**Independent versus Dependent Variable Practice --- In class notes.**

An **independent variable** is the one thing you intend to vary in an experiment.

A **dependent variable** is the thing that will change that you intend to measure as a quantitative assessment of the effect.

In the following examples identify the independent and dependent variables and then also list several potential confounding variables that the experimenters would have to consider.

**Sample Hypotheses**

**1. If** skin cancer is related to ultraviolet light, **then** people with a high exposure to UV light will have a higher frequency of skin cancer. What will you vary or change (INDEPENDENT)? What will you measure (DEPENDENT)?

Independent variable –

Dependent variable -

**2. If** leaf color change is related to temperature, **then** exposing plants to low temperatures will result in changes in leaf color.

Independent variable –

Dependent variable -

**3. If** the speed of plant germination is related to the hardness of the hull of its seed, **then** softening the seed with water or a weakly acidic solution prior to planting will hasten germination.

Independent variable –

Dependent variable -

**4. If** photosynthesis is related to light energy, **then** the portions of a leaf shaded from light will test negative for starch, since starch is a product of photosynthesis.

Independent variable –

Dependent variable -

**5. If** animal metabolism is related to temperature, **then** increasing resting room temperature will increase animal metabolism (as measured by carbon dioxide gas production which is one of the waste products of animal metabolism).

Independent variable –

Dependent variable -

**6. If** root growth is related to gravity, **then** roots will always turn toward the earth regardless of a seed's orientation.

Independent variable –

Dependent variable -

**7. If** hatching of brine shrimp is related to salinity (or temperature), **then** the greater the salt concentration, the higher the hatching rate.

Independent variable –

Dependent variable -

**9. If** the thickness of annual growth rings in trees is related to annual rainfall, **then** examining wood samples will reveal correlations in the growth rings to the historical records for rainfall in its environment.

Independent variable –

Dependent variable -

**10. If** poking a skunk will always result in the emission of noxious and toxic fumes, then if you are going to poke be prepared to take a tomato bath to eliminate the skunk stench.

Independent variable –

Dependent variable -