

## Grade 8 Study Guide

### Science- The Scientific Method

#### Steps of the Scientific Method

**Step 1:** Identify the *problem or question*

**Step 2:** Gather *research* and information

**Step 3:** Write the *hypothesis*

**Step 4:** *Experiment*

**Step 5:** Record and *analyze data*

**Step 6:** Write the *conclusion*

#### Vocabulary

**Independent variable (I.V)** – the variable that is being tested. Also known as the “*manipulating variable*”

**Dependent variable (D.V)**- the measurable variable where you see the results. Also known as the “*responding variable*”

**Constant variables:** factors that are the same for the Experimental Group and the Control Group. *They keep the experiment fair!*

**Experimental Group:** Tests the hypothesis and independent variable

**Control Group:** The standard to compare results

**Hypothesis:** A possible answer to the problem or question in step 1

**Conclusion:** summary- proves the hypothesis True or False and states why

**Experiment:** a test

**Theory:** an idea that provides a full explanation of facts or events

**Law:** a system of rules

**Variable:** a factor that may change in an experiment

**Data:** information

- Two types:
  1. **Qualitative:** deals with the senses (color, odor, texture, descriptions)
  2. **Quantitative:** numerical, statistical (temperatures, amounts, height, time)

**Rules for writing a hypothesis:**

1. Never write a question
2. Never use proper nouns
3. Never use pronouns (he, she, they, us,...)

<b><u>Observation:</u></b> noticing objects or events that occur using the five senses	<b><u>Inference:</u></b> an explanation based on observations or facts
<b><u>Example</u></b> You leave a movie theatre and see that the street is wet...	<b><u>Example</u></b> ... it rained.

**Parts of the Experiment**

1. Experimental Group
2. Control Group

\*Every experiment contains **constant variables**

**Purpose of the Scientific Method:** It is used to solve problems and answer questions

- Know how to identify the I.V, D.V, the control, and constant variables (look at Spongebob and Simpsons worksheet)