

Data Display Detectives

Collect real counts and build a scaled display.

GRADE 3 • MA.3.DP.1.1

MA.3.DP.1.1 "Excerpt: Collect and represent numerical and categorical data with whole-number values using tables, scaled pictographs, scaled bar graphs or line plots. Use appropriate titles, labels and units."

NAME _____

DATE _____

A display represents collected data

Categorical data name groups, such as activity choices. Numerical data are numbers, such as pencil counts. Tables need a title and labels that tell what is counted. A scaled bar graph uses equal spaces worth the same number.

Try it together

A table records paint brushes. How many brushes are recorded?

Paint brushes

Brush size	Number of brushes
Small	3
Large	2

Read each count and its label. Add 3 and 2. 5 brushes.

Tasks 1-4 use made-up replies. For tasks 5-7, collect actual data and check every recorded result.

1. Organize categorical replies

Twelve students chose an activity. Count each reply once and complete the table.

Made-up activity replies

1. Rope	2. Ball	3. Rope	4. Hoop
5. Rope	6. Ball	7. Rope	8. Ball
9. Rope	10. Hoop	11. Ball	12. Rope

Activity choices

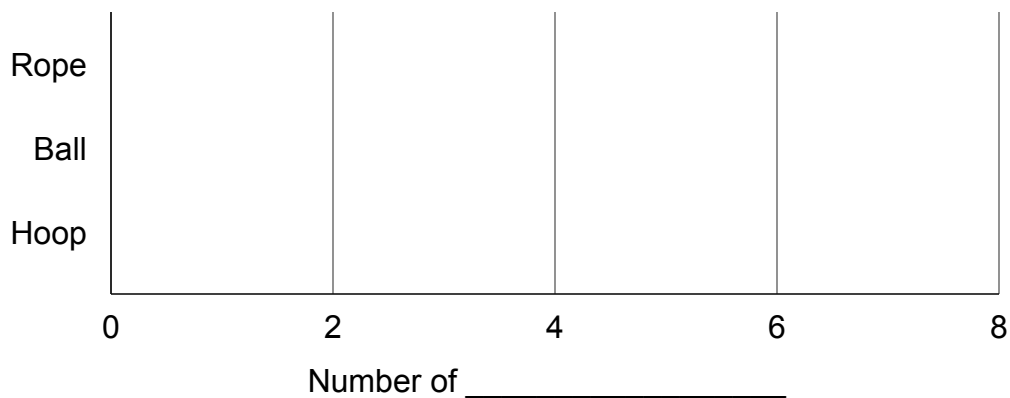
Activity	Number of students
Rope	
Ball	
Hoop	

2. Build a scaled bar graph

Use your table in task 1. Write a graph title and finish the number-axis label. Draw each bar from 0 to its count. Each space means 2 students.

Graph title: _____

Activity



3. Explain the scale

Your Rope bar spans 3 spaces. Write a multiplication equation that tells how many students it represents.

4. Check the display

Add all three counts. Explain how this total helps you check that no reply was left out.

5. Collect categorical data

Ask four different people: Which activity would you choose, Rope, Ball or Hoop? Record one choice per person.

My activity survey

Person	Activity choice
1	
2	
3	
4	

6. Collect numerical data

Count the pencils in four pencil cases. Record each whole-number count, including 0 for an empty case.

Pencil-case counts

Case	Number of pencils
1	
2	
3	
4	

7. Represent your number data

Use task 6. Write each different pencil count in the first column. In the second, write how many cases had that count. Leave unused rows blank. Check that the number of cases totals 4.

How many pencils per case?

Number of pencils	Number of cases
—	
—	
—	
—	

TEACHER NOTES

Arrange four people and four pencil cases or containers with pencils for the collection tasks. Do not substitute invented data for actual collection. Activity choices are categorical; pencil counts are numerical whole numbers. Task 7 groups repeated numerical values and counts their frequencies: a possible data set 2, 0, 2, 3 gives rows 0:1 case, 2:2 cases, 3:1 case. This is only an example; assess the student's actual data. A total of four alone is not enough: each recorded count must be represented correctly.

TASK 1

Rope 6; Ball 4; Hoop 2.

Activity choices

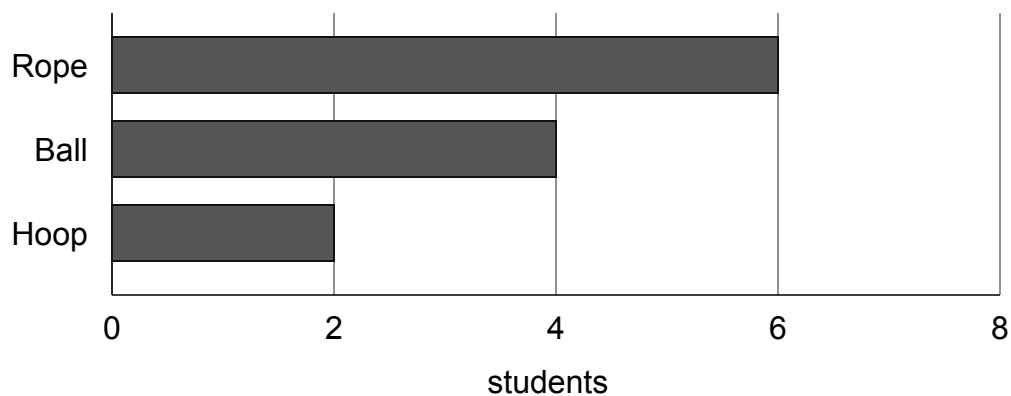
ACTIVITY	NUMBER OF STUDENTS
ROPE	6
BALL	4
HOOP	2

TASK 2

Title: Activity choices. Label: Number of students. Bars reach 6, 4 and 2.

Activity choices

Activity

**TASK 3**

$3 \times 2 = 6$ students.

TASK 4

$6 + 4 + 2 = 12$. Check that each of the 12 replies appears once in the correct category.

TASK 5

Answers vary. Four actual choices, each Rope, Ball or Hoop, one per person. Check the replies against the people asked.

TASK 6

Answers vary. Four actual whole-number pencil counts, one per case. Count pencils in each case once; zero is a valid result.

TASK 7

Answers depend on task 6. Each different count appears once; case frequencies total 4 and match all four recorded counts.