Relative Length Scales

Objective(s)
 Students will give examples of macroscopic and microscopic objects
 Students will create a protocol that can be used by another lab group to produce consistent results

Materials
 Video – Powers of Ten
 Meter sticks, calipers, micrometers
 Textbook

Engagement
 Students will be shown the Powers of Ten video

Exploration
 Student inquiry concerning the estimation of the thickness of a page within a book
 Small group creation of protocol for measurement techniques that will be used to help guarantee reproducibility of results

Explanation
 Students will provide results of page thickness
 Whole group discussion – group consensus will determine the best practices for dealing with very small measurements

Evaluation
 Small group discussion will evaluate which protocols work best
 Whole group discussion will determine a thickness for the page within the textbook within a reasonable tolerance

Extension
 Students will submit examples of microscopic and macroscopic measurements to be posted on a classroom powers of ten line throughout the school year
 Students will be challenged to determine the number of atoms within the thickness of the textbook page