Use the *make a graph* strategy to solve the problems. For Exercises 1 and 2, use the bar graph at the right.

1. How many students are in the eighth grade?
2. What percentage of students does not play sports?

3. **TEST PRACTICE** The graph shows the number of points scored for the first seven weeks of the football season. What type of association does the data show?
   - A. positive
   - B. negative
   - C. no
   - D. linear

*Glencoe Math, Course 3*
Answers to Quick Check

1. 219 students
2. 40.6%
3. C
Data with one variable, such as test scores, are called univariate data. These data can be described by a measure of center.
Example 1

1. The ages, in years, of the people seated in one row of a movie theater are 16, 15, 24, 33, 30, 56, 19, and 19. Find the mean, median, mode, and range of the data set.

   **Mean**
   \[
   \frac{16 + 15 + 24 + 33 + 30 + 56 + 19 + 19}{8} = \frac{212}{8} = 26.5
   \]

   **Median**
   The median is the average of the middle two numbers, 19 and 24, which is
   \[
   \frac{19 + 24}{2} = 21.5 \text{ years old}
   \]

   **Mode**
   The mode is 19, since it is the number that occurs most often.

   **Range**
   \[56 - 15 = 41\]
Practice Problem

The ages, in years, of the actors in a play are 5, 16, 32, 15, 26, and 32. Find the mean, median, mode, and range of the data set.
Answers to Practice Problem

mean: 21; median: 21; mode: 32; range: 27
Quantitative data are data that can be measured. A set of quantitative data can be divided into four equal parts, called quartiles.

The median of the data values less than the median is called the first quartile or $Q_1$.

The median of the data values greater than the median is called the third quartile or $Q_3$. 
Continued Notes

This **five-number summary**, which includes the minimum value, first quartile ($Q_1$), median, third quartile ($Q_3$), and the maximum value of a data set, provides a numerical way of characterizing a set of data. The five-number summary can be described visually with a box plot, as shown below.

![Box plot diagram](image-url)

**Khan Academy Video – 8 mins**
Example 2

1. The data for daily average temperatures for 15 days in May are shown in the table.
   a. Find the five-number summary of the data.
   b. Draw a box plot of the data.

   **Temperature (°F)**
   
<table>
<thead>
<tr>
<th>Temperature (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>68  73  70  71  74</td>
</tr>
<tr>
<td>72  75  69  76  75</td>
</tr>
<tr>
<td>72  75  76  75  76</td>
</tr>
</tbody>
</table>

1. Write the data from least to greatest.

2. minimum  first quartile  median  third quartile  maximum

3. b. Draw a number line that includes the least and greatest numbers in the data.

4. Mark the minimum and maximum values, the median, and the first and third quartiles above the number line.
Example 2 continued

5. Draw the box plot and assign a title to the graph. Daily Temperatures
Another practice problem

Find the five-number summary of the data. Draw a box plot of the data.

<table>
<thead>
<tr>
<th>Country</th>
<th>EPI Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switzerland</td>
<td>95.5</td>
</tr>
<tr>
<td>Argentina</td>
<td>81.8</td>
</tr>
<tr>
<td>United States</td>
<td>81.0</td>
</tr>
<tr>
<td>Philippines</td>
<td>77.9</td>
</tr>
<tr>
<td>Ukraine</td>
<td>74.1</td>
</tr>
<tr>
<td>Fiji</td>
<td>69.7</td>
</tr>
<tr>
<td>Tanzania</td>
<td>63.9</td>
</tr>
<tr>
<td>Madagascar</td>
<td>54.6</td>
</tr>
<tr>
<td>Niger</td>
<td>39.1</td>
</tr>
</tbody>
</table>
Answer to problem

minimum: 39.1; Q 1 : 59.25; median: 74.1;
Q 3 : 81.4; maximum: 95.5

Environmental Performance Index
Write a set of directions for finding mean, median, mode, and range for a data set.
Homework

- pg. 705 – 708
- #1-5 all and 9-17 odds