

Selecting a Sample: Classwork

Suppose our class wanted to know how many hours of sleep Eckstein students get each night. The class created a survey and plans to ask just a sample of Eckstein students.

1. Explain why they chose to survey a sample instead of the entire population.

2. The class divides into four groups. Each group devised a plan for sampling the school's population.
 - a. Each member of Group 1 will survey the students who ride on his or her school bus. Explain how you know that this is **convenience sampling**.

What are the advantages of this group's plan?

What are the disadvantages of this group's plan?

- b. Group 2 will survey every fourth person in the cafeteria line. Explain how you know that this is **systematic sampling**.

What are the advantages of this group's plan?

What are the disadvantages of this group's plan?

- c. Group 3 will post a notice in the morning announcements asking for volunteers for their survey. Explain how you know that this is **voluntary-response sampling**.

What are the advantages of this group's plan?

What are the disadvantages of this group's plan?

- d. Group 4 will randomly select 30 students for their survey from a list of three-digit student ID numbers. They will label the faces of a 10-sided die with the numbers 0 through 9 and roll it three times to generate each number. Explain how you know that this is **random sampling**.

What are the advantages of this group's plan?

What are the disadvantages of this group's plan?

3. For each of the following, describe the **population** intended to be studied and then name the **sampling method**.
- a. Spencer wants to know how many Eckstein 8th graders are planning to attend the dance. She asks every other 8th grader who walks into the school that morning.
Population: _____ Sampling Method: _____
- b. Aria wants to know what Eckstein students think of the cafeteria food. She surveys all of the kids who are sitting at her lunch table.
Population: _____ Sampling Method: _____
- c. Hanna wonders how tall the average Eckstein student is. She puts the names of all students into a computer and has the computer pick 50 of them. She then finds the height of those 50 students.
Population: _____ Sampling Method: _____
- d. Alison wants to know what 7th graders think about her school. She types up a survey and hands them out to all the 7th graders during lunch. She asks anyone who wants to participate in the survey to complete the questions and give them back to her.
Population: _____ Sampling Method: _____
- e. Emily wants to know how her math class did on the last test. She asks all of the people at her table and the people at the table next to her.
Population: _____ Sampling Method: _____
- f. Toby wants to know how much time students at his school spend playing sports. He surveys all of the boys on the basketball team and all the girls on the volleyball team to estimate how many hours per week they spend playing sports.
Population: _____ Sampling Method: _____
4. What sampling method usually gives the most accurate information? Why aren't all surveys conducted using that method?
5. Eagle High School won a \$5,000 award. To decide how to spend the money, they conducted a student survey. The principal surveyed 100 kids in the library during lunch and found that the majority of students wanted the school to buy new books.
What error was made while collecting data?

Selecting a Sample: Homework

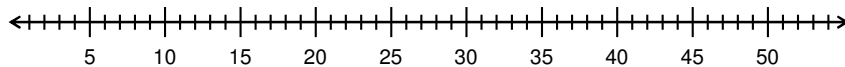
6. Answer ACE #1-4 on page 36.

| | |
|----------------|------------------|
| 1. Population: | Sampling Method: |
| 2. Population: | Sampling Method: |
| 3. Population: | Sampling Method: |
| 4. Population: | Sampling Method: |

7. Jenna wants to know how many DVDs the average middle school student has. She surveyed every fourth person to arrive at school that day and recorded the results.

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|---|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 9 | 16 | 17 | 19 | 19 | 20 | 24 | 28 | 30 | 34 | 35 | 38 | 39 | 50 |
|---|----|----|----|----|----|----|----|----|----|----|----|----|----|

- a. What sampling method did he use?
- b. Find the five-number summary.
Min: LQ: Median: UQ: Max:
- c. Make a box-and-whisker plot for the prices. Be sure to include a title.



- d. Make a stem-and-leaf plot for the prices.
Be sure to include all necessary information.