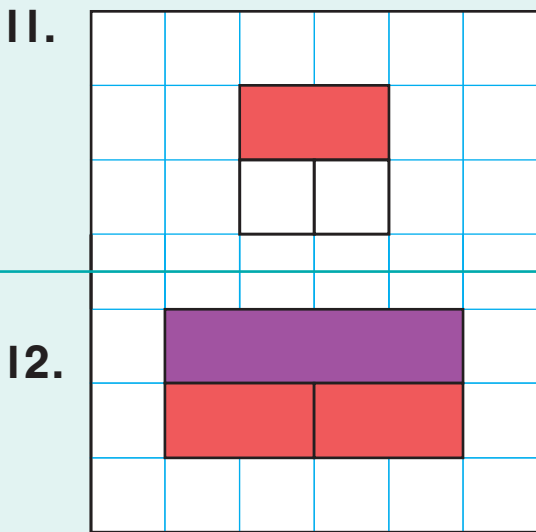
$$\boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

**Challenge**

If  $\boxed{W} = 2$ , then...



$$\boxed{2} + \boxed{2} = \boxed{\phantom{00}}$$

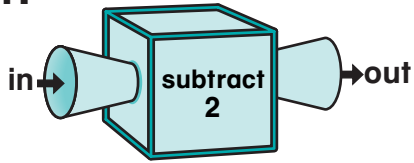
$$\boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

# Exploring Input/Output Tables

NCTM Standards 1, 2, 4, 6, 9, 10

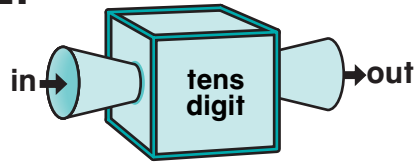
## What is missing?

1.



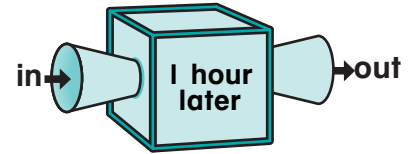
in	out
8	6
11	9
12	10
6	4
4	
	3
10	
	5

2.



in	out
32	3
19	1
75	
65	
98	
32	
	5
	4

3.



in	out
3:00	4:00
1:00	2:00
8:30	:
2:00	:
:	5:00
:	8:30
10:30	:
:	1:00



**NOTE:** The tables in this lesson help your child recognize patterns. You may wish to create similar rule machines to share with your child.

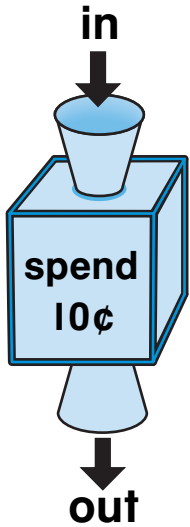
# What is missing?

4.



in	hog	ill	top	hat	ear	rug
out	h	⋮				

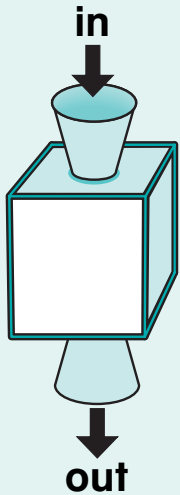
5.



in	40¢	50¢	60¢			35¢
out	30¢	40¢		60¢	5¢	

## Challenge

6. Make your own rule.



in				
out				

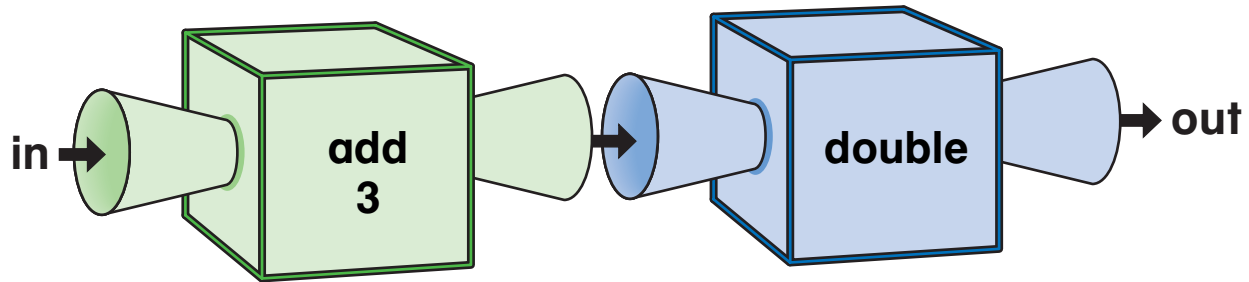


# Using Input/Output Tables

NCTM Standards 1, 2, 6, 9, 10

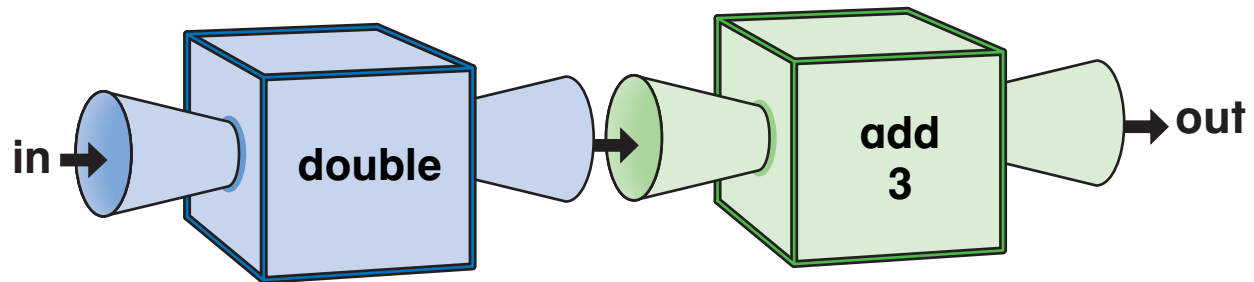
What is missing?

1.



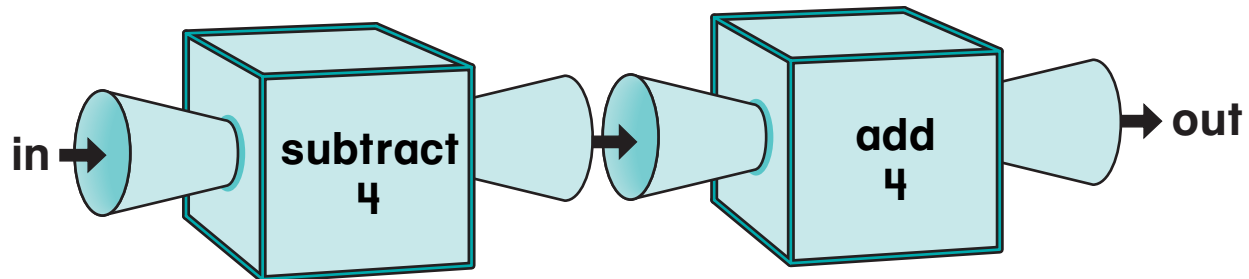
in	3	1	7	4	5	0	
out	12	8				6	10

2.



in	3	1	2	4	5		
out	9					15	3

3.



in	8	10	12	6	4		
out						5	9

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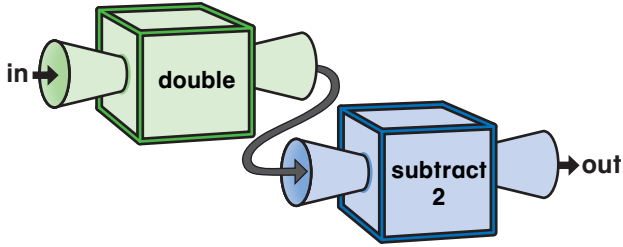


**NOTE:** Your child is learning to complete multi-step problems. Ask your child to explain how to find the missing numbers in one of the tables.



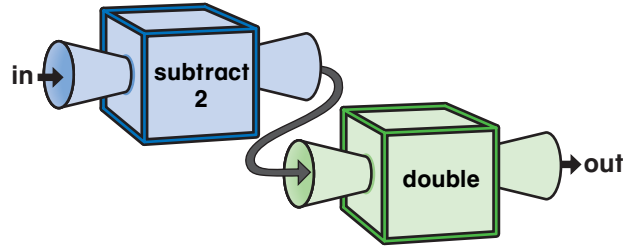
# What is missing?

4.



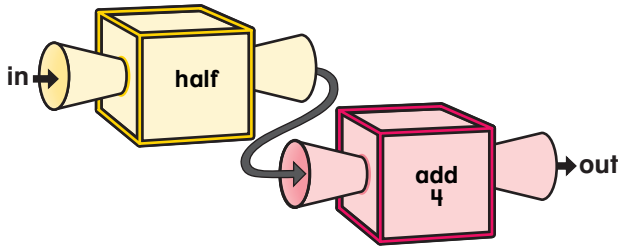
in	5	8	
out	8		6

5.



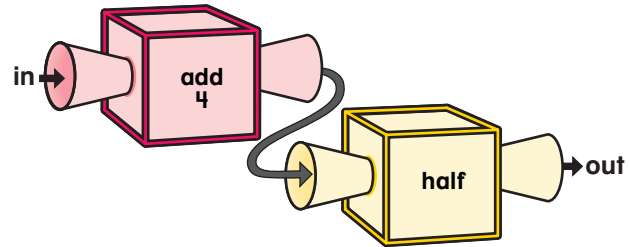
in	5	8	
out			10

6.



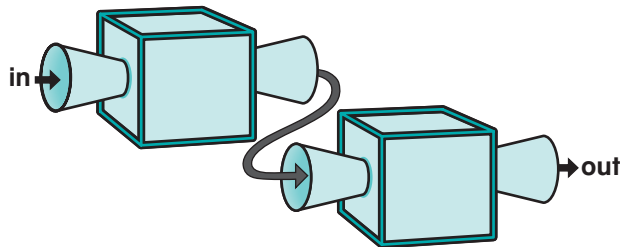
in	10	6	
out			

7.



in	10	6	
out			

8. Make your own.

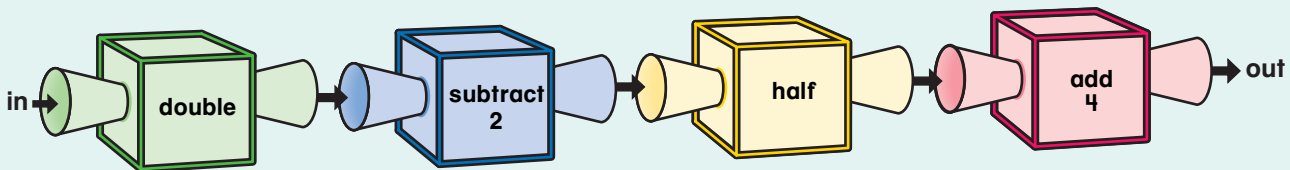


in	4	3	
out			

## Challenge

9.

in	4	10	8		
out				9	5

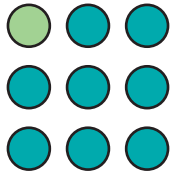


# Making Fact Families

NCTM Standards 1, 2, 6, 9, 10

## What is the fact family?

1.



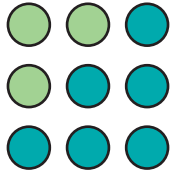
$$\begin{array}{r} 1 + 8 = 9 \\ \hline \end{array}$$

$$\begin{array}{r} 8 + 1 = 9 \\ \hline \end{array}$$

$$\begin{array}{r} 9 - 1 = \\ \hline \end{array}$$

$$\begin{array}{r} 9 - \quad = 1 \\ \hline \end{array}$$

2.



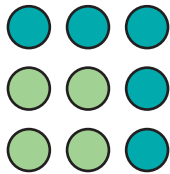
$$\begin{array}{r} 3 \\ + \quad \\ \hline \end{array}$$

$$\begin{array}{r} \quad \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} \quad \\ - 3 \\ \hline \end{array}$$

$$\begin{array}{r} \quad \\ + \quad \\ \hline 3 \end{array}$$

3.



$$\begin{array}{r} 4 + \quad = \\ \hline \end{array}$$

$$\begin{array}{r} 5 + \quad = \\ \hline \end{array}$$

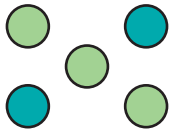
$$\begin{array}{r} \quad - 4 = \\ \hline \end{array}$$

$$\begin{array}{r} \quad - 5 = \\ \hline \end{array}$$

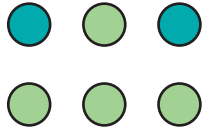


**NOTE:** Your child is learning to write addition and subtraction fact families. Ask your child to explain how to complete one of the exercises.

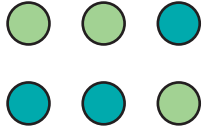
## What is the fact family?

4. 

$$\begin{array}{r} 3 + 2 = 5 \\ \hline + \quad = \\ \hline - \quad = \\ \hline - \quad = \end{array}$$

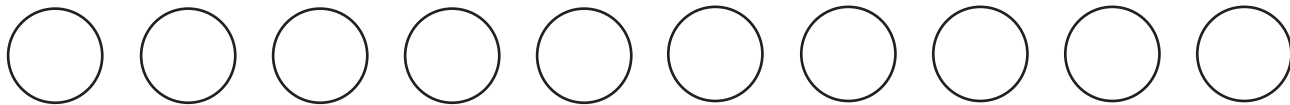
5. 

$$\begin{array}{r} + \quad = \\ \hline + \quad = \\ \hline - \quad = \\ \hline - \quad = \end{array}$$

6. 

$$\begin{array}{r} + \quad = \\ \hline + \quad = \\ \hline - \quad = \\ \hline - \quad = \end{array}$$

7. Color some dots. Write the fact family.



$$\begin{array}{r} \square \\ + \quad \square \\ \hline \square \end{array} \quad \begin{array}{r} \square \\ + \quad \square \\ \hline \square \end{array} \quad \begin{array}{r} \square \\ - \quad \square \\ \hline \square \end{array} \quad \begin{array}{r} \square \\ - \quad \square \\ \hline \square \end{array}$$

### Problem Solving

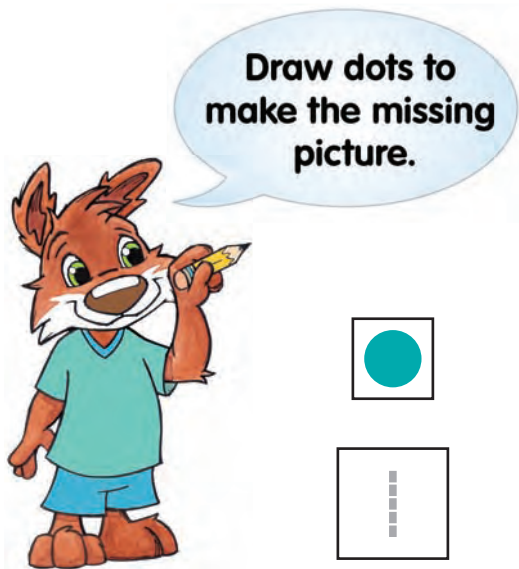
8. There are 8 cups.  
6 are empty.  
The rest are full.  
What is the fact family?

$$\begin{array}{r} 6 + \quad = 8 \\ \hline + \quad = 8 \\ \hline - \quad = \\ \hline - \quad = \\ \hline \end{array}$$


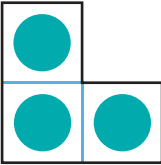
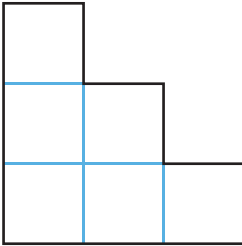
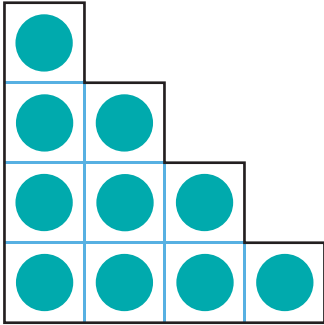


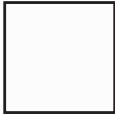
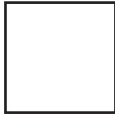
# Fact Families and Stair-Step Numbers

NCTM Standards 1, 2, 6, 7, 8, 9, 10

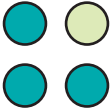
## I. What is missing?



Draw dots to make the missing picture.

## What is the fact family?

2. 

$3 + 1 =$

---

$1 + 3 =$

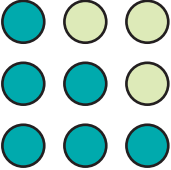
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$4 - 1 =$

---

$4 - 3 =$

---

3. 

$+ =$

---

$+ =$

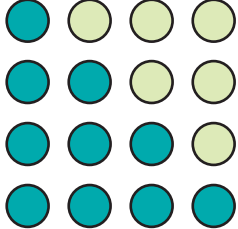
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$- =$

---

$- =$

---

4. 

$+ =$

---

$+ =$


---

$- =$





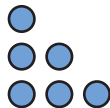
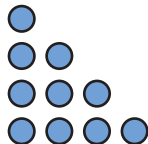
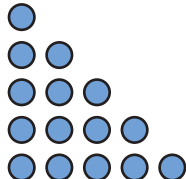
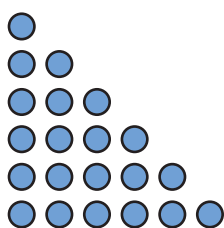
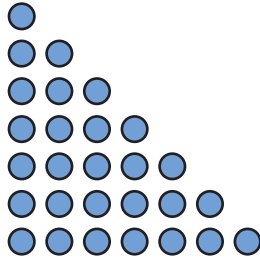
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$- =$

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 **NOTE:** Your child is learning to write fact families using Stair-Step Numbers. Ask your child to explain one of the fact families on this page.

5. What is next?

	
	
	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
	<input type="text"/>

 6. Explain how you found the numbers in Problem 5.

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What is the fact family?

7.  $6 + \underline{\quad} = 10$

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

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

$10 - 6 = \underline{\quad}$

8.  $\underline{\quad} + 5 = \underline{\quad}$

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

$15 - 5 = \underline{\quad}$

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

### Challenge

9. Look at Problem 5.  
What are the next 3 Stair-Step Numbers? Use counters or draw a picture to help you.

<input type="text"/>	<input type="text"/>	<input type="text"/>
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# Connecting Stories and Fact Families

NCTM Standards 1, 2, 6, 8, 9, 10

## What is the fact family?

1. I have 5 pets.  
2 are dogs.  
The others  
are kittens.

$$\begin{array}{r} 2 + 3 = 5 \\ \hline \end{array}$$

$$\begin{array}{r} 3 + 2 = 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 - 3 = \\ \hline \end{array}$$

$$\begin{array}{r} 5 - \quad = \\ \hline \end{array}$$

2. All the houses on our street  
are blue or brown.  
7 are blue.  
3 are brown.

$$\begin{array}{r} \quad + \quad = \\ \hline \end{array}$$

$$\begin{array}{r} \quad + \quad = \\ \hline \end{array}$$

$$\begin{array}{r} \quad - \quad = \\ \hline \end{array}$$

$$\begin{array}{r} \quad - \quad = \\ \hline \end{array}$$

3. 6 of the marbles are blue.  
The rest are green.  
There are 11 marbles.

$$\begin{array}{r} \quad + \quad = \\ \hline \end{array}$$

$$\begin{array}{r} \quad + \quad = \\ \hline \end{array}$$

$$\begin{array}{r} \quad - \quad = \\ \hline \end{array}$$

$$\begin{array}{r} \quad - \quad = \\ \hline \end{array}$$



**NOTE:** Your child is learning to connect fact families to real-world situations. You may wish to create a story similar to the ones on this page and ask your child for the matching fact family.





Complete each fact family.  
Then write a story to match it.

4.  $8 + \quad = 12$

\_\_\_\_\_

$\quad + 8 = 12$

\_\_\_\_\_

$12 - \quad = 8$

\_\_\_\_\_

$\quad - \quad =$

\_\_\_\_\_

5.  $2 + 5 =$

\_\_\_\_\_

$\quad + \quad =$

\_\_\_\_\_

$\quad - 5 = 2$

\_\_\_\_\_

$\quad - \quad =$

\_\_\_\_\_

### Problem Solving

6. Write a fact family that goes with the story. Solve.

Amy has 6 books.

Ken has 1 more book than Amy,  
Amy and Ken have

\_\_\_\_\_ books

$\quad + \quad =$

$\quad + \quad =$

$\quad - \quad =$

$\quad - \quad =$



# Two-Sentence Fact Families

NCTM Standards 1, 2, 6, 7, 8, 9, 10

What is the fact family?

1.



$$\begin{array}{r} 5 + 3 = 8 \\ 3 + 5 = 8 \\ 8 - 3 = 5 \\ \underline{\quad} - \quad = \end{array}$$

2. There are 7 children.  
2 wear jeans.  
The rest wear shorts.

$$\begin{array}{r} \quad + \quad = \\ \underline{\quad} \\ \quad + \quad = \\ \underline{\quad} \\ \quad - \quad = \\ \underline{\quad} \\ \quad - \quad = \\ \underline{\quad} \end{array}$$

3. Bill and Kay each have the  
same number of pennies.  
Together they have 16 pennies.

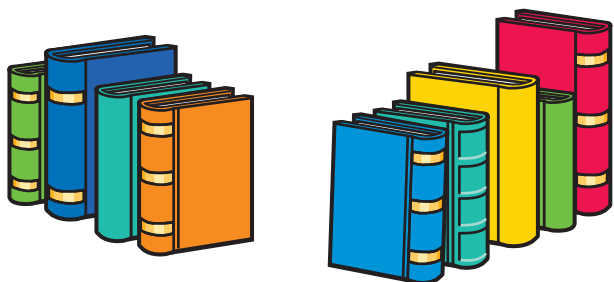
$$\begin{array}{r} \quad + \quad = \\ \underline{\quad} \\ \quad + \quad = \\ \underline{\quad} \\ \quad - \quad = \\ \underline{\quad} \\ \quad - \quad = \\ \underline{\quad} \end{array}$$



**NOTE:** Your child is learning more about addition and subtraction fact families. Ask your child to explain why some fact families only have two number sentences.

Write the fact family. Then solve.

4.



\_\_\_\_\_ books

$$\begin{array}{r} + \quad = \\ \hline + \quad = \\ \hline - \quad = \\ \hline - \quad = \\ \hline \end{array}$$

5. Sandra walks 4 blocks to school.  
Then she walks home.  
How many blocks did she walk?

\_\_\_\_\_ blocks

$$\begin{array}{r} + \quad = \\ \hline + \quad = \\ \hline - \quad = \\ \hline - \quad = \\ \hline \end{array}$$

6. My birthday is two weeks  
from today.  
How many days is that?

\_\_\_\_\_ days

$$\begin{array}{r} + \quad = \\ \hline + \quad = \\ \hline - \quad = \\ \hline - \quad = \\ \hline \end{array}$$

## Challenge

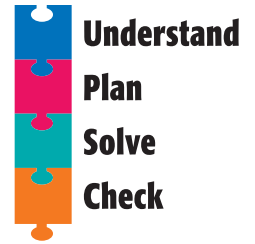
7. Make a two-sentence fact family.

$$\begin{array}{r} + \quad = \quad | \\ \hline | \quad - \quad = \\ \hline \end{array}$$

# Problem Solving Strategy

## Look for a Pattern

NCTM Standards 1, 2, 6, 7, 8, 9, 10



1. Julio earns money every week. He saves money too. What rule does Julio follow?

<b>Money Earned</b>	\$4	\$8	\$6	\$10
<b>Money Saved</b>	\$2	\$4	\$3	\$5

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2. Annie saves 5¢ every day. How much money will Annie save in a week?

AUGUST						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

\_\_\_\_\_ ¢

3. Chris plants red and yellow roses in his garden. He follows a pattern. What are the colors of the next two flowers?




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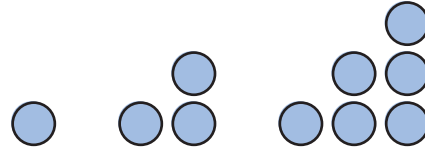
**NOTE:** Your child is exploring different ways to solve problems. Ask your child to explain how looking for a pattern can help solve these problems.

# Problem Solving Test Prep

1. Trey plants beans and carrots. He has 10 plants. He has 2 more beans than carrots. How many carrots does he plant?

- (A) 2
- (B) 4
- (C) 6
- (D) 10

2. Carla made a pattern with counters.



How many counters are in the next figure?

- (A) 7
- (B) 9
- (C) 10
- (D) 12

## Show What You Know

3. You have these coins. You want to buy a sticker for 48¢. How much more money do you need?



\_\_\_\_\_ ¢

Explain how you found your answer.

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4. Stickers cost 10¢ each. Joey has 34¢. What is the largest number of stickers he can buy?

\_\_\_\_\_ stickers

Explain how you found your answer.

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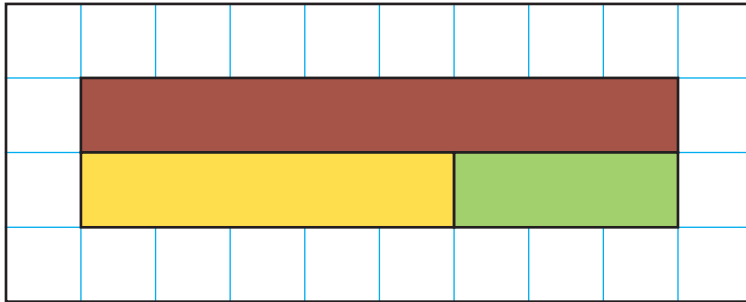


# Review/Assessment

NCTM Standards 1, 2, 6, 7, 8, 9, 10

1. Complete the addition sentences. *Lessons 1 and 2*

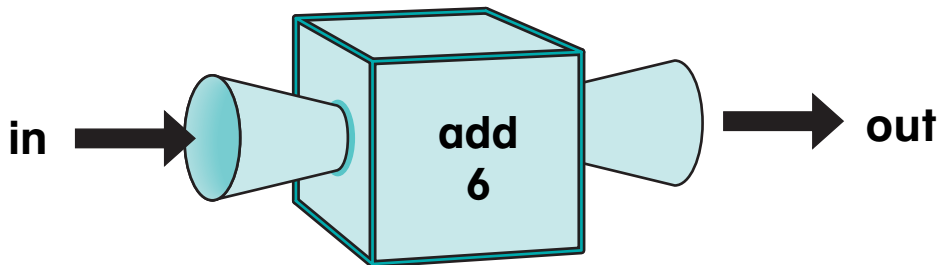
If  $\boxed{W} = 1$ , then . . .



$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{8}$$

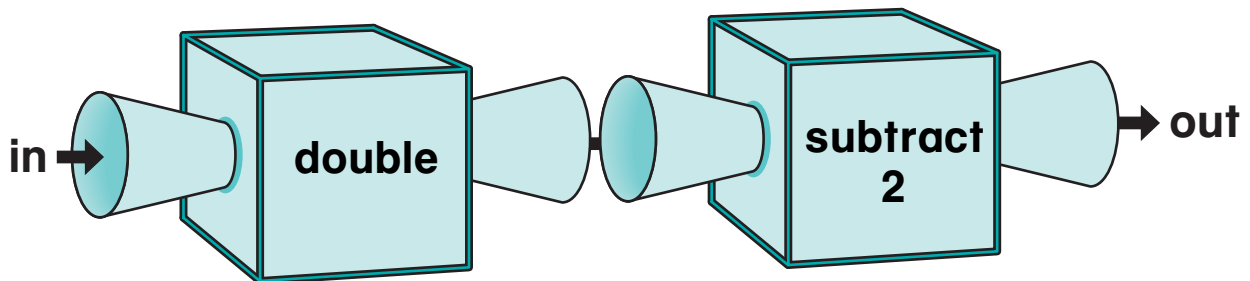
What is missing? *Lessons 3 and 4*

2.



in	2	5	6			9	7	
out				9	10			7

3.

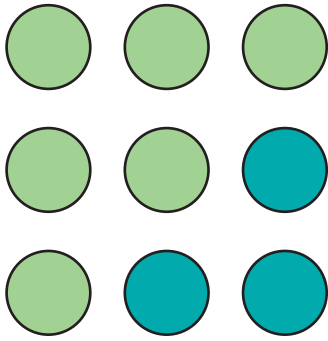


in	3	2	6	7	4		
out	4					8	0



# What is the fact family? Lessons 5–8

4.



	+		=	
	+		=	
	-		=	
	-		=	

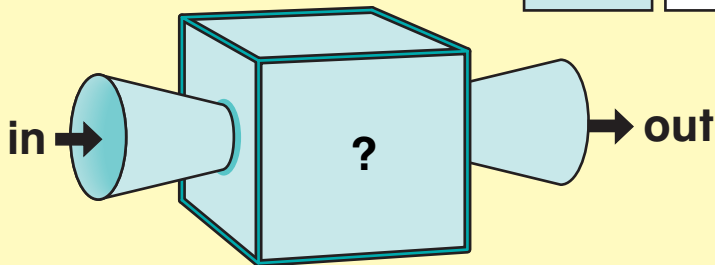
5. Jordan has 8 shirts.  
Four are blue.  
The rest are white.

	+		=	
	+		=	
	-		=	
	-		=	

## Problem Solving Lesson 9

6. Find a rule.  
Complete the table.

in	4	6	3	9
out	8	12		18



Rule: \_\_\_\_\_  
\_\_\_\_\_