

Name: _____

Date: 9/13/19

Science 7

Scientific Method
(notes)

Aim: I can use the scientific method to solve problems.

Do Now:

Notes:

The Scientific Method

- An organized set of investigation procedures.
- Steps to answer a question

SCIENTIFIC METHOD
PURPOSE <small>State the problem.</small>
RESEARCH <small>Find out about the topic.</small>
HYPOTHESIS <small>Predict the outcome to the problem.</small>
EXPERIMENT <small>Develop a procedure to test the hypothesis.</small>
ANALYSIS <small>Record the results of the experiment.</small>
CONCLUSION <small>Compare the hypothesis to the experiment's conclusion.</small>

1. Problem

- Always in the form of a question
- What do you want to solve?

2. Hypothesis

- An educated guess based on prior knowledge and research.
- A suggested answer to the problem
- If...then...

3. Experiment

- Test if hypothesis is RIGHT or WRONG
- Gather Materials
- Design Procedures

4. Observation

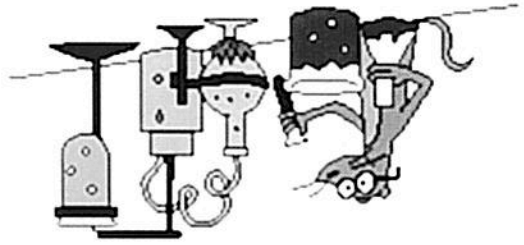
- The gathering of information by using one, some or all of your five senses.
- Two types of observations:

Qualitative Observation: Describes (DESCRIPTIONS)	Quantitative Observation: Measure/ Numbers (A number)
Examples: <ul style="list-style-type: none"> • Jack is wearing a red shirt. • Gra has braces. • Jaggi has blue and black sneakers. 	Examples: <ul style="list-style-type: none"> • there is <u>one</u> boy at the back table • <u>Three</u> boys are wearing shorts. • There are <u>three</u> teachers in this room.

5. Results and Analyze Data
- Write down all data / observations that are made during the experiment.
 - Create graphs, charts, and data tables

6. Conclusion
- A multi sentence statement that:
 1. Answers the question stated in the problem.
 2. States if the hypothesis is right or wrong
 3. Explains the data

7. Repeat
- The entire experiment must be conducted again to be considered Valid.
 - Valid: proven to be logically true/legitimate
 - To find any errors



Inference

- Possible explanation for an observation
- Based on experience and prior knowledge

Examples:

1. Observation: You observe that the sky is getting dark at noon.
Inference: A storm must be coming.

2. Observation: The principal interrupts class and calls a student from the room.
Inference: The student is in trouble.

3. Observation: All 7th grade students are bringing lunch from home.
Inference: The cafeteria is closed.