# Dot Plots & Univariate Data

Statistics Worksheet · Grade 6–8

Name: _____ Date: _____

**Learning Objectives**

- Identify the lowest and highest values in a univariate data set to scale a number line
- Construct and interpret dot plots to display ungrouped univariate data
- Describe the behavior and distribution of a data set using its dot plot

## Problems

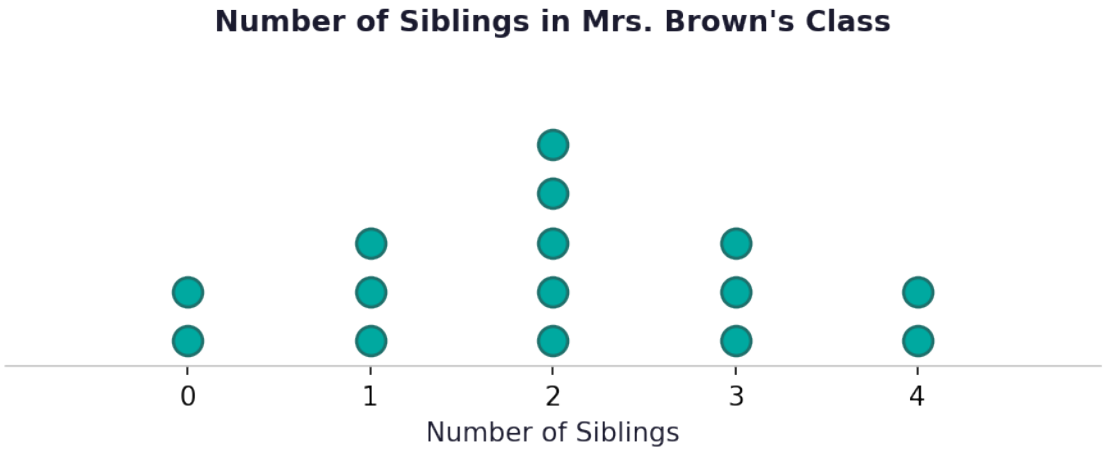
**1.** The number of pets owned by each student in a class is listed below. Identify the lowest and highest values in the data set.

3, 1, 0, 2, 4, 1, 0, 3, 2, 1

**2.** A dot plot requires a horizontal number line scaled to cover all data values. A student recorded the following hours of sleep: 6, 7, 8, 6, 9, 7, 8, 6, 7, 8. What whole-number range should the number line cover?

6, 7, 8, 6, 9, 7, 8, 6, 7, 8

**3.** Use the dot plot below showing the number of siblings each student has in Mrs. Brown's class. How many students have exactly 2 siblings?

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**4.** The number of goals scored by each team in the first round of a soccer playoff is listed below. Construct a dot plot for this data set on a number line from 0 to 8.

**Goals Scored in Soccer Playoffs**


**5.** A frequency table below shows quiz scores for 12 students. Use the table to complete the dot plot by filling in the correct number of dots above each score value.

| Score | Frequency |
|---|---|
| 5 | 2 |
| 6 | 3 |
| 7 | 4 |
| 8 | 2 |
| 9 | 1 |

**6.** The dot plot below shows the number of books read by students over the summer. How many students were surveyed in total, and what is the most common number of books read?

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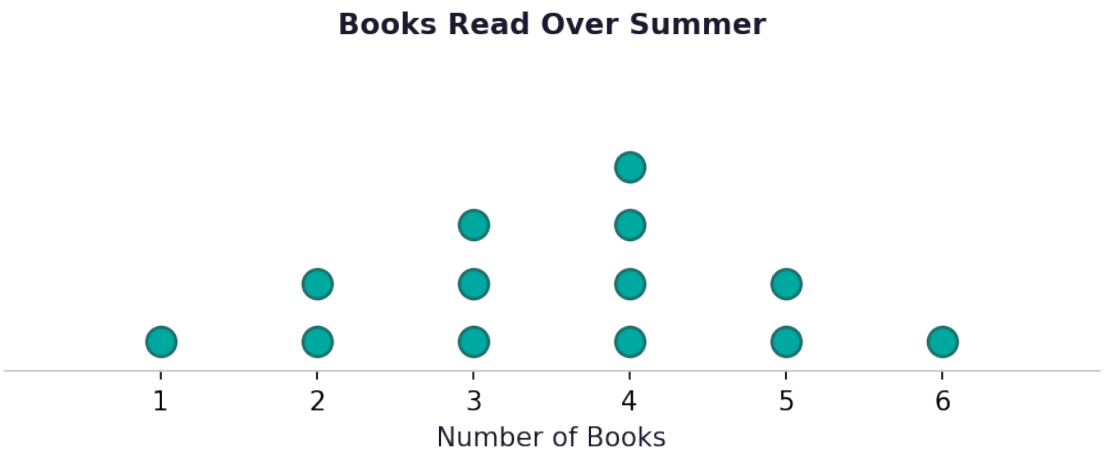
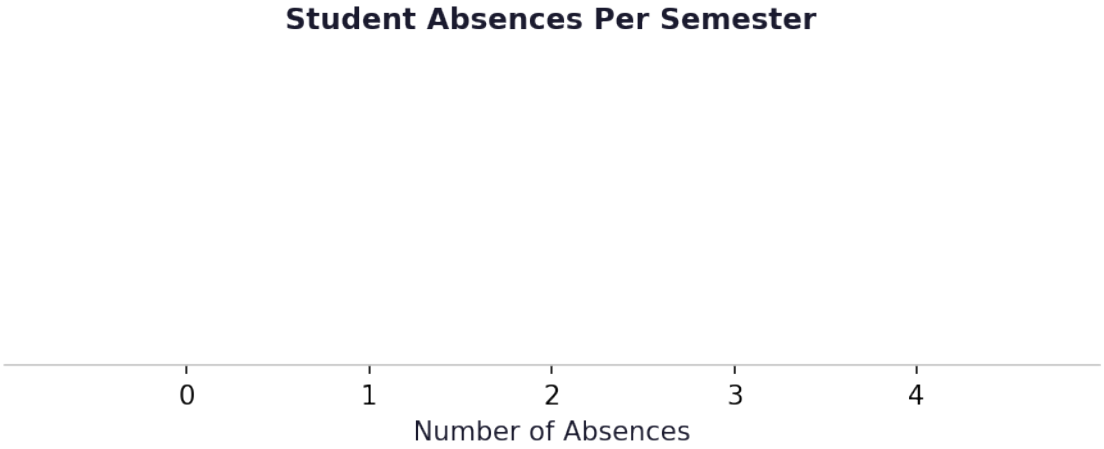



**7.** A teacher recorded the number of absences per student in a semester. The data set is shown below. Create a dot plot and then describe the overall behavior of the data in one sentence.




**8.** Two dot plots are shown below: one for Class A and one for Class B, both displaying test scores. Compare the two distributions. Which class scored higher overall, and which class had more consistent scores?

| Class | Scores |
|---|---|
| Class A | 60, 62, 65, 65, 70, 70, 70, 75, 75, 80 |
| Class B | 55, 60, 65, 70, 75, 80, 85, 90, 95, 100 |

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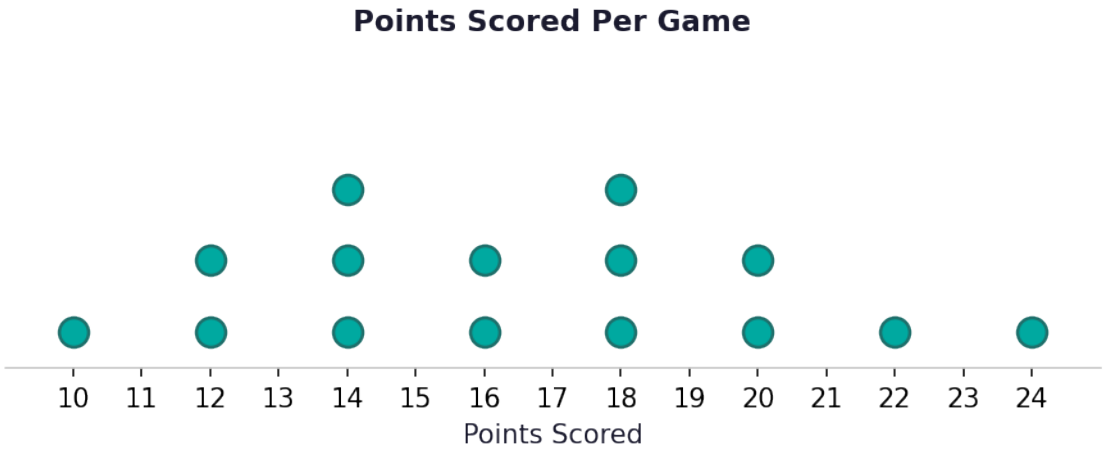
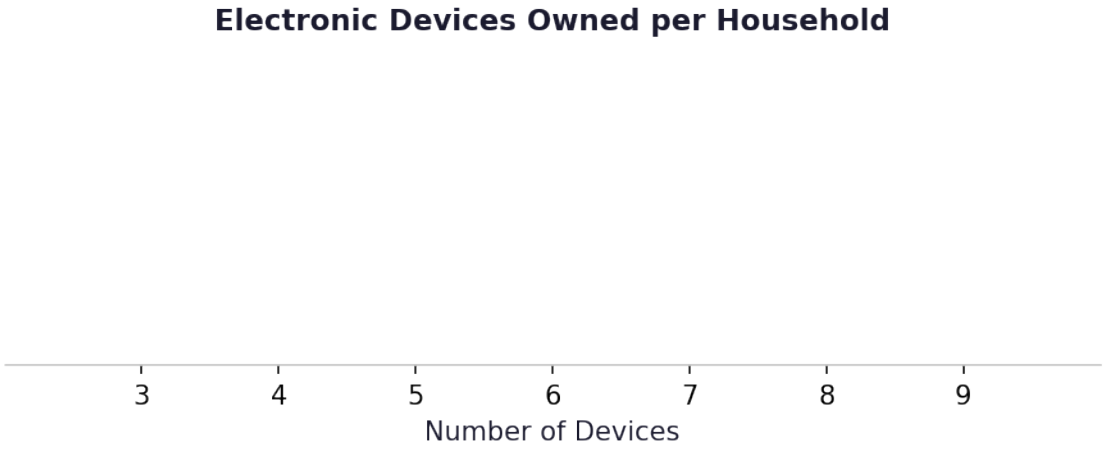
**9.** The dot plot below shows the points scored per game by a basketball player over 15 games. Use the dot plot to find the mean, median, and mode of the data.




**10.** A researcher surveys 20 households and records the number of electronic devices owned by each. The data is: 3, 5, 4, 7, 6, 5, 8, 4, 5, 6, 7, 5, 3, 9, 6, 4, 5, 7, 6, 8. Construct a dot plot, identify any clusters or gaps, calculate the mean, and write a complete statistical description of the distribution.

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# Dot Plots & Univariate Data — Answer Key

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## Answer Key

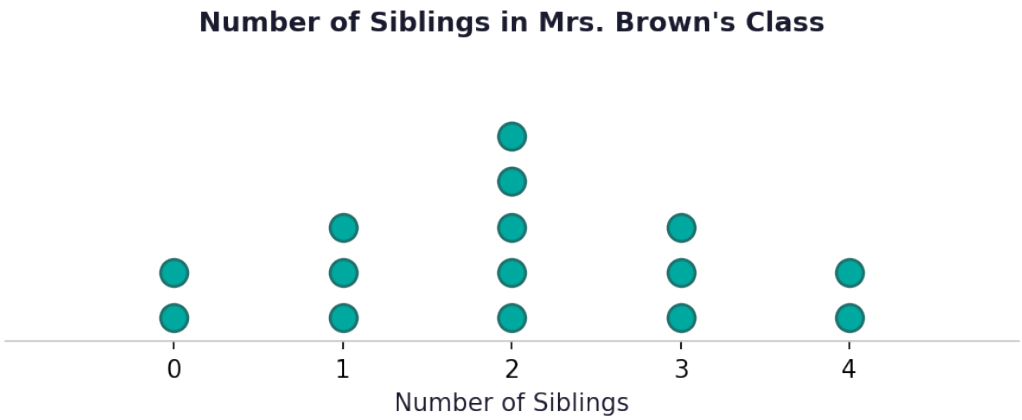
**1. Answer: Lowest = 0, Highest = 4**

- Scan all values: 3, 1, 0, 2, 4, 1, 0, 3, 2, 1
- The smallest value is 0 and the largest value is 4.

**2. Answer: 6 to 9**

- Find the minimum value: 6
- Find the maximum value: 9
- The number line should span from 6 to 9.

**3. Answer: 5 students**




- Locate the value 2 on the horizontal axis of the dot plot.
- Count the dots stacked above the value 2: there are 5 dots.
- Therefore, 5 students have exactly 2 siblings.

**4. Answer: See completed dot plot**

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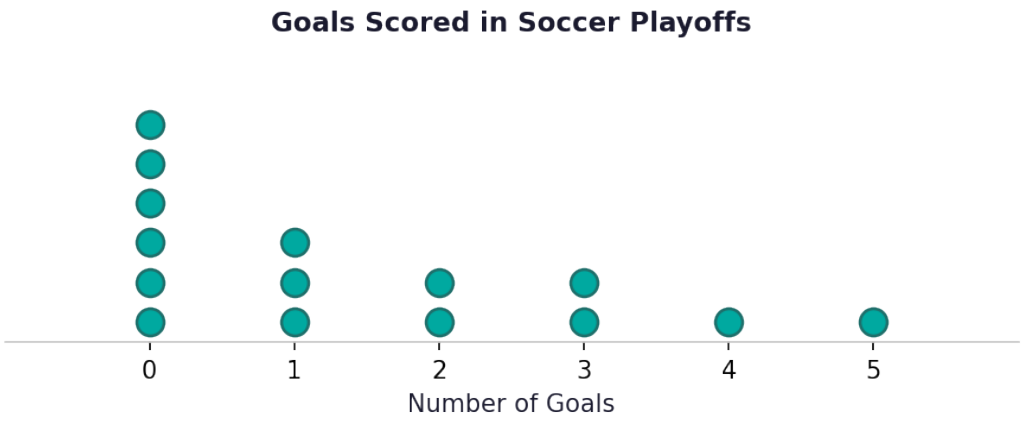
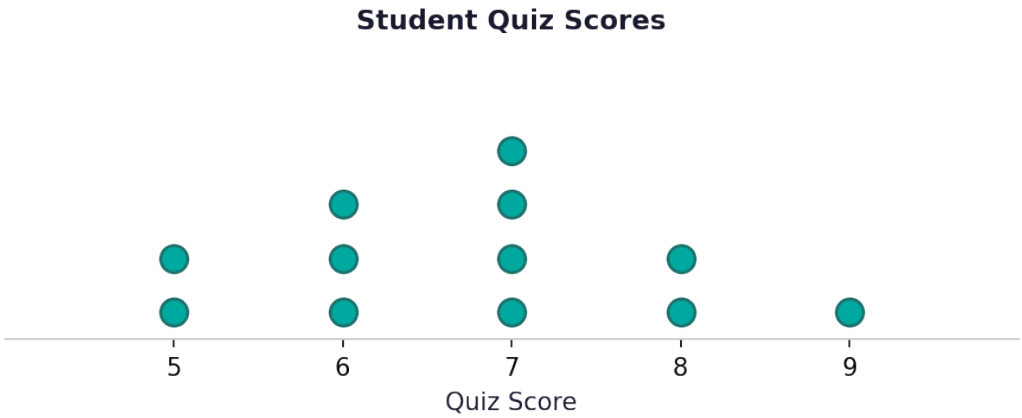



• Draw a horizontal number line from 0 to 8.
• Label the axis 'Number of Goals' and add a title.
• For each data value, place one dot above the corresponding number: 0 appears 6 times, 1 appears 3 times, 2 appears 2 times, 3 appears 2 times, 4 appears 1 time, 5 appears 1 time.

**5. Answer: Plot 2 dots at 5, 3 dots at 6, 4 dots at 7, 2 dots at 8, 1 dot at 9**




• Read each score and its frequency from the table.
• Draw a number line from 5 to 9.
• Above each score, stack the corresponding number of dots: 2 at 5, 3 at 6, 4 at 7, 2 at 8, 1 at 9.

**6. Answer: 13 students surveyed; most common = 4 books**

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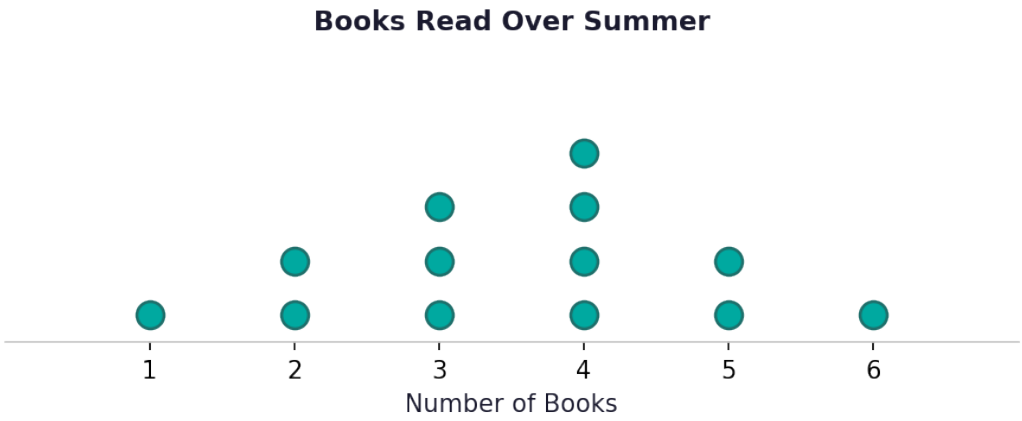
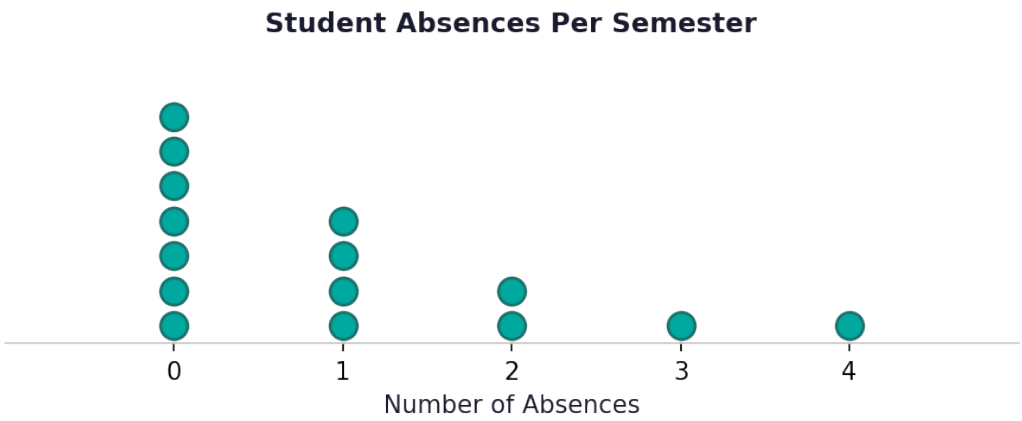



- Count all dots in the dot plot: 1+2+3+4+2+1 = 13 students total.
- Find the value with the tallest stack of dots: 4 books has 4 dots, the most.
- The mode (most common value) is 4 books.

**7. Answer: Most students had 0 absences; the data is skewed right with few high-absence outliers.**




- Draw a number line from 0 to 4 and plot dots: 6 dots at 0, 4 dots at 1, 2 dots at 2, 1 dot at 3, 1 dot at 4.
- Observe that the tallest stack is at 0, with fewer students having higher absences.
- Description: Most students had zero absences, and the data trails off to the right, suggesting a right-skewed distribution.

**8. Answer: Class A scored higher on average (mean ≈ 69.2); Class A was more consistent (smaller spread). Class B had a wider spread.**

- Class A scores are clustered between 60 and 80, showing a small spread — more consistent.
- Class B scores range from 55 to 100, showing a large spread — less consistent.
- Class A mean ≈ (60+62+65+65+70+70+70+75+75+80)/10 = 692/10 = 69.2.
- Class B mean = (55+60+65+70+75+80+85+90+95+100)/10 = 775/10 = 77.5.
- Class B scored higher overall; Class A was more consistent.

**9. Answer: Mean = 16.8, Median = 16, Mode = 14 and 18**

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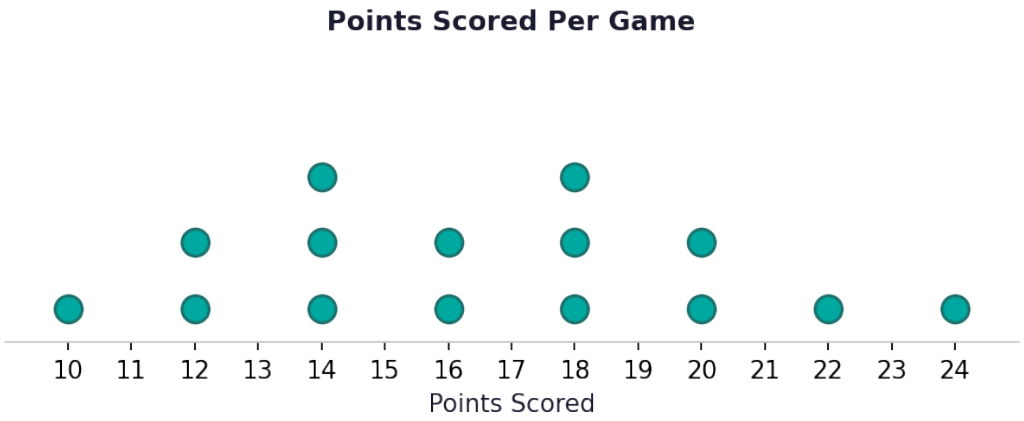
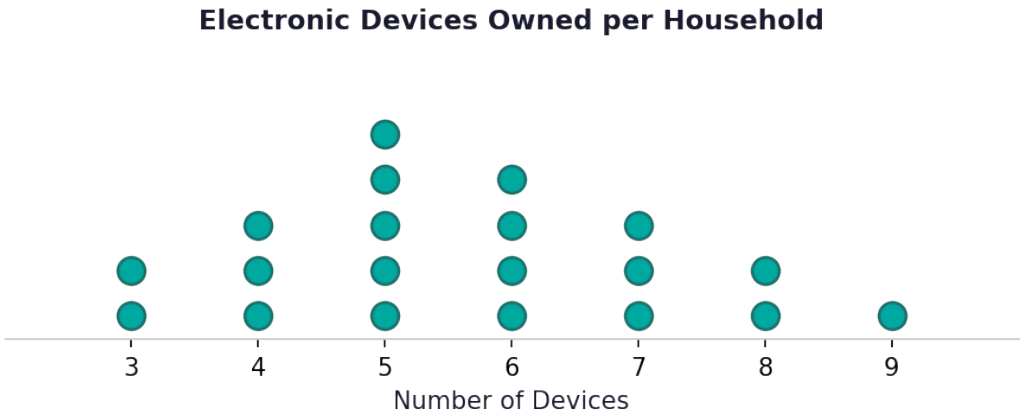



- List all 15 values in order: 10, 12, 12, 14, 14, 14, 16, 16, 18, 18, 18, 20, 20, 22, 24.
- Mean = (10+12+12+14+14+14+16+16+18+18+18+20+20+22+24) / 15 = 252 / 15 = 16.8.
- Median = the 8th value in the ordered list = 16.
- Mode = values appearing most often = 14 and 18 (each appears 3 times).

**10. Answer: Mean = 5.7; cluster between 4 and 7; gap at values below 3 and above 9; distribution is roughly symmetric, centered around 5–6 devices.**




- Draw a number line from 3 to 9 and plot all 20 dots: 3→2, 4→3, 5→5, 6→4, 7→3, 8→2, 9→1.
- Mean = (3+5+4+7+6+5+8+4+5+6+7+5+3+9+6+4+5+7+6+8) / 20 = 114 / 20 = 5.7.
- Cluster: most dots are stacked between 4 and 7, indicating that most households own 4–7 devices.
- Gap: no households own fewer than 3 or more than 9 devices.
- The distribution is roughly symmetric and bell-shaped, centered near 5–6, with a slight right tail at 9.

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