

Name: _____ Hour: _____ Date: _____

Would you fall for that?



Would you fall for the placebo effect? Watch this [video](#), then complete the rest of the questions.

1. Why do you think the people in the video got stronger?

Similar to the video, Mrs. Gallas wants to use a beverage to test the affect that caffeine can have on heart rate. Here is an initial plan:

- measure initial pulse rate
 - give each student some caffeine (Coca-Cola)
 - wait for a specified time
 - measure final pulse rate
 - compare final and initial rates
2. What are some problems with this plan? What other variables will be sources of variability in pulse rates?
 3. Go back up to your list in #2 and propose a solution to each problem.
 4. Design an experiment to test the effect that caffeine has on heart rate.

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Designing Experiments

Important Ideas:

Check Your Understanding:

A group of researchers in Africa find a creative way to protect cattle from lion attacks – they paint eyes on the cows' rears. To determine if this treatment is effective, they randomly assign the cattle to one of three treatments: Eyes on their rear, cross-marks on their rear, or nothing on their rear. After 4 years of roaming the plains, the cows with eyes saw no deaths, the cows with a cross suffered 4 deaths, and the cows with no marks suffered 15 deaths.

- a. Explain why it was important to have a control group that didn't get a mark on their rear.
- b. Suppose the researchers had 1200 cows. Describe how to randomly assign the cows to the treatments.
- c. What is the purpose of randomly assigning treatments in this context?
- d. Create an outline showing a completely randomized design for the experiment.