

# Phases Classwork

name \_\_\_\_\_

Imagine you put some very cold ice into a beaker and put this beaker onto a hot plate.

You turn on the heat, and heat is added at a constant rate for 34 minutes.

The changing temperature data is given per minute. Follow directions below.

time	Kelvin Temp		17	370
0	240		18	373
1	250		19	373
2	260		20	373
3	270		21	373
4	273		22	373
5	273		23	373
6	273		24	373
7	273		25	373
8	280		26	373
9	290		27	373
10	300		28	373
11	310		29	373
12	320		30	373
12+1 ☺	330		31	380
14	340		32	390
15	350		33	400
16	360		34	400

Steps	Do this Get a slice of graph paper and make a HEATING CURVE for water.
1	Make a landscaped graph showing “Kelvin temperature as a function of time”.
2	Start at 0 Kelvin, put in a small “break”. Begin temperature with 220 K.
3	Time in minutes runs from 0 to 34 minutes.
4	Give this graph a title.
5	Draw in all data points, connect dots with straight lines, use a ruler.
6	Mark the end points and corners of data line segments with the letters ABCDE and F, from left to right.

Copy this chart onto your graph and fill in the boxes.

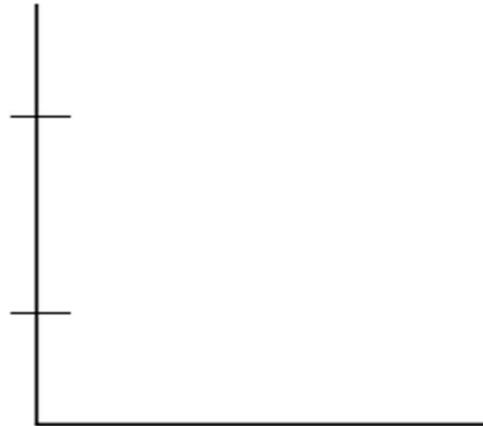
Segment	Temp	KE	PE	Phase or Phases present	Name the phase change (if the phase changes)
AB					
BC					
CD					
DE					
EF					

### Questions

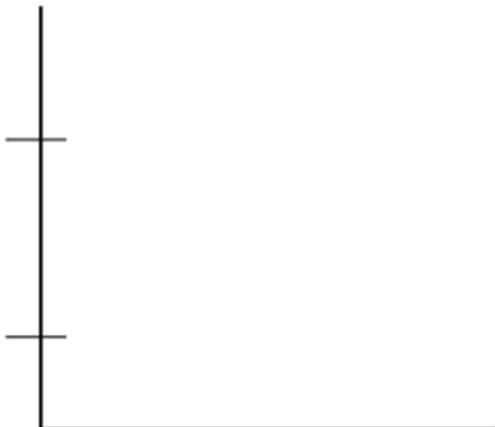
1,2,3 Draw three simple curves, include temps in KELVIN on the Y-axis. The X-axis also need to be labeled.

Careful with the lengths of the lines, use pencil!

2. Draw the cooling curve for COPPER



1. Draw the heating curve for MERCURY



3. Draw the heating curve for WATER using



## More QUESTIONS do on WHITE PAPER (staple all this together)

4. On a heating curve, does the mass change during a phase change?
5. On a cooling curve, does the mass change when temperature changes?
6. On a cooling curve (or heating curve) do the mass change during a phase change?
6. State the complete Law of Conservation of Matter.
7. Explain how the freezing and the melting points for water is the SAME temperature.
8. Which phase has the lowest potential energy, which has the highest potential energy?
9. Can potential energy AND kinetic energy change at the same time?
10. Temperature always changes with \_\_\_ energy (kinetic or potential?)

### Grading:

One big graph and the filled in chart on the graph = 7 points

Three smaller graphs fully labeled = 6 points

Seven Questions above = 7 points

Twenty total points