

## 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.**



Survey:   
Excellent:   
Good:   
Fair:   
Poor:

## 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  $n^{\text{th}}$  member of the population is selected.

This method is often used in manufacturing;  
for example, every 20th product in an assembly line is tested for 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.



## SELF-SELECTED SAMPLING

Only members who are interested and volunteer will participate.

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

## CONVENIENCE SAMPLING

Only members of the population who are convenient to include are selected.



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

## 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.

## 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.

---

a) Type:  
appropriate?

c) Type:  
appropriate?

b) Type:  
appropriate?

d) Type:  
appropriate?



## 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.
- 



a) No, people working on the assembly line may be more alert in the morning, so the boxes filled in the mornings may pass 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

Page 448

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