

Energy Review

1. What is coal energy used for most?

electricity

2. In what sequence do the following events occur to collect solar energy in a passive design?

- i. Sunlight heats the walls and floors.
  - ii. The building is positioned to face the sun.
  - iii. Heat is released during the night.
- II, I, III

3. What methods of producing electricity contributes to the production of acid rain?

burning fossil fuels

4. What energy sources do we retrieve from the earth by mining/drilling?

fossil fuels (oil, coal, N.G) + nuclear  
geothermal

5. How is electricity produced from water?

Kinetic energy → turbine → generator  
(mechanical) energy used for most?

6. What is oil (petroleum) energy used for most?

transportation

7. What is the transformation process of changing mechanical energy into electrical energy?

turbine → generator

8. What are the key components of a generator?

copper wire, magnets

9. What is nuclear energy used for most?

electricity

10. Having good insulation in your house is an example of what?

conserving energy / saving energy

11. Which types of energy are not a fossil fuels?

all renewable (wind, water, solar etc)  
+ nuclear

12. What is wind energy used for most?

Electricity

13. What are some activities that does not fall under the category of conservation?

leaving lights/TV on when not in use  
acid rain, pollution, greenhouse effect

14. The burning of fossil fuels would cause what?

acid rain, pollution, greenhouse effect

15. What is solar energy used for most?

electricity

16. What are the fossil fuels?

coal, oil, natural gas

17. Explain how the distance between the site producing energy and the site using energy affects efficiency?

energy is lost

18. What is hydroelectric energy used for most?

electricity

19. Looking at the graph on Production vs. Consumption, what can be said?

Consumption is more than can be produced

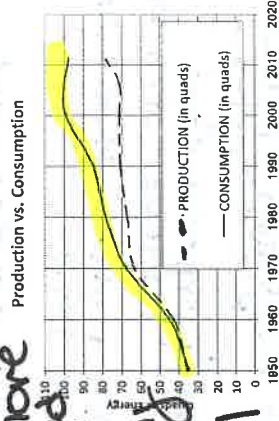
20. As time goes by, what is the overall trend shown on the graph?

Both are increasing

21. What are examples of the oil infrastructure?

gas stations, oil rigs

22. Put the following in the correct order for turning solar energy into electricity?



- I. Photons push electrons.
- II. Electrons move.
- III. Photons are absorbed by a photovoltaic cell.
- IV. The flow of electricity completes a circuit.

I, II, III, IV

23. In what sequence do the following events occur for turning nuclear energy into electricity?

- I. A turbine spins.
- II. A generator spins.
- III. A uranium atom undergoes fission.
- IV. Heat boils water to make steam.

III, IV, I, II

24. Which energy technologies use the following steps to create electricity? Steam is produced that spins a turbine that turns a generator?

- I. Hydroelectric
- II. Coal
- III. Geothermal
- IV. Nuclear
- V. Wind

II, III, IV

25. What is a benefit of using renewable energy sources?

unlimited supply / greener energy

26. What is a benefit of using non-renewable energy sources?

highly efficient

27. What is an example of conserving energy?

insulation in home / turning off lights when not in use

28. What is a non-renewable energy source?

uranium, coal, oil, natural gas

29. The ability for a resource to be replaced in a short amount of time is a description of what kind of energy?

renewable

Farmer Jim grows corn. He sells it to the Edith Ethanol Company. This year was profitable. However, he heard from another farmer about a seed stock that doubled his yield of corn. Farmer Jim has

↓  
amount ↑

decided to use that new stock next year. He is also concerned about all the corn stocks that were left over after harvesting. He is trying to determine what he could do to change this from a waste product into something useful. He discovers that Farmer Chuck needs more feed for his livestock and could turn the cornstalks into silage (food for animals).

30. What is the term for the corn Farmer Jim is selling to the Edith Ethanol Company?

~~corn~~ Biomass

31. The development of this new seed stock that doubles corn yield is an example of?

Genetically Modified Organism  
Biotechnology

32. What is an example of the conservation concept of reduce, reuse, recycle?

finding a solution/purpose for leftover cornstalks

33. What are the challenges of using nuclear fission to produce electricity?

storing/working with radioactive materials  
preventing core melt downs  
tectonic plate boundaries/hot spots

34. Where would you be most likely to have access to geothermal resources to generate electricity?

wood

35. What material do we use most to produce biomass?

chain reaction

36. When an action causes successive other actions to happen, what do we call that?

unstable nucleus / radioactive

37. Uranium has the largest nucleus of any naturally occurring element. Why do we use Uranium as fuel for nuclear power generation?

radioactive

38. How do geothermal home heating systems differ from normal electric heat pumps?

renewable / heat from ground not fossil fuel

39. What is true about fossil fuels and greenhouse gases?

fossil fuels contribute to greenhouse gases power plants

40. Alternative forms of energy are alternatives to what?

fossil fuels

41. What types of energy would have the least likely effect on climate change?

any renewable like hydropower

42. What is a possible disadvantage to using flowing water to produce electricity?

destroys ecosystems creating reservoir etc