Materials:
Students work in groups of 3-4. In addition to hot brewed coffee and refrigerated whole milk, each team needs the following materials pictured in Figure 1.

- 1 tall glass
- 1 plastic funnel
- 1 straw
- 1 plastic cup
- 1 ruler, 2 rubber bands
- 1 lab thermometer (available online ~ $5.00)
- 1 timer (or smart phone)
- Paper towels for cleanup

Methods:
Attach a ruler to the glass using rubber bands as shown in Figure 2b, so that the zero mark lines up with the bottom of the glass. Fill the glass with 6 cm of coffee, and place the funnel and the straw into the top of the glass and use the coffee as the bottom of the glass. Use the plastic cup to pour the milk into the funnel very slowly to avoid mixing. Once poured, particular care must be taken to remove the straw slowly. Though we try to avoid mixing, students can observe some interesting turbulent flows of the milk that mixes with the coffee. The pouring process results in the layered system shown in Figure 2b. It is surprising to students that this actually works and that the resulting layers remain quite stable over time.

Lab Setup: The layered system is created in a clear glass using coffee, milk and a long funnel.

Figure 1: Lab Materials
Figure 2a: Pouring the milk under the coffee
Figure 2b: The finished lab setup

Figure 3: Rinsing the glass with water