

Name: \_\_\_\_\_

Period: \_\_\_\_\_

## ***Forms of Energy Continued***

Directions: Use pages S139-S141 in your textbook to answer the following questions.

### **Nuclear Energy**

1. Define **nuclear energy**.
2. Nuclear energy is by far the most \_\_\_\_\_ form of energy.
3. It is released in large amounts either through \_\_\_\_\_ or \_\_\_\_\_.
4. What is fission?
5. What is fusion?
6. How can you explain why the sun shines?
7. The particles released during a fission reaction have a tremendous amount of \_\_\_\_\_ energy.
8. An uncontrolled fission reaction results in a \_\_\_\_\_.

### **Radiant Energy**

9. Define **radiant energy**.
10. \_\_\_\_\_ is a familiar example of radiant energy.
11. Radiant energy is transmitted in the form of special waves called \_\_\_\_\_.
12. How long does it take from a beam of sunlight to travel to earth (150 million km)?
- 13.-14. About \_\_\_\_\_ of the radiant energy given off by the sun is either \_\_\_\_\_ or \_\_\_\_\_.
15. These cannot be seen, but can be felt as \_\_\_\_\_.

16. What are three other examples of radiant energy that your book gives you?

17. The electromagnetic spectrum is arranged in order from the waves with the \_\_\_\_\_ wavelength to those with the \_\_\_\_\_ wavelength.

18.-19. The shorter the wavelength, the \_\_\_\_\_ energy it has. The longer the wavelength, the \_\_\_\_\_ energy it has.

## **Thermal Energy**

21. Define **thermal energy**.

22.-23. The total \_\_\_\_\_ and \_\_\_\_\_ energy of these moving atoms and molecules is called **thermal energy**.

24. \_\_\_\_\_ is a measure of the average amount of kinetic energy a substance has.

25.-26. When molecules gain kinetic energy, the substance becomes \_\_\_\_\_; when they lose kinetic energy, the substance becomes \_\_\_\_\_.

27. Heat/Thermal energy always flows from \_\_\_\_\_ objects to cooler objects.

## **Use the "Extra Information" handout to answering the following question:**

28. As of 2004, nuclear power provided how much of the world's energy? \_\_\_\_\_

29. As of 2004, nuclear power provided how much of the world's electricity? \_\_\_\_\_

30. Nuclear power provides \_\_\_\_\_ of the electricity the United States consumes.

31. What are two countries that have no active nuclear power stations?

32. How long has radiant floor heating been around?

33. Early Korean homes routed \_\_\_\_\_ beneath the floor from the fireplace before venting them out the chimney.

34. What is radiant floor heating?

35. How could radiant floor heating help us with our energy bills?

36. An incredible \_\_\_\_\_ of the energy that goes into an automotive combustion cycle is lost, mostly wasted as heat.

37. Physicists are studying how to harness this wasted \_\_\_\_\_ and convert it into \_\_\_\_\_.

38. How many gallons of diesel could be saved each year in the United States if thermoelectric (changing heat into electricity) generators were used on the exhausts of heavy trucks?