NAME_____ DATE_____
PERIOD_____
*** ENERGY AND MATTER PHASES ******
Key ideas to remember:

USUALLY, matter cannot be created or destroyed. But matter can give off energy during physical or chemical changes, and some chemical and physical changes take in energy.

With lots of energy, matter can be changed to pure energy, and energy to matter. This is the famous E equals M C squared statement.

Use your book, your notes, a dictionary and any other sources to help you answer these questions AS BEST YOU CAN.

1) When a solid is changed into a liquid, how is it usually done?

2) When a solid is changed to a liquid does it take in heat or give off heat?

3) Is matter created or destroyed when an ice cube melts to water? Y/N

4) When a liquid changes to a gas , how is it usually done?

5) When a liquid is changed to a gas does it take in heat or give off heat? Choose One

6) Is matter created or destroyed when a liquid changes to a gas? Y/N

7) Think about the bonds between molecules. Which phase has bonds that are hardest to break? Which would need the most energy to break the bonds?

8) When a solid breaks its bonds and changes to a liquid does it take in (need) heat or give off heat?

9) When a liquid forms bonds and changes to a solid does it take in (need) heat or give off heat? choose one

10) When a liquid breaks its bonds and changes to a gas, does it take in (need) heat or give off heat? choose one

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11) When sweat (a liquid) evaporates and changes to a gas is energy given off or taken in? choose one

12) When steam (a gas) condenses and changes to water (a liquid), is energy given off or taken in? choose one Why would this explain why steam burns so badly when it condenses?

13) List the three phase CHANGES that would give off heat:

14) List the three phase CHANGES that would take in heat:

15) Which has the most heat energy stored in it: SOLIDS, LIQUIDS, OR GASES?

16) Which has the least heat energy stored in it: SOLIDS, LIQUIDS, OR GASES?

17) Which has more heat energy stored in it, an ice cube at 32 degrees Fahrenheit or a glass of water at 32 degrees Fahrenheit? WHY?

18) When an ice cubes melts, it takes heat to do so. Where does the heat usually come from?

19) When evaporation takes place it needs heat to do so. Where does the heat usually come from?

20)Do you think that evaporation (liquid to a gas) is a cooling or a heating process for its surroundings and why?

21) Does moving air speed up evaporation or slow it down? choose one

22) How might this explain why you feel cold coming out of a shower, or why you blow on soup to cool it off, or why there is such a thing as a wind chill factor?

23) What phase changes do you think might help refrigerators work and why?

24) What is the difference between evaporation and boiling?