# 13.7 Interpret Stem-and-Leaf Plots and Histograms

TEKS 8.12.C

**Before** You found measures of central tendency and dispersion.

**Now** You will make stem-and-leaf plots and histograms.

**Why?** So you can analyze historical data, as in Ex. 20.

**Key Vocabulary**
- **stem-and-leaf plot**
- **frequency**
- **frequency table**
- **histogram**

A **stem-and-leaf plot** is a data display that organizes data based on their digits. Each value is separated into a *stem* (the leading digit(s)) and a *leaf* (the last digit). A stem-and-leaf plot has a key that tells you how to read the data. A stem-and-leaf plot shows how the data are distributed.

## EXAMPLE 1 Make a stem-and-leaf plot

**BASEBALL** The number of home runs hit by the 20 baseball players with the best single-season batting averages in Major League Baseball since 1900 are listed below. Make a stem-and-leaf plot of the data.

14, 25, 8, 8, 7, 7, 19, 37, 39, 18, 42, 23, 4, 32, 14, 21, 3, 12, 19, 41

**Solution**

**STEP 1** **Separate** the data into stems and leaves.

**Home Runs**

| Stem | Leaves |
|---|---|
| 0 | 8 8 7 7 4 3 |
| 1 | 4 9 8 4 2 9 |
| 2 | 5 3 1 |
| 3 | 7 9 2 |
| 4 | 2 1 |

**Key:** 1 | 4 = 14 home runs

**STEP 2** **Write** the leaves in increasing order.

**Home Runs**

| Stem | Leaves |
|---|---|
| 0 | 3 4 7 7 8 8 |
| 1 | 2 4 4 8 9 9 |
| 2 | 1 3 5 |
| 3 | 2 7 9 |
| 4 | 1 2 |

**Key:** 1 | 4 = 14 home runs

**INTERPRET INTERVALS**
Each stem in a stem-and-leaf plot defines an interval. For instance, the stem 2 represents the interval 20–29. The data values in this interval are 21, 23, and 25.

## GUIDED PRACTICE for Example 1

1. **U.S. HISTORY** The years in which each of the first 20 states were admitted to the Union are listed below. Make a stem-and-leaf plot of the years.

   1788, 1787, 1788, 1816, 1792, 1812, 1788, 1788, 1817, 1788, 1787, 1788, 1789, 1803, 1787, 1790, 1788, 1796, 1791, 1788

2. **REASONING** In Example 1, describe the distribution of the data on the intervals represented by the stems. Are the data clustered together in a noticeable way? *Explain.*