

Learning Target: I can describe and identify the dependent variable, independent variable, constants, controls, and control group in scientific investigations.



Independent vs. Dependent Variables Video Notes

Dependent vs. Independent Variables

1. A dependent variable is a variable whose value _____ based on changes in the _____ variable. An _____ variable is the variable in an experiment that is changed or _____. Another way to look at it is that the independent variable is the _____, the dependent variable is the _____.

2. Who would be the independent variable(s) in a typical family? _____
Explain why. _____
Who would be the dependent variable(s) in a typical family? _____
Explain why. _____

3. A study was done to find if different tire treads effect the braking distance of a car.
What is being changed in this experiment? _____
What is the independent variable/cause in this experiment? _____
What is the dependent variable in this experiment? _____

4. Let's review, there will be _____ tire treads used throughout the experiment which will make them the _____ variable or _____. Since the tire treads are being changed, this will probably have an _____ on the _____ distance or how far the car will _____ before it fully stops when the brakes are pressed.
Independent variable = _____ Dependent variable = _____

Quick Checks for Understanding! Read the following problems and identify the dependent and independent variables in each problem.

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1. The height of bean plants depends on the amount of water they receive.

Dependent variable = _____ Independent variable = _____

2. The higher the temperature of the air in the oven, the faster a cake will bake.

Dependent variable = _____ Independent variable = _____

Constant/Control

A constant or control is the factor or factors in an experiment that _____

6. In an experiment to test the effect of different lights on plant growth, what factor is being changed

Independent variable? = _____

What factor is being effected as a result of changes **Dependent variable?** = _____

What factors remain the same **Constants/Control variables?** = _____

Quick Check for Understanding! Read the following scenario and determine what is the dependent variable, what is the independent variable, and what is the constant or control.

Students of different ages were given the same puzzle to assemble. The puzzle assembly time was measured. Independent variable = _____

Dependent variable = _____

Constant/Control = _____

Control Group

The control group in an experiment is the group that receives either _____ a standard treatment whose effect is _____, or a _____ which is basically a _____ treatment.

Two groups of students were tested to compare their speed working math problems. Each group was given the same problems. One group used calculators and the other group computed without calculators. What was the independent variable? _____

What was the dependent variable? _____

What was the constant/control? _____

What was the control group? _____

Quick Check for Understanding! An experiment was performed to determine how the amount of coffee grounds could affect the taste of coffee. The same amount and type of water, the same perking time, and the same electrical sources were used.

1. Independent variable = _____

2. Dependent variable = _____

3. Constants/Controls = _____