



HYPOTHESES AND VARIABLES

WHAT IS A HYPOTHESIS?

Hypothesis: a testable, falsifiable statement describing why we believe a phenomenon occurs.

- A hypothesis is never “proven” or “true”; it is only supported or refuted.
- A hypothesis that is retained and accepted is the best explanation we have (for now).
- As technology advances and new information becomes available, conclusions may/may not change.

Types of Hypotheses:

Null Hypothesis: states that there is no difference.

Ex: Fish species found at a higher elevation will **not** differ in length from fish species found at a lower elevation.

Alternate Hypothesis: states that there is a difference.

Ex: Fish species found at a higher elevation will differ in length from fish species found at a lower elevation.

DEFINING VARIABLES WITHIN A HYPOTHESIS

Types of Variables:

Dependent Variable: variable of interest, acted upon by the independent variable.

Independent Variable: variable suspected to control/influence the dependent variable.

Controlled Variable: variable(s) not included in the hypothesis that could influence the dependent variable and should be held constant in an experiment.

- ❖ In a hypothesis, the independent variable is what we expect to affect the dependent variable, if the hypothesis is supported.

Ex: Fish species found at a higher elevation will differ in length from fish species found at a lower elevation.

- In this example, elevation is the independent variable.
- Length of fish is the dependent variable.
- Control variables may include: average precipitation, depth of stream, type of aquatic vegetation present in stream, stream temperature, food availability, etc.

Write your hypothesis:
