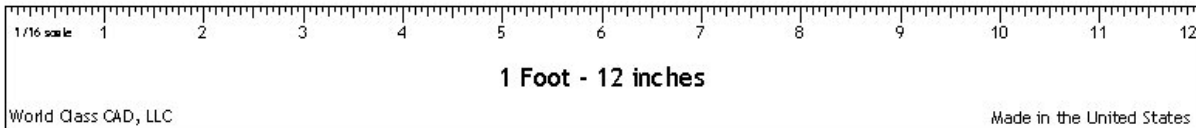


English Units of Measurement

Measuring by Length

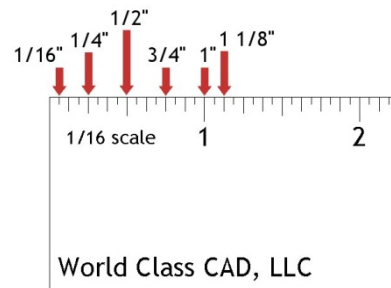
Understanding the length of items in the lab is just as important as knowing their volume and weight and when we address these measurements, we are mainly speaking of inches and feet. The foot is the cornerstone measurement in the English system, where architectural drawings show the office and work spaces in feet.



Foot (ft or ')

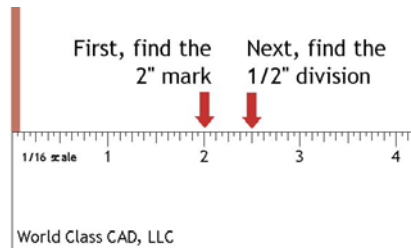
The foot comprises of 12 inches. Where feet help us with larger sizes in the buildings, the inch is the measurement of choice when discerning the width of books and the size of bandages being cut. Many automated cutting devices have settings that will slice the tape at the desired inch setting and have the inch scale built into the machine. The abbreviation for the foot is ft or '.

In the scale shown above and to the right, the smallest division is the $\frac{1}{16}$ inch. Two of these divisions make a $\frac{1}{8}$ of an inch. Four $\frac{1}{16}$ divisions make a quarter of an inch. Eight divisions make a half of an inch. 12 divisions make $\frac{3}{4}$ of an inch. On most rulers, each inch mark has the number of inches from the origin or zero mark. When reading a scale, we first read the inch and then proceed to the fraction of the inch to finish the measurement. The abbreviation for the inch is in or "".



Inch (in or ")

For example, to measure $2 \frac{1}{2}$ inch with the scale, we place the zero mark on the end of the item, then we read to the 2-inch mark on the scale as shown. Next, we find the $\frac{1}{2}$ " division, which happens to be half way to the 3" mark. On the $\frac{1}{16}$ " scale, this turns out to be 8 division places from the 2" indication.

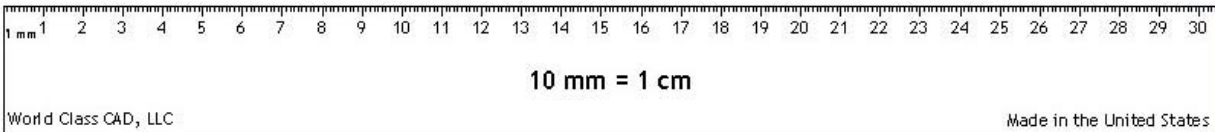


Measuring $2 \frac{1}{2}$ Inches

International (SI) Units of Measure

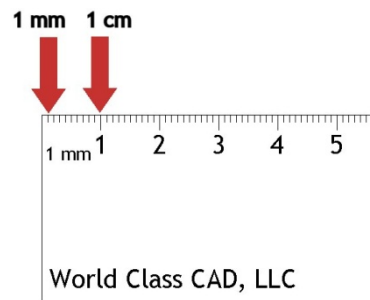
Measuring by Length

Most people find that reading a metric linear scale is quite simple and easier to do than deciphering the English ruler. The metric scale has whole numbers indicating the larger division and these units are called centimeters. In between the centimeters, the marks are named millimeters.



Centimeter Scale (cm)

Remember, the metric system is a decimal scale where each smaller unit is one tenth of the preceding unit. In our scale shown above the centimeter marks have numeric labels 1,2,3 all the way to 30. In between the centimeter's larger markings are 10 partitions, each representing a millimeter. There are 10 millimeters in a centimeter.



When measuring an item with the metric scale, place the scale at one end of the piece and then read the number of centimeters. In the example, the number of centimeters is 3. Then read the number of millimeters. The number of millimeters in the example is 7. The answer is 3 centimeters and 7 millimeters or 3.7 centimeters.

