Processes of Science

Scientific Method - **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** used by scientists to **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Ask a Question - helps focus the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** of an investigation

* Observation - **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** with the senses
* Form a Hypothesis - A **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** to your question (**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**)
* A good hypothesis is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_**!
* Prediction - **\_\_\_\_\_\_\_\_\_\_\_\_** hypothesis in an **\_\_\_\_\_\_\_\_\_\_**statement to help **\_\_\_\_\_\_\_\_\_\_** the test
* Test Hypothesis - Find out if your hypothesis is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Controlled Experiments
  + Compares a **\_\_\_\_\_\_\_\_\_\_** group to an **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** group
  + Changes **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** variable at a time
* Data - **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** acquired through observation or experimentation

* Analyze results - organize information using calculations, **\_\_\_\_\_\_\_\_\_\_\_\_**, **\_\_\_\_\_\_\_\_\_\_\_\_\_**…
* Draw Conclusions

- **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** if your hypothesis is supported

- Perform **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Communicate Results
* Lets others **\_\_\_\_\_\_\_\_\_\_\_\_** your work
* Brings up other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Scientific models – a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of something familiar to describe something \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Limits: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Physical Models – shows you what it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Example:
* Mathematical Models – uses \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and data
  + Example:
* Conceptual Models – systems of \_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to explain something
  + Example:
* Models explain things that are too \_\_\_\_\_\_\_\_\_\_\_\_\_, too \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or just impossible to see

Theory – an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of many hypothesizes and observations. Explain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Law – a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of many hypothesizes and observations. Explain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Analyzing Data

Units – Language of Science

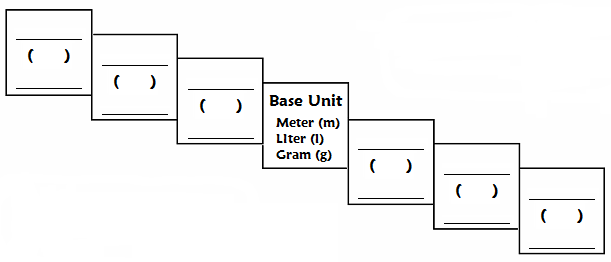
1. SI system (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) – standard unit of measurement
2. There is only \_\_\_\_\_ base unit for each thing measured
3. Length =
4. Weight =
5. Volume =
6. How big are they?

|  |  |
| --- | --- |
| 1. Meter - | graphic of temperature and commonly used metric units  graphic of temperature and commonly used metric units |
| 1. Liter - |
| 1. Gram - |

1. Measured in multiples of \_\_\_\_\_\_\_\_\_\_\_
2. Prefix -
3. 6 Common Prefixes

|  |  |  |
| --- | --- | --- |
| Prefix | Symbol | Number |
|  |  |  |
|  |  |  |
|  |  |  |
| Base Units (meter, liter, gram) | | |
|  |  |  |
|  |  |  |
|  |  |  |

1. Decimal Moving



Conversion steps:

1. Find your \_\_\_\_\_\_\_\_\_\_\_ point and \_\_\_\_\_\_\_\_\_\_\_ point
2. Count the \_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_ you take to get from your starting point to your ending point.
3. The decimal is moved \_\_\_\_ place for every \_\_\_\_\_\_ you take
4. Move the decimal to the \_\_\_\_\_\_\_\_ if going up the stairs
5. Move the decimal to the \_\_\_\_\_\_\_\_ if going down the stairs
6. Meter –
7. Common measurements
   1. 1mm =
   2. 1 cm =
   3. 1 dm =
   4. 1m =
   5. 1km =
8. Area - the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that fit in a 2-D object

a.

1. Liter –
2. Common measurements
   1. 5mL =
   2. 250mL =
3. Volume - the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that fit in a 3-D object
5. Gram –
6. Common measurements
   1. 1g =
   2. 1kg =
7. Celsius –
8. Common measurements

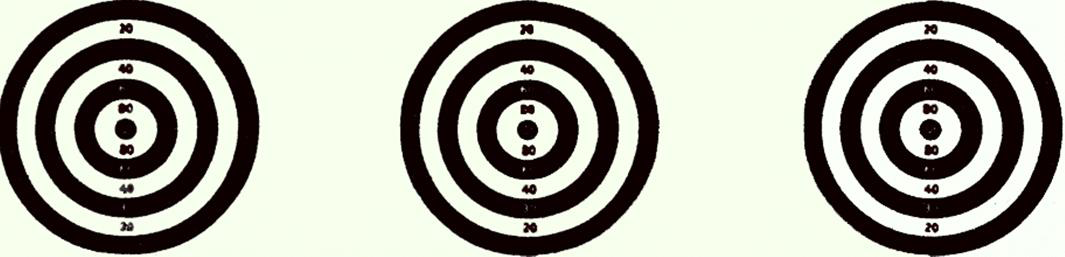
|  |  |
| --- | --- |
| 1. freezing point of water = \_\_\_\_\_\_\_ 2. Boiling point of water = \_\_\_\_\_\_\_ 3. Body temperature = \_\_\_\_\_\_\_ 4. Remembering a few temperatures in Celsius:   \_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_,  \_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_,  \_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_\_\_,  \_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_. | ˚C ˚F |

Density - measures the amount of \_\_\_\_\_\_\_\_ in a given unit of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| “I’m your density” | Equation: |

1. Water has a density of \_\_\_\_\_\_\_\_\_\_\_\_
   1. If an object is more dense than water, it will \_\_\_\_\_\_\_\_\_\_\_\_. If it is less dense than water, it will \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Uncertainty in Data



1. Accuracy - how close a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ comes to an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ value
2. Precision - how close a \_\_\_\_\_\_\_\_\_\_\_ of similar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ comes to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (reproducibility)

Representing Data

1. Graph –
2. Why use graphs?
3. Types of graphs
   1. Bar graph –
   2. Line graph –
   3. Circle graph –