

Name: _____

Date: _____

MCHS Honors Physics 2013-2014

Temperature and Heat Energy 2

1. If a bottle of water is shaken vigorously, will the internal temperature of the water change? Why or why not?
2. At Niagra Falls, if 505 kg of water fall a distance of 50 meters, what is the increase in the internal energy of the water when it reaches the bottom of the falls? (assume that all the initial potential energy is converted to internal energy and that final kinetic energy is zero).
3. If you drop a 3.0×10^{-3} kg penny off a 50 m bridge and 65% of its initial potential energy is converted into an increase in of the penny's thermal energy, determine the magnitude of this increase at the moment the penny hits the ground.
4. How much has the temperature of the penny in problem 3 increased (in degrees) when it hits the ground? (the specific heat capacity of copper is 3.87×10^2 J/kg*°C)