



**Scientific Method**

Steps used to solve problems.

Designing an Experiment



Word of the Day : **Variables**

Remember the Oreos?



There are many ways to answer questions...



## How we answer questions in SCIENCE!



This process is called "The Scientific Method"

## Review of Scientific Method

- **Observe**, research and ask a testable questions
- **Design an experiment**
  - Variables, hypothesis and procedure
- **Carry out the experiment**
  - Collect data
- **Report Findings**
  - Write a conclusion with CEE.



## Steps of an Experiment:

(Write these down and skip two spaces between each.)

1. Make observations
2. Ask a question
3. Variables
4. Hypothesis
5. Design your experiment
  - Materials and procedure
6. Collect Data
7. Analyze data and report

## 1. Observation

- Something that is noticed or observed





## 2. Question

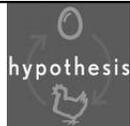
- Tells you what the experiment will be about.
- Uses words like: when, where, what, how many, how much, and how often

## 3. Variables

- Independent Variable:  
thing you **change**
- Dependent Variable:  
thing you **measure**
- Constant:  
thing that stays the same



## 4. Hypothesis



- An educated guess as to what will happen.  
– Also may include why you think this.

If (tell what you will do), then (tell what you think will happen).

## 5. Design your experiment: Materials

- A list of everything needed to do the experiment.



## 5. Design your experiment: Procedure

- Step-by-step directions to do the experiment. *How to do Heart Surgery*
- 1
- 2
- 3
- 4
- 5



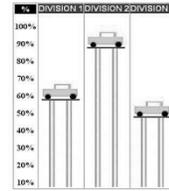
## 6. Collect Data / Results

- A chart, table and/or graph showing what you found after doing the experiment.

Data for heating crystals

|                | Trial 1     | Trial 2     | Trial 3     |
|----------------|-------------|-------------|-------------|
| Temp. at Alum  | 4<br>4<br>4 | 4<br>4<br>4 | 4<br>4<br>4 |
| Temp. at Salt  | 0<br>0<br>0 | 0<br>1<br>0 | 0<br>1<br>0 |
| Temp. at Sugar | 3<br>3<br>3 | 3<br>1<br>1 | 3<br>4<br>2 |

AUTOMOTIVE DIVISIONAL STANDINGS



## 7. Conclusion/Analysis



- What does your data mean?
- CEE format

## What do plants need?



## 7. Conclusion- CEE

- **Claim:** The “answer” to your experiment question.
- **Evidence: 2-3 pieces of data** (usually #'s) from your experiment that supports your claim.
- **Explanation:** Using your background knowledge and science vocabulary, **write why you think your claim is true.**

## Your Job

- Design and carry out a lab that will show how.....
  - Light affects seed germination

## Our Questions

- How does light affect germination in bean seeds?