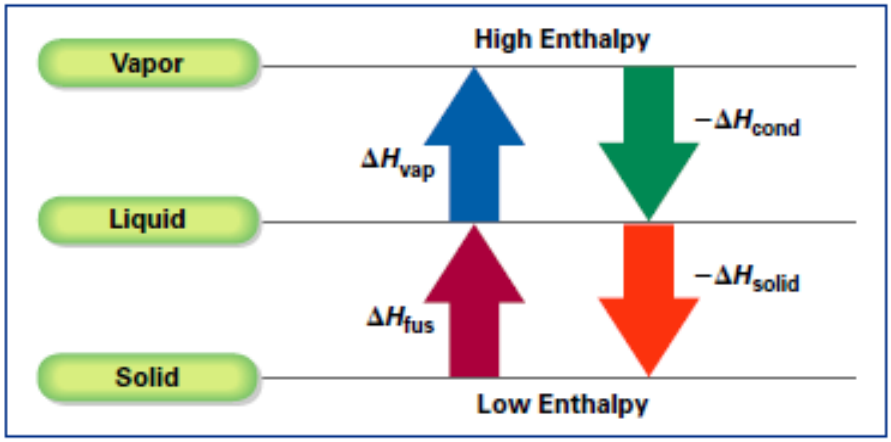


Sep 25-4:31 PM

$$10\text{ g ice} \times \frac{1\text{ mol}}{18.0\text{g}} \times \frac{6.01\text{ kJ}}{1\text{ mol}}$$

3.335 kJ 3335 J

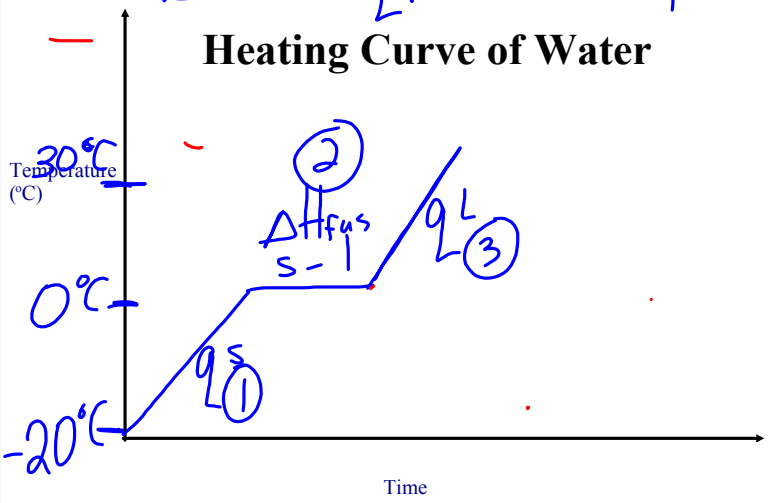
Oct 10-2:38 PM

What we've looked at so far...

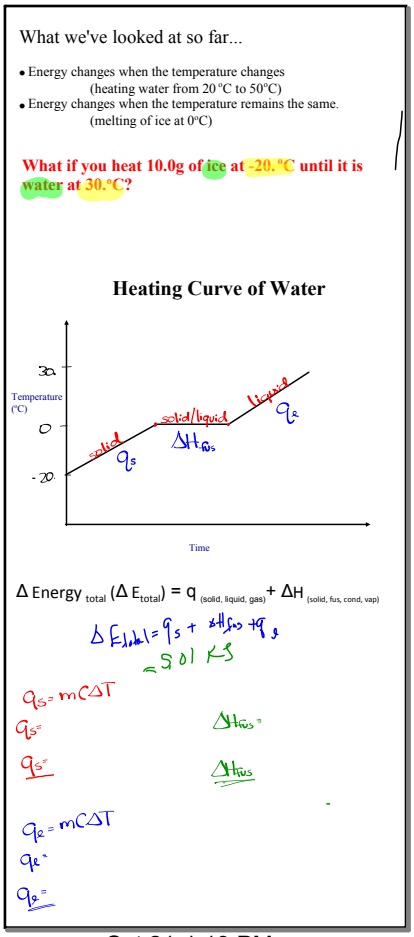
- Energy changes when the temperature changes
  (heating water from 20 °C to 50°C)
- Energy changes when the temperature remains the same.
  (melting of ice at 0°C)

What if you heat 10. g of ice at -20. °C until it is water at 30.°C?

$\Delta E_{Total} = q_s + \Delta H_{fus} + q_L$



Oct 21-1:13 PM



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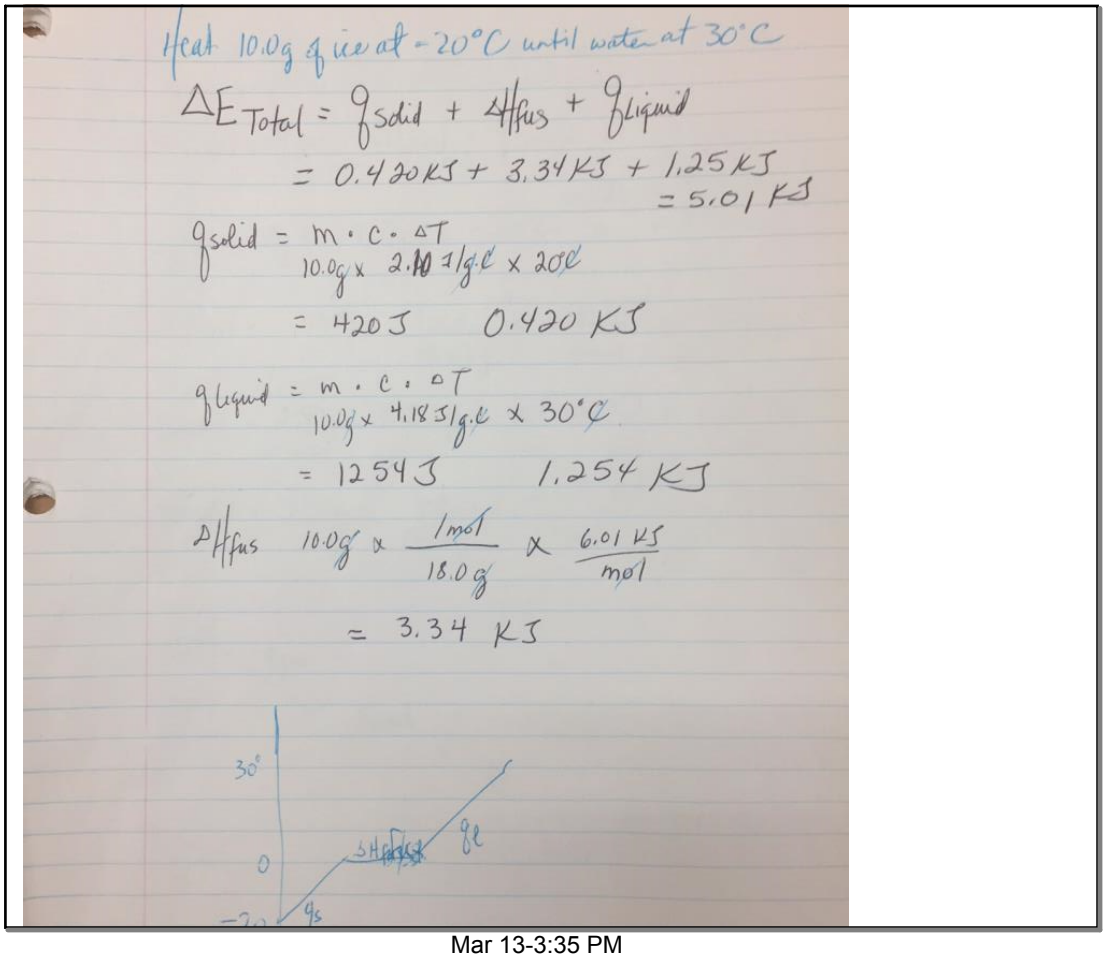
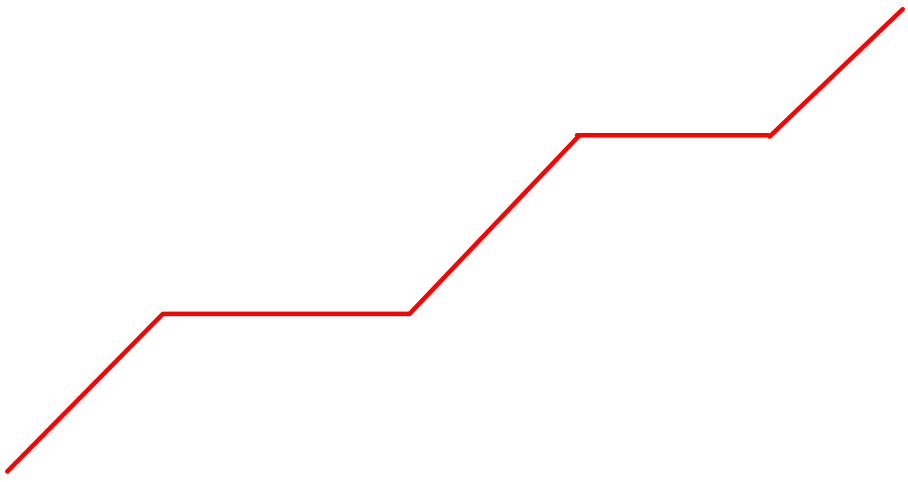


Mar 13-3:35 PM

What could this represent for a heating curve of water?



Mar 26-12:15 PM

Total Energy Changes

Ex. Calculate the total energy change if 2.50 g of steam at 120.0°C is completely converted to ice at 0.00 °C.

ΔE_{total} = $q_{gas} + \Delta H_{cond} + q_{l} + \Delta H_{solid}$

First draw a heating curve

Oct 21-1:43 PM

Ex #2

Calculate total Energy if 2.50g of steam at 120.°C is completely converted to ice at 0.0°C

$\Delta E_{Total} = q_{gas} + \Delta H_{cond} + q_{Liquid} + \Delta H_{solid}$

$-85J + -5650J - 1045J + -834J$

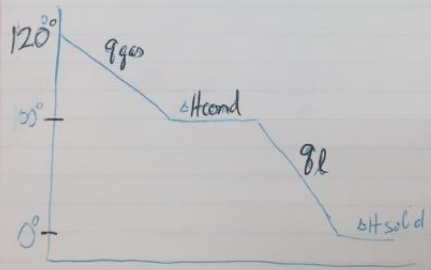
$= -7614 J \mid -7.61 KJ$

$q_{gas} = 2.50g \times 1.7 J/g \cdot C \times -20°C = -85J$

$\Delta H_{cond} = 2.50g \times \frac{1 mol}{18.02g} \times \frac{-40.7 KJ}{1 mol} = -5.65 KJ$

$q_{liquid} = 2.50g \times 4.18 J/g \cdot C \times (-100°C) = -1045 J$

$\Delta H_{solid} = 2.50g \times \frac{1 mol}{18.02g} \times \frac{-6.01 KJ}{1 mol} = -0.834 KJ$



Mar 13-3:37 PM

Total Energy Changes

Ex. Calculate the total energy change if 2.50 g of steam at 120.0°C is completely converted to ice at 0.0°C.

ΔE_{total} =

Oct 21-1:43 PM

Homework

Section Review 17.3

Page 526 Q 27-31

#1 - A sample of water with a mass of 23.0 grams at a temperature of -46.0 C increases to 40.0 C.

A) sketch out a heat curve

B) Calculate the total heat needed.

#2 - A 10.0 kg grams of steam at a temperature of 130.0 C is converted to ice at a final temperature of -15.0 C.

A) sketch out a heat curve

B) Calculate the total energy change.

Mar 13-9:29 AM

A sample of water with a mass of 23.0 grams at a temperature of -46.0 C increases to 40.0 C.

A) sketch out a heat curve

B) Calculate the total heat needed.

Oct 11-8:50 AM

A 10.0 kg grams of steam at a temperature of 130.0 C is converted to ice at a final temperature of -15.0 C.

A) sketch out a heat curve

B) Calculate the total energy change.

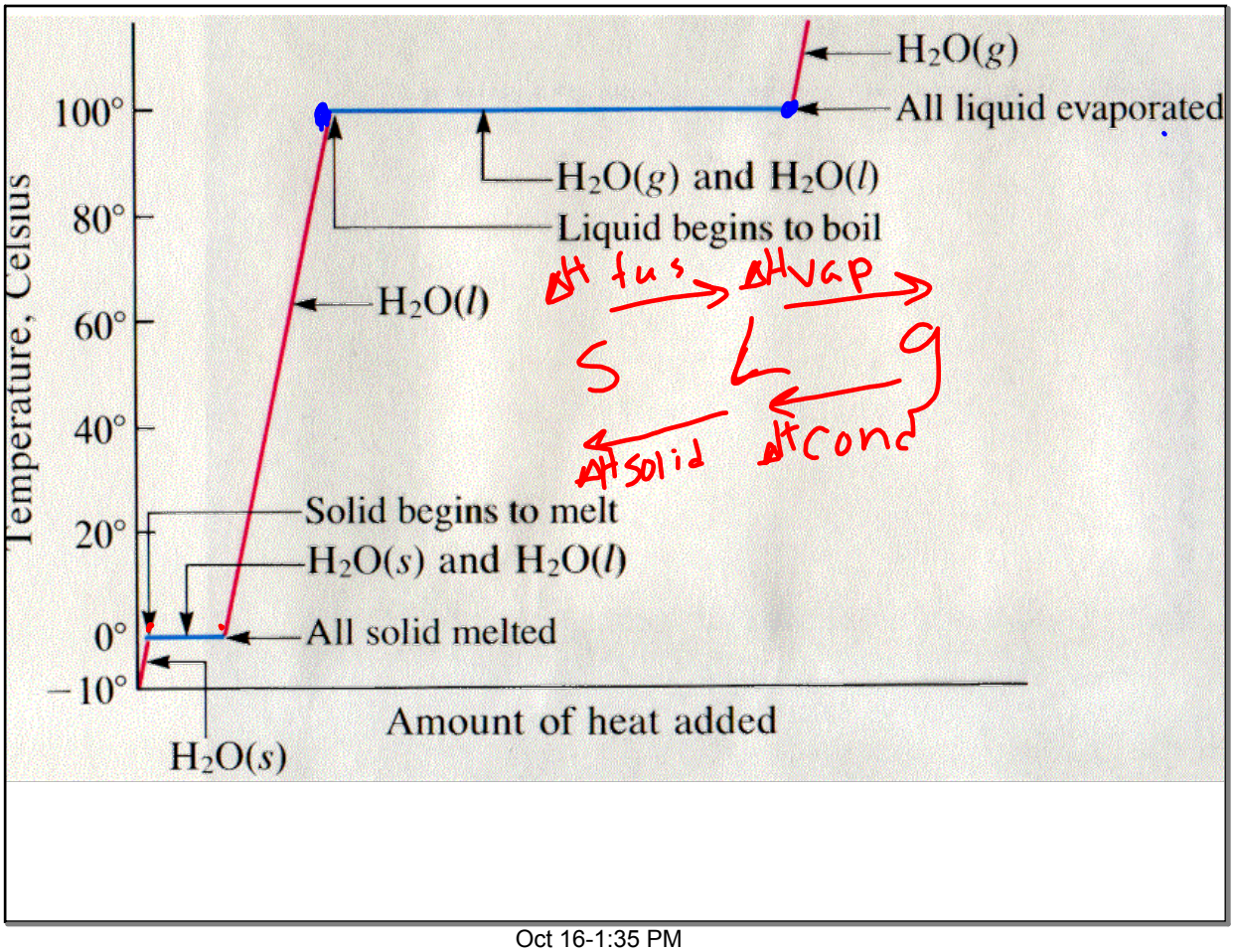
Oct 11-8:50 AM

Worksheet

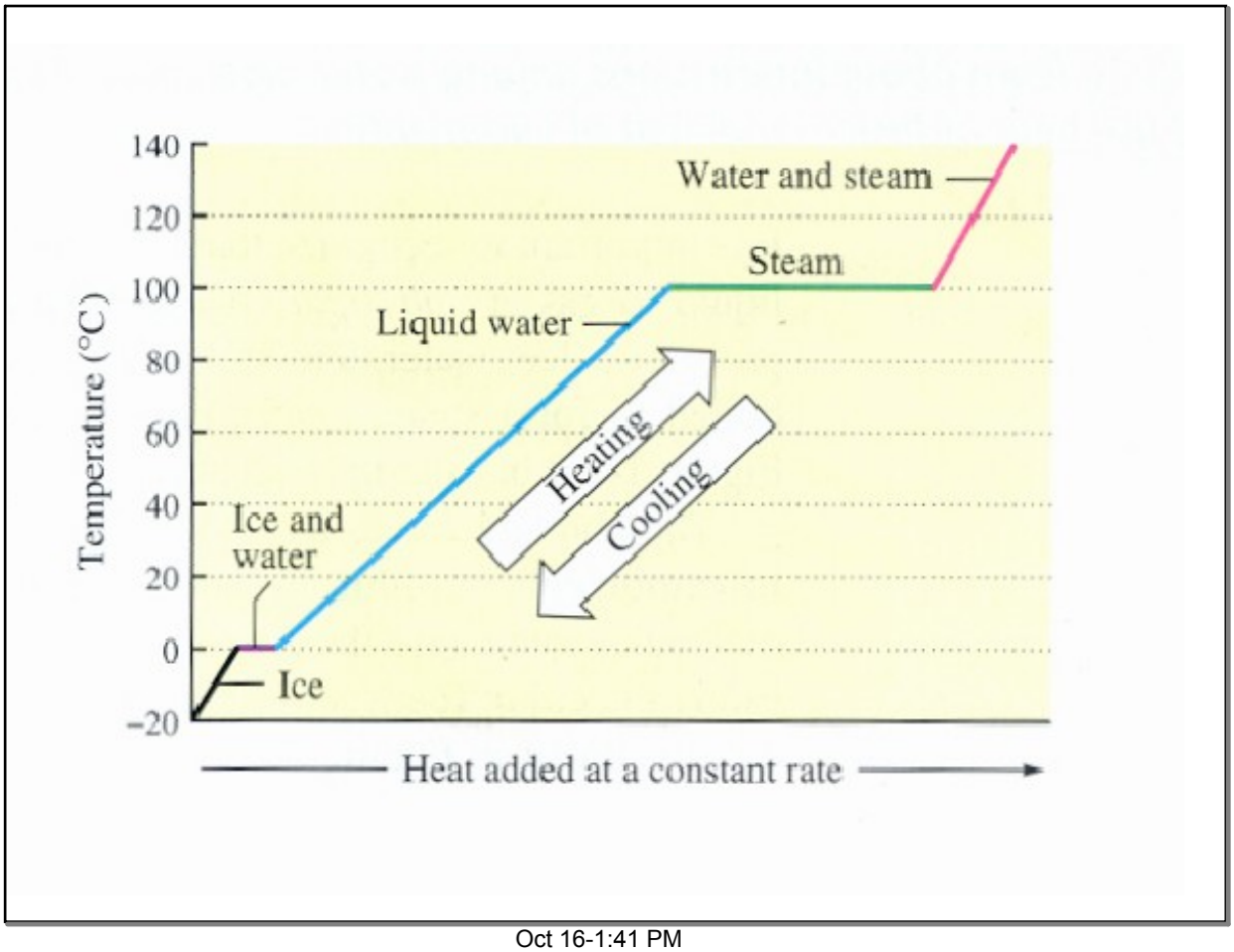
Oct 22-6:26 PM

Inert -A substance that is not chemically reactive.

Oct 24-10:41 AM



Oct 16-1:35 PM



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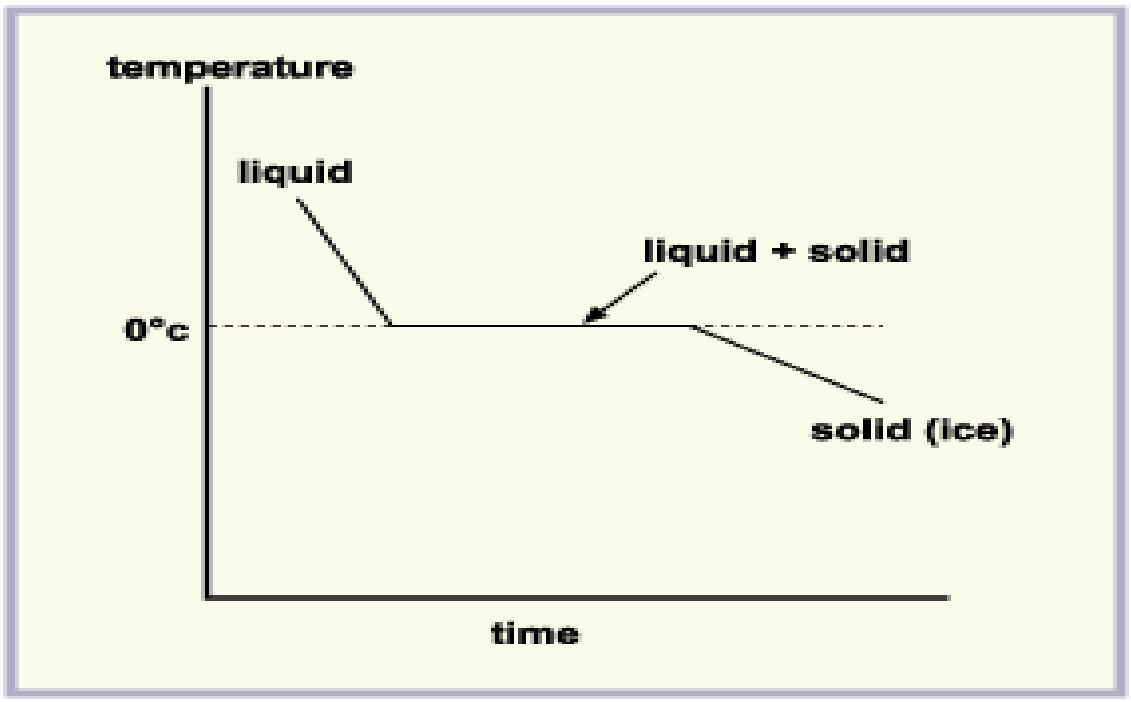

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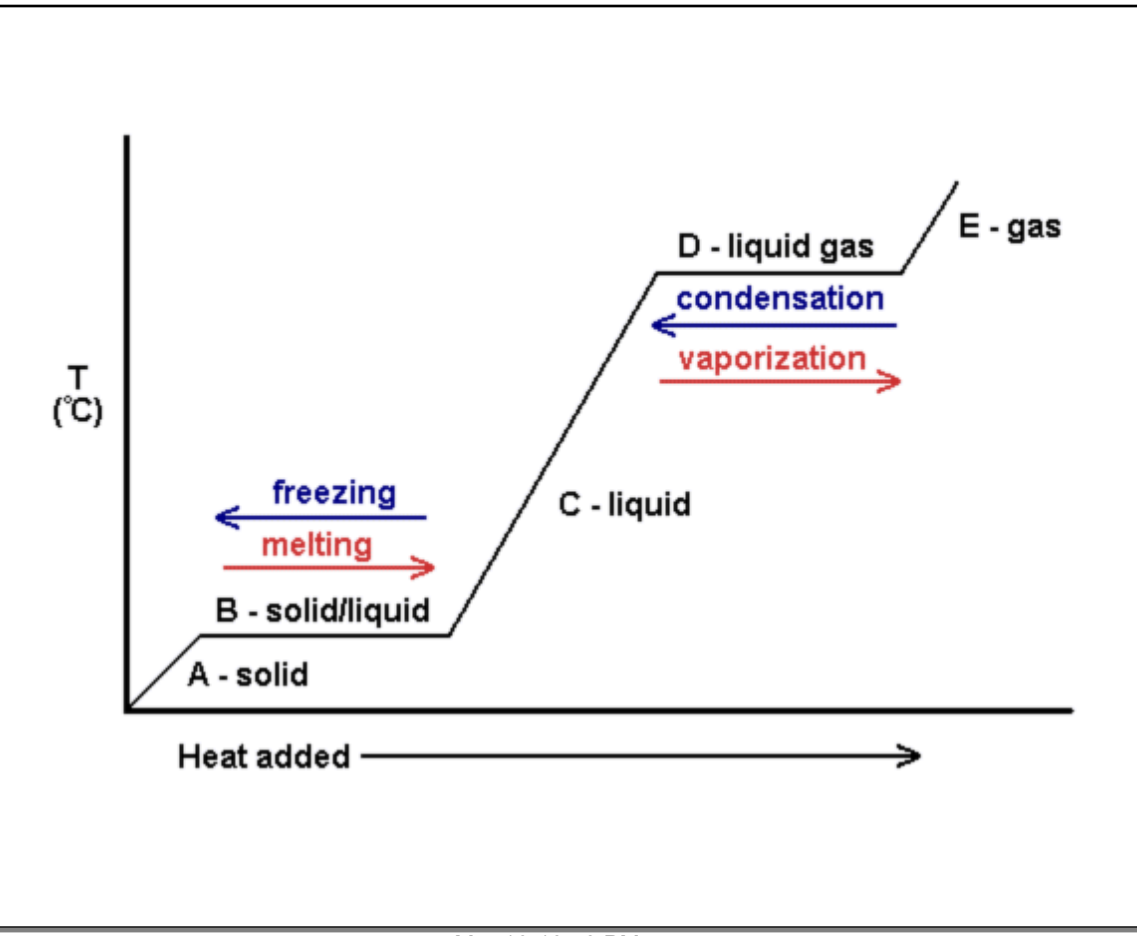
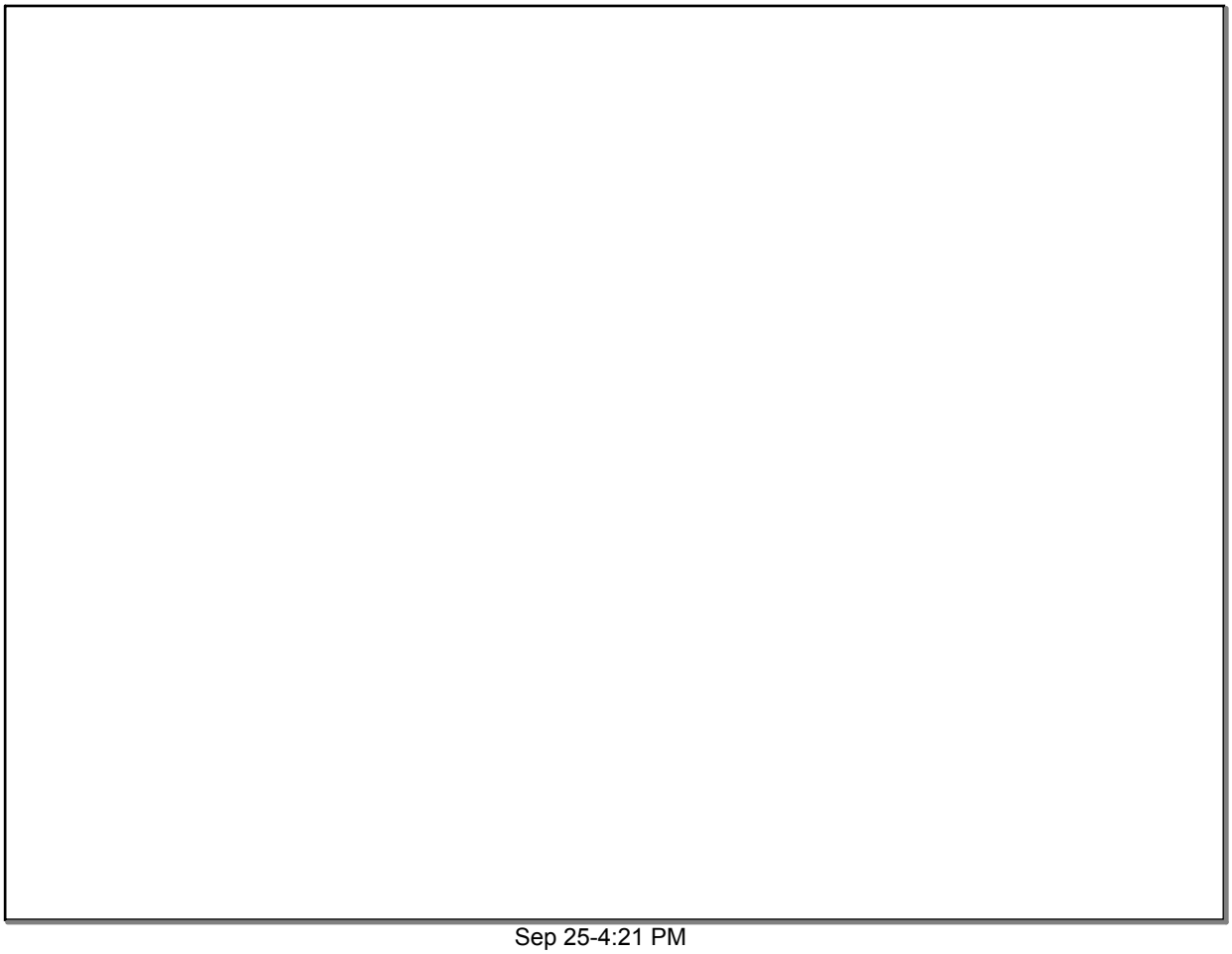


Mar 16-10:40 PM



Sep 25-4:21 PM

Attachments

Heat in Changes of State.pptx