Name: _____

Date: _____

MCHS Honors Physics 2013-2014

Temperature and Heat Energy 4

Remember: $c_p = \frac{Q}{m\Delta T}$, where c_p=specific heat, Q equals energy transferred as heat, m=mass, and ΔT=change in temperature.

1. If the specific heat of water and gold are $c_p = 4.186\times10^3 \frac{J}{kg*°C}$ and $1.29\times10^2 \frac{J}{kg*°C}$ respectively, what is the final temperature when a 3.0 kg sample of gold at 99°C is dropped into water at 25°C?

2. How much energy must be added to a bowl of 125 popcorn kernels in order for them to reach a popping temperature 175°C? Assume that their internal temperature begins at 21°C, that the specific heat capacity of pop corn is $1650\frac{J}{kg*°C}$, and that each kernel has a mass of $0.105\ g$