Chapter 2 Question #4

I will do an experiment where I will drop two objects: a metal Altoids container, and a plastic Advil bottle.

Which one achieved thermodynamic equilibrium first?

1) Altoids container

2) Advil bottle

3) They came to thermodynamic equilibrium at the same time.

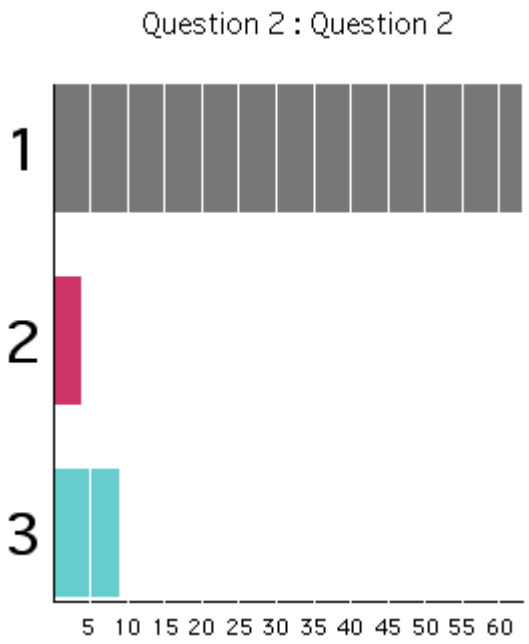
LO#5

Chapter 2 Question 4 Answer:

(1) The Altoids container

The Altoids container came to thermodynamic equilibrium first. The Advil bottle is made out of plastic, whereas the Altoids container is made out of metal. The Advil bottle to bouncd around longer (i.e. longer time to reach mechanical equilibrium), and since plastic is a good thermal insulator, I would expect it to take longer to come to thermal equilibrium, though I don't have any measurement of this, the point of the example is to illustrate that for a system to be in thermodynamic equilibrium, it must be in thermal equilibrium, mechanical equilibrium, and chemical equilibrium (if it is a reacting system).

Class Response (2003):



Class Response (2002):