Chapter 21 – Temperature, Heat, & Expansion Reading Guide Name: _____ Block___

1. What type of energy does all matter have? _____
2. The quantity that tells us how hot or cold something is compared to a standard is _t_____.
3. Nearly all matter _e_____ when temperature increases.
4. List 4 temperature scales:
   _____, _____, _____ and _____.
5. Which scale is used in scientific research? _____
6. What does absolute zero represent?

7. Temperature is not a measure of total kinetic energy but the _____ kinetic energy.
8. Transfer of thermal energy from one object to another is called _____. Matter never contains this, it represents energy in transit.
9. Heat always flows from _____ to _____ temperatures.
10. Energy resulting from heat flow is also called _____energy and scientists prefer _____ energy.
11. When no heat is flowing between 2 objects they are said to be at _____.
12. Besides kinetic energy, what other energies are present in molecules that can help make up its internal energy? (list 2)

13. When objects change phase (liquid to gas, etc), does their temperature always change? _____

14. What 2 things must be specified to quantify heat? _____ and _____.

15. What is the unit of heat? _____What type of unit is this? _____

16. Food and other fuels are rated by how much energy a certain mass gives off when they are _____.
17. Write out the equation for specific heat and list what each letter stands for:

18. Does water have a very high or very low specific heat? _____
19. List 2 applications of your answer to #18. (pg. 314-315 offers plenty).

20. As temperatures increase, molecules tend to move _____ apart causing them to expand. Which phase tends to expand the most? _____
21. A thermostat works as a practical application of what :

22. List an exception to thermal expansion. Hint this one is really important to life!

23. At what temperature does water have its greatest density?