

# Marks or Leaves?

Sort two ways to show numerical data.

**5.PS.1** "The student will apply the data cycle (formulate questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on line plots (dot plots) and stem-and-leaf plots..."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## LINE PLOT

A line plot uses X marks above a number line to show data. It has a title, labeled axes, and a key that tells what each X means.

Title: Cookie Chips. Axes: Chips per Cookie and Cookies. X marks are above 6, 7, and 8. Key: X = 1 cookie.

## STEM-AND-LEAF PLOT

A stem-and-leaf plot groups numbers by place value. The stems and leaves are in order, and a key tells what the digits mean.

Title: Hike Distances. Key: 1|4 = 14 miles. 0|9, 1|4 8, 2|1.

## 1 SORT \_\_\_\_\_ 8 items

For each display, circle LINE PLOT or STEM-LEAF, then choose two items and explain which features helped you decide.

1. Title: Library Books Checked Out. Axes: Books and Students. Xs are stacked above 1, 2, 3, and 4. Key: X = 1 student. LINE PLOT STEM-LEAF
2. Title: Pebbles Found. Axes: Weight (g) and Pebbles. Xs are stacked above 2, 3, 4, and 5. Key: X = 1 pebble. LINE PLOT STEM-LEAF
3. Title: Quiz Scores. Key: 8|4 = 84. 7|2 6, 8|1 4 9, 9|0 3. LINE PLOT STEM-LEAF
4. Title: Water Bottles Carried. Axes: Number of Bottles and Students. Xs are stacked above 0, 1, 2, 3, and 4. Key: X = 1 student. LINE PLOT STEM-LEAF
5. Title: Minutes Reading. Axes: Minutes and Readers. Xs are stacked above 10, 15, 20, and 25. Key: X = 1 reader. LINE PLOT STEM-LEAF
6. Title: Plant Heights. Key: 1|2 = 12 cm. 1|2 5 8, 2|0 3 3 7. LINE PLOT STEM-LEAF
7. Title: Shoe Sizes. Key: 4|5 = 4.5. 3|5 7, 4|0 0 5, 5|2. LINE PLOT STEM-LEAF
8. Title: Pages Read. Axes: Pages and Students. Xs are stacked above 1/2, 1, 1 1/2, and 2. Key: X = 1 student. LINE PLOT STEM-LEAF

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## PROVE IT

Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM # \_\_\_\_\_ HOW I KNEW \_\_\_\_\_

\_\_\_\_\_

ITEM # \_\_\_\_\_ HOW I KNEW \_\_\_\_\_

\_\_\_\_\_

3

## MAKE YOUR OWN

One of each

MAKE YOUR OWN: Write one new line plot example and one new stem-and-leaf plot example.

LINE PLOT

\_\_\_\_\_

\_\_\_\_\_

STEM-LEAF

\_\_\_\_\_

\_\_\_\_\_

### CHALLENGE

CHALLENGE: Make a stem-and-leaf plot for these jump-rope counts: 12, 14, 17, 19, 21, 21, 23, 25, 28, 30, 32, 32. Include a title and key.

\_\_\_\_\_

\_\_\_\_\_

## PART 1 • SORT

| # | ITEM                                                                                                                             | CATEGORY  | WHY                                                                                    |
|---|----------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------|
| 1 | Title: Library Books Checked Out. Axes: Books and Students. Xs are stacked above 1, 2, 3, and 4. Key: X = 1 student.             | LINE PLOT | X marks are shown above values on a numbered axis, with a key.                         |
| 2 | Title: Pebbles Found. Axes: Weight (g) and Pebbles. Xs are stacked above 2, 3, 4, and 5. Key: X = 1 pebble.                      | LINE PLOT | The data are represented by stacked X marks above number-line values.                  |
| 3 | Title: Quiz Scores. Key: 8 4 = 84. 7 2 6, 8 1 4 9, 9 0 3.                                                                        | STEM-LEAF | The tens digits are stems and the ones digits are ordered leaves.                      |
| 4 | Title: Water Bottles Carried. Axes: Number of Bottles and Students. Xs are stacked above 0, 1, 2, 3, and 4. Key: X = 1 student.  | LINE PLOT | The display uses X marks above numerical values and includes a key.                    |
| 5 | Title: Minutes Reading. Axes: Minutes and Readers. Xs are stacked above 10, 15, 20, and 25. Key: X = 1 reader.                   | LINE PLOT | The data points are X marks placed above a numbered axis.                              |
| 6 | Title: Plant Heights. Key: 1 2 = 12 cm. 1 2 5 8, 2 0 3 3 7.                                                                      | STEM-LEAF | The values are split into stems and ordered leaves.                                    |
| 7 | Title: Shoe Sizes. Key: 4 5 = 4.5. 3 5 7, 4 0 0 5, 5 2.                                                                          | STEM-LEAF | The key shows that each leaf represents a tenth, and the stems and leaves are ordered. |
| 8 | Title: Pages Read. Axes: Pages and Students. Xs are stacked above $\frac{1}{2}$ , 1, $1\frac{1}{2}$ , and 2. Key: X = 1 student. | LINE PLOT | The X marks show fractional values above a numbered axis.                              |

## PART 2 • PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

## PART 3 • MAKE YOUR OWN (SAMPLE ANSWERS)

- **LINE PLOT:** Title: Birds Seen. Axes: Number of Birds and Walks. Xs are stacked above 0, 1, 2, and 3. Key: X = 1 walk.
- **STEM-LEAF:** Title: Movie Lengths. Key: 8|5 = 85 minutes. 8|5 9, 9|1 4 8, 1|0 2.

**Challenge:** Title: Jump-Rope Counts. Key: 2|3 = 23 jumps. 1|2 4 7 9, 2|1 1 3 5 8, 3|0 2 2.

Items 1, 2, 4, 5, and 8 are line plots. Items 3, 6, and 7 are stem-and-leaf plots. Accept equivalent student-made displays that include the required features and keep stems and leaves in ascending order.