

PHYSICS

HEAT – Phases

• Phase Changes

- \_\_\_\_\_ is the change from liquid to gas (usually at the surface).
  - ⓐ **Hand Boilers**
  - ⓑ **Drinking Bird**
  
- \_\_\_\_\_ is the change from gas to liquid (opposite of \_\_\_\_\_).  
Rain and Dew are condensed often because the air was \_\_\_\_\_ with water vapor. The \_\_\_\_\_ tells the amount of water in the air for a given temperature. A lot of humidity is called a \_\_\_\_\_ or a \_\_\_\_\_.
  - ⓐ **Temperature in a Vacuum**
  - ⓑ **Triple Point in a Vacuum**
  - ⓒ **Extreme Crush of a Vacuum in an emptying container**
  - ⓓ **Crush soda can** by boiling small amount of water then plunging in bath
  - ⓔ **Egg pulled into bottle from vacuum**
  - ⓕ **Rain** invert, then squirt flask that had boiling water to create vacuum, hence fountain of rain
  - ⓖ **HYPO Snowfall – sodium thiosulfate**
  
- \_\_\_\_\_ is the change from liquid to gas (usually below the surface) – the gas is \_\_\_\_\_.  
By the way, you can't see \_\_\_\_\_ – what you see is condensed vapor – a cloud.
  - ⓐ **Boiling Water in a paper cup from an open flame**
  - ⓑ **Salt Water (just a pinch) Boils greater than 100°**
  
- \_\_\_\_\_ is the change from liquid to solid.
- \_\_\_\_\_ is the change from solid directly to gas (skipping the liquid phase).  
Dry ice does this – it is solid \_\_\_\_\_.
  - ⓐ **Sublimation of Dry Ice**
  
- \_\_\_\_\_ is the change from solid to liquid and back from pressure exerted on a solid. This occurs on a skating rink from the pressure of ice skates on the ice where some of the ice freezes back after the skate passes over it.
  - ⓐ **Regelation of Ice**

**HEAT – Phases Worksheet**

- **Phase Changes**

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By the way, you can't see \_\_\_\_\_ – what you see is condensed vapor – a cloud.
- \_\_\_\_\_ is the change from liquid to solid.
- \_\_\_\_\_ is the change from solid directly to gas (skipping the liquid phase).  
Dry ice does this – it is solid CO<sub>2</sub>.
- \_\_\_\_\_ is the change from solid to liquid and back from pressure exerted on a solid. This occurs on a skating rink from the pressure of ice skates on the ice where some of the ice freezes back after the skate passes over it.

- **Heat of \_\_\_\_\_ and Heat of \_\_\_\_\_**

- As a substance changes from solid to liquid it can require more heat than when it simply rose in temperature while remaining a solid. Water needs 1 calorie per gram to rise 1°C while staying solid or liquid or gas. But to melt ice, you have to put in 80 calories per gram – and the temperature will not rise. This is the **Heat of \_\_\_\_\_**. To boil water, it takes 540 calories per gram. This is the **Heat of \_\_\_\_\_**.
- A \_\_\_\_\_ uses the heat of vaporization by vaporizing liquid in the cooling pipes by absorbing heat from the food by passing these pipes near the food. On the back of the refrigerator the heated liquid condenses and cools and hot air is blow away from the refrigerator into the room. A fun physics problem asks, "If a refrigerator door is left open, will the room cool down?" What do you think?