In these activities you will find conditional probabilities given information in a two-way table. After completing the activities, discuss and/or present your findings to the rest of the class.

Activity 1 [Page 1.3]

1. A possible association between two categorical variables can be revealed by looking at relative frequencies. For example, if girls have a much greater relative frequency of liking team sports than boys, then this suggests that gender and sports preferences are associated: girls are more likely to like team sports than boys.

    a. Why might counts (absolute frequencies) not be as helpful in seeing an association between categorical variables?

    b. If the relative frequencies are not very different, then what does that indicate about the association between gender and preference for team sports?

    c. Reset page 1.3. Given the data from the school newspaper survey, do you think there is an association between gender and sports preference based on this school's survey data?

2. Select **Reset** and **Show Freq**.

    a. Another school gave the same survey question to some of their students. The responses from the 50 boys surveyed were exactly the same (15 preferred watching individual sports and 35 preferred watching team sports). However, the responses from the girls were 20 preferring individual sports and 20 preferring team sports. Make the change in the table by editing the Girls Team cell from 50 to 20. What do you notice in the Counts graph?

    b. Now select **Show Rel. Freq**. What does this graph tell you?

    c. A third school also gave the same survey question to some of their students. In this school exactly the same number of boys and girls were surveyed, with 10 boys preferring individual sports and 50 boys preferring team sports, and 35 girls preferring individual sports and 25 girls preferring team sports.

        Edit the table cells to show these counts. What do you notice about the two graphs now?

Activity 2 [Page 1.5]

1. Using the frequency table (counts) or the relative frequency table, answer these questions.

   a. Is a 6th grader or an 8th grader more likely to like rap?

   b. If you randomly selected an 8th grader who had taken the survey, what is the probability that the 8th grader preferred rap music?

   c. If a student who took the survey prefers rap music, what is the probability that this student is an eighth grader?

   d. Is there an association between grade level and music preference?

   e. What music do most of the 8th and 6th graders prefer?