AP Statistics **Design Experiments**

1. Which of the two brands of electric razor shaves closer? Describe how you would design and carry out an experiment to answer this question using 50 adult male volunteers.

2. A nutrition experimenter intends to compare the weight gain of newly weaned, male rats fed Diet A with that of rats fed Diet B. To do this, she will feed each diet to 10 rats. She has available 10 rats from one litter and 10 rats from a second litter. Rats in the first litter appear to be slightly healthier.

(a) If the 10 rats from Litter 1 were fed Diet A, the effects of genetics and diet would be confounded, and the experiment would be biased in favor of Diet A. Explain this statement carefully.

(b) Describe a better design for this experiment.

3. There has been a lot of talk about concussions in football (as well as other sports). You a developing a new helmet and want to see if the helmet will reduce the impact of receiving a concussion. Design an experiment to show that your newly developed helmet will reduce the number of concussions as well as the severity of the concussions in football.