13.8 Draw Box-and-Whisker Plots TEKS *8.12.C*

QUESTION **How can you use a graphing calculator to make a box-and-whisker plot?**

EXAMPLE **Make a box-and-whisker plot**

REPTILE SPECIES The number of known reptile species per 10,000 square kilometers in the countries of Asia (excluding the Middle East) and of Central America, South America, and the Caribbean are listed below. Make box-and-whisker plots of the numbers of species.

Asia: 36, 26, 49, 11, 32, 35, 27, 58, 91, 26, 8, 8, 12, 12, 23, 110, 4, 51, 41, 41, 62, 350, 77, 18, 81, 23, 18, 59

Central America, South America, and the Caribbean: 81, 125, 47, 69, 57, 107, 77, 73, 35, 123, 69, 116, 87, 37, 45, 53, 20, 124, 126, 35, 73, 60, 64

STEP 1 *Enter the data*

Enter the data for Asia into List 1. Enter the data for Central America, South America, and the Caribbean into List 2.

STEP 2 *Select box-and-whisker plot*

Go to the STAT PLOT screen and select the box-and-whisker plot for both Plot 1 and Plot 2. The Xlist for Plot 1 should be L_1, so that it displays the data from List 1. The Xlist for Plot 2 should be L_2, so that it displays the data from List 2. Make sure both plots are on.
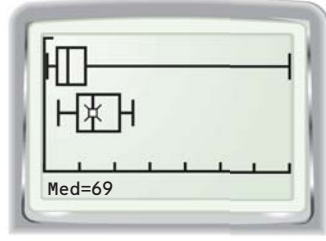
STEP 3 *Set the viewing window*

Press ZOOM 9 to set the window so that it shows all of the data.

STEP 4 *Graph*

Press GRAPH. Use the trace feature to examine the box-and-whisker plots more closely. Notice that the graphing calculator refers to the lower quartile as Q_1 and the upper quartile as Q_3.

```
Plot1 Plot2 Plot3
On  Off
Type ⌶··  ⌷  ⫿⫿⫿
     ⌷··  ⫿⫿  ⟋
XList:L₁
Freq:1
```

```
┌┤├─────────────────────┐
│                        │
├┤*├┤
Med=69
```

DRAW CONCLUSIONS

1. **REPTILE SPECIES** *Compare* the number of reptile species per 10,000 square kilometers in the countries of Central America, South America, and the Caribbean with the number in Asia.

2. **BIRD SPECIES** The number of threatened bird species per 10,000 square kilometers in the countries of two regions are listed below. Make box-and-whisker plots of the data and compare the data for the two regions.

   Middle East and Northern Africa: 13, 8, 11, 14, 12, 8, 4, 3, 5, 2, 11, 5, 11, 7, 6, 14, 4, 13

   North and South America: 5, 50, 41, 27, 103, 18, 64, 53, 3, 26, 64, 2, 11, 22