

It Makes Sense!

Using Ten-Frames to Build Number Sense

20 classroom-tested routines, games,
and problem-solving lessons



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Routine 6

Sums of More Than Ten

Time

20 minutes per part (see page 63 for additional insights)

Materials

demonstration double ten-frame (see Reproducible D)

double ten-frame (Reproducible D), 1 per student or pair of students

Sums of More Than Ten Cards, Version 1 (Reproducible 4), 1 set per student or pair of students

Sums of More Than Ten recording sheet (Reproducible 6), 1 copy for each student

counters in two colors, 10 of each color for teacher and per student or pair of students

Overview

This four-part routine gives students opportunities to use and apply the strategy of making a ten to help them solve near-ten addition facts. In addition to developing basic fact fluency, the routine promotes the building of mental math skills through the visualization of ten-frames and number sentences.

Related Lessons

You might teach the following lessons first:

► G-6 *Collect Ten*

► R-5 *Adding Nine*

Consider this lesson as a follow-up:

► G-8 *Double Bank It!*

Key Questions

► How does knowing a combination of ten help you solve the new problem?

► How many counters do you see and how do you know?

Teaching Directions

Part 1: Solving Facts That Have a Sum of One More Than Ten

1. Explain to students that the focus of this lesson is to use the combinations of ten that they know to help them solve addition facts with sums that are one more than ten.

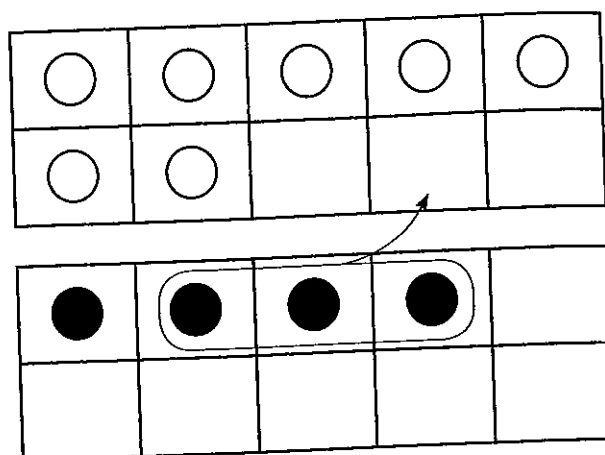
Example 1: How $7 + 3$ Can Help Us Solve $7 + 4$

2. Ask students to think about how $7 + 3$ can help them solve $7 + 4$. Write $7 + 4$ on the board.
3. Display a demonstration double ten-frame and fill the first ten-frame with seven counters of one color and the second ten-frame with four counters of the other color.

4. Ask students, "How many more counters are needed to fill the ten-frame that has seven counters on it?" When students say, "Three," take three counters from the second ten-frame and place them on the first ten-frame, thus completing the top frame.



Technology Tip

Creating Ten-Frames on an Interactive Whiteboard

If an interactive whiteboard is available, create ten-frames by making two 5-by-2 tables. Create red and blue circles to be used as counters and apply the infinite cloner.

Differentiating Your Instruction

Think-pair-share allows all students time to process the question, think about an answer, and test out their thinking before having to speak in front of the whole class. This format also gives students who struggle an opportunity to hear thinking from a peer. Think-pair-share works well if partners are assigned before the lesson. This way, when the teacher directs students to think and then share, each child knows exactly whom to talk to. See R-5: Adding Nine's "Teacher Reflection" section on page 45 for more on the think-pair-share strategy.

Ask students, "How many counters are left on the second ten-frame?" When students say, "One," connect the action to the symbolic notation by recording $7 + 4 = 10 + 1$. As you record, explain that you split the four into three and one, so you could add three to the seven to make ten.

4. Do a think-pair-share. Ask students to quietly think about what they see on the demonstration double ten-frame. Ask them to think about the total number of counters. Then have students turn to their partners and discuss how they figured out the sum. Call on a few students to explain their thinking to the whole class. Some students might reply that they see ten and one more, which makes eleven. Others may reply that they see five and five and one more, which makes eleven.
5. Record = 11 under the $10 + 1$ and ask students if $7 + 4$ also equals 11. Confirm the sum by re-creating $7 + 4$ on the demonstration double ten-frame and counting the counters. Record 11 so it's now under both equations:

$$7 + 4 = 10 + 1$$

$$11 = 11$$

6. Summarize the strategy by asking students to explain to their partners how knowing $7 + 3 = 10$ can help them solve $7 + 4$. Record $7 + 3 = 10$ and $7 + 4 = 11$ like this:

$$7 + 3 = 10$$

$$7 + 4 = 11$$

7. Call on a few volunteers to explain their thinking to the class.

Examples of Student Thinking

"Seven plus four is really seven plus three with one extra."

"The four can be broken into a three and one so seven and three can be added first, then the one."

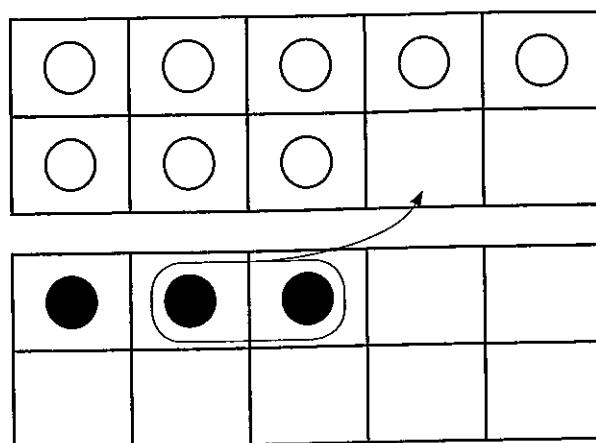
Example 2: How $8 + 2$ Can Help Us Solve $8 + 3$

8. Tell students that you now want them to think about how $8 + 2$ will help them solve $8 + 3$. Write $8 + 3$ on the board.
9. Display the demonstration double ten-frame again and fill the first ten-frame with eight counters of one color and the second ten-frame with three counters of the other color.

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○	○	○		

●	●	●		

Ask students, "How many more counters are needed to fill the ten-frame that has eight counters on it?" When students say, "Two," take two counters from the second ten-frame and place them on the first ten-frame, thus completing the top frame.



Ask students, “How many counters are left on the second ten-frame?” When students say, “One,” connect the actions to the symbolic notation by recording $8 + 3 = 10 + 1$. As you record, explain that you split the three into two and one, so you could add two to the eight to make ten.

10. Ask students to quietly think about what they see on the demonstration double ten-frame. Ask them to think about the total number of counters. Then have students turn to their partners and discuss how they figured out the sum. Call on a few students to explain their thinking to the whole class.
11. Record $= 11$ under the $10 + 1$ and ask students if $8 + 3$ also equals 11. Confirm the sum by re-creating $8 + 3$ on the demonstration double ten-frame and counting the counters. Record 11 so it's now under both equations:

$$8 + 3 = 10 + 1$$

$$11 = 11$$

12. Summarize the strategy by asking students to explain to their partners how knowing $8 + 2 = 10$ can help them solve $8 + 3$. Record $8 + 2 = 10$ and $8 + 3 = 11$ like this:

$$8 + 2 = 10$$

$$8 + 3 = 11$$

13. Call on a few volunteers to explain their thinking to the class.

Example 3: Solving $5 + 6$

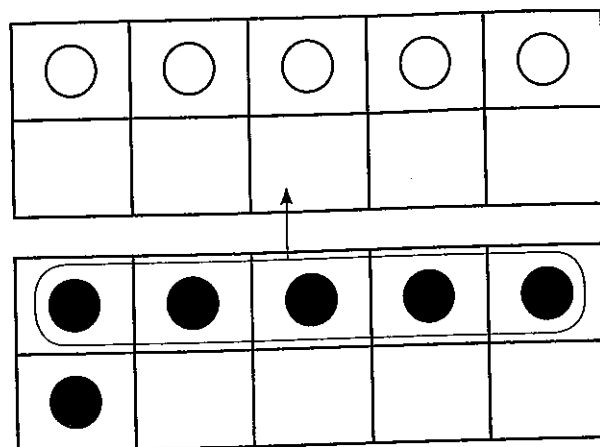
14. Point out to students that in the examples thus far, the number sentences have all started with the larger number. Now you would like them to think about number sentences that start with the smaller number first. Write $5 + 6 =$ on the board.
15. On the demonstration double ten-frame, fill the first ten-frame with five counters of one color and the second ten-frame with six counters of the other color.

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Ask students, "Do you want to fill the first ten-frame, which has five counters on it, or the second ten-frame, which has six counters on it? Think quietly about which one you'd like to fill." Then ask students to show a thumbs-up for the first ten-frame or a thumbs-down for the second ten-frame. Acknowledge that you saw thumbs pointed both ways and that both ways of thinking are acceptable.

16. Tell students you are going to model both ways, but first you will start by filling the top frame. Ask students, "How many counters are needed to fill the first ten-frame?" When students say, "Five," take five counters from the second ten-frame and place them on the first ten-frame, thus completing the top frame.



Ask students, "How many counters are left on the second ten-frame?" When students say, "One," connect the action to the symbolic notation by recording $5 + 6 = 10 + 1$. As you record, explain that you split the six into five and one, so you could add five to the five to make ten.

17. Do a think-pair-share. Ask students to quietly think about what they see on the demonstration double ten-frame. Ask them to think about the total number of counters. Then have students turn to their partners and discuss how they figured out the sum. Call on a few students to explain their thinking to the whole class.

18. Record 11 under both equations:

$$5 + 6 = 10 + 1$$

$$11 = 11$$

If students need confirmation that $5 + 6 = 11$, rebuild the equation on the demonstration double ten-frame and count the counters.

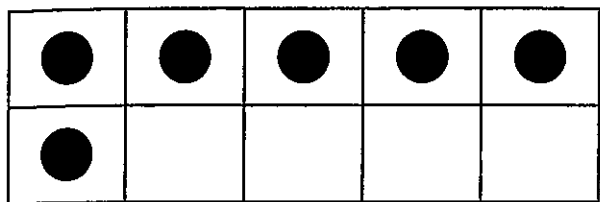
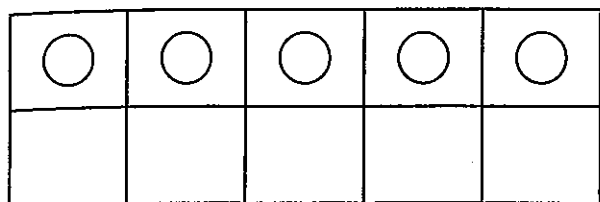
19. Summarize the strategy by asking students to explain to their partners how knowing $5 + 5 = 10$ can help them solve $5 + 6$. Record $5 + 5 = 10$ and $5 + 6 = 11$ like this:

$$5 + 5 = 10$$

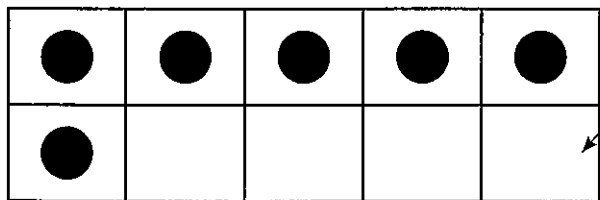
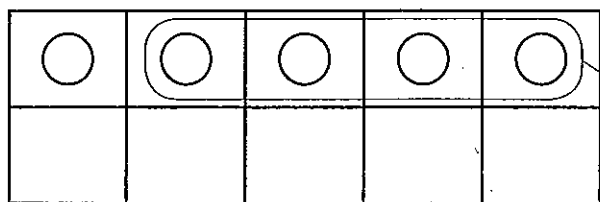
$$5 + 6 = 11$$

20. Call on a few volunteers to explain their thinking to the class.

21. Now rebuild $5 + 6$ on the demonstration double ten-frame and acknowledge that some students would like to fill the second ten-frame.



22. Ask students, "How many counters are needed to fill the ten-frame that has six counters on it?" When students say, "Four," take four counters from the first ten-frame and place them on the second ten-frame, thus completing the bottom frame.



Ask students, "How many counters are left on the first ten-frame?" When students say, "One," connect the action to the symbolic notation by recording $5 + 6 = 1 + 10$. As you record, explain how the numbers in the second sentence connect to the counters on the frames.

23. Ask students to quietly think about what they see on the demonstration double ten-frame. Ask them to think about the total number of counters. Then have students

turn to their partners and discuss how they figured out the sum. Call on a few students to explain their thinking to the whole class.

24. Record 11 under both equations:

$$5 + 6 = 1 + 10$$

$$11 = 11$$

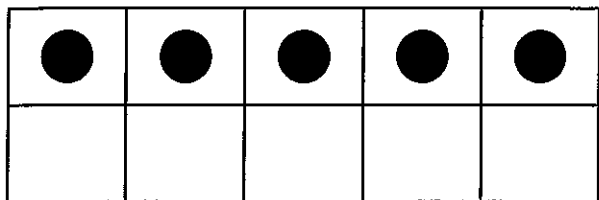
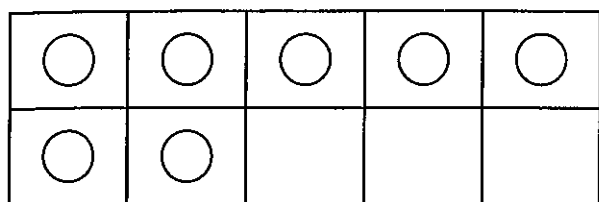
25. Ask students to look at both sets of number sentences for $5 + 6$ and think about which strategy feels more comfortable—filling the first ten-frame or the second ten-frame. Allow a few students to volunteer their opinions.
26. Summarize by letting students know that sometimes it will feel more comfortable to make the first number a ten and sometimes it will feel more comfortable to make the second number a ten. The goal is for them be able to learn to add numbers efficiently.
27. Repeat this part of the routine a few times a month.

Part 2: Solving Facts That Have Sums of a Few More Than Ten

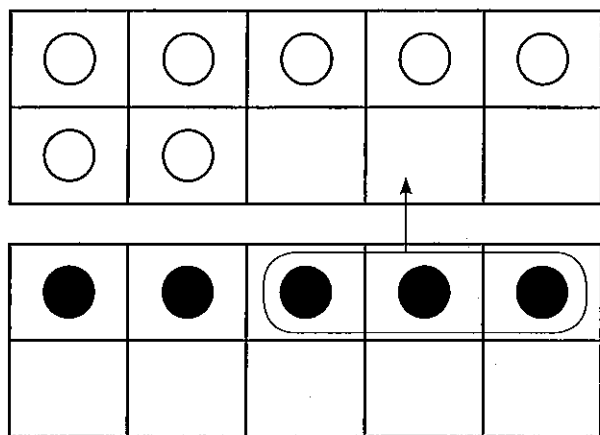
1. On another day, continue Part 2 of *Sums of More Than Ten*. Explain to students that the focus of this part of the routine is to use the combinations of ten they know to help them solve facts that have sums of a few more than ten.

Example 1: How $7 + 3$ Can Help Us Solve $7 + 5$

2. Ask students, "How can seven plus three help you solve seven plus five?" Write $7 + 5$ on the board. Give students time to think.
3. Display the demonstration double ten-frame and fill the first ten-frame with seven counters of one color and the second ten-frame with five counters of the other color.



4. Ask students, "How many counters are needed to fill the ten-frame that has seven counters on it?" When students say, "Three," take three counters from the second ten-frame and place them on the first ten-frame, thus completing the top frame.



Ask students, "How many counters are left on the second ten-frame?" When students say, "Two," connect the action to the symbolic notation by recording $7 + 5 = 10 + 2$. As you record, explain that you split five into the amounts three and two so that you could fill the first ten-frame to make a ten.

5. Do a think-pair-share. Ask students to quietly think about what they see on the demonstration double ten-frame. Ask them to think about the total number of counters. Then have students turn to their partners and discuss how they figured out the sum. Call on a few students to explain their

thinking to the whole class. Some students might reply that they see ten and two more, which makes twelve. Others may reply that they see five and five and two more, which makes twelve.

6. Record 12 under both equations:

$$7 + 5 = 10 + 2$$

$$12 = 12$$

7. Summarize the strategy by asking students to explain to their partners how knowing $7 + 3 = 10$ can help them solve $7 + 5$. Record $7 + 3 = 10$ and $7 + 5 = 12$ like this:

$$7 + 3 = 10$$

$$7 + 5 = 12$$

8. Call on a few volunteers to explain their thinking to the class.

Examples of Student Thinking

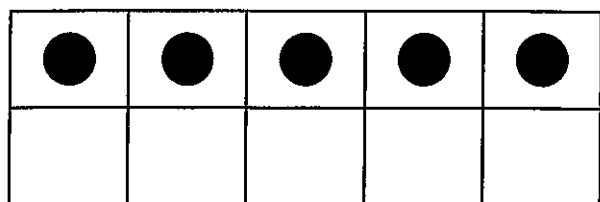
"Seven plus five is really seven plus three with two extra."

"The five can be broken into a three and two, so seven and three can be added first, then the two."

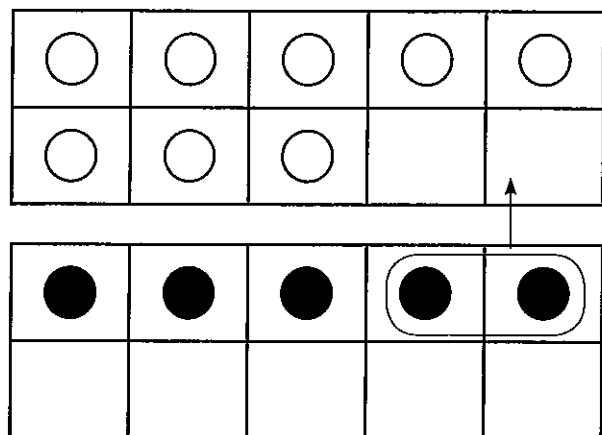
Example 2: How $8 + 2$ Can Help Us Solve $8 + 5$

9. Ask students to think about how $8 + 2$ can help them solve $8 + 5$. Write $8 + 5$ on the board. Give students time to think.
10. Using the demonstration double ten-frame, fill the first ten-frame with eight counters of one color and the second ten-frame with five counters of the other color.

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○	○			



Ask students, "How many counters are needed to fill the ten-frame that has eight counters on it?" When students say, "Two," take two counters from the second ten-frame and place them on the first ten-frame, thus completing the top frame.



Ask students, "How many counters are left on the second ten-frame?" When students say, "Three," connect the action to the symbolic notation by recording $8 + 5 = 10 + 3$. As you record, explain how the numbers in the second sentence connect to the counters on the frames.

11. Ask students to quietly think about what they see on the demonstration double ten-frame. Ask them to think about the total number of counters. Then have students turn to their partners and discuss how they figured out the sum. Call on a few students to explain their thinking to the whole class.
12. Record 13 under both number sentences.
13. Summarize the strategy by asking students to explain to their partners how knowing $8 + 2 = 10$ helps them solve $8 + 5$. Record $8 + 2 = 10$ and $8 + 5 = 13$ like this:

$$8 + 2 = 10$$

$$8 + 5 = 13$$



Teaching Tip

Why Two Versions of Cards?

Students need repeated experiences applying how making a ten can help them efficiently learn their facts. Once students have completed *Sums of More Than Ten Cards, Version 1* (Reproducible 4), I ask them to work with the cards from *Sums of More Than Ten Cards, Version 2* (Reproducible 5) on another day.

14. Call on a few volunteers to explain their thinking to the class.
15. Repeat this part of the routine a few times a month. Use equations such as $6 + 7$, $8 + 4$, $7 + 4$, $8 + 6$, and $8 + 7$. Also repeat using the same equations to give students multiple experiences with the same numbers.

Part 3: Sums More Than Ten Activity

1. Introduce the activity that complements this routine. Let students know this activity can be worked on alone or with a partner. Show students a stack of cards made from the *Sums of More Than Ten Cards, Version 1* reproducible (Reproducible 4). Place the cards in a pile and turn the top card over. Build the corresponding number sentence on the demonstration double ten-frame using two colors of counters. Show students the *Sums of More Than Ten Recording Sheet* (Reproducible 6) and on the board, set up blanks like those shown on the recording sheet:

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

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

Fill in the first two blanks with the number sentence from *the card you turned over*.

$$\underline{7} + \underline{5} = \underline{\quad\quad} + \underline{\quad\quad}$$

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

2. Explain to students that for this activity they will need to use what they know about making a ten. Ask students, "What needs to be done to make a ten?" Move the appropriate counters to make a ten on the demonstration double ten-frame. Ask students, "What combination of ten helps solve this problem? How many counters are left over?" Fill in the next two blanks on the board.

$$\underline{7} + \underline{5} = \underline{10} + \underline{2}$$

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

- Ask students to think about what they see on the demonstration double ten-frame. What is the total number of counters? Record the sum for each side of the equation.

$$\begin{array}{r} 7 + 5 = 10 + 2 \\ 12 = 12 \end{array}$$

- Tell students they will turn over the next *Sums of More Than Ten* card and build the number sentence on their double ten-frame, then record it on their copy of the recording sheet. They will work to make a ten and record a number sentence to match their thinking. Finally, they will record the sum.
- Pass out the *Sums of More Than Ten* cards and recording sheets. Make sure each student (or pair of students) has ten counters of one color and ten counters of another color. If you choose to let students work with in pairs, explain that each student will write on his or her own recording sheet but will share a double ten-frame, counters, and a set of *Sums of More Than Ten* cards with a partner. Model one round with a partner so students understand how to work together.

Part 4: Visualizing Sums of More Than Ten

- Explain to students that you would like them to begin visualizing the make-a-ten strategy in their minds. Ask them to mentally picture the double ten-frame. Write $8 + 3$ on the board and ask students, "How can making a ten in your mind help you solve eight plus three?" Encourage students to picture what this addition problem would look like on a double ten-frame.
- Give students time to think before asking them to discuss ideas with their partners. Call on a volunteer to explain her thinking; while she does, connect her words to the symbolic representation. Here's an example of what a student might share and how you could model her thinking:



Time Saver

As students are settling in for the day, ask the first two students who arrive to help with preparing the day's math materials. These students can count out groups of ten counters in two different colors and place each group of twenty in a plastic sandwich bag. This makes it easy to distribute the counters when it comes time to do so. Alternatively, have each student count out a group of ten counters in two different colors as soon as he or she enters the room. Once again, students can place their counters in plastic sandwich bags so you can easily distribute the materials when the time comes to do so.



A Child's Mind . . .

Whether students work with partners or alone, they need to see the activity modeled and how to record using the recording sheet. Model the directions and consider writing the directions on the board.



Teaching Tip

Envisioning the Double Ten-Frame

It's helpful to display or pass out double ten-frames so students can see the frame. They will still have to mentally visualize $8 + 3$, but the frame will support their thinking of making a ten.

Example of Student Thinking

"When I think of eight plus three, I can take two from the three and make the eight a ten. Then I have one left over, and ten and one is eleven."

$$\begin{array}{r} 8 + 3 = \\ \quad \wedge \\ 8 + 2 + 1 = \\ 8 + 2 = 10 \\ 10 + 1 = 11 \end{array}$$

3. Ask students if they have another way of describing how making a ten can help them solve $8 + 3$.
4. Next write $4 + 7$ on the board and ask students, "How can making a ten in your mind help you solve four plus seven?" Encourage students to picture what this addition problem would look like on a double ten-frame.
5. Give students time to think before asking them to discuss ideas with their partners. Call on a volunteer to explain his thinking; while he does, connect his words to the symbolic representation. Here are some examples of what a student might share and how you could record his thinking:

Examples of Student Thinking

"When I think of four plus seven, I can take three from the four and make the seven a ten. Then I have one left over, and ten and one is eleven."

$$\begin{array}{r} 4 + 7 = \\ \quad \wedge \\ 3 + 1 + 7 = \\ 3 + 7 = 10 \\ 10 + 1 = 11 \end{array}$$

"When I think of four plus seven, I can take six from the seven and make the four a ten. Then I have one left over, and ten and one is eleven."

$$4 + 7 =$$

$$\begin{array}{c} \diagup \quad \diagdown \\ 4 + 6 + 1 = \end{array}$$

$$4 + 6 = 10$$

$$10 + 1 = 11$$

6. Ask students if they have another way of describing how making a ten can help them solve $7 + 4$.
7. Continue to build students' mental math skills by repeating the procedure on subsequent days during the routines portion of your math class.

Game 6

Collect Ten

Overview

In this game, students try to pair up ten-frame cards to get a sum of ten. Ten is a landmark number; by knowing combinations of ten, students can begin to construct relationships when solving other basic facts. Part 1 allows students to learn and play the game without recording. Part 2 builds upon their understanding by asking them to record their thinking while playing the game. A *Collect Ten* assessment gives students experience finding the missing addend in the context of the game.

Related Lessons

You might teach the following lesson first:

- G-5 Make Five

Consider this lesson as a follow-up:

- G-9 Race to 20

Key Questions

- How can you prove _____ and _____ equal ten?
- What do you hope to draw? Why?
- What are you going to ask for? Why?

Time

20 minutes

Materials

ten-frame cards (Reproducible B),
4 sets per group of 2–4 students

Collect Ten recording sheet
(Reproducible 1.1), 1 copy for the
teacher and 1 copy per student

Teaching Directions

Part 1: Playing *Collect Ten*

1. Gather four sets of ten-frame cards. Remove the ten-frame cards with ten dots and place them somewhere where they won't be used or get confused with the remaining ten-frame cards. The four sets of 1–9 cards constitute a deck for this game.
2. Explain to students that they will be playing a game using a partial deck of 1–9 ten-frame cards. Shuffle your deck of 1–9 ten-frame cards. Place the shuffled cards facedown and explain that this is called the deck.
3. Ask a student volunteer to help you model the game for the class. Deal five cards from the shuffled deck to the student. Then give yourself five cards.
4. Spread your cards on the floor so every student can see them (this is for the model game only). Look for pairs of cards that have a sum of ten. Put the pairs aside. Show students how to set each pair aside so that the pairs don't get mixed together; for example, you could place each pair on top of the previous one but perpendicular to it. Ask the student volunteer to spread her cards on the floor for all to see. Ask her to look for pairs of cards that have a sum of ten and to place the pairs aside. (Note: It is possible that a player may still have five cards in hand when the first round is ready to begin.)
5. Ask students, "What card do you think I should ask my partner for so that I can pair it with a card I have to make a sum of ten?" Give them quiet time to think, then ask them to share their thinking with their partners. Ask students to explain their strategies. Decide which card you are going to ask for.
6. Ask the volunteer student if she has the card you want in her hand of cards.

Teaching Tip

Shuffling Cards

To model a child-friendly way of shuffling cards, place the cards facedown on a table and move them around with both hands until they are mixed up. Then stack them randomly together.

Teaching Tip

Supporting ELLs

If necessary, or to support English language learners, introduce the word *sum* by writing it for the class to see, reading the word, and defining it for students: "When we put two amounts together, we call that number the sum." Write a number sentence such as $9 + 1 = 10$ and write *sum* under the 10. Consider introducing *addend* to students by telling them mathematicians call the 9 and 1 addends and writing *addends* under the 9 and 1. (See *Supporting English Language Learners in Math Class, Grades K–2* by Rusty Bresser, Kathy Melanese, and Christine Sphar, © 2009 Math Solutions.)

- ▶ If your partner has the card, she must pass it to you. Pair up the card with one of your cards to make the sum of ten and set the pair to the side. Your turn is over.
 - ▶ If your partner does not have the card, you must draw one card from the deck. If the card you take from the deck makes a sum of ten with one of your cards, pair them up and place them to the side. If the card you take from the deck does not make a sum of ten with your cards, leave the card in your hand. Your turn is over.
 - ▶ If at any point in the game you have no cards left in your hand, but cards are still available in the deck, draw two cards.
7. Tell the volunteer student that it is now her turn.
 8. Ask the students what card they think the volunteer student should ask for so that she can pair it with a card she has to make a sum of ten. Give them quiet time to think, then ask them to share their thinking with their partners. Ask students to explain their strategies.
 9. Have the volunteer ask you if you have the card she wants.
 - ▶ If you have the card, you must pass it to the volunteer. The volunteer pairs up the card with one of her cards to make the sum of ten and sets the pair to the side. Her turn is over.
 - ▶ If you do not have the card, the volunteer must draw one card from the deck. If the card she takes from the deck makes a sum of ten with one of her cards, she should pair them up and place them to the side. If the card she takes from the deck does not make a sum of ten with her cards, she should leave the card in her hand. Her turn is over.

- If at any point in the game she has no cards left in her hand, but cards are still available in the deck, she should draw two cards.
- 10. Use the game directions to further model the game. Make sure to ask students if they have any questions before turning the game over to them.
- 11. Have students play the game in small groups of two to four players. Pass out four sets of cards and remind students to remove the cards with ten dots.
- 12. As students play the game, circulate and ask questions (refer to the key questions).

Differentiating Your Instruction

Playing the Game Individually

If a student would benefit from playing *Collect Ten* without a partner or small group, refer to the directions for the *Make Five* game (see G-5 in this section of the book). Allow the student to use a deck of ten-frame cards as assembled for *Collect Ten* but follow the playing format of *Make Five*.

Game Directions

Collect Ten

Objective

Players work through a deck of 1–9 ten-frame cards, trying to make pairs of cards that have a sum of ten. The winner is the person with the most cards.

Materials

4 sets of ten-frame cards for each group of 2–4 players

Directions

1. Remove the cards with ten dots from your four sets of ten-frame cards and place them somewhere where they won't be used or get confused with the rest of the cards. Shuffle the remaining cards. Deal five cards out to each player. Place the rest of the shuffled cards facedown to form a deck.
2. Each player looks at his or her hand of five cards. If any player has two cards that make a sum of ten, that player pairs up the cards and places them to the side, being careful not to mix up the pairs. For example, the player can place each pair on top of the previous one but perpendicular to it to keep each pair separate. (Note: It is possible that a player may still have five cards in hand when the first round is ready to begin.)
3. Player A thinks about what card he or she needs to pair up with one of his or her cards to make a sum of ten. Player A then chooses to ask another player for the card.
 - ▶ If Player A receives the card, he or she pairs it up to make the sum of ten and sets the pair to the side. Player A's turn is now over.
 - ▶ If Player A does not receive the card, he or she must draw one card from the deck. If the card Player A takes from the deck makes a sum of ten with one of the cards in his or her hand, Player A must pair them up and place them aside. Player A's turn is now over. If the card Player A takes from the deck does not make a sum of ten with his or her cards, the card should remain in his or her hand. Player A's turn is over.
 - ▶ If at any point in the game a player has no cards left in his or her hand, but cards are still available in the deck, the player should draw two cards.
4. All players follow the same procedure until all the cards in the deck have been paired.
5. Players record their pairs of cards using a recording sheet or a piece of paper. The winner is the person with the most cards.

Homework

For homework, you can send materials and game directions home with a note attached asking the parent and child to play the game three times.

Teaching Directions

Part 2: Using the Recording Sheet

1. On another day, after students are familiar and comfortable with playing *Collect Ten*, explain to them that they are now going to record the combinations of ten they make with their cards.
2. Ask a volunteer student to help you model the game using the *Collect Ten* recording sheet (Reproducible 11). When the game is finished, model how to record by picking up two cards that are paired together. Write the first card in the first blank on the recording sheet. Then write the number of the second card in the second blank. Last, fill in the sum—which should always be ten. Ask the volunteer to begin recording as you finish recording all the pairs of cards.
3. Emphasize that it's especially important to keep each pair of cards separate from the other pairs; this will help them see the combinations of ten when the game is over. Explain to them that when they are finished recording they will figure out the total amount of points they have earned by adding up all the tens and completing the last part of their recording sheets. Finally, each student will compare his point total to his partner's point total (or the total of another player in the group).
4. Pass out one copy of the *Collect Ten* recording sheet to each student. Make sure students still have their sets of ten-frame cards. As students play the game using their recording sheets, circulate and ask questions (refer to the key questions).
5. When students are finished playing the game, and before having them clean up the materials, ask them to check their recording sheets and remember two combinations of ten that they found.

Differentiating Your Instruction

Using Actual Playing Cards

When you notice students becoming more familiar with the facts for ten and you feel they're ready for a more challenging game, swap out their decks of ten-frame cards with actual playing cards. Remove the 10 and face cards from the deck. Because students no longer have the ten-frame on each card as support, they must now rely on other strategies to know what to ask for to make a sum of ten. On the other hand, if *Collect Ten* is too challenging for a student, have her try the *Make Five* game (see G-5 in this section of the book).

Teaching Tip

Managing Your Classroom

By asking students to remember two combinations of ten, you'll alleviate the problems that bringing recording sheets to the whole-group area can create. If, on the other hand, you decide to have students bring their recording sheets to the whole-group area, set expectations for what students should do with their recording sheets during the discussion (they should place the sheets in front of them and refrain from playing with them).

It Makes Sense! Using Ten-Frames to Build Number Sense

6. Gather the class together for a whole-group discussion on combinations of ten. Ask students to tell you what combinations of ten they remember finding in the game. Record students' answers so eventually you have a list in order like the following:

$$1 + 9 = 10$$

$$2 + 8 = 10$$

$$3 + 7 = 10$$

$$4 + 6 = 10$$

$$5 + 5 = 10$$

$$6 + 4 = 10$$

$$7 + 3 = 10$$

$$8 + 2 = 10$$

$$9 + 1 = 10$$

Ask students to discuss what they notice about the list.

Game Directions

Race to 20

Objective

Players roll a die and use counters to build that number on their double ten-frames. The player who reaches or goes over 20 first is the winner.

Materials

2 double ten-frames, 25 counters each of two colors, and 1 die for each pair of players

Directions

1. Player A rolls the die and uses one color of counters to build the number on his or her double ten-frame. Player A passes the die to Player B.
2. Player B rolls the die and uses the same color of counters to build the number on his or her double ten-frame. Player B passes the die to Player A.
3. Player A rolls the die and uses a different color of counters to build the number on his or her double ten-frame. Player A passes the die to Player B.
4. Player B rolls the die and uses the same color of counters Player A just used to build the number on his or her double ten-frame.
5. Play continues until one player reaches or goes over 20. If a player goes over 20, place any additional counters below the game board.
6. Each player records the number sentence that matches his or her rolls for the game on a sheet of paper or in a math journal. For example, if Player A rolls 5, 3, 2, 6, 3, and 1, he should then record $5 + 3 + 2 + 6 + 3 + 1$.

7. Players add their number strings to verify they match the number of counters on their double ten-frames.

Note: For each roll, players alternate the color of counters used to build the number on their double ten-frames so they can easily see a record of their rolls at the end of the game.

Homework

For homework, you can send materials and game directions home with a note attached asking the parent and child to play the game three times.

Number Strings Recording Sheet

Name: _____

Directions

Find the sums for the following number strings. You may use a set of ten-frame cards and/or a double ten-frame and counters to help you.

1. $2 + 6 + 4$

6. $1 + 6 + 9$

2. $5 + 3 + 8$

7. $5 + 8 + 5$

3. $8 + 4 + 2$

8. $7 + 2 + 6$

4. $7 + 5 + 3$

9. $9 + 3 + 7$

5. $5 + 4 + 1$

10. $8 + 9 + 1$



Adding Nine Recording Sheet

Name: _____

Directions

1. Look at the problem. Use counters to build the first number sentence on your double ten-frame.
2. Make a ten on your double ten-frame by rearranging the counters you've placed, and complete the second number sentence.
3. Figure out the sum. Record the sum for both sentences.

1. $9 + 7 = 10 + \underline{\quad}$

5. $9 + 6 = \underline{\quad} + \underline{\quad}$

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

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

2. $9 + 2 = 10 + \underline{\quad}$

6. $9 + 5 = \underline{\quad} + \underline{\quad}$

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

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

3. $9 + 8 = 10 + \underline{\quad}$

7. $9 + 1 = \underline{\quad} + \underline{\quad}$

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

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

4. $9 + 4 = \underline{\quad} + \underline{\quad}$

8. $9 + 3 = \underline{\quad} + \underline{\quad}$

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

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



Adding Nine Assessment Checklist

Name: _____

Adding 9 Fact	Knew Instantly or with a Small Amount of Thinking	Used a Strategy Like Making a Ten	Used a Counting Strategy Like Counting on or Counting All	Called Out the Wrong Answer (Record the child's answer in the box.)	Could Not Figure Out



Sums of More Than Ten Cards, Version 1

Name: _____

$$7 + 5 =$$

$$5 + 6 =$$

$$4 + 8 =$$

$$8 + 7 =$$

$$9 + 3 =$$

$$9 + 7 =$$

$$7 + 4 =$$

$$6 + 7 =$$

$$9 + 6 =$$

$$8 + 5 =$$



Sums of More Than Ten Cards, Version 2

Name: _____

$$8 + 3 =$$

$$5 + 8 =$$

$$4 + 9 =$$

$$9 + 5 =$$

$$7 + 8 =$$

$$9 + 7 =$$

$$5 + 7 =$$

$$4 + 7 =$$

$$8 + 9 =$$

$$6 + 5 =$$

Sums of More Than Ten Recording Sheet

Name: _____

Directions

1. Turn over the top *Sums of More Than Ten* card in your pile and record the number sentence.
2. Use counters to build the number sentence on your double ten-frame.
3. Make a ten by rearranging the counters you've placed and record the new number sentence.
4. Figure out the sum. Record the sum for both sentences.

1. _____ + _____ = _____ + _____

_____ = _____

2. _____ + _____ = _____ + _____

_____ = _____

3. _____ + _____ = _____ + _____

_____ = _____

4. _____ + _____ = _____ + _____

_____ = _____

(continued)



(Sums of More Than Ten Recording Sheet, *continued*)

5. _____ + _____ = _____ + _____

_____ = _____

6. _____ + _____ = _____ + _____

_____ = _____

7. _____ + _____ = _____ + _____

_____ = _____

8. _____ + _____ = _____ + _____

_____ = _____

9. _____ + _____ = _____ + _____

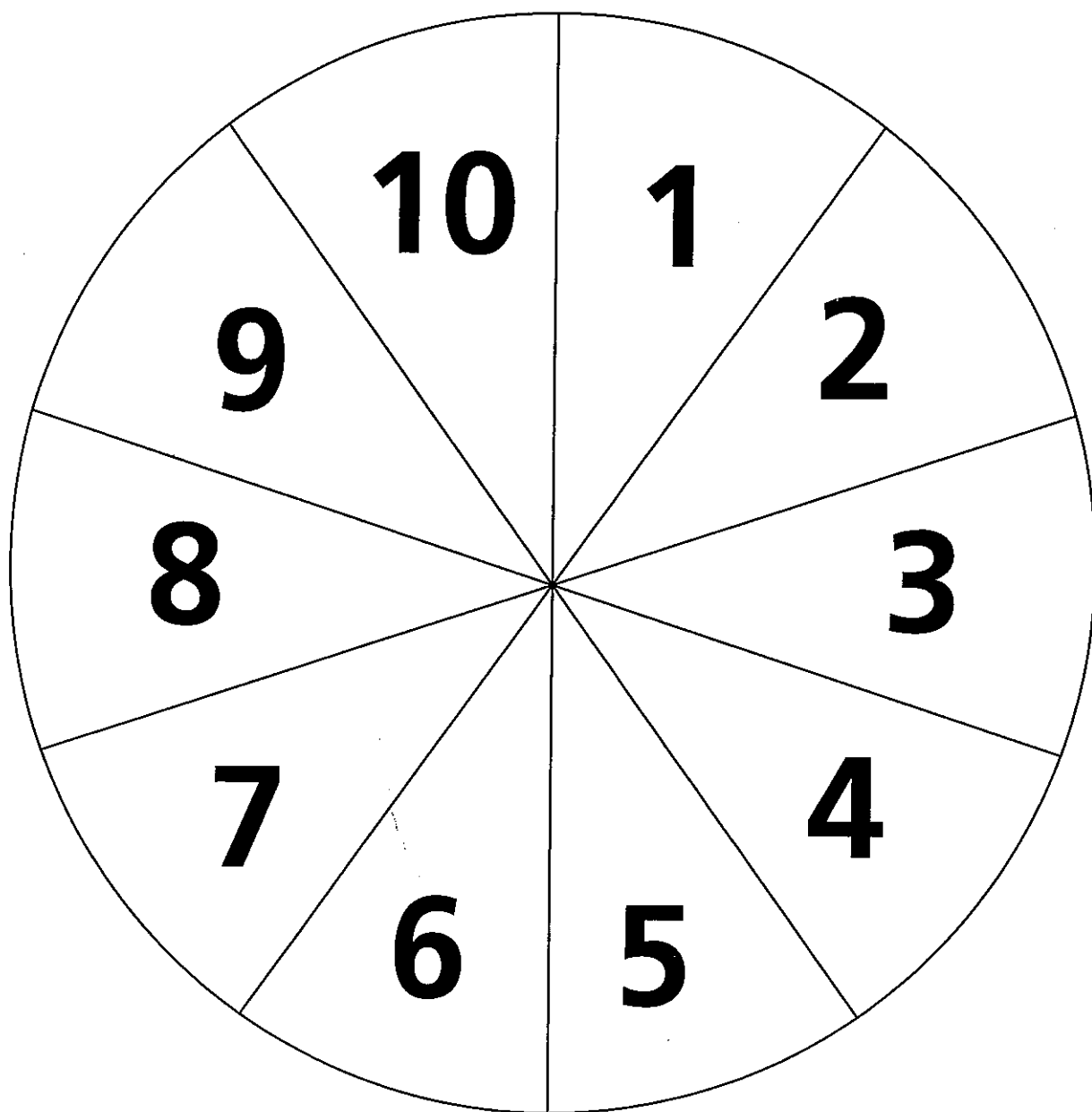
_____ = _____

10. _____ + _____ = _____ + _____

_____ = _____



Spinner



1. Pass out 1 large paper clip.
2. Use the tip of a pencil to keep the paper clip on the spinner.
3. Spin the paper clip while holding the pencil or have a partner hold the pencil while you spin the paper clip.

