



## Overview

Students will use the calculator to count sets of concrete objects, connect number symbols to quantities, and look for patterns in the number symbols.

**Grade Levels: 1–2**




## Concepts

- Patterns
- Ordering numbers
- Whole Numbers
- Place Value
- Comparing Numbers
- Addition



## Materials

-  TI-10 calculators  
**Note:** the TI-15 Explorer™ calculator can be used in place of the TI-10 for this activity.
- *1 Hunter*  
Hutchins, Pat (New York, NY: Greenwillow Books, 1986)
- *One Gorilla: A Counting Book*  
Morozumi, Atsuko (New York, NY: Farrar, Straus & Giroux, 1990)
- *Rooster's Off to See the World*  
Carle, Eric (Natick, MA: Picture Book Studio, [1987], 1972)
- Beans or centimeter cubes
- Student activity sheet
- Pencils



## Assessment

Throughout the activity, questions are included for formative assessment. Student work should be used as a check for understanding. Have the students use the chart and counters along with the TI-10 to complete the activity.



## Introduction

1. Have students hold ten small beans or centimeter cubes in one hand.
2. Ask students: *How many beans (cubes) do you think you could hold in one hand? Why do you think that?* Have students record their estimates on their activity sheets.
3. Have each student grab one handful of beans (cubes) from a bag and place them beside their activity sheet.
4. Have students:
  - a. Prepare their calculators by entering  $\boxed{\text{Op1}} \boxed{+} \boxed{1} \boxed{\text{Op1}} \boxed{0}$
  - b. Place one bean (cube) in the top left square of the hundred grid on their activity sheets.
  - c. Press  $\boxed{\text{Op1}}$  to display 1 in the lower right corner of the display.
  - d. Place a second (cube) in the next square across the grid.
  - e. Press  $\boxed{\text{Op1}}$  to display 2.
5. Have students continue counting their beans (cubes) by placing them one at a time on the grid and pressing  $\boxed{\text{Op1}}$  to display the symbol on the calculator for the number of beans.

**Note:** Students can mark (color) the squares as they place each bean (cube) on the grid so that they see the pattern when they remove the beans (cubes).
6. Read *1 Hunter, One Gorilla, or Rooster's Off to see the World* to students to reinforce the pattern of "one more."

## Collecting and Organizing Data

While students explore with the beans (cubes) and calculators ask questions like the following.

### Questions for Students:

- ❖ *How many beans (cubes) fit across the grid?*
- ❖ *What patterns do you notice in the numbers on the calculator as you fill up the grid?*
- ❖ *Can you make up a different story using the same action?*
- ❖ *When do numbers start using two spaces on the calculator?*
- ❖ *Which part of the number changes as you add each bean (cube)?*



## Using the Calculator

- After you press **Op1**, what does the number in the bottom right of the calculator display show you? What does the top line show you? What does the number on the bottom left of the calculator display show you?
- Why do you think you enter **+ 1** to prepare the calculator to count?
- What do you think would happen if you entered **+ 2** as the constant instead of **+ 1**?

## Analyzing Data and Drawing Conclusions

After students have counted their different groups of beans (cubes), have them work as a whole group to analyze their observations. Ask questions such as the following:

### Questions for Students:

- ❖ *What patterns did you notice in the numbers while you were counting?*
- ❖ *How are the beans (cubes) on the grid and the number on the calculator connected?*
- ❖ *How many different ways can you describe the number of beans (cubes) you were able to hold in your hand?*
- ❖ *Who was able to hold the greatest number of beans (cubes)? How do we know?*
- ❖ *Who grabbed the smallest number of beans (cubes)? How do we know?*
- ❖ *Why did we end up with different numbers of beans?*



## Using the Calculator

- *How did you use the calculator to help you count?*
- *How could you use the calculator to count two beans (cubes) at one time? Three? More than three?*



**Continuing the Investigation**

**Questions for Students:**

- ❖ *How many beans (cubes) do you think you could hold in two hands? Why? Use the calculator and the hundred grid to test your conjecture.*
- ❖ *If you had a partner who was also holding beans (cubes) in both hands, how many could you hold together? Why? Use the calculator and the hundred grid to test your conjecture.*



# SOLUTIONS



Name \_\_\_\_\_

Date \_\_\_\_\_



**Focus:** Identify patterns while counting sets of objects.

## Patterns in Counting

Collecting and Organizing Data

Answers will vary. Students should realize that they can hold twice as many cubes in two hands as they can hold in one hand.

Hundred Grid


The number of beans (cubes) I think I can hold in one hand: \_\_\_\_\_

The number of beans (cubes) I actually held in one hand: \_\_\_\_\_

The number of beans (cubes) I think I can hold in two hands: \_\_\_\_\_

The number of beans (cubes) I actually held in two hands: \_\_\_\_\_

Questions we thought of while we were doing this activity: