1. A study published in the New England Journal of Medicine compared two medicines to treat head lice: an oral medication called ivermectin and a topical lotion containing malathion. Researchers studied 812 people in 376 households in seven areas around the world. Of the 185 randomly assigned to ivermectin, 171 were free from head lice after two weeks compared to only 151 of the 191 households randomly assigned to malathion.

Identify the experimental units, explanatory and response variables, and the treatments in this experiment.

E.U.: 812 people with 376 households
EV: medication (2 levels)
RV: free from lice?
T: Ivermectin, Lotion

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2. Does adding fertilizer affect the productivity of tomato plants? How about the amount of water given to the plants? To answer these questions, a gardener plants 24 similar tomato plants in identical pots in his greenhouse. He will add fertilizer to the soil in half of the pots. Also, he will water 8 of the plants with 0.5 gallons of water per day, 8 of the plants with 1 gallon of water per day and the remaining 8 plants with 1.5 gallons of water per day. At the end of three months he will record the total weight of tomatoes produced on each plant.

Identify the explanatory and response variables, experimental units, and list all the treatments.

EU: Tom. plants
EV: Fertilizer, Water
RV: Tomato weight
T: F, .5 NF, .5
F, 1 NF, 1
F, 1.5 NF, 1.5

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3. Suppose you have a class of 30 students who volunteer to be subjects in an experiment involving caffeine. Explain how you would randomly assign 15 students to each of the two treatments.

- Label each w/ a # 01-30
- Write each # on identical slips paper
- Place paper into a hat
- Shake well
- Choose 15 #'s. The assigned #'s for each student will be placed in Group 1. Do not replace the slips once chosen.
- The remaining 15 students will be placed in group 2.

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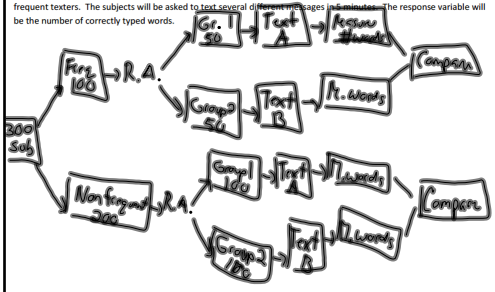
4. A cell phone company is considering two different keyboard designs (A and B) for its new line of cell phones. Researchers would like to conduct an experiment using subjects who are frequent texters and subjects who are not frequent texters. The subjects will be asked to text several different messages in 5 minutes. The response variable will be the number of correctly typed words.



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