Notes - Independent/Dependent Variables

**Variable**: Something that is changed.

In scientific experiments there are two variables - One that you control and one that is the result.

**Independent Variable**: “The Cause”

- The one thing that is changed in an experiment
- This variable makes one test “independent” of another test
- On a graph it is on the x-axis (along the bottom)

**Dependent Variable**: “The Effect”

- The result of the experiment
- What is measured
- This “depends” on what you changed
- On a graph, it is on the y-axis (along the vertical side)

****The independent variable causes the dependent variable to change****

In the following statements, identify the independent and dependent variables

1. The temperature of the water was measured at different depths of the lake.

Two things were changed in this statement. The first was the depths and the second was the temperature

Plug these into the bolded statement: The **different depths** causes the **temperature** to change.

**This is correct, because we know that the water temperature gets colder the deeper you go.**

IV: depths  
DV: temperature

2. The amount of time you study will make a positive difference on your next test score.

Two things are changed: 1. Time spent studying 2. Score on next test.

**The time studying causes the score on the next test to change.**

**This is correct, because we know the longer you study for a test, the higher your grade will be**

IV: time studying  
DV: score on next test

3. Lemon trees receiving the most water produce the largest lemons

The ___________________ causes the ___________________ to change.

IV: ___________________  
DV: ___________________
Independent and Dependent Variables- Identify the independent and dependent variables in each sentence

1. The higher the temperature of water, the faster the egg will cook.
   The _____________ causes the _________________ to change.
   IV:______________________ DV:____________________

2. An investigation was done to see if keeping the lights on for different amount of time each day affected the number of eggs the chicken lay.
   The _____________ causes the _________________ to change.
   IV:______________________ DV:____________________

3. The time it takes to run a mile depends of the amount of exercise a person gets.
   The _____________ causes the _________________ to change.
   IV:______________________ DV:____________________

4. Grass will grow taller if it is watered and fertilized more.
   The _____________ causes the _________________ to change.
   IV:______________________ DV:____________________

5. An investigation was performed to see if corn seeds would sprout at different times depending on the temperature of the air in which they were placed.
   The _____________ causes the _________________ to change.
   IV:______________________ DV:____________________

6. The amount of algae growth in lakes seems to be directly related to the number of sacks of fertilizer sold.
   The _____________ causes the _________________ to change.
   IV:______________________ DV:____________________

7. The amount of pollution produced by cars was measured for cars using gasoline containing different amounts of lead.
   The _____________ causes the _________________ to change.
   IV:______________________ DV:____________________

8. Students in science class carried out an investigation in which a flashlight was pointed at a screen. They wanted to find out if the distance from the light to the screen had any affect on the size of the illuminated area.
   The _____________ causes the _________________ to change.
   IV:______________________ DV:____________________

9. The score on the final test depended on the number of study questions the student completed.
   The _____________ causes the _________________ to change.
   IV:______________________ DV:____________________

10. A study was done with white rats to see if the number of offspring born with birth defects was related to the number of minutes of exposure to x-rays by the mother rats.
    The _____________ causes the _________________ to change.
    IV:______________________ DV:____________________

11. Five groups of rats are fed identical diets except for the amount of vitamin A that they receive. Each group gets a different amount. After 3 weeks on the diet, the rats are weighed to see if the amount of vitamin A received has affected their weight.
    The _____________ causes the _________________ to change.
    IV:______________________ DV:____________________

12. The state agriculture department has been counting the number of foxes in Brown county. Will the number of foxes have any affect on the rabbit population?
    The _____________ causes the _________________ to change.
    IV:______________________ DV:____________________