

STATISTICS

PROBLEM 4: REACTION TIMES

This activity measures reaction time using distance. One member of the group holds a meter stick at the 100-cm mark. Another member of the group places a hand at the bottom of the stick, at the 0 cm mark, with thumb and forefinger 4 cm apart and the meter stick midway between them. The person holding the meter stick drops it and the second person catches it.

For each drop, read the millimeter mark that is just visible above the thumb. Let each member of the group have three practice drops, then record the results of three drops.

- A. Calculate the summary statistics for your group.
- B. Does your reaction time fall within one standard deviation of the mean?
- C. Construct a histogram of the group data. Mark the mean and median on your graph. Describe the nature of the histogram.
- D. Combine the group data for all groups in the class. Calculate the summary statistics for the class data. How do these measures compare with your small group data? Explain your reasoning.
- E. Does your reaction time fall within one standard deviation of the mean for the class data?
- F. Construct a histogram of the class data. Mark the mean and median of the class data on the histogram. How does this histogram compare with the histogram of your group's data? How can you explain any differences?

EXTENSION

Determine whether differences in reaction are gender dependent.

REFERENCE: Unit 19, "Working with Statistics," *Applied Mathematics*, CORD, 1992.