

Mini-lab: Measurement Madness

Objective: To compare the *precision* and *accuracy* of various *measurement* systems
To define the *order of magnitude* of a measurement

Problem Statement:

It has been widely said that people are taller lying down than they are standing up. To evaluate this claim, make measurements of several people contrasted with measurement of other “people-sized” objects.

Materials:

Comparative measurements
Meter stick
Common ruler
Foot (heel-to-toe)
Hands
Textbooks

Student Questions

1. Record data table of results **including units!** (5 pts)
2. How is accuracy different than precision? (5 pts)
3. How has this exercise help you understand order of magnitude better? (5 pts)
4. Compare and contrast the different measurement systems. (10 pts)
5. Compare and contrast the different measurement techniques. (10 pts)
6. Why was it important to use “people-sized” objects? (5 pts)
7. How did the measurements of “people-sized” objects differ from the measurement of the people? (5 pts)
8. This lab began with a hypothesis that people are taller lying down then when standing up. Does the data support this hypothesis? Why? (10 pts)
9. Choose 2 measurement techniques and outline how experimenters could minimize measurement errors. (5 pts)