



Overview

Students will use calculators to help them read picture graphs.

Grade Levels: 1–2




Concepts

- Whole numbers
- Multiplication
- Patterns
- Graphing
- Addition



Materials

-  TI-10 calculators
Note: the TI-15 Explorer™ calculator can be used in place of the TI-10 for this activity.
- Colored chips or tiles
- Copies of appropriate picture graphs
- Student activity sheet



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 colored chips along with the TI-10 to complete the activity.














Introduction

1. Talk with students about collecting data for a picture graph.

Example: Suppose every student in the school voted for their favorite subject. How large do you think the graph would be if every piece of data became an individual picture on the picture graph?


2. Discuss putting students' votes together in groups of 5, 8, 10, or 20 and the effect that each grouping would have on the graph.
3. Give students a sample picture graph in which the pictures represent more than one piece of data. (The picture graph in this activity is an example.)
4. Using the sample graph, have students translate the pictures on the graph back into pieces of data by placing the appropriate number of colored chips or tiles directly on each of the pictures.
5. Then have students use the  key to count the chips and look for patterns.

Example: If each picture represents 5 piece of data, students should:

- a. Place 5 chips on each picture.
- b. Separate the chips on the first picture, laying them beside the graph to clearly show the 5 pieces of data that each picture represents.
- c. Press      to clear the constant stored in .
- d. Enter   **5**  **0** prepare the calculator to count by 5s.
- e. Enter  to count the first group of 5. The number sentence **0 + 5** shows on the first line of the calculator display. The counter **1** and the result **5** show in the second line of the calculator display.
- f. Separate the chips on the second picture, enter  again to count the second group of 5, see **2** and **10** in the display, and so on.



Collecting and Organizing Data





While students are using the  constant function to count the data in a picture graph, ask questions such as:

Questions for Students:

- ❖ *What do the pictures in the graph represent? How do you know that?*
- ❖ *What do your colored chips represent?*
- ❖ *How can you tell by looking at the graph which categories have more data? Less data? The same amount of data?*
- ❖ *Do your strategies for finding more, less, and about the same amount of data need to change if the pictures represent more than one piece of information? Why or why not?*



Using the Calculator

- *How can you use the calculator to help you read the data?*
- *How can you use  on the calculator to help you read the data? How do you decide what to enter as the constant in ? Why do you begin at 0?*
- *How can you use the scroll feature,  , to explore the patterns?*



Analyzing Data and Drawing Conclusions

After students have read their graphs, have them discuss the graphs as a whole group. Ask questions such as:

Questions for Students:

- ❖ *What does the data on the graph tell you?*
- ❖ *What is a question that could be answered by this graph?*
- ❖ *What is a question that could not be answered by this graph?*
- ❖ *Why do you think the designers of this graph chose each of their pictures to stand for ____ number of ____?*
- ❖ *What are the advantages of having a picture represent more than one piece of data?*
- ❖ *What are the disadvantages of having a picture represent more than one piece of data?*



Using the Calculator

- *How did you use **Op1** to read the graph?*
- *How did the colored chips laid beside your graph as you counted them connect to the display you saw on your calculator?*

Continuing the Investigation

Have students

- Read and discuss a picture graph that has half of a picture in one of its categories.
- Collect samples of picture graphs from magazines and the newspaper and evaluate them based on their clarity and appeal.

Note: *Weekly Reader* and *USA Today* are good sources of picture graphs.



SOLUTIONS



Name _____

Date _____




























Focus: Read data in a picture graph.

Reading Picture Graphs

Collecting and Organizing Data

Favorite Fruit



means 5 children

Patterns we found while we were doing this activity:

Answers will vary.