

## CHAPTER 4 – EXPERIMENTAL DESIGN PRESENTATION

In this exploration, you and a partner will be assigned a “famous” saying from which you will design a study to explore the validity of the saying. Ideally, this will be done through a well-designed **experiment**. If an experiment is impossible, then an **observational study** can also be designed. As a last resort, write a plan for a **survey** to investigate the saying. The final product of this will be a Powerpoint presentation, which you and your partner will share with the class. These presentations will stick to a strict 2 minute time limit, so this is not a big production!

The evaluation of your design will be based on how well your project adheres to the Principles of Experimental Design, as described on page 241 of your text:

### Control – Randomize - Replicate

1. Identify a specific **population** that you plan to examine.
2. Describe how a representative **sample** will be selected.
3. Decide if **blocking** will be required, and explain its use.
4. Include a method of **randomization**. Your plan for randomization should give clear directions for the selection of subjects, or the assignment of treatments to subjects.
5. The following concepts should be considered when designing your experiment, but should not be included if they do not apply: **control group, placebo treatment, blindness, double-blind**.
6. Describe specifically which variables will you measure and compare.
7. Feel free to be creative, but don't let creativity distract from the statistical ideas required for this presentation.

The goal of designing an experiment is to collect evidence which allows us to conclude a cause-effect relationship. How well your project is able to do this will receive heavy weight in the grading.

### Common sayings and old wives tales.

While many of these sayings are straight-forward, it might be necessary for you to clarify the statement before you begin to design your experiment.

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|----------------------------------------------------------------------------|-------------------------------------------------------------|
| 1. An apple a day keeps the doctor away                                    | 18. Toads cause warts.                                      |
| 2. Time flies when you are having fun                                      | 19. If you shave hair, it comes back thicker.               |
| 3. Blondes have more fun                                                   | 20. The “5 second” rule                                     |
| 4. Carrots improve vision                                                  | 21. Using microwaves causes cancer.                         |
| 5. Chicken soup cures a cold                                               | 22. Cell phones cause brain tumors.                         |
| 6. Music soothes the savage beast                                          | 23. M&M's melt in your mouth, not in your hands             |
| 7. Choosey mothers choose Jif                                              | 24. If you sit too close to the TV, you will ruin your eyes |
| 8. The early bird catches the worm                                         | 25. Eating chocolate causes zits                            |
| 9. Feed a cold and starve a fever                                          | 26. Don't swim for an hour after eating.                    |
| 10. Left-handed people are more creative than right-handed people          | 27. Don't go outside with wet hair.                         |
| 11. Oat bran reduces cholesterol                                           | 28. Fish is brain food.                                     |
| 12. Haste makes waste.                                                     | 29. Never open the door when baking a soufflé.              |
| 13. The best things in life are free                                       | 30. Coffee stunts your growth.                              |
| 14. Men are pigs                                                           | 31. Cracking knuckles causes arthritis.                     |
| 15. You are what you eat                                                   | 32. Eating sugar makes kids hyper.                          |
| 16. Crest prevents cavities                                                | 33. Spicy foods cause ulcers.                               |
| 17. Early to bed, early to rise, keeps a person healthy, wealthy and wise. |                                                             |