

Session 1

Parts and Wholes

Materials

- Counters (45 per pair)
- Cloth pieces or paper (1 per pair, optional)
- Overhead projector (optional)
- Student Sheet 17 (1 per student)

What Happens

Pairs of students play the game Cover-Up and record their strategies. Students share strategies in a class discussion. Their work focuses on:

- finding one missing part when the total and one part are known
- describing and comparing strategies

Start-Up

Today's Number

Calendar Date and Number of School Days Ask students to use three numbers to express Today's Number. Suggest that they use both addition and subtraction in each number sentence. For example, if the number is 21 (calendar date), a possible combination is $15 + 10 - 4$. If Today's Number is 124 (number of school days), a possible combination is $100 + 30 - 6$. If you are counting the number of school days, add a card to the class counting strip and fill in another number on the blank 200 chart.

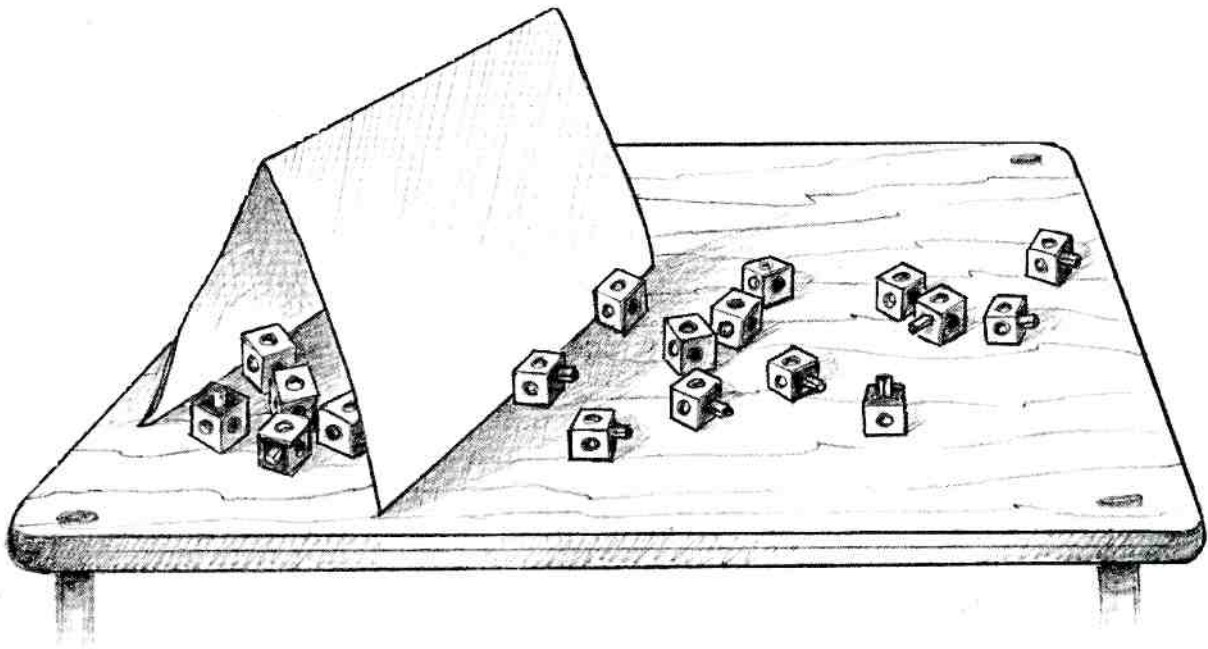
Activity

Introducing Cover-Up

To play Cover-Up, one player puts some cubes or counters on a table and counts them. Counts need to be accurate, so players should check their counts. One player then takes away some of the counters and hides them under a piece of cloth or paper. Together, both players use the remaining counters to figure out how many are hidden. Solutions are verified by counting the hidden counters.

Introduce this game by playing a few rounds with the class. So everyone can see, seat students in a circle and place the counters in the middle, or place the counters on the overhead projector. Put out 12–18 counters and ask students to count them. Secretly hide 3–6 counters and ask students to use the remaining counters to figure out how many are hidden. When the hidden number has been revealed, ask several students to share the strategies they used to find the amount.

Play several rounds with the whole class. Hide a different amount of counters in each round—a small portion, a large portion, and about half. This will give students the opportunity to use different strategies depending on the relationship between the total and the parts. With a total of 18 and 13 uncovered, students will often count up from 13 to find how many are hidden. With 2 uncovered, students may count down from 18. With 8 uncovered, some students may use the known fact, $8 + 10 = 18$.



Show students how to record each round on Student Sheet 17, Cover-Up Recording Sheet. Then provide pairs of students with Student Sheet 17, counters, and paper or cloth to hide the counters.

Ask students to use 18 counters for a few rounds. As you circulate and watch students play, help pairs choose an appropriate total. Students should keep the numbers small while they are learning how to play this game. Imagining a missing part may be difficult for many students.

Activity

About 10 minutes before the end of the session, pose a problem for the class to solve and then discuss. Use the problem below or choose one that came up as they played.

I've got 21 pennies here. I'm going to cover some up. Help me count what's not covered: 1, 2, 3, 4, 5, 6, 7. OK, 21 pennies, 7 not covered. Who has a way to find out how many are covered?

Write on the chalkboard: 21 pennies, 7 not covered. Give students a minute to think about their strategies before sharing them with the class.

Record students' strategies in some way. See the **Dialogue Box**, Strategies for Cover-Up (p. 76), for the range of strategies you are likely to encounter. Counting up or back to solve problems can be difficult for students. Questions that come up may be similar to those that arose when students were counting on the 100 chart, "Which number do you start on? How far do you count?"

Class Discussion: Cover-Up Strategies