7.1 Exploring Combinations of Ten

Look at these cubes.

What addition sentence matches the picture?
How else could you break up the cubes?
What other addition sentences could you write?

Step Up

1. Color some of the cubes. Then write a matching addition sentence.
   a. \[ \square + \square = 10 \]
   b. \[ \square + \square = 10 \]
   c. \[ \square + \square = 10 \]

Step Ahead

Think of some different ways to break up 11 cubes. Then complete these addition sentences to match.

\[
\begin{align*}
\square + \square + \square &= 11 \\
\square + \square &= 11 \\
\square + \square + \square &= 11 \\
\square + \square + \square &= 11 \\
\end{align*}
\]
7.2 Using the Associative Property of Addition with Three Whole Numbers

How many bugs are there in total? How do you know?

I know there are 12 because $6 + 4$ is 10 and 2 more are 12.

What addition sentence could you write to show how you added?

Step Up 1. Draw to show two groups that make 10. Write an addition sentence to show how you add to find the total.

Step Ahead Write three different addition sentences to match this picture.

2. Figure out the total. Write an addition sentence to show how you added.

a. $\underline{\underline{\_}} + \underline{\underline{\_}} + \underline{\underline{\_}} = \underline{\underline{\_}}$

b. $\underline{\underline{\_}} + \underline{\underline{\_}} + \underline{\underline{\_}} = \underline{\underline{\_}}$

c. $\underline{\underline{\_}} + \underline{\underline{\_}} + \underline{\underline{\_}} = \underline{\underline{\_}}$

d. $\underline{\underline{\_}} + \underline{\underline{\_}} + \underline{\underline{\_}} = \underline{\underline{\_}}$

e. $\underline{\underline{\_}} + \underline{\underline{\_}} + \underline{\underline{\_}} = \underline{\underline{\_}}$

f. $\underline{\underline{\_}} + \underline{\underline{\_}} + \underline{\underline{\_}} = \underline{\underline{\_}}$
Introducing the Make-Ten Strategy for Addition

Look at this picture of counters. How can you figure out the total?

9 + 3 is the same as 10 + 2. 10 + 2 is 12.

How would you use this strategy to figure out 9 + 6?

Step Ahead
Think of six different ways this cube train could be broken into two groups. Complete the addition sentences to match.

Step Up
I. Draw more counters. Then write the numbers to match.

2. Draw more counters. Then write the numbers to match.

- a. Draw 6 more.
- b. Draw 7 more.
- c. Draw 4 more.
- d. Draw 5 more.

Think of six different ways this cube train could be broken into two groups. Complete the addition sentences to match.

SAMPLE

9 + 3 = 10 + 2
10 + 2 = 12

I moved one counter to make a group of 10. This made it easier to add.

9 + 3 is the same as 10 + 2. 10 + 2 is 12.

9 + 3 = 10 + 2
10 + 2 = 12

Think of six different ways this cube train could be broken into two groups. Complete the addition sentences to match.

SAMPLE

9 + 3 = 10 + 2
10 + 2 = 12

I moved one counter to make a group of 10. This made it easier to add.
What do you notice about the counters in this picture? How can you easily figure out the total?

I would move two counters to fill the frame then figure out the total.

If you moved two counters, what addition sentence could you write to show the number of counters that would be on and off the frame?

Step Up
1. Draw more counters to figure out the total. Fill the ten-frame first. Then write the tens fact to match the picture.

   a. $9 + 3 = ___$
   b. $9 + 6 = ___$
   c. $8 + 4 = ___$

Step Ahead
Loop the facts that have the same total as the counters in this picture.

   $9 + 3 = ___$
   $8 + 5 = ___$
   $7 + 5 = ___$

   $8 + 4 = ___$
   $8 + 3 = ___$
Using the Commutative Property of Addition with Make-Ten Facts

What two addition facts match this picture?
Which fact do you think is easier to figure out? Why?

I find it easier to figure out 9 + 4 then write the turnaround.

Step Ahead
Add the numbers in each row. Then add the numbers in each column. Write what you notice.

Sample

\[
\begin{array}{ccc}
8 & 1 & 6 \\
3 & 5 & 7 \\
4 & 9 & 2 \\
\end{array}
\]
7.6 Consolidating Addition Strategies

Look at these pictures.

How could you figure out the total in each picture? Which addition strategy would you use?

Which addition strategy would you use to solve each of these facts?

Step Up

1. Write the answer. Then color the circle green, blue, or orange to show the strategy you used to figure out the total.

- 13 + 1 = _____
- 9 + 8 = _____
- 5 + 6 = _____
- 8 + 8 = _____
- 5 + 6 = _____
- 3 + 9 = _____
- 2 + 16 = _____
- 9 + 2 = _____
- 7 + 9 = _____

Addition Strategy
- count-on
- doubles
- make-ten

2. Write the answer. Then draw a line to the strategy you used to figure it out.

- 8 + 4 = _____
- 7 + 5 = _____
- 2 + 11 = _____
- 15 + 2 = _____
- 15 + 3 = _____
- 6 + 6 = _____
- 7 + 8 = _____
- 6 + 8 = _____
- 9 + 9 = _____
- 5 + 9 = _____
- 9 + 6 = _____
- 18 + 1 = _____

Step Ahead

You can use more than one strategy to solve the same fact. Complete these to show the different ways these totals can be figured out.

- a. Use the make-ten strategy
  - 9 + 8 = __________ is the same as __________ + __________ = __________
  - 10 + __________ = __________

- b. Use the make-ten strategy
  - 8 + 6 = __________ is the same as __________ + __________ = __________
  - __________ + __________ = __________

- Use the double-plus-1 strategy
  - 9 + 8 = __________ is the same as __________
  - double __________ plus __________ = __________

- Use the double-plus-2 strategy
  - 8 + 6 = __________ is the same as __________
  - double __________ plus __________ = __________
### Applying Addition Strategies

**Step Up**

a. Write an addition sentence to match the picture. Then write a word story to match.

```
+ =
```

b. Write an addition sentence to figure out the total in these three jars. Then write a word story to match.

```
+ + =
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**Step Ahead**

Imagine you had one of each sheet of stickers shown on page 164. How many stickers would you have in total? Try to make tens first, then find the total.
7.8 Working with Equal Groups

Look at these groups of spaceships. What do you notice?

How many groups are there?

How many spaceships are in each group?

What is the total? How do you know?

What is another way these spaceships could fly in equal groups?

Step Up

1. Write the number of groups and the number in each group.

a.

b.

Step Ahead

Draw pictures to show two different ways 12 marbles can be split into equal groups.

2. Write numbers to describe each picture.

a. __ jars of __

b. __ jars of __

3. Draw groups of balls to match these labels.

a. __ groups of 2

b. 2 groups of __
7.9 Sharing Between Two

How many counters can you see?

Can the counters be shared equally between two groups? How do you know?

What other quantities can be shared equally between 2?

Step Up

1. Your teacher will give you a sharing mat. Use ones blocks on the mat to figure out each person’s share. Then complete each sentence.

   a. 10 shared by 2 is ____ each.
   b. 12 shared by 2 is ____ each.
   c. 18 shared by 2 is ____ each.
   d. 14 shared by 2 is ____ each.
   e. 16 shared by 2 is ____ each.
   f. 20 shared by 2 is ____ each.

2. a. Shade each number that can be shared equally between 2.

   
   
   
   
   
   
   

   b. Describe the pattern you see.

   c. Write some more numbers that can be shared equally between 2.

   

Step Ahead

Write a story about sharing to match this picture.

SAMPLE

SAMPLE
7.10 Identifying One-Half of a Collection

Look at this sheet of paper.
How many parts can you see?
What do you notice about the parts?
What is another way you could fold the paper to show two parts the same size?

How many cubes can you see?
How many cubes are in each share?
How many cubes are in one-half?

Write numbers to complete this sentence.

One-half of ______ is ______.

Step Up 1. Loop one-half of each group. Then complete each sentence.

a. b.

Step Ahead Color parts of each picture to show one-half in two different ways.

2. Loop one-half. Then write numbers to complete each sentence.

a. b.

3. Complete the sentence. Draw dots to help.

a. b.

One-half is 7, so the total is ______.
One-half is 10, so the total is ______.
7.11 Identifying One-Half of Amounts of Money

Look at these pennies.
What is the total value?
How can you figure out one-half of the total?

What are some other amounts you can halve?

How do you know if an amount can be halved?

Step Up

a. The total is _____ cents.

One-half is _____ cents.

b. The total is _____ cents.

One-half is _____ cents.

c. The total is _____ cents.

One-half is _____ cents.

d. The total is _____ cents.

One-half is _____ cents.

Step Ahead

Can these pennies be shared equally by 2? Explain your thinking. You can draw a picture to help.

2. Write the total value. Then loop one-half and complete the sentence.

a. The total is _____ cents.

One-half is _____ cents.

b. The total is _____ cents.

One-half is _____ cents.

c. The total is _____ cents.

One-half is _____ cents.

d. The total is _____ cents.

One-half is _____ cents.
Look at this sheet of paper.
What do you notice?
What is another way you could fold the sheet to show one-half?
How many different ways could you show one-half?
How could you prove that a sheet of paper has been folded to show one-half?

Which of these does not show one-half? How do you know?

2. Color red one of the parts in each. Then loop each picture that shows one-half in red.

Step Up 1. Draw a line on each to show one-half.

Step Ahead Color parts to match each label.

Less than one-half
One-half
More than one-half