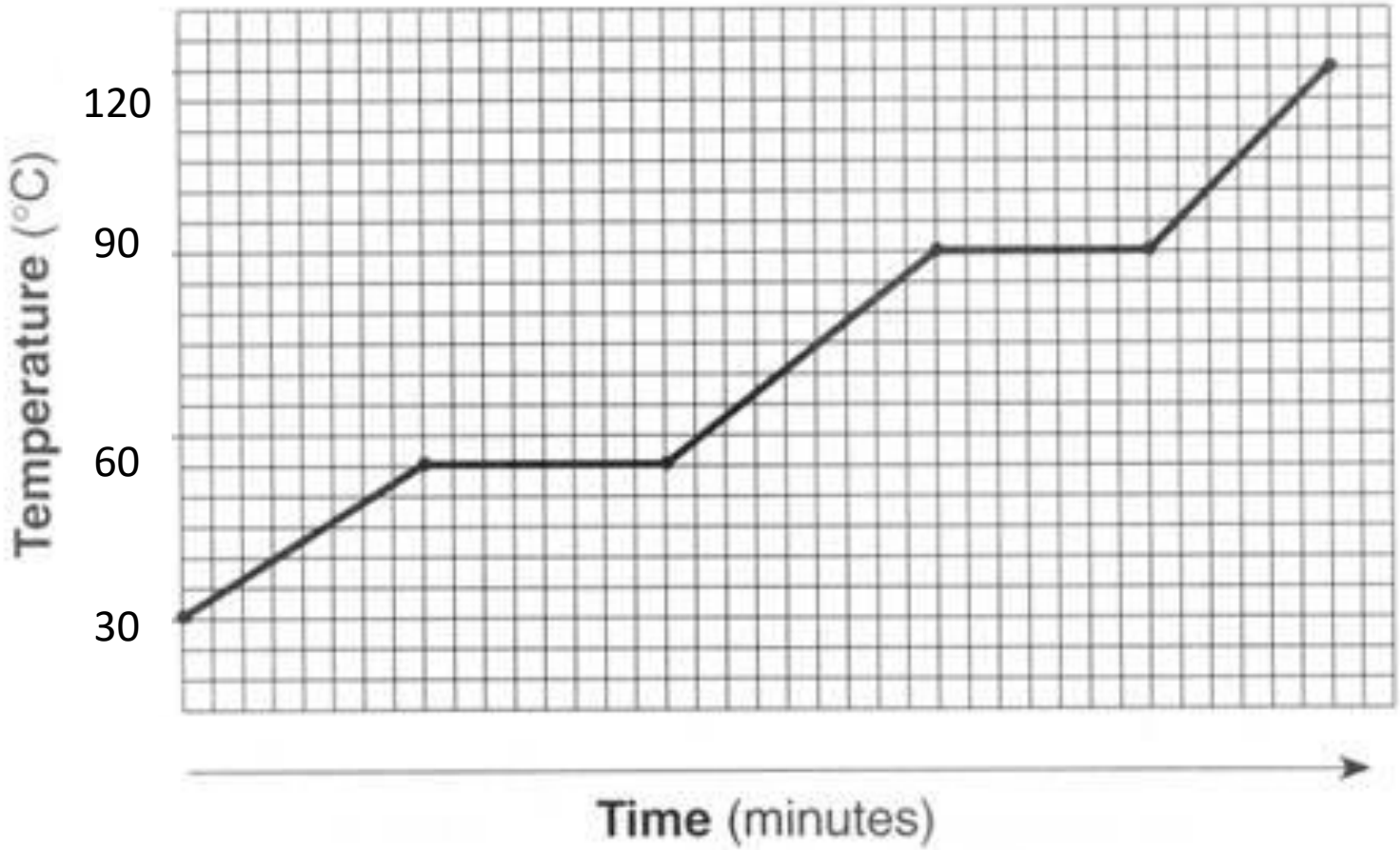
BING-BING-TOE

		FREE Space		

B I N G-B I N G-T O E – GAME RULES

- Right side of room – X
- Left side of room – O
- 2 players from each team go head to head (standing by opposite team)
- Team may not help
- First team to hold up board with correct answer gets to play a square.
- Teams lose points for trying to distract the other team or help their team with answers.
- Each BING-TOE = 1 point

#1 – what is the freezing point?



60 degrees C

#2 – Which takes longer – melting or boiling of water. WHY?

Boiling
Lvap > Lfus

#3 – What is the opposite of vaporizing?

Condensing

#4 – Which areas of a heating curve undergo an increase in kinetic energy? Use our numbering system (1, 2, 3, 4, 5)

1, 3, 5

#5 – What are the units for latent heat?

J/g

#6 – If water vapor condenses on the outside of a soda can is energy absorbed or released? Is it endo or exothermic?

Released

Exothermic

#7 – The quantity of heat required to change the temperature of 1 g of a substance by 1°C is defined as what?

Specific Heat

#8 – How many kJ is 85300 J?

85.3 kJ

#9 – What section of the heating curve has atoms moving the most? Use our numbering system, 1, 2, 3, 4, 5

5

#10 – If a reaction is endothermic do you feel hot or cold?

cold

#11 – If a reaction is exothermic is Q positive or negative?
Is ΔT positive or negative?

$$Q = -$$

$$\Delta T = -$$

#12 – Calculate the energy transferred when 4.6g of ice is melted.

1532 J

#13 – Calculate the energy transferred when 36.8 grams of water forms an ice cube in a freezer.

-12254.4 J

#14 – What is the energy during a phase change being used for?

Spreading molecules out

#15 – A metal spoon is used to stir a cup of hot chocolate. What is the sign (+ or -) of the Q_{spoon}?

$$Q = +$$

#16 – Which part of the heating curve for water requires the most amount of energy to speed up the molecules?

3

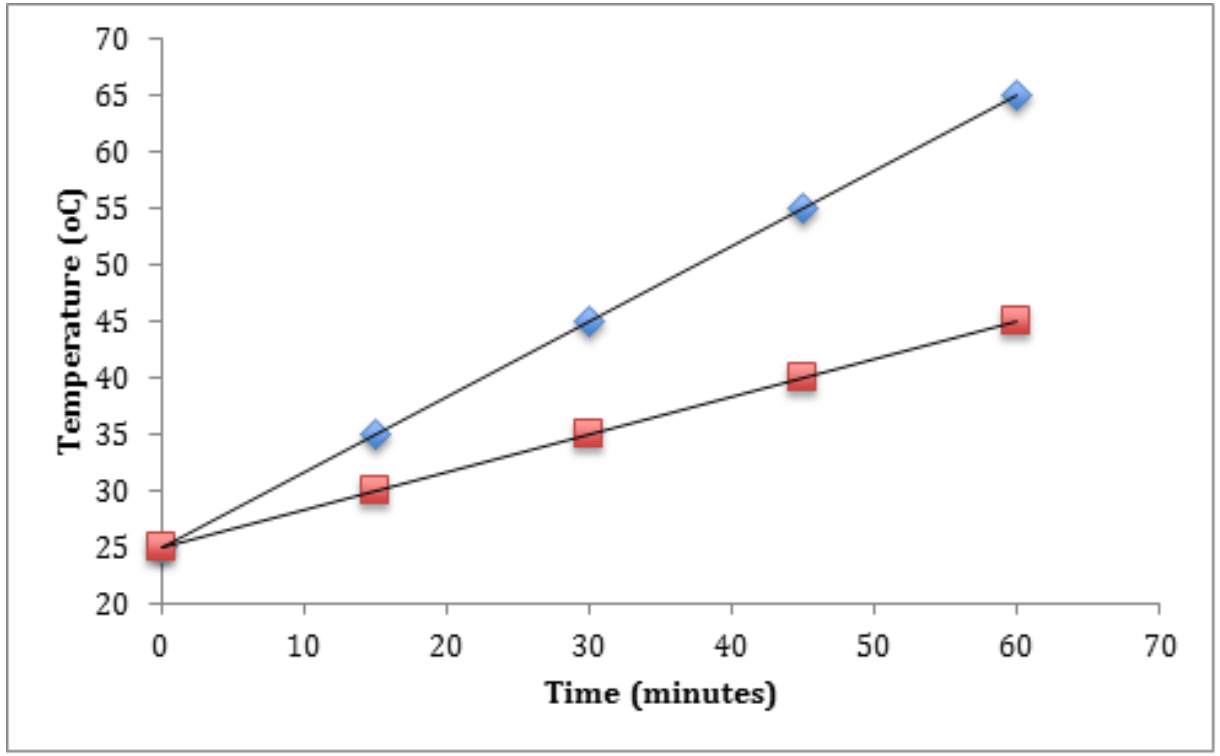
#17 – How much energy is required to heat 25 grams of ice from -10°C into water at 0°C?

8848 J

#18 – Compare a piece of brass with a specific heat of 0.85 J/g°C and water with a specific heat of 4.184 J/g°C. Which of these substances heats more quickly? Why?

Brass
C is smaller

#19 – Which of the two substance (blue or red marks) would cool the fastest?



blue

#20 – How much energy does it take to raise 50 grams of ice at 0 °C to 100 °C and then boil.

149550 J

#21 – What “law” is important for calorimeter calculations?

Conservation of Energy

#22 – Which way does heat flow?

Hot → cold OR cold → Hot

Hot to Cold

#23 – Why does a bathtub full of water heat faster than a swimming pool full of water?

Bathtub has smaller mass

#24 – How much energy in joules does 30.0 g of sulfur lose when it lowers from 120 °C to 114 °C. The specific heat of sulfur is 0.71 J/g°C

-127.8 J

#25 – A piece of iron is heated until it absorbs 250 J of energy. It is dropped into a cup of cold water. What is the Q_{iron}, and Q_{water} once the metal is in the water?

$$Q_{iron} = -250\ J$$

$$Q_{water} = +250\ J$$

#26 – The amount of energy needed to heat 40.00 g of iron from 40.0°C to 100.0°C is 100 J. The specific heat capacity is what?

0.0417 J/gC

#27 – The specific heat capacity of aluminum is 0.89 J/g^{o}C. Calculate mass of the aluminum block if 8900 J were needed to heat the aluminum from 75.0^{o}C to 145.0^{o}C

142.9 g

#28 – an unknown metal has a mass of 280g, absorbs 3000kJ of energy and goes from 10 °C to 95 °C. What is the specific heat?

126.05 J/gC
(or 0.12605 kJ/gC)

#29 – How much energy is required to boil 10 grams of mercury if the latent heat of vaporization is 294 J/g

2940 J

#30 – mercury is a neurotoxin that when inhaled can be highly dangerous. Calculate the amount of energy required to change 14g of liquid mercury into a gas at 357 °C. The latent heat of fusion is 11 J/g and the latent heat of vaporization is 294 J/g

4116 J

#31 – a substance has a melting point of 27°C and a vaporization point of 168°C. Draw the heating curve.

First flat segment should be at 27C, and second flat segment should be at 168C

#32 – How much energy is released when cooling 10g steam from 150°C to ice at -15°C?

-31158 J

#33 – A 2.7 gram piece of metal is heated to 98.7 C. It is added to a beaker containing 150mL of water at 23.5 C. The final temperature of the water and the metal is 25.2 C. What is the specific heat of the metal? Remember…energy absorbed is opposite energy released…and this is just like the brass lab!

5.37 J/gC