

SCIB 265L History of Science

FA19 Week 5: Galileo's Inclined Plane Experiment

NAME: _____

Section: _____

PURPOSE: Create and use experimental system to test Galileo's assertion that objects experience uniform acceleration due to the force of gravity.

BACKGROUND

The background for this lab has been provided in lecture readings and lectures.



LAB COMPLETION INSTRUCTIONS

You will be writing up this lab experience in a separate assignment. To complete this assignment, you will need to have detailed notes. In your group, you will need to designate one person as the Scribe. The Scribe will need to write down all the details of the experience (what was done, how it was done, who did what...how many times you dropped things on the floor...what people were wearing...how long everything took...all the raw data...the calculations made...).

After the lab, each person in the group will need a complete copy of this record.

ACTIVITIES

Activity 1: Measuring time

Using the materials in front of you, you need to construct a water clock. You will need to consider the following questions:

What will your "unit of measure" be using this clock?

Without using a modern clock, how will you test to see if your clock is constant?

What is the level of resolution for/accuracy of your clock?

Scribe: note what materials you used and kept, what you tried to use and discarded, what you did to explore the questions

After it is completed, TEST your clock. Include all details of that test in these notes.

Activity 2: Measuring rolling time

The goal is to roll two different balls down an inclined plane and record the time it takes for each ball to pass certain marked spots. This will allow you to calculate and compare acceleration rates.

***Scribe: make sure to record every detail! ***

1. Using the materials given, adjust the incline of your ramp so that the ball rolls at a speed that you can capture with your water clock. Estimate the angle of the ramp and record this information.
2. Besides the Scribe you will want to identify your roles as Location Spotter (the person who calls out when the ball is at each marked spot) and a Time Keeper (who notes the time when the ball passes each marked spot).
3. Record your data in a way that makes sense to your group!
4. After 3 trials with each ball, look at your data and decide how many more trials you need to do to reach consistent results. Complete those additional trials.

Scribe: make sure to take notes to capture these discussions

***Scribe: make sure everyone has a usable copy of all your notes
before you leave lab***