

Name _____ Hour _____ Date _____

Study Guide Learning Target 1.2: *I can identify and describe the importance of the independent variable, dependent variable, control, and constants in a trial.*

Resources:

- http://sites.isdschools.org/brian_stockdell
- http://www.sciencebuddies.org/science-fair-projects/project_variables.shtml
- **The Nature of Science and Technology**; Chapter 2, Section 1: *Scientific Inquiry* (online textbook available on class website, paper copy in Bridger library)

Basic (Emerging Towards Standard- Level 7):

Write the definitions of the following terms using your scientific inquiry definitions

Independent Variable:

Dependent Variable:

Constant: (not assessed)

Control (or control group):

Bob and Traci performed an experiment to determine how the amount of salt in a salt solution affects the rate of water evaporation. The students prepared three solutions and placed them in labeled 200ml beakers. Each beaker contained 100 ml of water. They added no salt to beaker #1, 20 grams of salt to beaker #2, and 40 grams of salt to beaker #3; and placed the beakers side by side in a closed room. After 5 days, they measured the amount of water remaining in each beaker. They repeated this experiment three more times.

. What is the Independent Variable?

- a. The amount of water starting in the beaker b. The amount of water left in the beaker c. The amount of salt in the beaker d. The temperature in the room

. What is the Dependent Variable?

- a. The amount of water starting in the beaker b. The amount of water left in the beaker c. The amount of water starting in the beaker minus the amount of water left in the beaker d. The amount of salt left in the beaker

. Which does **NOT** need to be a constant in this experiment?

- a. amount of starting water b. same people in the experiment c. temperature of the closed room d. type of salt

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Independent and Dependent Variables

Question	Independent Variable (What changes in the experiment)	Dependent Variable (Results affected by the change)
Which method of popping popcorn (stove, microwave, air popper) will produce the least amount of kernels?		
How long will two AA batteries last in different devices?		
Who watches more television in a day: middle school, high school, or college students?		
Does the thickness of the violin string affect the pitch?		
What brand of bubble bath produces the most bubbles?		

Proficient (Level 9):

Why do scientists repeat trials in an experiment?

How many changes (independent variables) can be in an experiment?

Why must an experiment have constants (sometimes called controlled variables)?*

(Not assessed this time- go to next question)*

Why must an experiment have a control group?