Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Science Ms. Hanna



**Part 1: Scientific Skills Vocab**

***What are your 5 senses??***

5 Senses

**Observation:** To use your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to gather information

**Inference:** To give a possible \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for an observation

Ex.

Observation:

Inference:



**Estimate:** to make a careful \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ex. How many pieces of candy (M&Ms) are in the container? \_\_\_\_\_\_\_\_\_\_\_\_\_

**Measure:** To find the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ amount of something

****Ex. Measure the object on your desk in cm. Record your measurement for length and width below

length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ width : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Predict:** To guess about the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ based on the past.

Ex. Predict what the weather will be like in two days

Temperature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Climate (rain/cloudy/sunny):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Classify:** To \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ items based on how they are alike

Ex. Classify the group of animals in front of you in the bag. Write down below how or what characteristic you use to classify the animals.

Group A: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Group B: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Group C: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Hypothesize:** To suggest an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to a problem

Ex. What student do you think will have the middle most height in your class?

 I believe that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will have the middle most height

Was your hypothesis support or denied? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Record and organize:** To take down \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (data) and arrange them into a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Conclusions:** To give \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ result to a problem.

Ex.



What is the preferred soda for kids? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is the preferred soda for Adults? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

So if you were throwing a party for a bunch of families, what beverages would you buy and why?

**Part 2: Measurement Skills**

**Converting through the metric system**. Use the following chart to convert the measurements.

\_\_\_\_\_\_ \_\_\_\_\_\_ \_\_\_\_\_\_ \_\_\_\_\_\_ \_\_\_\_\_\_ \_\_\_\_\_\_ \_\_\_\_\_\_

KILO 🡪 HECTO 🡪 DECA 🡪 (UNITS) 🡪 DECI 🡪 CENTI 🡪 MILLI

55 mm = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm

1.3 m = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_cm

15 m = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ km

4.02 cm = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_mm

76.23 km = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_m

0.3 cm = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_m

**Measuring length with a Metric Ruler**

When measuring with a metric ruler all answers must be in decimal form and must include the centimeters followed by a decimal then the millimeters.



What is the measurement of the screw?



In cm? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In mm? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Measuring area using a ruler**

Area =

Units of area =

Find the area of the block below:

Show work below

F = L X W

S =

A =

**Measuring volume with a graduated cylinder**

* Graduated cylinders come in many different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: including 10 ml, 25 ml, 50 ml, 100 ml, 500 ml, and 1000 ml.
* Graduated cylinders are used to determine the volume of\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* An interesting characteristic of liquids in glass containers is that they curve at the

edges due to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ forces (like a straw). This curvature is called the***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***.

 - With water in glass, the meniscus will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_at the edges and down in the center, just like the smile on this smiley face.



Curve up

Curve down



***When reading a graduated cylinder you want to:***

- measure the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_portion of the meniscus.

- be eye level with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of the liquid

- read the ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of the meniscus***

***-*** Units for liquid volume =

Try to determine the volume of the following containers



****What is the volume of object?

Volume of the Liquid (A) = \_\_\_\_\_\_\_\_\_\_

Volume of the liquid and object (B) = \_\_\_\_\_\_\_\_\_\_\_\_

(B) – (A) = volume of object

Volume of object = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Measuring volume for solid objects using a ruler**

Volume =

Units for volume =

Find the volume of the block below

4.2 cm

9.4 cm

3.6 cm

Show work below:

F = L x W x H

S=

A=

**Measuring Temperature**

* Temperature is the measure of how \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ something is
* The correct unit of temperature in the metric system is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Thermometers are read \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when temperatures are above zero
* Thermometers are read \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when temperatures are below zero. They will also have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sign in front of the temperature.

Examples:



**4.** Suppose that at 9:00 A.M. the temperature of a room is 18°C, and at noon it is 24°C.What was the increase in temperature?

**Measuring Mass**

* A unit of mass in the metric system is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Metric mass is measured in the science laboratory by the measuring device called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The parts are all labeled in the picture to the right.

1) Check to see if the pointer is pointing to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- If the pointer is above the zero turn the knob \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (down) you

- If the pointer is below the zero turn the knob \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (up) from you

2) Put the object on the measuring tray to find the mass.

3) Find the mass by starting with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rider, then the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ riders and lastly move the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rider.

4) Finally add all the riders together to get the final mass

* The final mass to the right is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The final mass below is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Part 3 :Steps of the Scientific Method:**

***To remember the order***

***Paul***

***Ran***

***Happily***

***Exiting***

***Rachel’s***

***Car***

1.

2.

3.

4.

5.

6.

**SCIENTIFIC METHOD**

WHAT IS THE SCIENTIFIC METHOD?

1) Identify the Problem:

*Always in the form of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

*Ex.*

2) Research the Problem:

*Gather \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

Ex.

3) Forming a Hypothesis:

*Educated guess in form of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

Ex.

4) Setting up a Controlled Experiment:

Only 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is tested



a. *Control group:*

Does not have a variable 🡪

Ex.

b. *Experimental group:*

*Group that has the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

*to be tested*

*Ex.*

*c. Independent Variable: ( \_\_\_\_ decide)*

Goes on the \_\_\_\_\_\_\_\_\_\_

Ex. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ studying for test

d. *Dependent Variable: ( \_\_\_\_\_\_\_\_\_)*

Goes on the \_\_\_\_\_\_\_\_\_\_\_\_

Ex. \_\_\_\_\_\_\_\_ on the test

5. Recording and Analyzing **RESULTS**Put data in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and analyze the results. See if it supports your hypothesis

Data can be separated into two categories

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: is descriptive information (it *describes* something)
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: is numerical information (numbers).

**Example: What do we know about Arrow the Dog?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**:

 - He is brown and black

 - He has long hair

 - He has lots of energy

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**:

* + He has 4 legs
	+ He has 2 brothers
	+ He weighs 25.5 kg
	+ He is 565 mm tall

6. Drawing a **CONCLUSION**

 Explanation supported by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; answer to the problem

Ex.