Name: _____

Chemistry: Measurement Self-Discovery

Answer the following questions **BEFORE** you begin your research using your own understanding/knowledge.

1) What ideas come to mind when you read or hear the word **accuracy**?

2) Define **accuracy** in your own words below.

3) What ideas come to mind when you read or hear the word **precision**?

4) Define **precision** in your words below.

5) Is there a difference between the terms **accuracy** and **precision**? If you think there is, describe the difference below.

6) What ideas come to mind when you read or hear the word **error**?

7) Define **error** in your own words below.

Now begin research on the following items: ***"Accuracy, Precision, and Error".*** You may use various online sources (our online textbook available via the Canvas homepage link is a good resource). Once you complete your research answer the questions below:

1) Write down your researched definition of **accuracy** below.

2) Compare and Contrast ***(write down the similarities and differences)*** your personal definition of **accuracy** from your researched definition below.

3) Write down your researched definition of **precision** below.

4) Compare and contrast your personal definition of **precision** from your researched definition.

5) Write down your researched definition of **error** below. ***(Include if error is <u>positive</u>, <u>negative</u>, or <u>both</u>)***

6) Repeat this process once more between your definition and researched definition of **error**. Is error <u>positive</u>, <u>negative</u>, or <u>both</u>? ***(If there is a mathematical formula to calculate this, include it here)***

7) It is highly likely that while you were performing your research you encountered the use of **analogies** to help define vocabulary terms and understand concepts. For this section please use these dartboards as analogies to distinguish between **accuracy** and **precision.** Fill in the blank dartboards below so that your picture reflects the written descriptions below.

Good Accuracy and Good Precision

Poor Accuracy and Poor Precision

Good Accuracy and Poor Precision

Poor Accuracy and Good Precision

8) What is **percent error**? Write down your researched definition of this below.

9) What is the difference between **error** and **percent error**?

10) How do you calculate a value of **percent error**? ***(If there is a mathematical formula, include it here)***

DO <u>NOT</u> answer these questions at this time. We will discuss them as a class together the following class period.

1) What is **uncertainty**?

2) How is uncertainty brought in to a measurement?

3) Measure the following: