

# Week 5

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Unit 1 Matter (and Measurements)

# Agenda

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- **Quiz:** O vs. I
- **Prepped EXP** Reaction in a Bag
- **Activity:** O vs. I (Seesaw)
- **EXP** Reaction in a Bag
- **Review: Metric System and Conversions**
- Questions and Answers Session (Q/A)

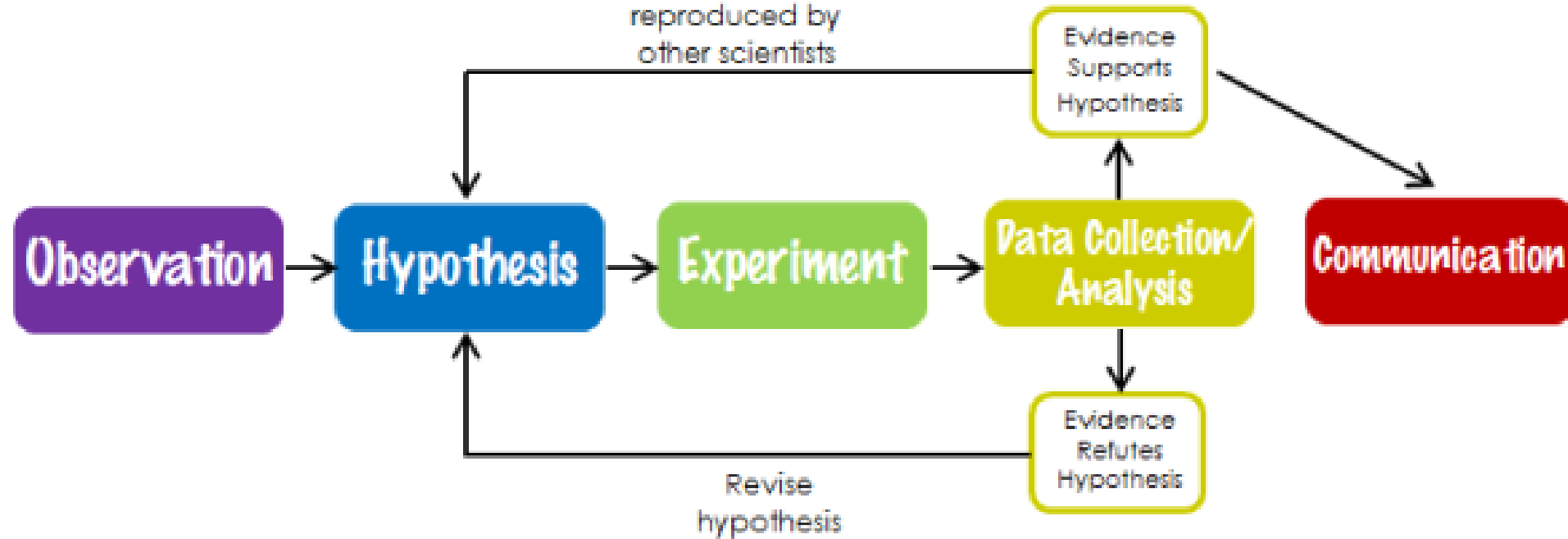
# **The Scientific Method**

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**The Method to the Madness**

# The Scientific Method

Repeated by self or  
reproduced by  
other scientists



## Science is life documented and questioned

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<https://www.youtube.com/watch?v=sVRAtQ7XjkM>



## Observations vs. Inferences

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Your data table should only have  
QUANTITATIVE and QUALITATIVE  
*observations*.

Your *inferences* can be reported in  
the conclusion using EVIDENCE  
from your data table.

It's like watching TV without sound.

## YOU OBSERVE...

- The sky is getting dark at noon.
- The principal interrupts a class and calls a student from the room.
- All 5th grade students are bringing lunch from home.
- You leave a movie theater and see that the street is wet.
- The classroom lights are off.
- Mrs. Godley has a California sticker on her water bottle.



# Activity:

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- Take a page from a magazine that depicts a scene.
- Take a picture of it and upload to Seesaw Activities.
- Each person in your group should make an observation and an inference – add it as a comment under YOUR name.

## Keep in Mind

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Observations

Data: Repeat for Precision

Communication (Visually/Written)

Support with EVIDENCE from YOUR data table

Iteration (by you or someone else)

C.E.R.

<https://www.youtube.com/watch?v=sVRAtQ7XjkM>





# Reporting/ Communicating

- Use the General Lab Rubrics (One Note: **Housekeeping**) and other resources to complete the lab reports.
- Not every part of a lab report is used on every experiment. For example, if no quantitative data can be analyzed in a graph, no graph is required.

ISTRY - SCIB00 - Y33 ▶ CHEMISTRY - SCIB00 - Y33 Notebook CHEMISTRY - SCI300 - Y33 Notebook

Draw View Help Class Notebook Open in app Tell me what you want to do

20 B I U A Styles

Y33 Notebook

Quarter 4

Laboratory Experiments

Version: District

Version: Prentice Hall

General Lab Safety

\*Safety 1st, 2nd, and A...

Fire Hazards and Othe...

How to Read a SDS

SDS Table (sample)

GHS

NFPA

Quiz (Practice)

Methods for Reducing E...

How to: Use a Bunsen B...

**General Lab Rubrics Upd...**

Graphing

Graph Paper (OneNot...

Graph Paper (pdf)

Graphing Rubrics (Sou...

Graphing Practice 1

## General Lab Rubrics Updated

Thursday, November 09, 2017 7:50 AM

		4 100%
1	Title	Title Present (Unique, Creative and related to the purpose 1 bonus point)
2	Purpose	Accurate and includes relevant terminology. Includes a hypothesis and clear prediction. Includes independent and dependent variables used. A control is identified.
3	Materials	All original materials including modifications noted. Chemical names are both included with concentrations and amounts used in lab.
4	Labeled Illustration	Represents the whole apparatus used in lab and represents where main reaction(s) is (are) occurring. All parts of the illustration are labeled.
5	Safety	What general point(s) can I make about staying safe in this lab? List up all relevant SDS sheet – what are the specific safety concerns for this chemical? The student provided both a relevant safety concerns including (warning, danger, or N/A), GHS (and/or NFPA) pictogram(s) and waste disposal suggestions.
6	Procedure	Procedure includes all parts, quantities, correct chronological order, and is reproducible with 100% accuracy. Can be bulleted or organized in a graphic organizer. Must note in red any modifications to the lab (chemicals used, etc.)
7	Data Table(s)	Accurate and detailed. Qualitative and/or Quantitative. Should be organized and include all related data observed, including calculations. Using significant figures for calculations. Units required with the title columns, if measurements are in a table. Filled out with complete observations based on what is required. NO inferences. Modifications to Expected Data included (with student annotations). Significant figures should be accounted for when recording data.
8	Graph	Title, correct intervals, labeled axes with units, correctly plotted, and present (if necessary). Intervals are in whole numbers (each line number.) Correct independent and dependent axes. A line is drawn and connected and/or bar graph, etc. that best utilizes data for analysis and graph paper. Graph reflects data accurately.
9	Analysis:	Questions accompanying lab, if any.

# Reaction in a Bag

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Experiment – FULL Lab Report

# Materials (Modification)

- Pipet Filler (Green)
- Serological Pipets (10 ml)
- White Basket
- ~~Graduated Cylinder, 10 ml~~



Price: \$20.00

In Stock.

Pipet fillers are a great safety aid for handling hazardous substances. There are three sizes available. See more product details

Options: 10 mL

[Product Details](#)

## Other Options

Item#	AP1306	AP1307	AP1308
Volume for Pipet Size	2 mL	10 mL	25 mL
Color Code	Blue	Green	Red

# Reaction in a Bag

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## Part A

- Observe chemicals **BEFORE**
- Create the phenomenon.
- Observe **AFTER**
- Create 4 questions about the phenomenon.
- Formulate a hypothesis based on what you know/think. Look at the formulas. (Inferences)

## Questions --> Hypotheses

- **ONLY** can create a hypothesis that is **TESTABLE**.
- If ... then...because (Why do you think this?)

# Student Results

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## Part B

- Create the 9 possible combinations as CONTROL experiments to provide evidence to accept/reject hypothesis.
- Make observations.
- Reject/Accept your hypothesis.
- Answer Analysis questions to understand the data.
- C.E.R.

## Results

## Part B

- 9 – 10 combinations
- Divide and Conquer

**Data Table B: *The Control Experiments***

Place a check in the appropriate box to show which chemicals were mixed in each experiment.

Number	Calcium Chloride	Sodium Bicarbonate	Phenol Red	Water	Observations
1					
2					
3					
4					

# Analysis Questions

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- Use the data to answer ALL Analysis Questions
- Use the data to construct your conclusion
  - C
  - E
  - R

# Questions and Answers (Q/A)

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