

Chapter 2, Test Form B

Answer Key

1. In simple random sampling, every individual and every possible sample of size n has an equal chance of being selected for the study. In stratified random sampling, the population is divided into non-overlapping homogeneous groups (called strata) and a simple random sample is selected from each strata. In cluster sampling, the population is divided into non-overlapping (preferably heterogeneous) groups called clusters and then a random sample of clusters is selected and every member of the selected clusters is studied.

Cluster sampling works best when the population is already divided into easily identifiable groups that are heterogeneous (i.e. each cluster can reasonably be assumed to be representative of the entire population). Stratified random sampling works best when there are easily identified groups in the population that are anticipated to have very different responses to the question of interest. Simple random sampling is best when neither of the circumstances listed above are present.

2.
 - a) This is an example of response bias, since the awareness of their diagnosis may have caused them to change their response.
Note: It is not non-response bias since they were able to obtain responses from the nurses and it is not selection bias since there was no attempt to generalize to a larger population.
 - b) This is an example of non-response bias, since some of the children selected for the study were not able to participate after death. It is not selection bias since the children were not left out of the selection process; it is not response bias since the researchers were unable to obtain responses in the first place.
3. This is an observational study. The children were identified in place and the manipulation of sound level was not randomly assigned.
4.
 - (a) Individual pairs of students would be randomly assigned to “trade papers” or “not trade papers” treatment groups. The non-trading students’ work would be graded by the teacher each day and given back the next day.
 - (b) Each class would be considered a “block.” Within each block both treatments would be randomly assigned as indicated in part (a).
 - (c) The results might be generalizable to other classes, but w/o doing the experiment in those classes there is no evidence suggest one could generalize. Statistics and history seem like they might be different enough that, although they are both classes with homework, the subject matter might be learned differently and the instant checking of the quizzes might be less or more of a help in one class or the other.

