Name_____ Class _____ Date _____

Skills Worksheet

Directed Reading

Section: Nonrenewable Energy

1. Name two things energy is used for.

_____

_____

2. Energy resources that exist in limited amounts and cannot be replaced quickly are called _____.

FOSSIL FUELS

_____ 3. Nonrenewable natural resources formed from the remains of living things are called
   a. fossil fuels.
   b. prehistoric rock.
   c. magma.
   d. plants and animals.

_____ 4. Examples of fossil fuels are
   a. gold, peat moss, and minerals.
   b. solar energy and light.
   c. coal, petroleum, and natural gas.
   d. wind energy and heat.

_____ 5. Fossil fuels that consist of compounds containing stored energy used by plants and animals millions of years ago are called
   a. renewable resources.
   b. nuclear fuels.
   c. undersea nodules.
   d. hydrocarbons.

_____ 6. When hydrocarbons are burned, the formation of chemical bonds with oxygen
   a. produces radioactive energy.
   b. consumes heat and light energy.
   c. releases energy in the form of heat and light.
   d. releases energy in the form of sunlight.

_____ 7. Coal deposits are the remains of plants that have undergone a complex chemical process called
   a. energization.
   b. carbonization.
   c. burning.
   d. fossilization.

_____ 8. Carbonization occurs when partially decomposed plant material
   a. is buried in swamp mud and becomes peat.
   b. becomes river sediment.
   c. develops into a renewable resource.
   d. releases propane and carbon dioxide.

_____ 9. The complex chemical and physical processes would produce coal only if what is NOT present in a swamp?
   a. carbon dioxide
   b. methane
   c. oxygen
   d. bacteria

_____ 10 As peat is covered by layers of sediments, the weight squeezes out water and gases, forming a denser material called
   a. anthracite.
   b. lignite.
   c. oxygen.
   d. bituminous coal.

_____ 11. Bituminous coal is formed when
   a. increased temperature and pressure compact lignite.
   b. decreased temperature and pressure compact lignite.
   c. Earth's crust folds, producing higher temperatures and pressure.
   d. Earth's crust folds, producing lower temperatures and pressure.

_____ 12. Where the folding of Earth's crust produces high temperatures and pressure, bituminous coal changes into
   a. lignite.
   b. bacteria.
   c. anthracite.
   d. peat.

13. Carbon is what percent of bituminous coal?

_____

14. What happened when prehistoric plants and microorganisms died in shallow prehistoric oceans and lakes?

_____

15. As buried sediment accumulated on ocean floors and lake bottoms, what happened to the sediment?

_____

_____

16. What is another name for petroleum?

_____

17. In what form is petroleum?

_____

18. In what form is natural gas?

_____

19. Why are petroleum and natural gas deposits highly sought after?

_____

_____

In the space provided, write the letter of the description that best matches the term or phrase.

_____ 20. cap rock

_____ 21. permeable rock

_____ 22. impermeable rock

a. rock through which liquids cannot flow

b. the impermeable layer of rock above an oil reservoir

c. rock with spaces through which liquids can flow

23. Why does petroleum rise above trapped water beneath the cap rock?

_____

24. Why does natural gas rise above petroleum beneath the cap rock?

_____

25. What often happens when a well is drilled into an oil reservoir?

_____

FOSSIL-FUEL SUPPLIES

26. One of the main sources of energy around the world is

_____.

27. Unrefined petroleum is called _____.

28. The most abundant fossil fuel in the world is _____.

29. A material that contains hard-to-mine petroleum is

_____.

30. One fossil fuel with undiscovered reserves is _____.

31. List five items for which crude oil is used besides fuel.

_____

_____

_____

_____

_____

32. In what three countries is almost two-thirds of the world's coal found?

_____

_____

_____

NUCLEAR ENERGY

_____ 33. The basis of nuclear technology is
- a. making weapons.
- b. striking atomic nuclei with high-energy particles.
- c. creating atoms in a laboratory.
- d. joining the neutrons of several atoms.

_____ 34. Energy produced by nuclear technologies is called
- a. nuclear fission.
- b. a nuclear reaction.
- c. nuclear energy.
- d. nuclear waste.

_____ 35. Splitting the nucleus of a large atom into two or more smaller nuclei is called
- a. nuclear energy.
- b. nuclear splitting.
- c. nuclear fusion.
- d. nuclear fission.

_____ 36. Splitting an atom creates a powerful reaction because
- a. atoms do not contain smaller parts.
- b. the forces holding the nucleus together are extremely strong.
- c. the chemical bonds between atoms are unbreakable.
- d. the nucleus of an atom is weak.

_____ 37. What happens when the nucleus of an atom splits after being struck by a free neutron?
a. It releases additional neutrons as well as energy.
b. It releases additional electrons as well as energy.
c. It combines with nearby atoms.
d. Nothing happens.

_____ 38. What occurs as newly released neutrons from an atomic reaction strike other nearby nuclei?
a. splitting of a neutron
b. a chain reaction
c. joining of two nuclei
d. nuclear fusion

_____ 39. An uncontrolled fission reaction may result in
a. the splitting of a neutron.
b. an electrical storm.
c. the joining of two nuclei.
d. an explosion.

_____ 40. What kind of nuclear reaction must occur to produce heat that can be used to generate electricity?
a. controlled fission
b. controlled fusion
c. uncontrolled fission
d. uncontrolled fusion

41. The equipment in which controlled nuclear fission is carried out is a(n) _____.

42. The process of nuclear fission releases a tremendous amount of _____.

43. The element currently used for nuclear fission is _____.

44. After uranium-235 is processed into fuel pellets, the fuel pellets are said to be what?

_____

45. Enriched fuel pellets are used to make _____.

46. What happens when bundles of fuel rods are bombarded by neutrons?

_____

_____

47. During a chain reaction, what happens to fuel rods that are used to create nuclear fission?

48. Describe how heat from fuel rods provides power for electric generators.

49. What happens to excess heat?

50. What are two advantages of nuclear power plants?

51. What is a disadvantage of nuclear fission?

52. Why must wastes from nuclear fission be stored safely?

53. How are nuclear wastes from nuclear power plants currently stored?

54. Where are other wastes from nuclear power plants currently stored?

55. The process in which nuclei of hydrogen atoms combine to form larger nuclei of helium is called _____.

56. The process of nuclear fusion releases _____.

57. What temperatures are needed for fusion reactions to occur?

_____

_____

_____

58. If a commercial fusion reactor could be built, what might be used as fuel?

_____

_____

_____

59. What is an advantage of using ocean water as fuel for nuclear fusion?

_____

_____

_____

60. What other advantages would energy from nuclear fusion have?

_____

_____

_____