potential energy and caloric

EHS CA3MIs+ry

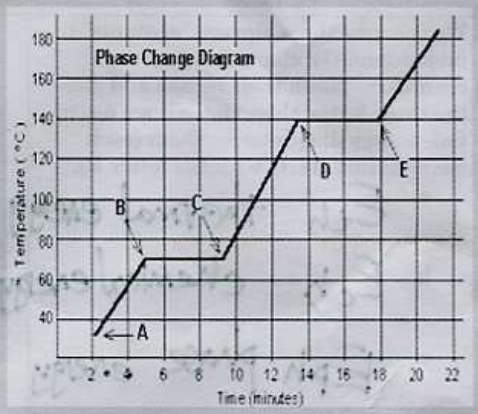
Mr. Genest

Name_____

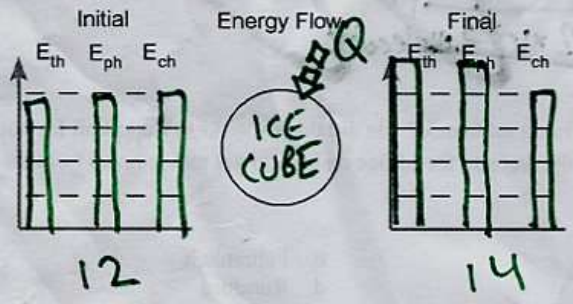
Date_____

Tutors! Adults! Help this young chemist by visiting **http:genest.weebly.com** with any smart phone

1. During which segment is the kinetic energy increasing?
   a) C to D b) D to E
2. During which change is particle separation increasing
   a) B to C b) C to D
3. What is the melting point of the substance? 70°C
4. During which segment is the E_{th} energy increasing?
   a) C to D b) D to E
5. During which change is E_{ph} increasing
   a) B to C b) C to D
6. During *how many* of the segments is the potential energy increasing? two (B-C)+(D-E)
7. During *how many* of the segments is the Ech increasing? NONE!



8. An ice cube is placed in a glass of room temperature (25 °C) soft drink and completely melts. Do a bar chart for the ice cube.



The following questions test things you learned from last Friday's reading. If you need another copy of the Energy Reading, go to the class website for Oct. 30

9. Describe what early chemists meant by *caloric*
a fluid that warms + cools things

10. Who was the only scientist from our 'Absolute Zero' movie that believed in 'Caloric'? (He even thought it was an element and he listed it along with nitrogen and oxygen as being a type of matter). LAVOISIER

11. We describe three storage "accounts" to understand the changes we see in chemistry. State their names and give the three letter abbreviations we use in LoL energy diagrams for them (each abbreviation starts with the letter E).
   a. E_{th} thermal energy
   b. E_{ch} chemical energy
   c. E_{ph} phase energy

12. We can transfer energy by three mechanisms. Name these and give the single letter abbreviations we use in LoL energy diagrams for them
   a. Q heating
   b. W working
   c. R radiating

You will always be given these numbers on tests and quizzes.

760. torr = 760. mmHg = 1.00 atm = 101.3 kPa = 101,300 pascals = 14.7 p.s.i.

13. A metal tube contains Avogadro's Number of air molecules. . After 4.0×10^{22} atoms escape, its pressure is 7.70×10^{11} pascals. What was the original volume?

Strategy: Before the particles escaped there were more particles, so pressure was higher. So make the top number of the ratio higher, bigger.

$$7.70\times10^{11}\,Pa \times \left(\frac{6.02\times10^{23}\ \text{particles}}{5.62\times10^{23}\ \text{part.}}\right) = 8.25\times10^{11}\ \text{pascals}$$