Fire-Starter

TRUE-FALSE QUIZ

This is a quick and humorous Fire-Starter that can be used as an introduction to PROBABILITY in a mathematics class, or when beginning a project involving STATISTICS in any class. I used it to help the students think about the need to be careful with question formation and data when they were starting an OPINION SURVEY. It only takes a few minutes and it does get students thinking about the subtleties of numbers.

At an appropriate time in the period, announce that there is going to be a short quiz to see how well students understand what they have been studying. Ask them to take out a piece of paper, put their name at the top, and put the numbers 1 to 10 down the left-hand margin. Explain that this is a True-False quiz (mark T for true and F for false). Elaborate as you see fit, the more mock-serious the better.

When everyone is ready, look pointedly at the clock or your watch, moan, and comment that there is not really time to read the questions, so you are going to skip that step and they should just write down the answers to each question. The students will stare at you and wonder what is going on. Hold up a piece of paper to show them that you have both questions and answers. Tell them to quiet down and do the quiz. Of course, by this point the students should realize this is not a "real quiz" and that they have to guess the answers.

When everyone is finished, either have them exchange papers, or mention the trust you have in them and allow them to assess their own work. Go through each question, making appropriate comments about the difficulty of the questions ("This was probably the hardest question on the quiz because of the double negative"), how questions relate to each other ("If you got this question right, you probably got number nine right too"), and so on. Ask students for answers if you like.

After the students grade their papers, ask for the grades (percent correct) and write them on the board, showing the number of students who got 100% correct, 90% correct, and so on. Of course the number of "right" answers will vary widely. (I have had students get them all right!) Now it's time to talk about probability: What are the odds of passing, of getting any one question right, of getting them all right, and so on? (Use statistics from this quiz as examples of percentages of passing and failing, even for each question. For instance, you might point out that 70% got a certain question right, while only 10% got another question right: What are the odds of that happening?) If there had been 20 questions instead of ten, how might the results have changed? If this had been a multiple-choice quiz with four choices per question, how would the odds have changed?

I have found this to be a good Fire-Starter in lots of ways. However, be careful about denigrating True-False quizzes if they are used in your school. Even just as an illustration of why in this class we don't do this kind of assessment, this is valuable, though. Remember also that this is a Fire-Starter, so it is not necessary to answer all the questions posed above at this time.

(Contributed by John Bohannon, VT)