2. A manufacturer of boots plans to conduct an experiment to compare a new method of waterproofing to the current method. The appearance of the boots is not changed by either method. The company recruits 100 volunteers in Seattle, where it rains frequently, to wear the boots as they normally would for 6 months. At the end of the 6 months, the boots will be returned to the company to be evaluated for water damage.

(a) Describe a design for this experiment that uses the 100 volunteers. Include a few sentences on how it would be implemented.

Since the appearance of boots is not changed by the method of waterproofing, we could assign each volunteer one new boot and one current method boot. (This blocking may reduce the effects of confounding variables in that some people may tread more through water than others.) I would number the volunteers 00 to 99 and then with a random number table take pairs of digits (throwing out repeats) until I had 50 numbers. Those volunteers would have right foot new method boot and left foot current method boot. The remaining 50 people would get right foot current method boot and left foot new method boot.

(b) Could your design be double blind? Explain.

Yes, the team in charge of the study could be in charge of assigning the boot types to the feet, but the volunteer and company boot evaluators would not know and would be "blind." This double blinding prevents the volunteer from treating one foot different than the other based on knowledge of boot type, and this allows the boot evaluator to make unbiased evaluations of water damage on the boots.
2. A manufacturer of boots plans to conduct an experiment to compare a new method of waterproofing to the current method. The appearance of the boots is not changed by either method. The company recruits 100 volunteers in Seattle, where it rains frequently, to wear the boots as they normally would for 6 months. At the end of the 6 months, the boots will be returned to the company to be evaluated for water damage.

(a) Describe a design for this experiment that uses the 100 volunteers. Include a few sentences on how it would be implemented.

The population is the residents in Seattle. The objective is to compare the new method of waterproofing with the current method. The volunteers recruited should be given a pair of boots. Each boot should be different from one another, however. One of the boots uses the new waterproofing method while the other remains to use the current one. The question of which foot wears which boot should be randomly decided. The boots should not be switched. After 6 months, the boots will be returned to the company to be evaluated for water damage. Water damage can be compared between the boots of the new method and the current method.

(b) Could your design be double blind? Explain.

Yes, the design could be double blind. Double blind means that both the subject and the experimenters, the people who contact the subjects, do not know which boot uses which method of waterproofing. The manufacturers are the only ones who know. Neither the subjects nor the experimenters receive any information on the difference in the boots. The design is double blind.