Name _____ Partner(s)_____ Date _____

Physics 9
1st Day Lab

**Purpose:** To learn basic measuring and error reporting techniques.

**Materials:** ball, distance measuring device(s), stop watch

## Procedure:

Work in groups of 2 or 3. 1 - Dropper, 2 - Timer (or timer and recorder for groups of 2), 3 – Recorder (If this is your lab report, you are the recorder.)

While standing on a chair or table the Dropper drops a ball three times from the ceiling to the floor while your partner measures the time with a stop watch. **YOU** measure the distance from the ceiling to the floor (you are not allowed to use data from a partner. Record the data for **YOUR** drops in the table below. (If this is your lab report, you are the recorder.)

| Person Timing | Person Dropping | Distance the ball falls | Time 1 | Time 2 | Time 3 |
|---|---|---|---|---|---|
|  |  |  |  |  |  |

Repeat for each person in the group

Combine the data from each individual into the table below and calculate an average (show your work!).

| Recorder | Distance the ball falls | Time 1 | Time 2 | Time 3 |
|---|---|---|---|---|
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Average |  |  |  |  |

**Calculations:** Use the back side if you need more space.

Predict how long it will take for the ball to drop to the floor from halfway up to the ceiling. Use the space below (or on the back side of this page) to include any calculations you make to help with your prediction. **Have your prediction initialed by your teacher before you continue.**

Drop a ball three times from half way between the floor and ceiling to the floor while your partner measures the time with a stop watch. Record the data for **YOUR** (If this is your lab report, you are the recorder) drops in the table below.

| Person Timing | Person Dropping | Distance the ball falls | Time 1 | Time 2 | Time 3 |
|---|---|---|---|---|---|
|  |  |  |  |  |  |

Repeat for each person in the group

Combine the data from each individual into the table below and calculate an average (show your work!).

| Recorder | Distance the ball falls | Time 1 | Time 2 | Time 3 |
|---|---|---|---|---|
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Average |  |  |  |  |

## Calculations:

**Summary:**

Write your summary in complete, stand alone sentences. Use the questions to help you write the summary. Attach another sheet if necessary.

1. Describe how you made your prediction for the time to go halfway between the ceiling and floor to the floor. Include math principles and other considerations that helped you to make your prediction.

2. How does your data compare to your partners for part 1? Are all the times the same? Why? Are they close?

3. How does **your** data for part 2 compare to your prediction?

4. How does the data for part 2 compare to the prediction of your partners?

5. What explanations do you have for difference between the predictions and the data?

6. How could you go about testing these explanations?

7. If you were to do this again how would you adjust your prediction?