Name: _____ Date: _____

Two study methods

A college wants to compare two study methods for all 480 students in its introductory statistics course. It randomly selects 60 of these students, then randomly assigns 30 to video practice and 30 to workbook practice. After two weeks, every selected student takes the same 100 point quiz. The response is the quiz score.

(a) Is this an experiment or an observational study? Explain.

(b) Identify the population, sample, explanatory variable and response variable.

(c) Explain what random selection and random assignment each help justify. Do they guarantee a better score?

Across class sections

A college has 900 introductory statistics students in 30 class sections of 30 students each. Researchers randomly select 3 students from EVERY section and record each selected student's usual study method and next quiz score. Researchers do not assign study methods. Some invited students do not respond.

(a) Classify the study and identify the population, intended sample size, explanatory variable and response.

(b) Is the sampling method stratified, cluster, or a simple random sample of all students? Explain.

(c) What bias could nonresponse create? Can the results prove that a method caused higher scores?

Missing details

A note says: “54 students, 27 using Method A and 27 using Method B. Compare averages at the end.” The note does not say how students entered the groups, what larger population is targeted, or which outcome is averaged.

(a) Can you classify this as an experiment or observational study? State the exact missing fact.

(b) What can you identify about the sample, population, explanatory variable and response?

(c) Describe how to select a systematic sample of 54 from a roster of 540 students. Give a valid example.