Writing Good Hypotheses

Learning Targets

- Differentiate between the independent and dependent variable.
- Write a hypothesis that includes and independent variable, dependent variable, and prediction.

What are our two variables?

➢Independent
➢Dependent

▪**Independent**- the factor that is manipulated.
 ▪Ask yourself: "What did we do?"
 ▪You control this variable

▪**Dependent**- the measurement that is taken or the data that is collected in the experiment.
 ▪Ask yourself: "What did we measure?"
 ▪You observe or measure this variable

There are two parts to a good hypothesis

➢ The **IF** part
➢ The **Then** part

▪ The **IF** part shows the relationship between the two variables.
  ▪ We are investigating relationships, not cause and effect!

▪ The **THEN** part shows your prediction.

Remember, a hypothesis is a testable statement which may include a prediction.

Example #1

If I play the lottery, then I will get rich

- Is there a relationship?
- Is there a prediction?

If the chance of winning is *related* to the number of lottery tickets, **then** people who buy more lottery tickets will have a better chance of winning.

Example #2

Ultraviolet light may cause skin cancer

- Is there a relationship?
- Is there a prediction?

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.

Every hypothesis:

If... **Dependent** is related to **Independent**, then **Prediction**

Try revising these bad hypotheses:

1) Chocolate may cause pimples.
2) Salt in soil may affect plant growth.
3) Bacterial growth may be affected by temperature.
4) Temperature may cause leaves to change color.