

Do Now:

1. Write what a hypothesis is in your own words. Have you learned about hypotheses before? What did you learn about them?



Forming Hypotheses

August 20, 2008



Objectives

- ▶ SWBAT
- ▶ **Define** the term “hypothesis.”
- ▶ **Distinguish** between hypothesis and non-hypothesis
- ▶ **Create** their own hypothesis



What did you write in your
Do Now about hypotheses?



A Hypothesis IS...

- ▶ **SWBAT Define** the term “hypothesis.”
- ▶
- ▶ A prediction that can be tested
- ▶ Based on prior observations or scientific knowledge
- ▶ **SPECIFIC!**
- ▶ The second step of the Scientific Method

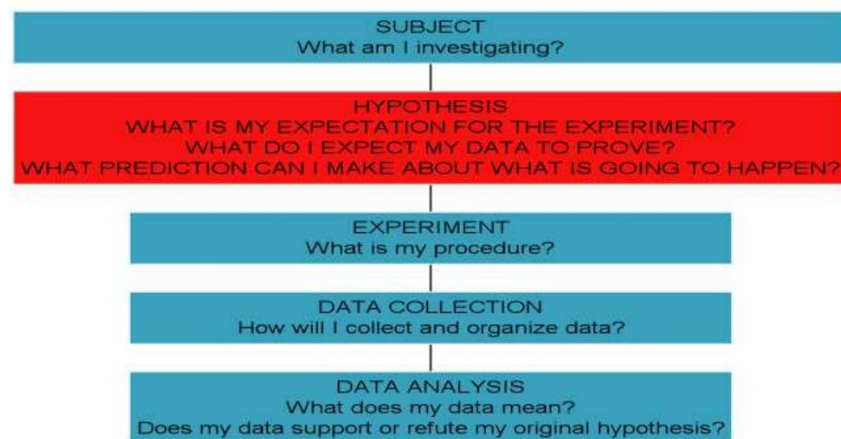


A Hypothesis IS NOT...



- ▶ An observation
- ▶ A scientific fact
(Hydrogen has one proton)
- ▶ A scientific law
(gravity)

The Scientific Method



Hypothesis and Background Knowledge



- ▶ Why do you think a hypothesis ought to be based on prior knowledge?
- ▶ Why is this important?

Hypothesis and Background Knowledge

- ▶ We need something to base our prediction around
- ▶ Having background knowledge informs our prediction
- ▶ Where can we gain this knowledge if we do not already have it?



Why is it important for
our hypothesis to be
specific?



A Specific Hypothesis...



- ▶ Allows us to test only our specific prediction
- ▶ Eliminates the possibility that something else is causing what we are observing

Which is a hypothesis?



SWBAT Distinguish
between hypothesis and
non-hypothesis

- A. These weights weigh 145 pounds
- B. Lifting weights is healthy
- C. If I do curls every day for 2 weeks, my biceps will be measurably stronger at the end
- D. You should always wear gloves when you lift weights

Which is a hypothesis?

- A. Higher blood pressure means the pressure exerted by the heart pumping blood through the arteries and veins is higher than average
- B. High blood pressure can be measured
- C. Higher blood pressure puts someone at a higher risk for a heart attack
- D. High blood pressure is defined as anything higher than 130/90



EXPERIMENT #1

What do we know
about these objects?



Weight
Size
Shape



SWBAT Create their own hypothesis

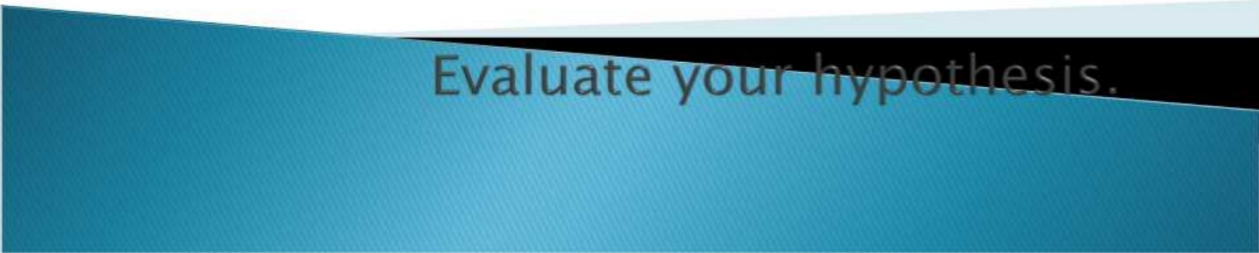
Write your hypothesis for
Experiment 1 and explain
how you chose that
particular hypothesis.



Observe the procedure 10
times.

Write down which object
landed first each time.

Evaluate your hypothesis.



SWBAT Create their own hypothesis

EXPERIMENT #2



What do we know
about oranges?

What do you think will
happen when
different oranges
(with peel, without
peel, peel only) are
placed in water?



Write down your hypothesis for how the peel will affect the orange's flotation.



Write down your
observations.

Evaluate your
hypothesis.



SWBAT Create their own hypothesis

EXPERIMENT #3

- ▶ Soda and CO₂
- ▶ Expansion of Gases
- ▶ Surface Tension
- ▶ Hydrogen Bonding
- ▶ Structure of Mentos



Write down your
hypothesis for the
reaction between
Mentos and Diet Coke.



Write down your
observations.

Evaluate your
hypothesis.



Reflection Time

- ▶ Did you master the objectives we reviewed at the beginning of class?
 - SWBAT
 - **Define** the term “hypothesis.”
 - **Distinguish** between hypothesis and non-hypothesis
 - **Create** their own hypothesis

- ▶ Write what a hypothesis is in your own words.

