

# Drawing Conclusions from Studies

Name: Key

Period:

1. Does caffeine improve test scores? 50 students volunteer to take part in an experiment to determine if consuming caffeine before a test improves test scores. Each student is randomly assigned a placebo or a caffeine pill. 30 minutes later, students take a math-based skills test. After a period of time, that same student is given the other treatment and given another version of the same test. This process is repeated for all student volunteers. It is conducted as a single-blind study. The mean difference in test scores is recorded for each volunteer.

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

This is an experiment due to treatments being imposed upon subjects (students randomly assigned placebo or caffeine pill).

(b) What type of design was used for this study? Explain.

Matched pairs design. Each experimental unit (student volunteer) received both treatments randomly.

(c) What conclusions can you draw from this study?

You can't generalize to a ~~larger~~ larger population since the students were not randomly selected.  
You can establish cause and effect since it was a well designed experiment. (treatments randomly assigned)

2. AP teachers at OHS believe that there is a relationship between attendance and student GPA. They randomly select 5 different AP classes to monitor student attendance and GPA for all students in selected classes.

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

This is an observational study due to no treatment being imposed upon the experimental units.

(b) What conclusions can you draw from this study?

You can generalize findings to the population of all OHS AP classes since the classes were randomly chosen.  
You can't establish cause and effect since this was not a well designed experiment (treatments not randomly assigned).