Curriculum Outcomes:

(SP2) Select and defend the choice of using either a population or a sample of a population to answer a question.

(SP4) Develop and implement a project plan for the collection, display and analysis of data by: formulating a question for investigation; choosing a data collection method that includes social considerations; selecting a population or a sample; collecting the data; displaying the collected data in an appropriate manner drawing conclusions to answer the question.

Student Friendly:

What type of sample should be used when collecting data"?

Section 9.4

Selecting A Sample

When we cannot survey an entire population, we choose a sample from the population.

To do this, you must know the different types of sampling.

** Notes are on page 446 of your textbook!

SIMPLE RANDOM SAMPLING

Each member of the population has an equal chance of being selected.

For example, to select a random sample of 5 students from your math class, each student is assigned a number and 5 numbers are drawn from a hat.

SYSTEMATIC OR INTERVAL SAMPLING

Every n^{th} member of the population is selected.

This method is often used in manufacturing; for example, every 20th product in an assembly line is test quality. If the item is destroyed or unusable after begin sampled, than the sample is a destructive sample

CLUSTER SAMPLING

Every member of each randomly chosen group of the population is selected

For example, each grade represents a group of the school population. One grade in your school is chosen randomly, and all students in that grade are selected.

STRATIFIED RANDOM SAMPLING

Some members from each group of the population are randomly selected.

For example, 5 randomly chosen students from each grade in a school could be selected, even if each grade has a different number of students.

SELF-SELECTED SAMPLING

Only members who are interested and volunteer to participate.

For example, if a radio station conducts a telephone survey, only people who are interested will call.

CONVENIENCE SAMPLING

Only members of the populat
areconvenienti6 include are sel

For example, for a survey about grocery shopping habits, people in a grocery store are approached and questioned.

Identifying Appropriate Samples

The student leadership team wants to find out if
students would like the cafeteria to have longer hours.
Several sampling methods were suggested.
Determine the type of sampling and explain whether each sample is appropriate.

a) Every student's name is put into a box and 100 names are selected randomly to be surveyed.

b) Every 5th person entering the school is selected.

c) Each person on the leadership team asks his or her friends.

d) An announcement is made asking anyone who wishes to participate to fill in a ballot.

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a) Type: Simple Random Sampling
appropriate?
Yes, every student has an
equal chance of being selected.

b) Type: Systematic Sampling
appropriate?
Yes depending on WHEN you
ask the students. If the student is
arriving early, then they would
appreciate longer hours.

c) Type: Convenience Sampling
appropriate?
No, friends often have similar views.

d) Type: Self-selected Sampling
appropriate?
No, only students who have strong
opinion about this topic may respor

Choosing Appropriate Samples

A company packages boxes of granola bars. The quality-control manager inspects the first 5 boxes each morning to ensure that each has the same number and types of granola bars.

a) Is this a good way of ensuring quality control? Explain.

b) Suggest 2 other methods of sampling that would be appropriate.
Explain why each is appropriate.

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a) No, people working on the assembly line may be more alert in the morning, so the boxes filled in the mornings may pas inspection. However, the boxes filled later in the day, which may not meet standards, are never inspected.

b) Systematic sampling - allows the manager to inspect several boxes throughout the day. (Every 50th box inspected?)

Simple Random Sampling - ensures each box has an equal chance being selected.

Class/ Homework

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Questions:
3,4,5,6,9,10,12