When you have finished your test begin working on the pre-lab for Specific Heat. *** Skip #1e ***

Specific heat capacity (C_p) = Amount of heat required to raise the temperature of 1 gram of the substance 1°C

$\frac{joules}{g°C}$ $\frac{cal}{g°C}$

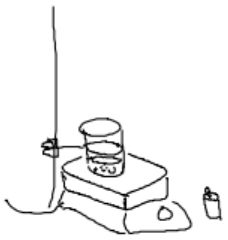
Calorie = the energy required to raise the temp of 1g of H_2O 1°C

$C_{p_{H_2O}} = 1 \frac{cal}{g°C} = 4.184 \frac{Joules}{g°C}$

$Heat = (mass)(T_{final} - T_{initial})(C_p)$

$500.0g\ H_2O \quad \Delta T = 6.0°C \quad C_p = 4.184 \frac{Joules}{g°C}$

$Heat = 12552J \rightarrow 13000J$



Metal T_i = 100.0°C
Metal T_F = (same as final for H_2O)

H_2O T_i (before Metal)

H_2O T_f = (last high temp.)

$D_{H_2O} = 1.00 g/ml$

10/27 Specific heat Capacity (C_p)

The energy (Heat) required to raise the temperature of any substance 1°C for 1 gram.

Water: 1 calorie is the energy required to raise 1g of H_2O 1°C.

$$C_{p_{H_2O}}\ 1\ ^{cal}/_{g°C} = 4.184\ ^{Joules}/_{g°C}$$

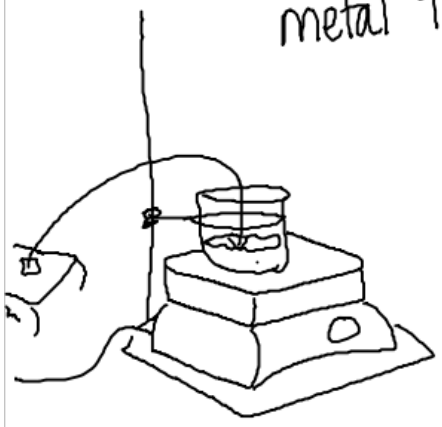
$$Heat = (mass)(T_{final} - T_{initial})(C_p)$$

grams, ΔT = °C, C_p = cal/g°C or Joules/g°C

$$\Delta T = T_{final} - T_{initial}$$

metal T_i = 100.0°C

metal T_f = ____ (w/ H_2O)



100.0 ml tap H_2O

H_2O T_i = ____

H_2O T_f = ____ (w/ metal)

Same

highest temp reached

$D_{H_2O} = 1.00\ g/ml$

C = copper

T = tin

$C_{p_{copper}} = 0.39\ J/g°C$	
$C_{p_{tin}} = 0.21\ J/g°C$	

10/27

Specific Heat Capacity (C_p) = energy required to raise the temp. of 1.00 gram of a substance up 1.00°C

Calorie = energy required to raise the temp of 1.00g H_2O ↑ 1.00°C

1 calorie = 4.184 joules

$C_{p_{H_2O}} = 1.00\ ^{cal}/_{g°C} = 4.184\ ^{Joules}/_{g°C}$ Memorize

1 Calorie = 1000 calorie (kilocalorie) 1 Kilojoule = 1000 Joules (KJ)

$$Heat = (mass)(\Delta T)(T_{final} - T_{initial})(C_{p_{substance}})$$