

Topic 3: Methods of Science

Standard 1.3 – I can understand experimental design and methods in science.

Hypothesis: “If.....then...because” statement

Experimental Design:

Scientific Method – an organized plan

for _____
_____ of information

Scientific Inquiry – a process that uses a _____ to
answer questions or to _____ about the natural world.

GOAL: Solve a problem and Better understand something

Steps of Experimental Design:

1. **Problem/Question**: What do you want to know?
2. **Research**
3. **Hypothesis**
4. **Experiment**: Test your hypothesis
5. Collect and Analyze **Data**
6. **Conclusion**: Accept, reject, or modify the hypothesis

Evolution of Scientific Idea

Prediction – a statement of what will _____ in a sequence of events	Hypothesis – a _____ _____ for an observation that can be tested by scientific investigation
Scientific Theory – explanation of things or events that is _____ gained from many observations and investigations	Scientific Law – rule that _____ in nature

Parts of the Experiment:

Variable: Factor that **changes**

Two types:

1. Independent Variable --- Fact _____ change ----- AKA: Manipulated Variable
2. Dependent Variable --- Factor that changes _____ changed something ----- AKA: Responding Variable
3. Constant - Factors that _____ from test to test
4. Trial ---Repeating the experiment ---3 times for best result

Topic 4 – Measurements in Science

Standard 1.4 – I can explain how measurements are used in science and how to determine the density of an object.

Measurement Types

LENGTH

Straight line distance between two points

How long something is

SI unit = _____

Tools for finding => Meter stick or ruler

TEMPERATURE

Amount of _____ given off by an object - Molecular Motion - How hot or cold something is

SI unit = _____

Tools for finding =>

Thermometer

MASS

How much _____ is in an object

SI unit: _____

Tools for Finding --- Balances or scales

**Note: Mass and Weight are two different things

Mass never changes from place to place

VOLUME

Amount of Space an object takes up

Units: _____

Tools: graduated cylinder or ruler

Three Different Methods for finding Volume

---Regular object

---Irregular object

---Liquid

What to Study for Your Quiz on Friday (8/31)

1. Safety

2. Density

3. Measurements