

Principal Sparks wants to know if his 700 students want a dance or a carnival for the school's end of the year celebration. His assistant recommended three sampling ideas so he would not have to ask the entire school. Her ideas are listed below.

ANSWERS MAY VARY. THE IDEA IS TO GET STUDENTS THINKING OF WHAT MAKES A GOOD SAMPLE.

- A. Select the first 30 students that enter the school.
- B.** Go to each of the 20 classrooms and pick the students sitting in chairs 1, 5, 15 and 20.
- C. Use the school's computerized roster, which list all 700 students in alphabetical order, and select every tenth student.

Circle the best sampling technique and write why you chose that idea. Then write why the other two sampling techniques might not yield the best estimate for the entire population.

"B" allows everyone to be picked and is not dependent on anything other than where they are seated. "A" only picks the first 30 students, which is a small amount and each member of the population does not have an equal chance to be chosen (based on when a student shows up to school). "C" is random but might create a bias because names are in alphabetical order which means only one person with the same last name can be chosen.

The Goloth School District wants to know which websites their students visit the most. They decided to install a software at one of their thirty computer labs to track which sites the students visit.

Can the school district draw valid inferences from this sample? Why or why not?

NO, they only tracked a specific computer lab which does not allow everyone to be chosen. In addition, they only tracked people in the computer lab which means they are dependent on people who use the lab.

Mr. Gordon did not have time to grade all 200 final exams, but the principal wants to get an estimate on how the students performed. Mr. Gordon shuffles his papers and picks 10 papers at random from the pile and grades them. The results are below.

| GRADE | A | B | C | D | F |
|------------------|---|---|---|---|---|
| NUM. OF STUDENTS | 2 | 3 | 4 | 1 | 0 |

Based on these results how many of the 200 students passed the exam? C or higher is considered passing.

2 + 3 + 4 = 9, so 9 out of 10 of the sample. This makes 90%, which means 90% of 200 = 180 students passed.

Do you think the sample truly represents the population and the principal can make valid inferences? Explain.

NO, the sample is too small to truly represent the entire population.

The local music station wants to survey the students at Bellevue Academy to find out what types of music they prefer. They go to this week's football game and randomly ask students.

Can they make valid inferences based on this sample? Explain. If not how could they improve the sample.

NO, the sample only includes students at the football game and it does not allow everyone to be chosen.

YES, all or most of the students will be at the game, which will allow different opinions.

I think they would get a more random sample at lunch time or visiting one classroom for each grade.