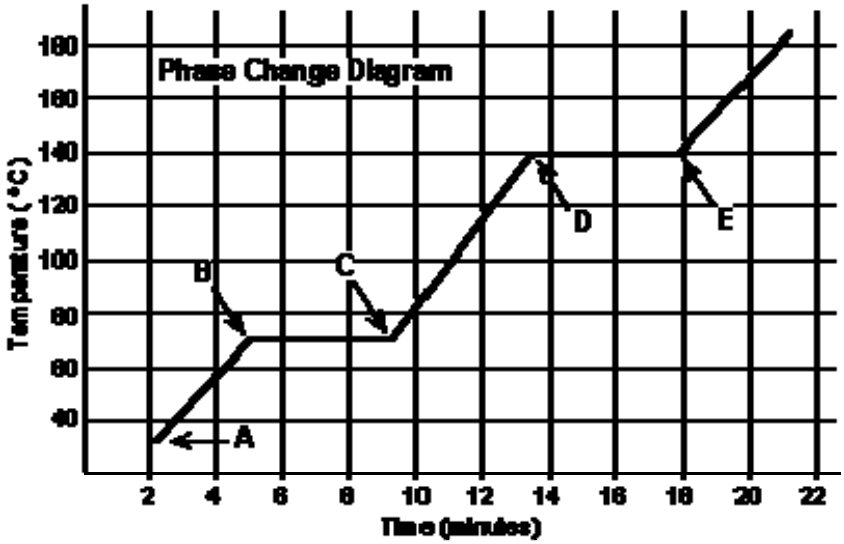
MiSP Phase Changes Assessment L2

Name _____ Date _____

Introduction:

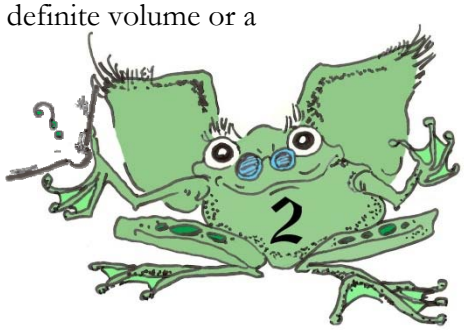
The graph below was drawn from data collected as a substance was heated at a constant rate. Use the graph and the word bank to answer the following questions:



Word bank: Some words may be used more than once and some not at all.						
gas	solid	faster	cool	boiling	slower	heat
temperature	melted	freezing	liquid	move	melt	condensing

At **point A**, where observations begin, the substance exists in a solid state. Material in this phase has a definite volume and a definite shape. With each passing minute, _____ is added to the substance. This causes the molecules of the substance to _____ more rapidly, and this change is detected by an increase in the _____ of the substance. At **point B**, the temperature of the substance is _____°C. The solid begins to _____. At point C, the substance is completely _____ or in a _____ state. Material in this phase has a definite volume and does not have a definite shape. The energy put into the substance between minutes 5 and 9 was used to convert the substance from a _____ to a _____.

Between 9 and 13 minutes, the added energy increases the _____ of the substance. During the time from **point D to point E**, the liquid is _____. By **point E**, the substance is completely in the _____ phase. Material in this phase does not have a definite volume or a



definite shape. The energy put into the substance between minutes 13 and 18 converted the substance from a _____ to a _____ state. Beyond **point E**, the substance is still in the _____ phase, but the molecules are moving _____ as indicated by the increasing temperature.

Which of these three substances was likely used in this phase change experiment?

_____

Substance	Melting point	Boiling point
Bolognium	20°C	100°C
Unobtainium	40°C	140°C
Foosium	70°C	140°C

1a. The unit rate of change (slope) of each of the lines between points B and C and between points D and E is 0 (zero). That tells us that in those two lines, as time passes,

the temperature _____.

1b. Since heat is still being added to the substance between points B and C and between points D and E, what is the heat doing?

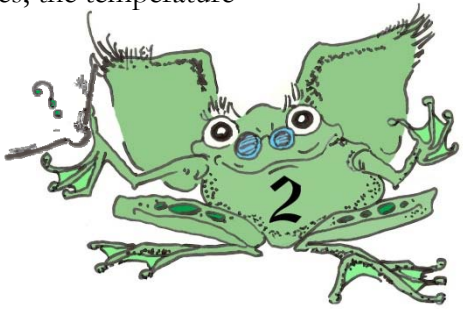
_____

_____

2a. Calculate the slope between points C and D.

2b. Put the slope calculated in 2a above into words by filling in the blanks:

From point C to point D on the Phase Change Diagram, as time increases, the temperature



_____ and therefore the slope has a ***positive (+) / negative (-)*** sign. (circle one)