Thursday, September 13/12
Science 10

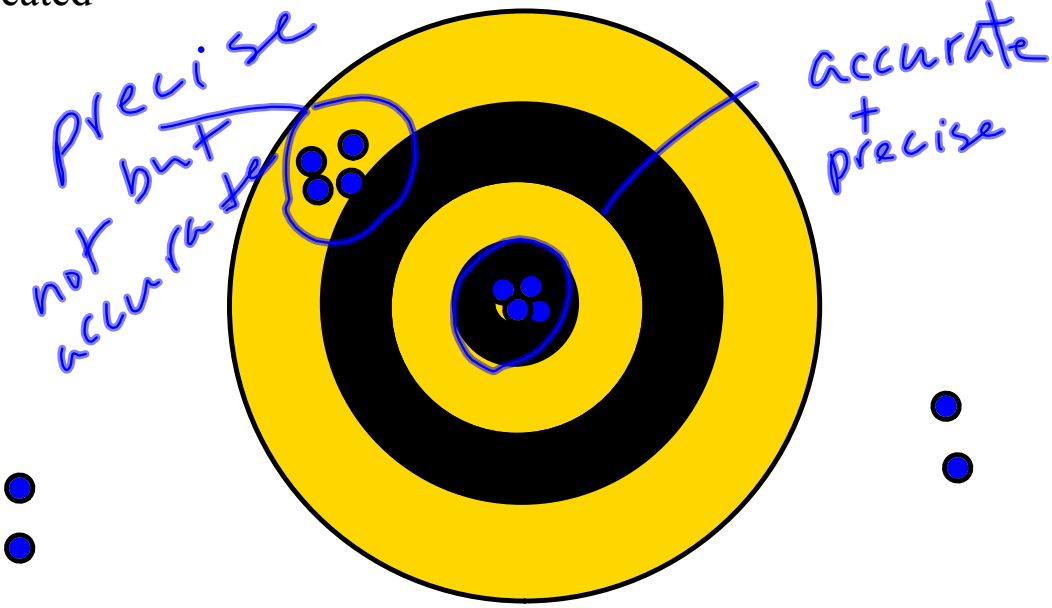
1. Questions About Worksheet?
2. Pre-Assessment #1 - Two More Questions
3. Activities (2) P3 + P4 -> No HW
4. ICA (In Class Assignment)
5. Textbooks

Pre-Assessment #1 - Continued

8. a) Define accuracy.
   b) Define precision.

- accuracy is a comparison of an experimental value with an accepted value

- precision is the ability of a measurement to be consistently repeated



9. How do you calculate percentage error?

$$\% \text{ error} = \left| \frac{\text{experimental value - accepted value}}{\text{accepted value}} \right| \times 100$$

$|-2| = 2$

absolute value

Example:

- speedometer in a car shows -> 65 km/h
- police measure the car's speed with a radar gun -> 74.8 km/h

- radar guns must be calibrated using a scientifically valid procedure
- police reading is the authority that is legally accepted as correct
- car's speedometer is not accurate because it does not agree with the accepted value

$$\% \text{ error} = \left| \frac{\text{experimental value - accepted value}}{\text{accepted value}} \right| \times 100$$

$$\% \text{ error} = \left| \frac{65 \text{ km/h} - 74.8 \text{ km/h}}{74.8 \text{ km/h}} \right| \times 100$$

$$\% \text{ error} = 13\%$$

$< 15\%$

$< 10\%$

Activity: **Acceleration Due to Gravity**

The accepted value for the acceleration due to gravity is 9.80 m/s^2.

Given the formula and items below:

1. calculate an experimental value for the acceleration due to gravity.

2. determine the percentage error of the experimental value

Formula:

$$a = \frac{2d}{t^2}$$

a - acceleration
d - distance
t - time

Items:

1 stuffed animal
1 piece of yarn
1 weight
1 meter stick
1 stopwatch