VIEWERSHIP
Teaching Guidelines

Subject: Mathematics

Topics: Statistics and Probability

Grades: 5 - 8

Knowledge and Skills:

- Can plan and execute a survey with responses to a set of questions from a set of individuals, and summarize the results using appropriate statistical measures and graphical representations.
- Understands the effect of sample size on the accuracy of measured probabilities.
- Can represent and interpret numerical data in chart and graph form

Materials: None.

Procedure:

This project should be done in teams of two or three students.

Distribute the handout and discuss it.

Students will first need to create a brief survey, with multiple choice or true/false questions. These should be questions that are asked orally. Students will also need to create an organized way to record the responses.

You may wish to specify that the report be quite formal and finished, or an informal draft. All reports should have graphical elements of similar format, however, so that the data can be easily compared.

The primary objective of the activity is to investigate the effects of different sample sizes on the reliability of a survey. Students are likely to find that two different groups of 20 might show quite different characteristics, but as larger groups are considered then the results are more similar.

Give students a schedule for working on the project and a due date.

"THE BRAINY BUNCH" PRODUCTIONS

TO: RESEARCH TEAM
FROM: EXECUTIVE PRODUCER
RE: VIEWERSHIP

As you may know, our show has been losing viewers recently.

Personally, I can't understand it as nearly all of the young people that I have talked to about the series say they love it.

I would like to do a survey to see if we can give better ideas to the writers about what the show should be about. While we are at it I would like to try to find out how many people we need to survey to get results we can trust.

Here is what I would like you to do:

Create a survey of two or three questions regarding what young people like to see when they watch an educational program at home. Make questions with multiple choice answers.

1) Each of you is to do this survey on 20 people.

2) Write a short report, with graphs, describing what you found. Compare these reports to those done by other researchers. Did they get similar results? Based on that, decide if 20 people seems like a large enough group to represent what viewers think.

3) Combine your data with two other sets of surveys so that you have results for a few groups of 60 people each. Compare those to other groups. Now are the results similar? Are 60 people enough to get a reliable result?

4) Combine all of the data from all surveys together. How do those results compare to the results for the 20-person and 60-person sets of data?

Then tell me how many people you think we need to survey to get reliable results for future research.