10 spaceships return home. Some land on the blue mat, and some land on the red mat. What are five ways the spaceships could land?

Try It

____ and ____ make 10.
____ and ____ make 10.
____ and ____ make 10.
____ and ____ make 10.
____ and ____ make 10.
Connect It

Mia needs to show two cards that make 10.
What are five ways she could show 10?
Prepare for Number Partners for 10

1. Think about what you know about addition. Fill in each box. Use words, numbers, and pictures. Show as many ideas as you can.

2. Jasmine has a total of 10 fish. 2 fish are yellow and the rest are red. How many red fish does Jasmine have?
3 Solve the problem.

Anna wants to show five different pairs of numbers that make 10.
What are five ways she could show 10?
Jen and Kay each have cards with numbers 1 to 9. Two cards with a sum of 10 are chosen. What are different ways to make 10?

Try It

Math Toolkit
• connecting cubes
• number bond
• number cards

DISCUSS IT
To make 10, I start with one number and then . . .
Jen and Kay each have cards with numbers 1 to 9. Two cards with a sum of 10 are chosen. What are different ways to make 10?

Model It

Find different ways to make 10.

1 + ____ = 10     ____ + 1 = 10

2 + ____ = 10     ____ + 2 = 10

3 + ____ = 10     ____ + 3 = 10

4 + ____ = 10     ____ + 4 = 10

5 + ____ = 10
Connect It

1. How is your way like Model It? How is it different?

2. How do cubes help you?

Apply It

3. Look at the models. Complete the equations.

- 10 = 5 + ____
- 10 = 6 + ____
- 10 = ____ + 6
- 10 = 7 + ____
- 10 = ____ + 7
- 10 = 8 + ____
- 10 = ____ + 8
- 10 = 9 + ____
- 10 = ____ + 9
4 Look at the model. Complete the two equations.

\[
\begin{align*}
\_\_\_ + \_\_\_ &= 10 \\
\_\_\_ + \_\_\_ &= 10
\end{align*}
\]

5 Color to show \(2 + 8 = 10\). Then write another equation for your model.

\[
\begin{align*}
\_\_\_ + \_\_\_ &= 10
\end{align*}
\]

6 Color to show \(7 + 3 = 10\). Then write another equation for your model.

\[
\begin{align*}
\_\_\_ + \_\_\_ &= 10
\end{align*}
\]
Practice Number Partners for 10

Look at the Example. Then solve problems 1–4.

Example
Use the row of 10 cubes.
What are two ways to make 10?

1 blue cube and 9 green cubes

10 = 1 + 9  
10 = 9 + 1

1 Use the cubes. Write ways to make 10.

10 = ____ + 9  
10 = ____ + 1

10 = ____ + 8  
10 = ____ + 2

10 = ____ + 7  
10 = ____ + 3

10 = ____ + 6  
10 = ____ + 4

10 = ____ + 5
2 Look at the model.
Complete the two equations.

\[10 = \_ + \\
10 = \_ + \\
\]

3 Color to show \(5 + 5 = 10\).

4 Find all the number partners for 10.
Complete the number bonds.
Dalila has 10 beads. 6 are red. The rest are yellow.
How many are yellow? How do you know?

Try It

Math Toolkit
- counters
- connecting cubes
- number bonds

DISCUSS IT
How can you think about the partners for 10?
Dalila has 10 beads. 6 are red. The rest are yellow. How many are yellow? How do you know?

Model It

10 - 6 = ?
6 + ? = 10
Use 10 counters. 6 are red. The rest are yellow.

10 - 6 = ____
6 + ____ = 10

Dalila has ____ yellow beads.

Connect It

1 How is your way like Model It? How is it different?
What does the number bond show?
Who is right? How do you know?

 Buzz
 8 + 2 = 10
 2 + 8 = 10

 Boom
 10 − 2 = 8
 10 − 8 = 2

Apply It

10 stickers in an album. Some are big. 1 is small.
How many are big?

Find ? + 1 = 10.

Start with 1.

Draw counters to make 10.

____ + 1 = 10
4 Find $5 + ? = 10$.

Draw counters. Use two colors.

$5 + ____ = 10$

$10 - 5 = ____$

5 Find $7 + ? = 10$.

Draw counters. Use two colors.

$7 + ____ = 10$

$10 - 7 = ____$

6 Find $6 + ? = 10$.

Draw counters. Use two colors.

$6 + ____ = 10$

$10 - 6 = ____$
Look at the Example. Then solve problems 1–5.

**Example**  Find $7 + ? = 10$.
Start with 7.
Add counters to make 10.

$7 + 3 = 10$

$10 - 7 = 3$

Start with 5.
Draw counters to make 10.

$5 + ____ = 10$

Start with 1.
Draw counters to make 10.

$1 + ____ = 10$
3. Find \(4 + ? = 10\).
   Draw counters. Use two colors.
   
   \[
   \begin{array}{cccc}
   & & & \\
   & & & \\
   & & & \\
   & & & \\
   & & & \\
   \end{array}
   \]
   \[
   4 + \_\_\_ = 10 \\
   10 - 4 = \_\_\_ 
   \]

4. Find \(3 + ? = 10\).
   Draw counters. Use two colors.
   
   \[
   \begin{array}{cccc}
   & & & \\
   & & & \\
   & & & \\
   & & & \\
   \end{array}
   \]
   \[
   3 + \_\_\_ = 10 \\
   10 - 3 = \_\_\_ 
   \]

5. Draw counters to make 10.
   Complete the number bond.
   Then write two equations.
   
   \[
   \begin{array}{cccc}
   \text{red} & \text{red} & & \\
   & & & \\
   & & & \\
   & & & \\
   & & & \\
   \end{array}
   \]
   \[
   \begin{array}{cccc}
   10 & & & \\
   & 2 & & \\
   \end{array}
   \]
   \[
   \_\_\_ + \_\_\_ = \_\_\_ \\
   \_\_\_ - \_\_\_ = \_\_\_ 
   \]
Complete the Example. Then solve problems 1–5.

**Example**  Write two equations.

```
10
5  5

10 = 5 + 5

10 - ____ = ____
```

**Apply It**

1. Complete the number bond. Write two addition equations.

```
9
10

10 = ____ + ___

____ + ____ = 10
```

2. Complete the number bond. Write two subtraction equations.

```
9
10

10 - ____ = ____

10 - ____ = ____
```
3 Complete the number bond. Write two equations.

$$10 = \Box + \Box$$

$$10 - \Box = \Box$$

4 Complete the number bond. Write four equations.

$$10 - \Box = \Box \quad 10 - \Box = \Box$$

$$\Box + \Box = 10 \quad \Box + \Box = 10$$

5 Draw an X on the pair of cards that does NOT show a way to make 10.
Practice Number Partners for 10

Look at the Example. Then solve problems 1–5.

**Example**  Write four equations.

\[
\begin{align*}
7 + 3 &= 10 \\
10 - 7 &= 3 \\
3 + 7 &= 10 \\
10 - 3 &= 7
\end{align*}
\]

1. Write two addition equations.

\[
\begin{align*}
10 &= \underline{\phantom{0}} + \underline{\phantom{0}} \\
10 &= \underline{\phantom{0}} + \underline{\phantom{0}}
\end{align*}
\]

2. Complete the number bond. Write two subtraction equations.

\[
\begin{align*}
10 - \underline{\phantom{0}} &= 6 \\
10 - 6 &= \underline{\phantom{0}}
\end{align*}
\]
3. Complete the number bond. Write two equations.

\[
\begin{align*}
5 & \quad 10 \\
\_ & \quad \_ \\
10 & \quad 10
\end{align*}
\]

\[
\_ + \_ = 10 \\
10 - \_ = 5
\]

4. Complete the number bond. Write four equations.

\[
\begin{align*}
10 & \quad 8 \\
\_ & \quad \_ \\
\_ & \quad \_ \\
\_ & \quad \_
\end{align*}
\]

\[
10 = \_ + \_ \\
10 - \_ = \_ \\
\_ + \_ = 10 \\
10 - \_ = \_
\]

5. Draw an X on the pair of cards that does NOT show a way to make 10.

[Image of cards with numbers 9, 6, and 5]
Apply It

Solve problems 1–6.

1. Draw counters to show 10. Write two equations.

   ![Counters](image)

   10 − ____ = ____
   10 − ____ = ____

2. Complete the number bond. Write two equations.

   ![Number Bond](image)

   10 = ____ + ____
   10 = ____ + ____

3. Complete the number bond. Write four equations.

   ![Number Bond](image)

   ____ + ____ = 10  10 − ____ = ____
   10 = ____ + ____  10 − ____ = ____
4. Complete the number bond. Write two equations.

\[ 8 + \Box = 10 \]
\[ 10 - \Box = \Box \]

5. Complete the number bond. Write four equations.

\[ 9 + \Box = 10 \]
\[ \Box + \Box = 10 \]
\[ 10 - \Box = \Box \]
\[ 10 - \Box = \Box \]

6. Complete the number bond. Write four equations.

\[ 10 + \Box = 10 \]
\[ \Box + \Box = 10 \]
\[ 10 - \Box = \Box \]
\[ 10 - \Box = \Box \]
Lesson 10
Use Strategies for Addition and Subtraction Facts

**Lesson 10**

**Explore** Using Strategies for Addition and Subtraction Facts

**Learning Target**
- Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten; decomposing a number leading to a ten; using the relationship between addition and subtraction; and creating equivalent but easier or known sums.

**SMP 1, 2, 3, 4, 5, 6, 7, 8**

**Try It**

Listen to the clues.
Use counters to find missing numbers.

**Math Toolkit**
- counters

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Connect It

I have 8 marbles.
5 marbles are red, the rest are yellow.
How many are yellow?

__ = ___

____ marbles are yellow.
Prepare for Using Strategies to Add and Subtract

1. Think about what you know about strategies that help you solve addition and subtraction problems. Fill in each box. Use words, numbers, and pictures. Show as many ideas as you can.

2. Explain your strategy for solving

   \[6 - 2 = \_\_\].
3 Solve the problem. Show your work.

I have 7 buttons.
3 buttons are yellow, the rest are green.
How many are green?

5 buttons are green.
Hugo tries to figure out the total $4 + 5$. He knows some other facts that can help him. What facts could help him? What is the total?

Try It

DISCUSS IT
How can knowing another addition fact help you solve this problem?
Hugo tries to figure out the total $4 + 5$. He knows some other facts that can help him. What facts could help him? What is the total?

**Model It**

Use facts you know. Write the totals.

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1 + 1</td>
<td>1 + 2</td>
<td>1 + 3</td>
<td>1 + 4</td>
<td>1 + 5</td>
<td>1 + 6</td>
<td>1 + 7</td>
<td>1 + 8</td>
</tr>
<tr>
<td>2 + 1</td>
<td>2 + 2</td>
<td>2 + 3</td>
<td>2 + 4</td>
<td>2 + 5</td>
<td>2 + 6</td>
<td>2 + 7</td>
<td>2 + 8</td>
</tr>
<tr>
<td>3 + 1</td>
<td>3 + 2</td>
<td>3 + 3</td>
<td>3 + 4</td>
<td>3 + 5</td>
<td>3 + 6</td>
<td>3 + 7</td>
<td></td>
</tr>
<tr>
<td>4 + 1</td>
<td>4 + 2</td>
<td>4 + 3</td>
<td>4 + 4</td>
<td>4 + 5</td>
<td>4 + 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 + 1</td>
<td>5 + 2</td>
<td>5 + 3</td>
<td>5 + 4</td>
<td>5 + 5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- $4 + 6$ and $5 + 5$ can help because they have addends that are close to $4 + 5$.
- $5 + 4$ can help because it has the same addends as $4 + 5$.
- $4 + 4$ can help because it is a doubles fact and one addend is 1 less than 5.

$4 + 5 = ____$
**Connect It**

1. How is your way like Model It? How is your way different?

2. Which other fact do you think is the most helpful to use when solving $4 + 5$?

**Apply It**

3. Look at the facts in row A.
   What addend is in each fact? ____

   Look at the facts in row B.
   What addend is in each fact? ____

   Write all the missing totals in the table.

   A
<table>
<thead>
<tr>
<th>4 + 1</th>
<th>4 + 2</th>
<th>4 + 3</th>
<th>4 + 4</th>
<th>4 + 5</th>
<th>4 + 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>6</td>
<td></td>
<td></td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

   B
<table>
<thead>
<tr>
<th>5 + 1</th>
<th>5 + 2</th>
<th>5 + 3</th>
<th>5 + 4</th>
<th>5 + 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   C
<table>
<thead>
<tr>
<th>6 + 1</th>
<th>6 + 2</th>
<th>6 + 3</th>
<th>6 + 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>
4. Look at the facts in row C.
What addend is in each fact? ____

Look at the facts in column H.
What addend is in each fact? ____

Write all the missing totals in the table.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>G</td>
<td>H</td>
<td>G</td>
<td>H</td>
<td>G</td>
</tr>
<tr>
<td>4 + 1</td>
<td>4 + 1</td>
<td>4 + 2</td>
<td>4 + 2</td>
<td>4 + 3</td>
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<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>5 + 1</td>
<td>5 + 1</td>
<td>5 + 2</td>
<td>5 + 2</td>
<td>5 + 3</td>
<td>5 + 3</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>6 + 1</td>
<td>6 + 1</td>
<td>6 + 2</td>
<td>6 + 2</td>
<td>6 + 3</td>
<td>6 + 3</td>
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<tr>
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<tr>
<td>8 + 1</td>
<td>8 + 1</td>
<td>8 + 2</td>
<td>8 + 2</td>
<td></td>
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<tr>
<td>9 + 1</td>
<td>9 + 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Complete the subtraction equations.

\[
\begin{align*}
6 + 2 & \quad 7 + 2 & \quad 8 + 2 \\
8 & \quad 9 & \quad 10 \\
8 - 2 = & \quad \_ & \quad \_ - \_ = \_ & \quad \_ - \_ = \_
\end{align*}
\]
Practice Using Strategies to Add and Subtract

Look at the Example. Then solve problems 1–5.

**Example**
An addition table can help you learn facts. It can also help you see patterns. Below is part of an addition table.

<table>
<thead>
<tr>
<th></th>
<th>1 + 1</th>
<th>1 + 2</th>
<th>1 + 3</th>
<th>1 + 4</th>
<th>1 + 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1 Look at the facts in row A.
What addend is in each fact? _____
Write the missing totals in row A in the table.

2 Look at the facts in row B.
What addend is in each fact? _____
Write the missing totals in row B in the table.
3 Write the totals in the table.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 + 6</td>
<td>1 + 7</td>
<td>1 + 8</td>
<td>1 + 9</td>
</tr>
<tr>
<td>7</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2 + 6</td>
<td>2 + 7</td>
<td>2 + 8</td>
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<tr>
<td>3 + 6</td>
<td>3 + 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4 Complete the subtraction equations.

\[
\begin{align*}
8 - 4 &= \_ \_ \\
9 - \_ &= \_ \\
10 - \_ &= \_ \\
\end{align*}
\]

5 Fill in the blanks.
Then complete the subtraction equations.

\[
\begin{align*}
5 + \_ &= 8 \\
5 + \_ &= 9 \\
\_ + 5 &= 10 \\
8 - \_ &= 3 \\
\_ - \_ &= 4 \\
\_ - \_ &= 5 \\
\end{align*}
\]
Lila notices patterns on the fact table.
What could be some patterns she notices?

Color to show patterns.

**Try It**

<p>| | | | | | | | | | |</p>
<table>
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</tbody>
</table>

**Math Toolkit**
- crayons

**DISCUSS IT**

A pattern I noticed on the table was ...
Lila notices patterns on the fact table.
What could be some patterns she notices?
Color to show patterns.

Model It

Look at the facts in the colored boxes.

<p>| | | | | | | | | | |</p>
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</tbody>
</table>

- **facts with 1**
- **facts with 2**
- **doubles facts**
- **partners for 10**
Connect It

1. How are your patterns like Model It? How are they different?

2. Boom and Buzz look across a row. Boom says there is a pattern in the addends. Buzz says there is a pattern in the totals. Who is right? How do you know?

Apply It

3. Fill in the missing totals in this table. Complete the subtraction equations.

6 − 5 = ____
7 − 5 = ____
8 − 5 = ____
9 − 5 = ____
10 − 5 = ____
4  Look at the table. Circle the ways to make 4.
   Complete the addition equations.

<p>| | | | | |</p>
<table>
<thead>
<tr>
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</table>

   +   = 4
   +   = 4
   +   = 4

5  Look at the table. Circle the ways to make 7.
   Complete the addition equations.

<p>| | | | | | | | |</p>
<table>
<thead>
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</tbody>
</table>

   +   = 7
   +   = 7
   +   = 7
   +   = 7
   +   = 7
   +   = 7
Practice Using Strategies to Add and Subtract

Look at the Example. Then solve problems 1–5.

Example  The shaded boxes show ways to make 4.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1 + 1</td>
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<td>8</td>
</tr>
</tbody>
</table>

1. Write the missing totals in the table.

2. Look at the table. Circle the ways to make 5.
Complete the addition equations.

___ + ___ = 5

5 = ___ + ___

___ + ___ = 5

5 = ___ + ___
3 Write the missing totals for the doubles facts in the table.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 + 1</td>
<td>1 + 2</td>
<td>1 + 3</td>
</tr>
<tr>
<td>2 + 1</td>
<td>2 + 2</td>
<td>2 + 3</td>
</tr>
<tr>
<td>3 + 1</td>
<td>3 + 2</td>
<td>3 + 3</td>
</tr>
</tbody>
</table>

4 Circle the totals for the doubles facts. Use the pattern to complete these addition equations.

4 + 4 = ____ 5 + 5 = ____

5 Fill in the blanks.
Then complete the subtraction equations.

2 + ____ = 4 3 + ____ = 6 ____ + 4 = 8

4 – ____ = 2 ____ – ____ = 3 ____ – ____ = 4
**Complete the Example. Then solve problems 1–4.**

**Example**  Fill in the blanks.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>$4 + 3$</td>
<td>$4 + 4$</td>
<td>$4 + 5$</td>
<td>$4 + 6$</td>
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<tr>
<td>7</td>
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<tr>
<td>___ + 3</td>
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</tbody>
</table>

**Apply It**

Fill in the blanks.

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<tbody>
<tr>
<td>___ + 1</td>
<td>7 + ___</td>
<td>___ + ___</td>
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<td>10</td>
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<tr>
<td>8 + ___</td>
<td>___ + 2</td>
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<tr>
<td>9</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

2.  
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</tr>
</thead>
<tbody>
<tr>
<td>2 + ___</td>
<td>___ + 5</td>
<td>2 + 6</td>
<td>___ + 7</td>
<td>2 + ___</td>
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<tr>
<td>6</td>
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<td>10</td>
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<tr>
<td>___ + 4</td>
<td>3 + ___</td>
<td>___ + ___</td>
<td>3 + ___</td>
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<td>7</td>
<td>8</td>
<td>9</td>
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</tbody>
</table>
3 Fill in the blanks.
Then complete the subtraction equations.

$$4 + \_\_\_ = 9$$
$$9 - \_\_ = 4$$
$$\_\_ = 9 - 4$$

$$4 + 6$$
$$\_\_ - 6 = 4$$
$$\_\_ - 4 = 6$$

4 Fill in the blanks.

<table>
<thead>
<tr>
<th>6 + 1</th>
<th>6 + 2</th>
<th>6 + 3</th>
<th>6 + 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>7 + 1</th>
<th>7 + 2</th>
<th>7 + 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>8 + 1</th>
<th>8 + 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9 + 1</th>
</tr>
</thead>
</table>
Practice Using Strategies to Add and Subtract

Look at the Example. Then solve problems 1–5.

Example

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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1 + 6</td>
<td>1 + 7</td>
<td>1 + 8</td>
<td>1 + 9</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

1. Fill in the blanks.

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<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5 + ___</td>
<td>___ + ___</td>
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<td>5 + ___</td>
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<td>9</td>
</tr>
<tr>
<td>___ + 1</td>
<td>6 + ___</td>
<td>___ + ___</td>
<td>___ + 4</td>
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<tr>
<td>7</td>
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</tbody>
</table>

2. Fill in the blanks.

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<table>
<thead>
<tr>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>___ + 3</td>
<td>3 + ___</td>
<td>3 + ___</td>
<td>___ + 6</td>
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<tr>
<td>6</td>
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<td>8</td>
<td>9</td>
</tr>
<tr>
<td>4 + ___</td>
<td>___ + 4</td>
<td>___ + 5</td>
<td>4 + 6</td>
</tr>
<tr>
<td>7</td>
<td>___</td>
<td>9</td>
<td>___</td>
</tr>
</tbody>
</table>
3 Fill in the blanks.
Then complete the subtraction equations.

\[
\begin{align*}
7 + \_ & = 9 \\
9 - \_ & = 7 \\
9 - 7 & = \_
\end{align*}
\]

\[
\begin{align*}
8 + 2 & = \_ \\
\_ - 2 & = 8 \\
\_ - 8 & = 2
\end{align*}
\]

4 Fill in the blanks.

\[
\begin{array}{cccc}
4 + \_ & | & 4 + \_ & | & \_ + 4 & | & \_ + 5 \\
6 & | & \_ & | & 8 & | & \_
\end{array}
\]

\[
\begin{array}{cccc}
\_ + 2 & | & 5 + \_ & | & 5 + \_ & | & \_ + 5 \\
\_ & | & 8 & | & \_ & | & 10
\end{array}
\]

5 Use the facts in problem 4. Complete the subtraction facts.

\[
\begin{align*}
7 - \_ & = \_ \\
10 - \_ & = \_ \\
9 - \_ & = \_ \\
8 - \_ & = \_
\end{align*}
\]

Lesson 10 Use Strategies for Addition and Subtraction Facts
Apply It

Solve problems 1–4.

1 Fill in the table.

<table>
<thead>
<tr>
<th>Partners for 7</th>
<th>Partners for 8</th>
<th>Partners for 9</th>
<th>Partners for 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 + ____ = 7</td>
<td>0 + 8 = ____</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 + ____ = 7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 + ____ = 7</td>
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<tr>
<td>3 + ____ = 7</td>
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<tr>
<td>4 + ____ = 7</td>
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<tr>
<td>5 + ____ = 7</td>
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<tr>
<td>6 + ____ = 7</td>
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<td></td>
</tr>
<tr>
<td>7 + ____ = 7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2 The number partners for 7 are listed in order to show a pattern. Why is this helpful?
3 Fill in the blanks.

<table>
<thead>
<tr>
<th>Facts with 7</th>
<th>Facts with 8</th>
<th>Facts with 9</th>
<th>Facts with 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 - 7 = ____</td>
<td>8 - 7 = ____</td>
<td>9 - 7 = ____</td>
<td>10 - 7 = ____</td>
</tr>
<tr>
<td>7 - 6 = ____</td>
<td>8 - 6 = ____</td>
<td>9 - 6 = ____</td>
<td>10 - 6 = ____</td>
</tr>
<tr>
<td>7 - 5 = ____</td>
<td>8 - 5 = ____</td>
<td>9 - 5 = ____</td>
<td>10 - 5 = ____</td>
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<tr>
<td>7 - 4 = ____</td>
<td>8 - 4 = ____</td>
<td>9 - 4 = ____</td>
<td>10 - 4 = ____</td>
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<tr>
<td>7 - 3 = ____</td>
<td>8 - 3 = ____</td>
<td>9 - 3 = ____</td>
<td>10 - 3 = ____</td>
</tr>
<tr>
<td>7 - 2 = ____</td>
<td>8 - 2 = ____</td>
<td>9 - 2 = ____</td>
<td>10 - 2 = ____</td>
</tr>
<tr>
<td>7 - 1 = ____</td>
<td>8 - 1 = ____</td>
<td>9 - 1 = ____</td>
<td>10 - 1 = ____</td>
</tr>
</tbody>
</table>

What patterns do you notice?

4 Buzz says he has found all of the ways to make 6.

0 + 6 = 6  1 + 5 = 6  2 + 3 = 6  3 + 3 = 6  
4 + 2 = 6  5 + 1 = 6  6 + 0 = 6

Do you agree? Circle: Yes  No
Tell why.
Talia brings 9 pencils to school. She gives some to her friends. She has 3 left. How many pencils does Talia give away?

Try It

9 - ____ = 3
Talia gives away ____ pencils.
Connect It

3 birds are eating.
More birds join them.
Now there are 8 birds.
How many birds joined?

$3 + ____ = 8$

____ birds joined.
Prepare for Finding the Unknown Number

1. Think about what you know about figuring out unknown numbers in equations. Fill in each box. Use words, numbers, and pictures. Show as many ideas as you can.

<table>
<thead>
<tr>
<th>In My Own Words</th>
<th>My Pictures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Examples</th>
<th>Non-Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>numbers</td>
</tr>
</tbody>
</table>

2. Jared has 13 pens. He gives some to his mother. Jared has 6 pens left. Write an equation for the problem. Leave a blank for the unknown number.
3. Solve the problem. Draw to show your work.

5 lions are drinking. More lions join them. Now there are 9 lions. How many lions joined?

\[5 + \text{____} = 9\]

____ lions joined.
Some pies are on the table. Ms. Karly brings 7 more pies. Now there are 15 pies. How many pies were on the table to start?
Some pies are on the table. Ms. Karly brings 7 more pies. Now there are 15 pies. How many pies were on the table to start?

Model It

Find the missing number in the equation \( ? \ + \ 7 = 15 \).

Start with the number you know. Add more until you get to the total.

How many counters did you add?

\[
\_
\_ \ + \ 7 = 15 \\
\_
\_ \text{pies were on the table to start.}
\]
Connect It

1. How is your way like Model It? How is it different?

2. Buzz says that the missing number in both of these equations is 6. Is he right? How do you know?

   \[ ? + 7 = 13 \]

   \[ 13 = ? + 7 \]

Apply It

3. Find the missing number.

   How many more to make 14?

   \[ 8 + \underline{\text{____}} = 14 \]
4. Find the missing number.

\[11 = ? + 8\]

\[11 = ____ + 8\]

5. Find the missing number.

\[? + 3 = 12\]

\[____ + 3 = 12\]

6. Find the missing number.

\[9 + 7 = ____\]
Practice Finding the Unknown Number

Look at the Example. Then solve problems 1–5.

**Example**
Dawn sees 6 bunnies. More bunnies come. Now there are 13 bunnies. How many bunnies come?

6 + 7 = 13

7 bunnies come.

1. Find the missing number.

   7 + ? = 12

   7 + ____ = 12

2. Find the missing number.

   9 + 7 = ____
3. Find the missing number.

17 = 9 + ?

17 = 9 + _____

4. Find the missing number.

? + 6 = 15

_____ + 6 = 15

5. Find the missing number.

13 = 8 + _____
**LESSON 16**

**Develop Finding the Unknown Number**

14 cherries in a snack bag. Maddie eats some. Now there are 9 cherries. How many does Maddie eat?

**Try It**

Maddie eats ____ cherries.

**Math Toolkit**
- counters
- connecting cubes
- 10-frames
- number paths

**DISCUSS IT**

How can you use addition to find the missing number in this problem?
Model It

Find the missing number in the equation.

14 \(-\ ?\) = 9

Use a number path.

14 \(-\ ____\) = 10

10 \(-\ ____\) = 9

14 \(-\ ____\) = 9

Maddie eats ____ cherries.
Connect It

1. How is your way like Model It? How is it different?

2. What is another strategy you could use to find the missing number?

Apply It

3. Find the missing number.

\[13 - \underline{\text{_____}} = 7\]

\[\underline{5 \ 6 \ 7 \ 8 \ 9 \ 10 \ 11 \ 12 \ \underline{13} \ 14}\]

4. Find the missing number.

\[\underline{\text{_____}} - 5 = 6\]

\[\underline{5 \ 6 \ 7 \ 8 \ 9 \ 10 \ 11 \ 12}\]
5 Find the missing number.

17 − 8 = ?

17 − 8 = ____

6 Find the missing number.

9 = 15 − ?

9 = 15 − ____

7 Find the missing number.

? − 7 = 9

____ − 7 = 9
Look at the Example. Then solve problems 1–5.

**Example**

15 basketballs. Some roll away.
Now there are 8.
How many roll away?

\[
15 - ? = 8
\]

\[
8 + 7 = 15
\]

7 basketballs roll away.

---

1. Find the missing number.

\[
12 - ? = 6
\]

\[
12 - ____ = 6
\]

---

2. Find the missing number.

\[
____ - 8 = 6
\]
3. Find the missing number.

   \[5 = ____ - 7\]

4. Find the missing number.

   \[9 = ? - 4\]
   \[9 = ____ - 4\]

5. Find the missing number.

   \[11 - ____ = 3\]
Complete the Example. Then solve problems 1–4.

**Example**  Find the missing number in \(? + 6 = 13\).

Start with 6 cubes.

Double this to get 12 cubes.

Add 1 more to make 13.

How many cubes did you add?

\[
\_
\] + 6 = 13

---

**Apply It**

1. Find the missing number. Complete the number bond.

\[
\_
\] + 8 = 12

\[
12
\]

\[
8
\]
2. Find the missing number. Complete the number bond.

\[ ? - 9 = 8 \]

\[ \square - 9 = 8 \]

\[ \begin{array}{|c|c|}
\hline
9 & 8 \\
\hline
\end{array} \]

3. Find the missing number. Complete the number bond.

\[ 14 = \square + 7 \]

\[ \begin{array}{|c|}
\hline
14 \\
\hline
7 \\
\hline
\end{array} \]

4. Find the missing number. Complete the number bond.

\[ \square = 16 - 9 \]

\[ \begin{array}{|c|}
\hline
16 \\
\hline
9 \\
\hline
\end{array} \]
Practice Finding the Unknown Number

Look at the Example. Then solve problems 1–4.

Example
Find the missing number.

11 \(-\ ?\) = 8

Take away 2. Take away 1.

11 \(-\ 3\) = 8

1. Find the missing number.

12 \(-\ ____\) = 7

Take away ____. Take away ____.
2. Find the missing number.

16 = ? + 8

16 = ____ + 8

3. Find the missing number.

10 + ____ = 20

4. The bike store has 7 green bikes and 8 blue bikes.
How many bikes in the store?

7 + 8 = ____

____ bikes
Apply It

Solve problems 1–7.

1 13 stars are in the box.
   Joy takes some stars.
   9 stars are left.
   How many stars does Joy take?

   \[ 13 - \_\_\_ = 9 \_\_\_ \text{ stars} \]

2 Find the missing number.

   \[ ? + 9 = 16 \]
   \[ \_\_\_ + 9 = 16 \]

3 Find the missing number.
   Complete the number bond.

   \[ 12 = \_\_\_ + 8 \]
4. Find the missing number.

3 + 9 = ____

5. Find the missing number.

15 − 6 = ____

6. Find the missing number.

20 − ____ = 10

7. Find the missing number.

____ + 6 = 14
Rich has 3 coins.  
He finds more coins in his pocket.  
Now he has 8 coins.  
How many does he find?

3 + ____ = 8

Rich found ____ coins.
Connect It

7 ducks swim in the pond.
3 fish swim in the pond.
How many fewer fish than ducks?

\[ 7 - 3 = \_\_\_ \]

\_\_\_ fewer fish
Prepare for Solving Word Problems to 20

1. Think about what you know about number bonds. Fill in each box. Use words, numbers, and pictures. Show as many ideas as you can.

2. Use the number bond to make up a word problem.
3. Solve the problem. Draw to show your work.

9 crows sit on a rail. 4 robins sit on a rail. How many fewer robins than crows?

\[ 9 - 4 = \Box \]

\Box \) fewer robins
Jenny gets 15 prizes from the piñata. Ken gets 6 prizes from the piñata. How many fewer prizes does Ken get than Jenny?

Try It

Math Toolkit
- counters
- connecting cubes
- number paths
- number bonds
- 10-frames

Discuss It
Which subtraction strategy can help solve this problem?
Jenny gets 15 prizes from the piñata. Ken gets 6 prizes from the piñata. How many fewer prizes does Ken get than Jenny?

Model It


$15 - ___ = 10$

$10 - ___ = 6$

$15 - ___ = 6$

Ken gets ____ fewer prizes than Jenny.
**Connect It**

1. How is your way like **Model It**? How is it different?

2. Boom says $11 - 8 = 2$. What did Boom do wrong?

   \[
   \begin{array}{cccccccccc}
   & & & & & & & & & \\
   1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 \\
   \end{array}
   \]

   \[8 \quad 1\]

**Apply It**

3. 7 cats sleep in the box. More cats join them. Now there are 11 cats. How many more cats join?

   \[
   7 + \_\_\_ = 10
   \]

   \[
   10 + \_\_\_ = 11
   \]

   \_\_\_ cats join.
4. Some flowers are in Rina’s garden. Rina picks 8. Now there are 5 flowers. How many flowers were in the garden to start?

\[5 + 8 = \_\_\_\_\_\_\_\_\]

\_\_\_\_\_\_\_\_ flowers

5. Aram has 11 crayons. Aram has 6 more crayons than Ray. How many crayons does Ray have?

\[11 - 6 = \_\_\_\_\_\_\_\_\]

\_\_\_\_\_\_\_\_ crayons
Practice Solving Word Problems to 20

Look at the Example. Then solve problems 1–4.

Example

Mr. Piña has 18 snacks.
He has 9 bananas. The rest are apples. How many are apples?

9 are apples.

1 8 bottles have milk. 4 bottles have juice.
How many bottles in all?

8 + 4 = ____

____ bottles
2. 17 coloring pages are on the table. Tanya colors some. There are 9 pages left. How many pages does Tanya color?

\[
\begin{array}{c}
9 & 10 & 11 & 12 & 13 & 14 & 15 & 16 & 17 \\
\end{array}
\]

\[17 - \square = 9\]

\[\square\] pages

3. Isabella has 12 balls. Ryan has 5 balls. How many fewer balls does Ryan have than Isabella?

\[
\begin{array}{c}
\text{Isabella:} & \frac{\text{Ryan:}}{12} & \frac{\text{Ryan:}}{5} \\
\end{array}
\]

\[12 - \square = 5\]

\[\square\] fewer balls

4. Sofia has 8 more marbles than Olaf. Olaf has 7 marbles. How many marbles does Sofia have?

\[7 + 8 = \square\]

\[\square\] marbles
Jody puts some lemons in a basket. Matt puts 6 more lemons in the basket. Now there are 14 lemons in the basket. How many lemons does Jody put in?

Math Toolkit
- counters
- connecting cubes
- number paths
- number bonds
- 10-frames

DISCUSS IT
A subtraction equation that can help solve the problem is . . .
Jody puts some lemons in a basket. Matt puts 6 more lemons in the basket. Now there are 14 lemons in the basket. How many lemons does Jody put in?

**Model It**

Solve ? + 6 = 14.

What number added to 6 equals 14?

? + 6 = 14 is the same as 6 + ? = 14.

6 + _____ = 14, so

_____ + 6 = 14.

Jody    Matt

Jody puts in _____ lemons.
**Connect It**

1. How is your way like **Model It**? How is it different?

2. How does making ten help you solve the problem?

**Apply It**

3. Some ants are at a picnic. 8 more ants join them. Now there are 15 ants. How many ants were at the picnic to start?

   
   \[
   \begin{array}{cccc}
   \text{ } & \text{ } & \text{ } & \text{ } \\
   \text{ } & \text{ } & \text{ } & \text{ } \\
   \text{ } & \text{ } & \text{ } & \text{ } \\
   \end{array}
   \quad
   \begin{array}{cccc}
   \text{ } & \text{ } & \text{ } & \text{ } \\
   \text{ } & \text{ } & \text{ } & \text{ } \\
   \text{ } & \text{ } & \text{ } & \text{ } \\
   \end{array}
   \]

   \[
   _____ + 8 = 15
   \]

   _____ ants
4 Janice has 12 blocks. She gives some to Pat. Now she has 7 blocks. How many does Janice give to Pat?

\[ 12 - \_\_\_ = \_\_\_ \]

\_\_\_ blocks

5 Mr. Peters has 2 fewer desks than Mr. Dans. Mr. Dans has 11 desks. How many desks does Mr. Peters have?

\[ \_\_\_ - \_\_\_ = \_\_\_ \]

\_\_\_ desks
Practice Solving Word Problems to 20

Look at the Example. Then solve problems 1–4.

Example
Sasha has 16 erasers.
8 are square. The rest are round.
How many erasers are round?

\[ 8 \text{ erasers are round.} \]

1. 5 children dance on stage.
   9 more children join them.
   How many children are dancing now?

\[ \begin{array}{c}
5 \text{ children} \\
\hline
9 \text{ children} \\
\hline
14 \text{ children}
\end{array} \]

\[ \Box + \Box = \Box \]

\[ \Box \text{ children} \]
2 7 friends do karate.
16 friends play piano.
How many fewer friends do karate?

16 − 7 = _____ _____ fewer friends

3 9 large books and 7 small books are on the shelf.
How many books are there in all?

9 + 7 = _____ _____ books

4 12 eggs are in a carton.
4 are brown. The rest are white.
How many eggs are white?

_____ − _____ = _____ _____ eggs
Complete the Example. Then solve problems 1–4.

**Example**  Some hamsters are in a cage.  
Josef lets 3 out. Now there are 8 in the cage.  
How many were in the cage to start?  

\[
\begin{align*}
\text{8} & + \text{3} = \text{11} \\
\underline{\text{11}} & - \text{3} = \text{8} \\
\text{____ hamsters}
\end{align*}
\]

**Apply It**

1. 17 soccer balls are on the field.  
Asher kicks 9 of them away.  
How many soccer balls are there now?  

\[
\begin{align*}
\text{17} & - \text{9} = \underline{____} \\
\underline{____} & \text{ soccer balls}
\end{align*}
\]
2. Barry has 15 pet rocks. Don has 9 pet rocks. How many more rocks does Barry have?

\[15 - \_\_\_ = \_\_\_ \text{ more rocks}\]

3. 10 red shoes are on the floor. 10 pink shoes are on the floor. How many shoes in all?

\[
\text{\_\_\_ shoes}
\]

4. 14 birds sit on a fence. Some birds fly away. Now there are 5. How many birds fly away?

\[
\text{\_\_\_ birds fly away.}
\]
Practice Solving Word Problems to 20

Look at the Example. Then solve problems 1–4.

Example
13 children are on the baseball team. 5 are boys. The rest are girls.
How many girls on the team?

13 − 3 = 10
10 − 5 = 5
13 − 8 = 5

8 girls

1 Ron has 13 pens. Brianna has 6 fewer pens than Ron. How many pens does Brianna have?

13 − 6 = ___
____ pens
2. 11 toys are on the shelf. The cat pushes off 4 toys. How many toys on the shelf now?

\[
\begin{array}{ccc}
\bullet & \bullet & \bullet \\
\bullet & \bullet & \bullet \\
\bullet & \bullet & \bullet \\
\end{array}
\quad \begin{array}{ccc}
\bullet
\end{array}
\quad \begin{array}{ccc}
\hline
\hline
\end{array}
\]

___ − ___ = ___

___ toys

3. 11 star stickers are in the box. 8 rainbow stickers are in the box. How many fewer rainbow stickers?

___ fewer rainbow stickers

4. Stanley has 7 more fish than Bob. Stanley has 12 fish. How many fish does Bob have?

___ fish
Apply It

Solve problems 1–6.

1. Fido has 6 more spots than Pup.  
Pup has 6 spots.  
How many spots does Fido have?  

   ____ + ____ = ____  

   ____ spots

2. Tara sings 5 fewer songs than Danny.  
   Danny sings 11 songs.  
   How many songs does Tara sing?  

   ____ − ____ = ____  

   ____ songs

3. 6 berries are in the bowl.  
   Amal puts 8 more in the bowl.  
   How many berries are there now?  

   ____ + ____ = ____  

   ____ berries
4 Kris has 8 toy planes. He makes more. Now he has 12 toy planes. How many more does Kris make?

___ more toy planes

5 Paul has 9 fewer coins than Hasina. Paul has 6 coins. How many coins does Hasina have?

___ coins

6 20 tennis balls are on the table. Some roll off. Now there are 10. How many roll off?

___ tennis balls