

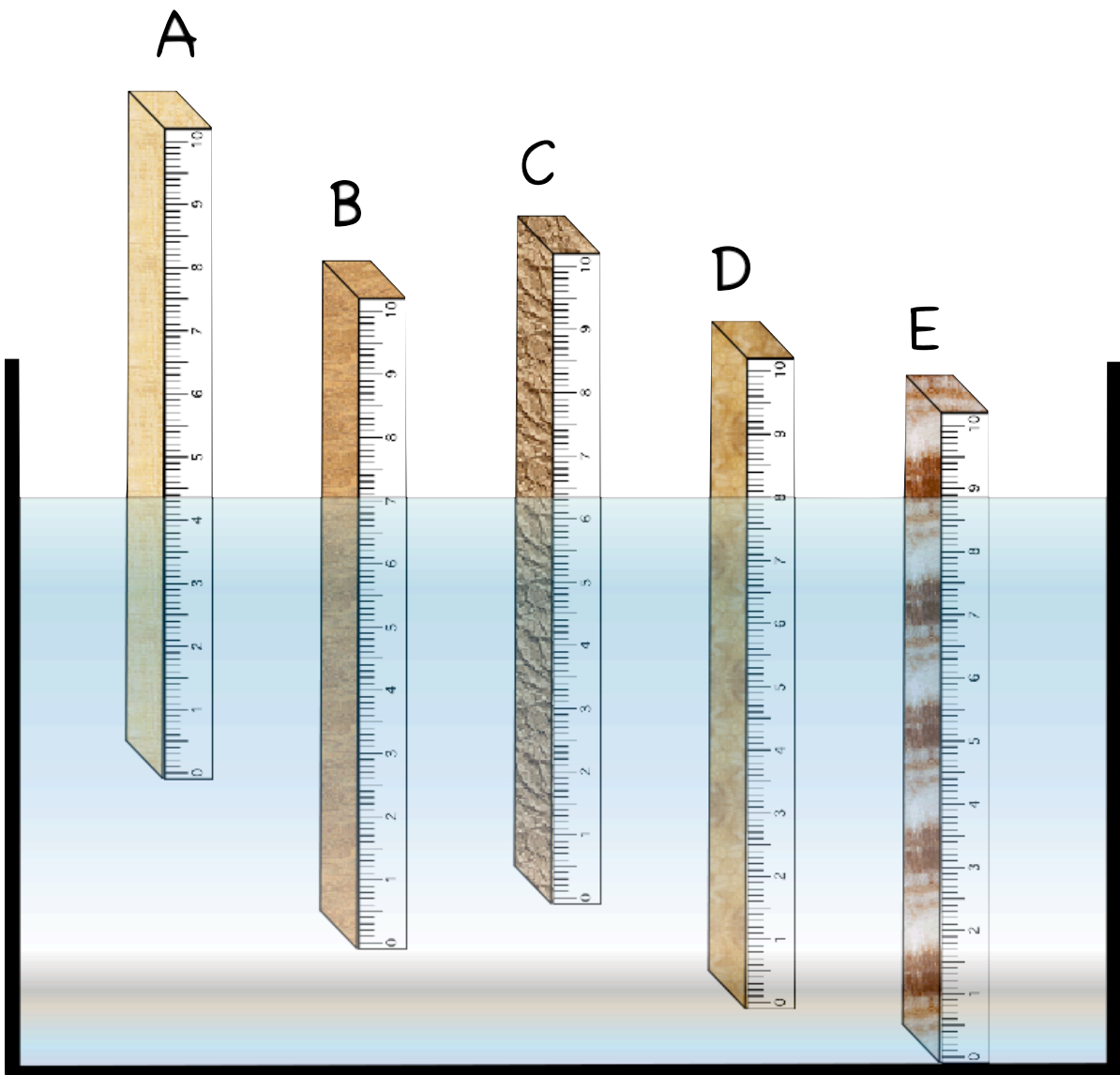
Estimating the Density of a Floating Substance

Previously, you learned that you can make a good guess about the density of solid objects based on whether it sinks or floats in various liquids.

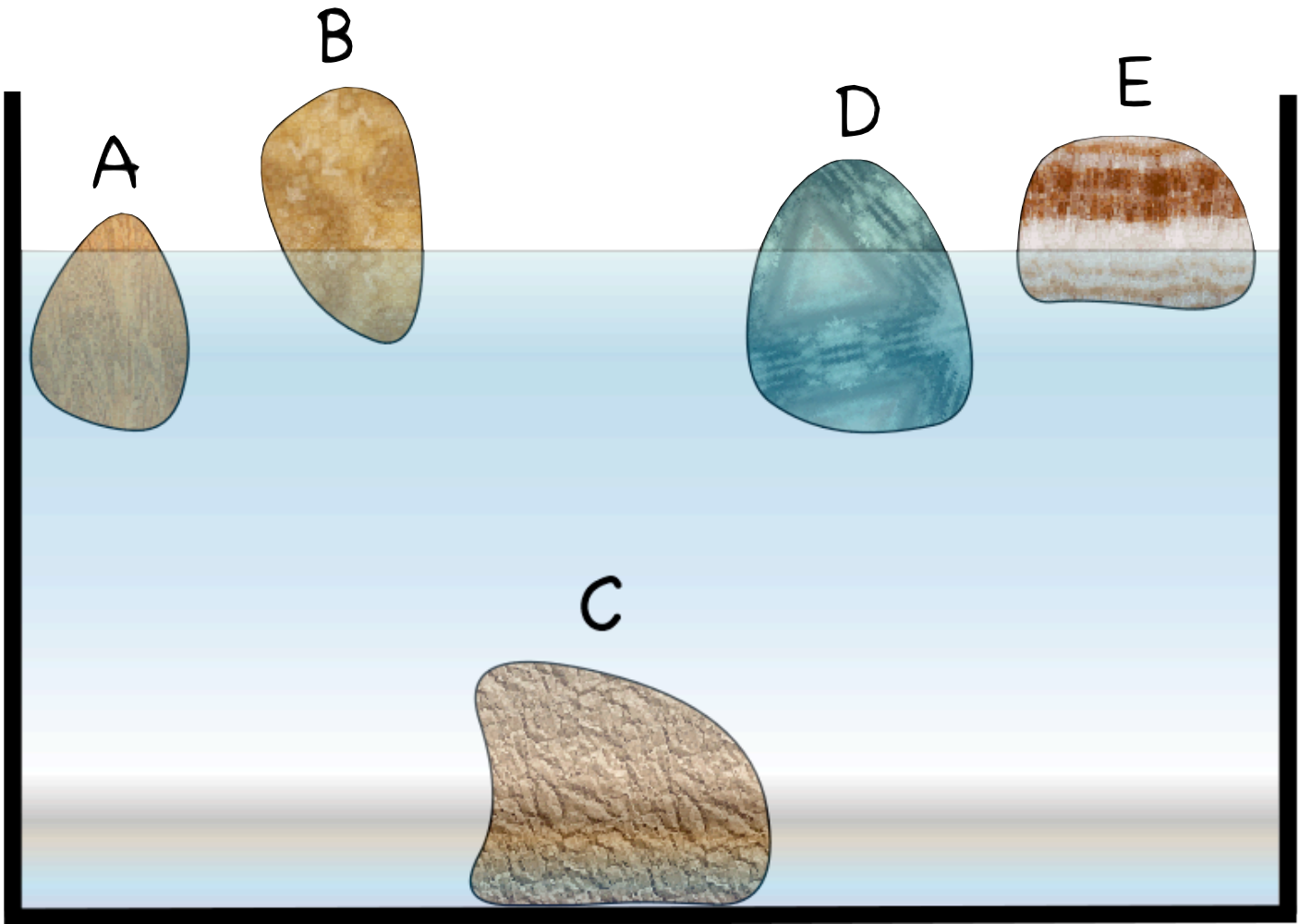
If the object is able to float in water (density 1.0 g/cm^3), the percent of water displaced and below the surface, will be equal to the density of the object! The hydrometer works on this principle and is used to measure densities of liquids.

With a little practice, you'll soon be able to estimate the density of substances that are floating in water. To make this skill easier, we'll first use a ten centimeter ruler and attach it to the side of different substances that are also ten centimeters high. This is done because there are 100 millimeter divisions for a ten centimeter ruler, and if we have to estimate the percent of a substance that is below the surface, we need a total of 100 divisions, with 1 division for each percent.

Each sample represents a different substance, and is placed into a large tank of water which has a density of 1.0 g/cm^3 . Estimate their densities and write it next to the letter of each sample.



This next set of samples does not have a ten centimeter ruler along their sides. Instead you have to estimate what percent of their total height is below the surface of the water. Again estimate their densities and write it next to the letter of each sample.



With some careful observation on your part, you'll be able to estimate the densities of any object you see floating in water.

This technique works as illustrated in fresh water having a density of 1.0 g/cm^3 . With a little adjusting, it will also work for liquids with other densities.