

## Empty the Bowl — Teacher Notes

**Empty the Bowl** was adapted from an activity in *About Teaching Mathematics*, by Marilyn Burns. It is intended to be used after children have worked on counting through 20, reading and writing numbers through 10, and been introduced to some basic concepts and language of probability (Activity 3-10). The game should be introduced as a group lesson, with the teacher modeling and children participating gradually as appropriate. The student version can be duplicated and used as a recording sheet for partners or small groups when playing independently. Feel free to incorporate your literacy goals into the problem. You may have children dictate their thinking to you or another adult to write down.

### Concepts and skills developed:

- Count forward from 0 to 20.
- Read the numbers 0 to 10.
- Match one-to-one.
- Number sense
- Data gathering

### Materials needed, for demo game:

- 20 cubes, tiles, or other counters (They should be identical in size.)
- small bowl to hold them
- one regular die, 1-6
- chart/newsprint/chalkboard/overhead for recording counts

### Prerequisite Skills:

- Count objects 1-10.

### Suggested Procedure:

1. Put 20 cubes in the bowl.
2. Explain to the children that you are going to roll the die. The number that comes up will tell you how many cubes to remove from the bowl.
3. Ask them to predict how many rolls of the die it will take to empty the bowl and to explain the reasons for their predictions.
4. Demonstrate the game. (You don't have to roll the exact number to go out; that is, with 3 cubes left, you can empty the bowl with a roll of 4.) Keep track of the number of rolls on the board (or overhead/chart). With more advanced students you may record the actual numbers rolled.
5. Students can participate in different ways: recording tallies or numbers of the rolls on the board, rolling the die, removing cubes from the bowl.
6. After the bowl is emptied, ask children to figure out how many rolls it took.
7. On the board list the numbers 1 to 20. Put a tally mark next to the number of rolls that it took to empty the bowl.
8. Repeat the game several times, continuing to record the number of rolls it took.
9. Ask them questions to give you information about their understanding, even if they don't know the answers:
  - Could the bowl be emptied in just one roll? Why or why not?
  - Could the bowl be emptied in two rolls? Why or why not?
  - What do you think is the most number of rolls it could possibly take?
  - What do you think is the fewest number of rolls it could possibly need?

Children can continue playing in pairs, using the student version of the problem as a recording sheet. After five rounds they can add their data to the list on the board. After all their data has been recorded, discuss again the questions posed previously. Opinions will differ, and that's fine.

After completing it in class, you might send another copy of the record page home as a Home Link .

**PA Standards Connection:** Standard 2.1 A, H; Standard 2.5 A