What is a Hydrometer and what is it used for?

A hydrometer is a glass instrument used to measure the gravity of liquid. It has a weighted bulb on the bottom and a cylindrical stem on top. Inside the stem is a numeric scale that can be read. When the hydrometer is placed in liquid, the weighted end sinks and a portion of the stem floats depending on the density. A reading is taken at the level of the liquid by reading the corresponding scale inside the stem. Water will measure at 1.000

Hydrometers are used in the brewing process to track a few different things. The fermentation process is the conversion of sugars to ethanol by yeast. When yeast eats sugar, the gravity of the wort will decrease and alcohol content will increase. Each batch of beer has a recipe that calls for an original gravity reading, and a final gravity reading. By taking readings of the wort during the fermentation process you can determine if there is a problem with the batch, and the yeast is not performing properly. By learning early in the process that the yeast is not performing, corrective action can be taken to save the batch. Average healthy yeast will consume about 65% of available sugars. If the final gravity reading is not 35% or less of the original reading, the beer will have a lot of sugar left. The hydrometer will also indicate when the beer fermentation is complete, and the beer is ready for bottling.

The hydrometer also tells you how much alcohol is in your beer by comparing the original gravity reading to the final gravity reading, calculating the difference, and processing that difference through a conversion process. The average beer, depending on the style, will have an original gravity reading of about 1.040, and a final reading of about 1.010. Many craft beers and homebrews will have higher readings. I will publish another article on how to read a hydrometer and calculate alcohol content soon.

Caution! The hydrometer is affected by the heat of the liquid; they are calibrated for liquid at 59 degrees. If the liquid is higher or lower, the readings must be converted to accurately determine the density of the wort. John palmer in his book How to brew has a conversion chart for your reference and can be found at <http://www.howtobrew.com/appendices/appendixA.html>

The hydrometer can be purchased at any home beer supplier.