Name _____ **Period** _____

Biology **Date** _____

GENERATING HYPOTHESES & EXPERIMENTAL DESIGN 1

1. General Idea

_____

_____

2. Hypothesis Development

a. Factors that you think may have a relationship:

_____ _____

b. Describe the type of relationship (**positive**, **negative**, **neutral**): _____

c. Prediction of how a **change** in one factor affects the **change** in the other.

_____

_____

d. If that relationship is accurate, then predict the specific changes that you will be able to *measure* during the experiment.

_____

_____

_____

e. Restate as a hypothesis: specific, includes a prediction & is testable (try to put it in an "*If*…, *then*…" format):

_____

_____

_____

3. Experimental Design

a. Which is your *measured* (**dependent**) variable? _____

b. Which is your *manipulated* (**independent**) variable? _____

c. List three **confounding variables** that you would have to keep constant to isolate your tested variable.

(*Confounding* means *confusing*, so confounding variables would be other factors that could affect the results and therefore confuse your interpretation of the results)

_____

_____

d. Describe your experimental groups for your experiment.

_____

_____

e. Describe the control group(s) for your experiment (the treatment you are going to compare others to).

_____

_____

f. Suggest a sample size for your test groups in this experiment. _____

g. What result would cause you to conclude that your hypothesis is **supported**? (notice I didn't say "*prove*"!)

_____

_____

h. What result would cause you to **reject** your hypothesis? (notice I didn't say "*disprove*"!)

_____

_____

i. Design a data table that you would use to collect your data.