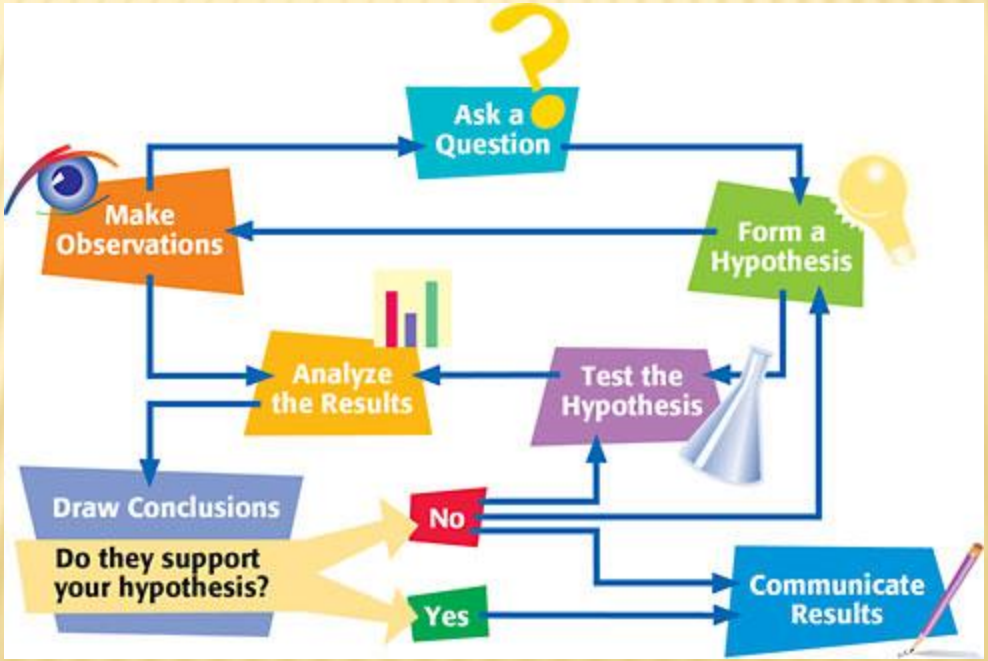
HOUSE QUESTIONS (R)

- 1) How big is your house?
- 2) How many rooms?
- 3) Bathroom dimensions?
- 4) living room floor color?
- 5) What is blue and smells like red paint?

SCIENTIFIC METHOD

- What are the steps to the scientific method?
- Scientific Method: (steps to solve a problem)
- 1) Identify a problem
- 2) Research (educate yourself)
- 3) Hypothesis (educated statement)
- 4) Experiment (test your hypothesis)
- 5) Observe and record (collect data)
- 6) Conclusion (sum it up)
- 7) Retest if needed.

- Is the Scientific Method a straight line?
- The order of the scientific method can change. It is only a guideline.



BASIC SCIENTIFIC TERMS

Simple Observations –

Observations: Using one or more of your senses to learn about the environment.

Quantitative Observation –

Quantitative Observations: Numbers(Quantity)

(ex. 12 inches)

Qualitative Observations –

Qualitative Observations: Descriptions (Quality).

(ex. “Large” box)

Which is more scientific?

Quantitative is more Scientific because there is no interpretation.

BASIC SCIENTIFIC TERMS

Instruments –

Instruments: Tools to help improve your senses. (from rulers to telescopes)

Classification –

Classification: Arranging into groups

Inference –

Inferences: Interpretation of your observations.

Are inferences always correct?

Inferences are not always correct.

MEASUREMENTS

Measurements –

Measurements Consist of a Quantity

AND A UNIT!!!

Is a unit really all that important???

The unit is your measurements last name.

Your answer is not fully correct without it!

ENGLISH SYSTEM

- English System -

The English system is:

- Based on a Kings feet???
- Inches, Feet, Miles etc…
- No easy conversions
- Old and out dated

The U.S., Liberia and Burma are the only hold outs.

METRIC SYSTEM

- Metric System –

Metric System:

- Based on 10
- Centimeters, meters etc…
- Very easy to convert
- Used by most of the world.

CONVERSIONS IN METRIC

- How do we convert in Metric?
- Converting in Metric:
- King Henry Died u didn't care much
- K H D(Da) u d(di) c m
- Kilo Hecto Deca (units) deci centi milli
  - meter
  - liter
  - gram

- K H D u d c m
- Kilo Hecto Deca (units) deci centi milli
  meter
  liter
  gram

King Henry Died u didn't care much

1 M = ? cm

(X) (1) (2)

1 m = 100 cm (move decimal 2 to the right)

1 cm = ? KM

(5) (4) (3) (2) (1) (X)

1 cm = .00001KM (move decimal 5 to the left)

PERCENT ERROR (PERCENT DEVIATION) (R)

- Percent Error -
- Percent error(deviation) is how far off you are from the proper answer

- $\frac{\text{Difference between measured and accepted value}}{\text{accepted Value}} \times 100$

I expected 32 students in this class. We have 30.

$\frac{2}{30} \times 100 = 6.6\%$ error

I expected 28 students in this class. We have 30

$\frac{2}{30} \times 100 = 6.6\%$ error

* This will always be a positive number

MASS AND WEIGHT

- Are mass and weight the same???

Mass and Weight are not the same thing!

Mass –

Mass: How much matter (stuff) is in an object.

(does not change)

Weight –

Weight: Measure of gravitational force acting on an object.

(Can change if gravity changes,

ex… going to the moon)

TOOLS

Ruler –

Rulers measures L X W X H

Triple Beam Balance –

Triple Beam Balances: Find mass (Remains constant)

Spring Scale –

Spring Scales: Find weight.

(Can change due to gravity)

Thermometer –

Thermometers: Measure how hot something is (Measures heat by molecular movement)

TOOLS

Volume –

Volume: How much space an object takes up.

Beaker –

Beakers: Find volume (shorter and wider)

Graduated Cylinder –

Graduated Cylinders also find volume. (taller and thinner)

Which is more accurate?

Graduated Cylinders are more Accurate.

(each line goes up by less)

VOLUME

Volume –

Volume is how much space an object takes up.

Regular Object?

Regular Object –

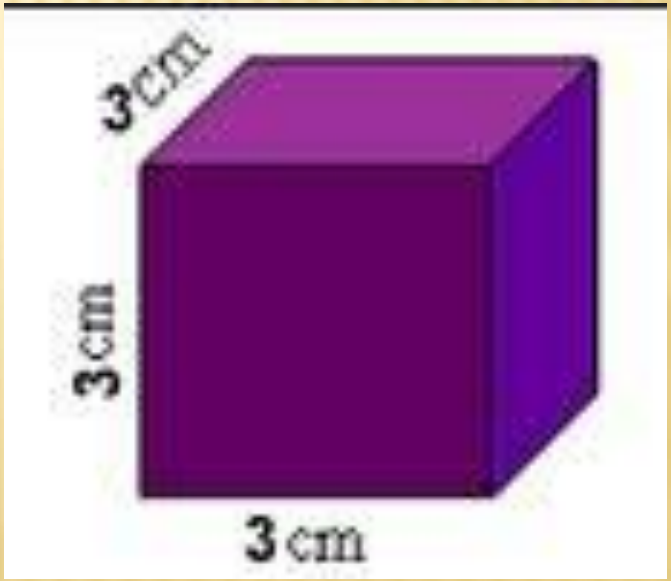
L, W, H are all constant

(not necessarily the same as each other)

- Measured with a ruler.

Unit –

Expressed as a cubic unit



3cm X 3cm X 3cm = 27cm3 (you took 3 measurements)

VOLUME

- Irregular Object –

Irregular Object - L, W, H are not all constant so you can't use a ruler.

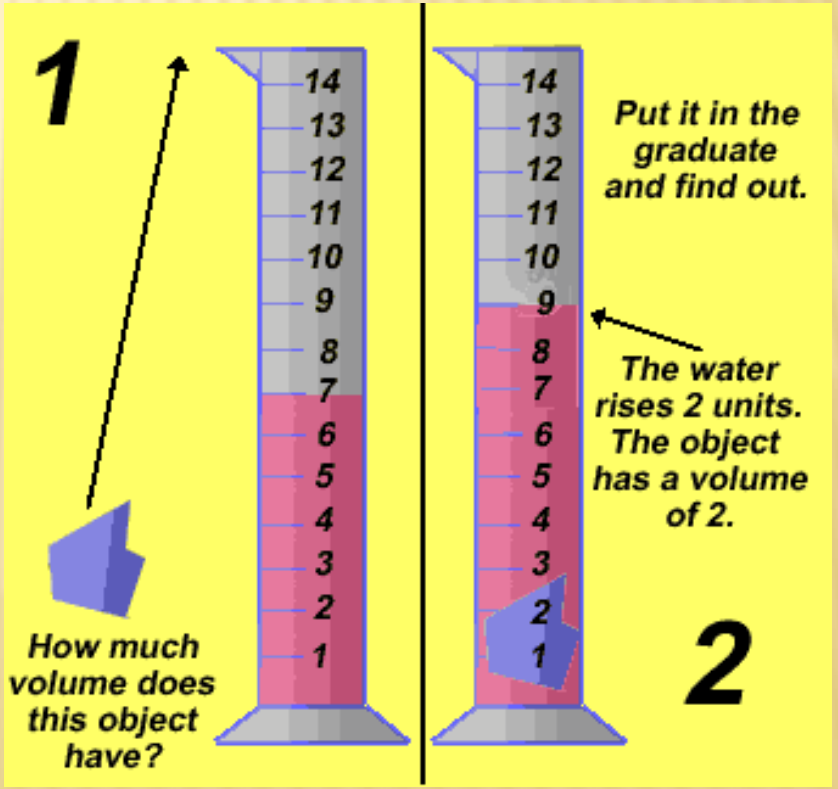
Use water displacement method.

WATER DISPLACEMENT METHOD

Water Displacement method –

Water Displacement method

1) Fill container with water (leave room for object)
2) Record volume
3) Place object
   in container
4) Record new volume.
5) The amount the water
   went up is its volume.



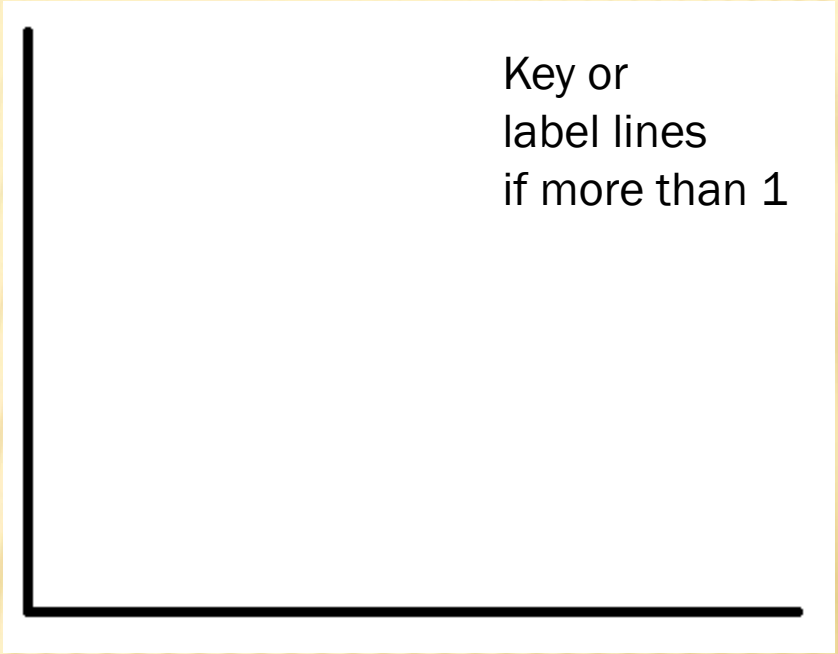
WHAT IS ON A PROPER GRAPH

Title

Y – AXIS (Y to the sky)
Dependent Variable (wall)
(depends on floor)
Ex. Plant height
Labeled with units

Dry Mix
Dependent
Responding
Y-Axis

#'s



#'s

Dry Mix
Manipulated
Independent
X-Axis

X-AXIS (X marks the spot)
Independent variable (floor)(doesn't depend on floor)
Ex time
Labeled with units

PASSAGE ON ERRORS (50PTS)(REGENTS)

- Must be at least ½ page – 1 page.
- Identify 3 common areas people can make mistakes. (Must all be different)
- Ex. Measuring Volume

  Measuring Mass

  Reading instruments

  Etc…

For EACH mistake explain how you can help prevent making this mistake. (Good habits you should start)