

1. Graphical summary of data.

- (a) minimum = 0.2; maximum = 7.6
- (b) $m = \frac{2.4 + 2.8}{2} = 2.6$
- (c) The distribution of the data is positively skewed.

2. Bias in scientific studies.

An example of a study in which responses are not obtained from all participants.

3. Types of data.

- (a) Categorical
- (b) Insufficient information to determine.
- (c) Numerical
- (d) Categorical

4. Experimental design.

Assignment of the participants to the treatment groups was not randomized.

5. Numerical summary of data.

Note: $\sum x = 108$; $\sum x^2 = 1728$; $n = 7$

- (a) $m = 17$
- (b) $\bar{x} = \frac{\sum x}{n} = \frac{108}{7} = 15.429$
 $s = +\sqrt{\frac{\sum x^2 - (\sum x)^2/n}{n-1}} = +\sqrt{\frac{1728 - (108)^2/7}{7-1}} = 3.207$

6. Standardized score.

- (a) $z = \frac{x - \bar{x}}{s} = \frac{79 - 73}{8} = 0.75$
- (b) $z = \frac{x - \bar{x}}{s}$; $-0.50 = \frac{x - 73}{8}$; $x = 73 + (-0.5)(8) = 69$

7. Variability of data.

- (a) $\bar{y}_{\text{new}} = 5.286 \times 2 = 10.572$ (each datum is twice as large; so is the mean)
- (b) $s_{\text{new}} = 2.498$ (no change in variability)