

**Scientific Method Measurement**

**See** [**https://www.learningctronline.com/courses**](https://www.learningctronline.com/courses) **for Materials and Resources.**

**Topics:**

1. Scientific Method & Measurement

**Objectives:**

* + Scientific Processes
  + Measurement (Metrics, Volume, Mass, Area, Density, Scientific Notation, Uncertainty, Graphing, Precision, % error, Significant Figures)

TAKE NOTE

1. Review Policies
   1. Late Policy
   2. Grading & Pedagogy – expect to spend 8-10 hrs/week on Physics; Honors: 10-12 hrs/wk
   3. Test Corrections
2. Create a Physics folder on your Desktop with the following SUBfolders:
   1. Class Notes
   2. Homework
   3. Lab
   4. Test
   5. Equation / Formula Sheet
3. Technology
   1. Zoom
   2. Tablet
   3. Lab Supplies
   4. Microsoft Word, PowerPoint, Excel compatibility (especially MAC users)
   5. Text
4. Review Conduct, Integrity, Plagiarism policy (<https://www.learningctronline.com/policies-conduct-integrity-plagiari>)
5. Reading (Hewitt Text)

1. Problem Set Measurement (2 weeks)
2. Lab: Scientific Method – Optical Illusions
3. Lab: Metric Progression & Significant Figures
4. Quiz Measurement Basics
5. Class Song: “Do Your Best” (<https://www.learningctronline.com/class-songs>)
6. Week 1 Devotional (<https://www.learningctronline.com/devotional>)

**Text**: Chapter 1: About Science (Hewitt)

**Class Notes: Measurement Document**

**Homework**:

* Problem Set Measurement (2 weeks)

**Lab**: 1L Scientific Method – Optical Illusions

* Perform the lab as directed using the worksheet provided.
* Save the document into your LAB folder in the Physics folder on your desktop.

**Lab**: 1L Metric Progression & Significant Figures

* Perform the lab as directed using the worksheet provided.
* Complete all calculations and data, showing work whenever appropriate.
* Conclusions should be answered in complete sentences that convey a complete thought.
* Save the documents into your LAB folder in the Physics folder on your desktop.

**TEST:** Measurement Basics Quiz

1) the academic integrity policy

* Tests must be completed **WITHOUT** referring to books, notes, the internet, people, or any outside resources.
* Students **MAY** use the approved Periodic Tables, approved Reference Tables, or approved equation (formula) sheet (provided by the teacher) along with calculators and scratch paper.
* A guardian should be proctoring the test. Proctoring means to monitor the following:

2) Take the **"in one sitting"**, meaning that once you start the test, you must complete it without interruption.

3) There is a **45-minute time limit** on this test. Please have the proctor write the time taken at the top of your answer sheet with their signature or initials.

4) Proctors should NOT be reading the test or engaging students during the test.

5) Do NOT use RED font. Black font is best.

Supplemental Resources (Optional)

1. Physics Helps Precision / Significant Figures
2. Significant Figures Demonstration

[Measurement Overview: Metric System, Factor Labeling, Scientific Notation & Uncertainty ctr](http://somup.com/cFQbqeVWXQ) (2:20)  
  
[Measurement: Metric System Versus English](http://prezi.com/zc-alvezwvy9/metric-versus-english-measurement/) ... prezi  
  
[Metric Units Song](http://somup.com/cF6hIanVSb) (2:51) ... metric units for each category of measurement (m, l, g)  
  
[Metric Progression Song](http://somup.com/cFjtqBV9bc) (1:08) ... learn the metric units  
  
[Metric Progression & Factor Labeling Basics](http://somup.com/cFQj2UVR9h) (4:13)  
  
[Factor Labeling "Thumbs Up / Thumbs Down" Rule](http://somup.com/cFQjoQVR9b) (4:10)  
  
[Factor Labeling Example (negative exponents)](http://somup.com/cFQ6lpVShM) (3:34)  
  
[Scientific Notation Overview](http://somup.com/cFQjbdVRRi) (3:31)  
  
[Scientific Notation: Adding/Subtracting](http://somup.com/cFQjFhVRRX) (1:22)  
  
[Scientific Notation: Multiplying/Dividing](http://somup.com/cFQjFoVRR2) (0:58)  
  
[Significant Figures: Precision Part 1](http://somup.com/cFQjrRVRSV) (3:28)  
  
[Significant Figures: Precision Part 2](http://somup.com/cFQj0cVRS6) (6:24)

[Density Demonstration (Intensive Property) ctr](http://somup.com/cFQ6rnVSXt) (1:02) ... two cans of pop  
  
[Density: An Intensive Property ctr](http://somup.com/cFQi2CVR7o) (1:12) ... Beware of Whacky Scientists!  
  
[Measuring Density Part 1 ctr](http://somup.com/cFQ6r3VSXB) (0:17) ... distinguishing regular versus irregularly shaped objects  
  
[Measuring Density Part 2 ctr](http://somup.com/cFQ60NVSls) (2:57) ... measuring mass and volumes of various objects to determine density.  
  
[Calculating Density (Triangle Method) ctr](http://somup.com/cFQ6r2VSXx) (1:19) ... "I love density" & the triangle method

AGES (Problem Solving Method) <http://somup.com/crnlDND2dj> (5:45)

Triangle & Criss-Cross Methods (Dealing with Variables) <http://somup.com/crnlDvD2GC> (7:01)