

Bears In Caves

Strand:	Computation and Estimation
Topic:	Recognizing and describing part-whole relationships for numbers up to 10
Primary SOL:	1.7 The student will a) recognize and describe with fluency part-whole relationships for numbers up to 10;
Related SOL:	1.1, 1.6, 1.7b, 1.15

Materials

- Bear counters
- Plastic bowls/cups (caves)
- Recording sheet
- Pencils

Vocabulary

total, part, whole, missing, counting on, counting back, equal, all, plus, minus

Student/Teacher Actions: What should students be doing? What should teachers be doing?

Note: When working on part/whole activities, students typically work with one 'whole' for several days until they are fluent with all of the combinations for that 'whole'. If a math workshop model is being used, this activity in this lesson can become a station and each student can work on whatever 'whole' is appropriate for his or her level of learning.

1. Tell students which number they will be working on during the activity and have them brainstorm things that they know about that number. For example, the number "8" could tell how many legs a spider has or how many tentacles are on an octopus.
2. Record their ideas on chart paper/board to begin the conversation about the number being discussed.
3. Have the partners count the number of bears they will be working with during the lesson, and let them know that this number indicates the 'whole' or how many bears they will have in all.
4. Each set of partners should get a plastic bowl/cup to represent the bear cave.
5. Explain that students will take turns with their partner hiding some of the bears in the cave (under the bowl/cup) and leaving the rest outside the cave.
6. Students will figure out how many bears are hiding in the cave, given the total number of bears and the number of bears outside the cave. Students will check to make sure they are correct by lifting the bowl or cup.
7. In a journal or on a piece of paper, both students should record what they discovered. Two possible recording sheets are included. On the first recording sheet, students write the parts and the whole in the appropriate columns. On the second recording sheet there is a place for a number sentence. The following are ways students can record a number sentence if there are 5 outside the cave and 3 in the cave. Be sure to model how you want students to record. Begin without using the symbols for plus, minus, and

equal, but as those symbols are introduced and students are more familiar with parts and wholes include those symbols. If you wish to focus on the connection between addition and subtraction, both an addition sentence and a subtraction sentence can be recorded.

- a. 5 and 3
 - b. 5 and 3 is 8
 - c. $5 + 3 = 8$
 - d. $8 = 5 + 3$
 - e. $8 - 5 = 3$
 - f. $8 - 3 = 5$
8. Students will continue taking turns hiding bears in the cave until they have found different combinations for the total number.
 9. Pull the students back together for a whole-class discussion of the different combinations they found for the number, and the strategies they used to decide how many bears were hiding inside the cave. Students may talk about counting back or counting up as they discuss their strategies. The goal is for students to become fluent with all of the combinations for numbers through 10 and to not have to figure it out. This takes lots of practice.
 10. List all the different combinations for the number of the day on chart paper/board, and discuss what the students notice.

Assessment

• Questions

- If ____ bears are outside the cave, how many are inside the cave? How do you know?
- How did you determine how many bears were inside the cave?
- Do you notice any patterns with the different combinations you found?
- What number always goes with ____ to make ____? Why can't it be a different number?

• Journal/writing prompts

- If there are six bears and three are outside the cave, how many are inside the cave? Write a number sentence to show the parts and the whole.
- Carrie had 8 seashells. Some were inside the bucket and some were laying on the sand. Draw pictures to show all of the ways Carrie's shells might be placed.

• Other Assessments

- Provide a container of counters. Have students count out 8 (or whatever number you are working on). Hide some of the counters under your hand. Ask students to tell you how many counters are hidden. Repeat for all of the combinations for that number.

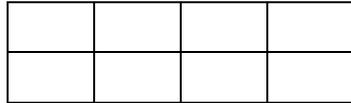
Extensions and Connections (for all students)

- This activity could be used as a springboard for connecting addition and subtraction and writing related facts.
- Students could write and solve their own story problem using the number of the day.

- This activity could be placed at a station for students to complete during math workshop time.

Strategies for Differentiation

- For students who need more visual support, provide a mat with blank spaces for the number the student is working with. The student can place the bears that are outside the cave on the frame to aid in figuring out the hidden bears. A mat for eight might look like:



- If working at stations, each student can work on whatever number is appropriate for his or her level of proficiency.
- Students that are just beginning to work on the parts of a number can simply lift the cave to see the missing part rather than try to figure out the missing part.
- If writing numerals and symbols is difficult, students can simply say the combination.
- If students have difficulty with numeral recognition, provide a number path so that students can find and write the correct numeral.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

Bears in Caves

My whole is _____

Part Outside	Part Inside	Number Sentence