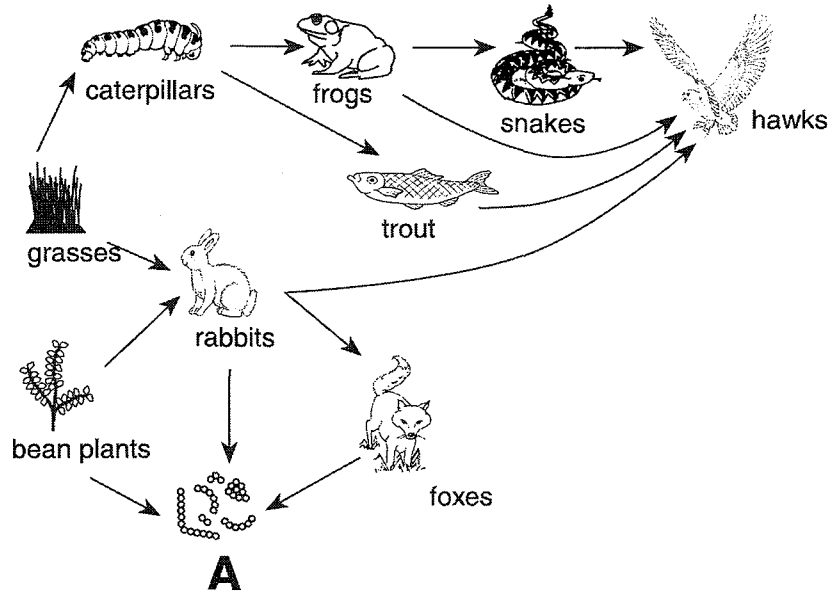


Base your answers to questions 16 through 19 on the diagram below, which shows many organisms in a food web.

XC #5

Questions



(not drawn to scale)

16 One type of organism in this web that represents a producer is

- (1) rabbits
- (2) grasses
- (3) trout
- (4) snakes

18 According to this food web, which organisms are herbivores?

- (1) caterpillars
- (2) foxes
- (3) hawks
- (4) snakes

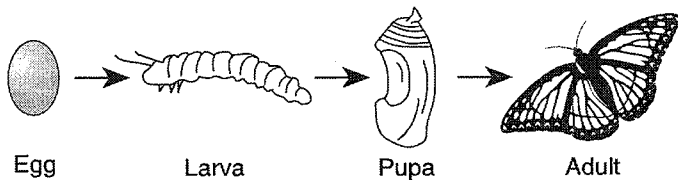
17 Which organisms obtain energy for growth and development directly from the Sun?

- (1) caterpillars
- (2) hawks
- (3) frogs
- (4) bean plants

19 Which organism correctly completes the food web at A?

- (1) horses
- (2) mice
- (3) bacteria
- (4) trees

20 Which process is illustrated in the diagram below?



(not drawn to scale)

- (1) natural selection
- (2) mutation
- (3) metamorphosis
- (4) photosynthesis

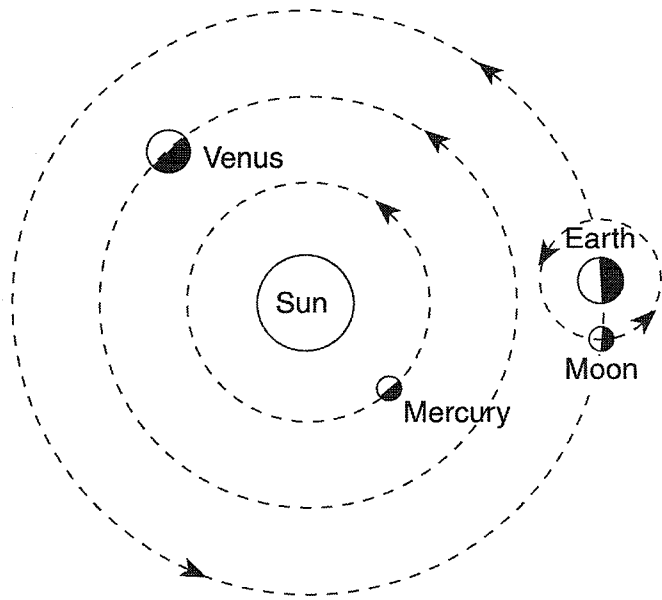
21 Fats are important nutrients because they

- (1) provide genetic information
- (2) contain stored energy
- (3) are used in photosynthesis
- (4) maintain bone density

22 Which factor contributes to global warming?

- (1) increased use of solar-powered cars
- (2) increased burning of fossil fuels
- (3) better long-term weather forecasts
- (4) changing distance between Earth and the Sun

23 The diagram below shows a portion of the solar system as seen from space.

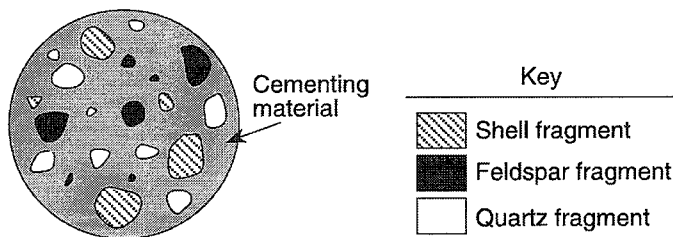


(not drawn to scale)

For which object is the lighted surface shown *incorrectly*?

- (1) Moon
- (2) Mercury
- (3) Venus
- (4) Earth

24 The diagram below shows a rock sample and an identification key.



Rock Sample

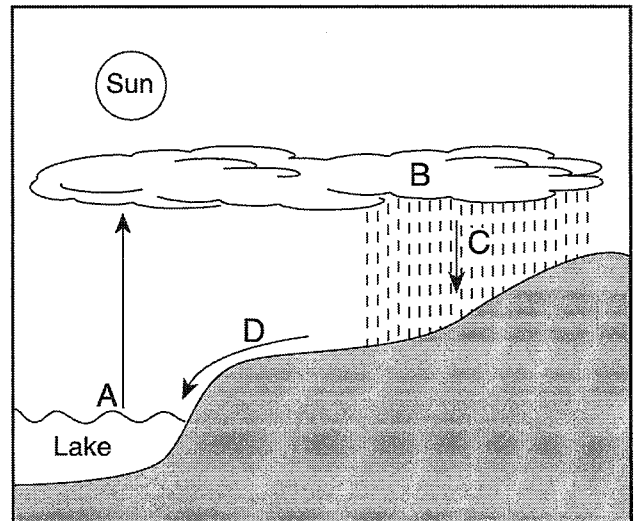
This rock sample would best be classified as

- (1) volcanic
- (2) sedimentary
- (3) metamorphic
- (4) igneous

25 Oceans, glaciers, lakes, and rivers are part of Earth's

- (1) atmosphere
- (2) hemisphere
- (3) hydrosphere
- (4) lithosphere

26 The diagram below shows the water cycle.



Which letter represents the process of evaporation?

- (1) A
- (2) B
- (3) C
- (4) D

27 Convection currents in Earth's mantle are believed to be responsible for

- (1) ocean currents
- (2) crustal plate movements
- (3) climatic changes
- (4) uneven surface heating

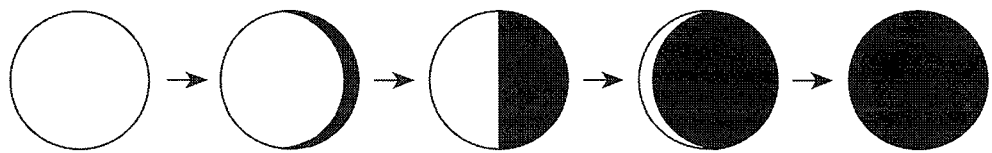
28 Water vapor changes to liquid water during which process?

- (1) dissolving
- (2) melting
- (3) evaporation
- (4) condensation

29 Skiers often wear sunglasses while they are skiing because snow

- (1) radiates light
- (2) absorbs light
- (3) conducts light
- (4) reflects light

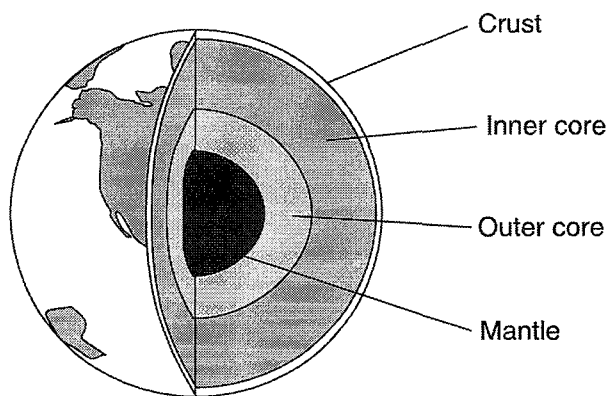
30 A student drew the pictures below to show how the Moon looked from Earth over a two-week period.



The differences shown in the student's drawings are mostly due to the changing

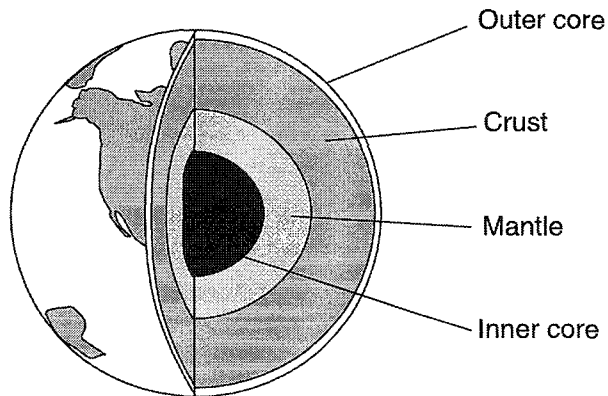
- (1) distance between Earth and the Moon
- (2) speed of the Moon in its orbit
- (3) position of the Moon in its orbit
- (4) position of the observer on Earth

31 In which diagram are the layers of Earth correctly labeled?



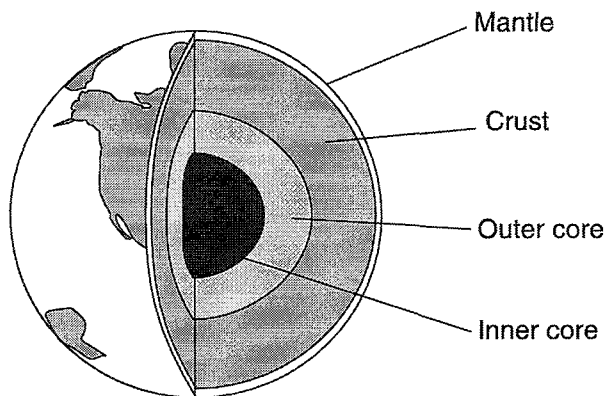
(not drawn to scale)

(1)



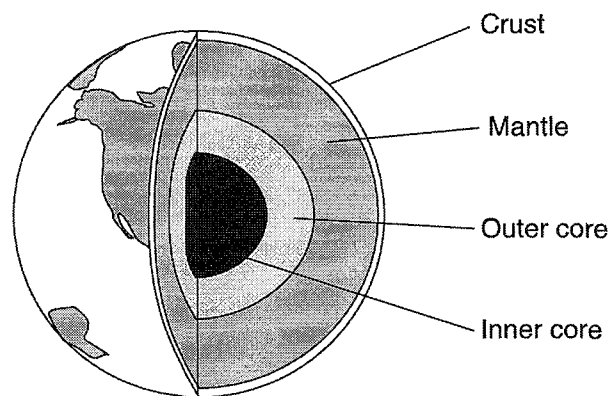
(not drawn to scale)

(3)



(not drawn to scale)

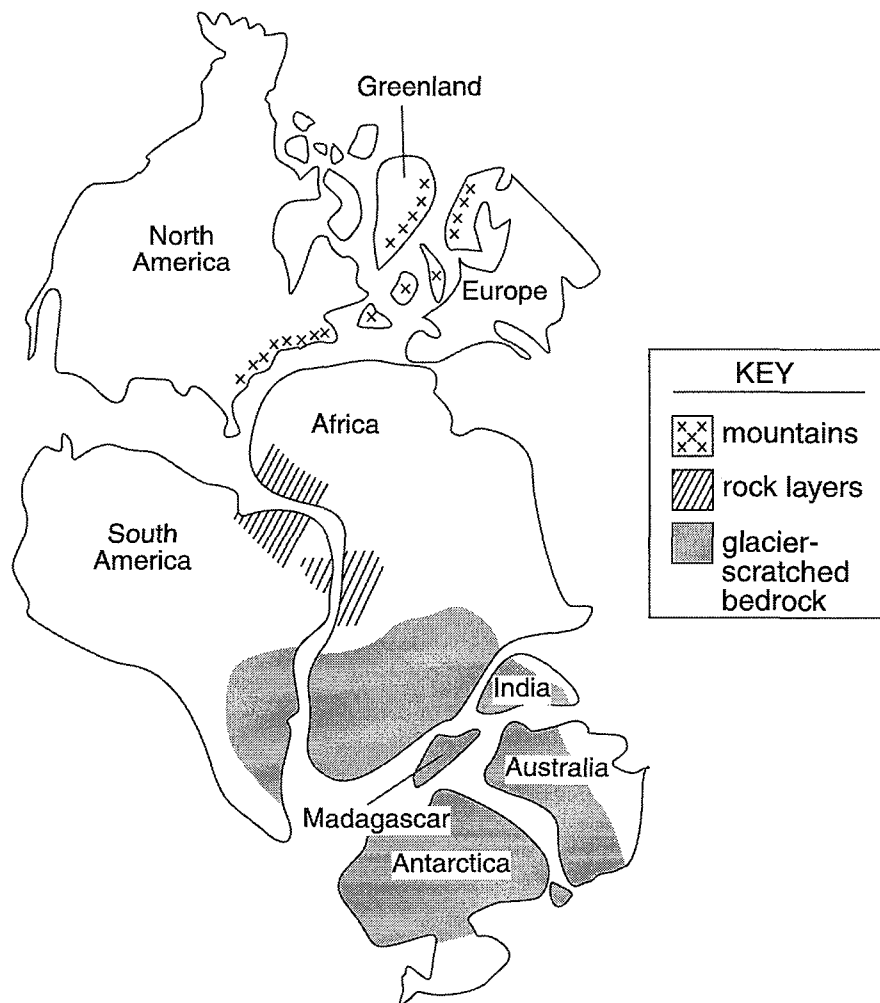
(2)



(not drawn to scale)

(4)

32 The map below indicates the possible location of some of Earth's continents in the past.



Which evidence best supports the idea that the landmasses on Earth were once in these positions?

- (1) North America and India have matching mountain chains.
- (2) Madagascar and India have similar shapes.
- (3) Matching rock layers can be found in Africa and South America.
- (4) Bedrock in Australia and Greenland have glacier scratches.

33 The chart below compares three types of rocks. The first column gives the rock classification. Which heading best describes the information provided in the second column?

Rock Classification	???
Igneous	melting and solidification of magma
Sedimentary	mechanical, chemical, or organic processes
Metamorphic	heat and/or pressure

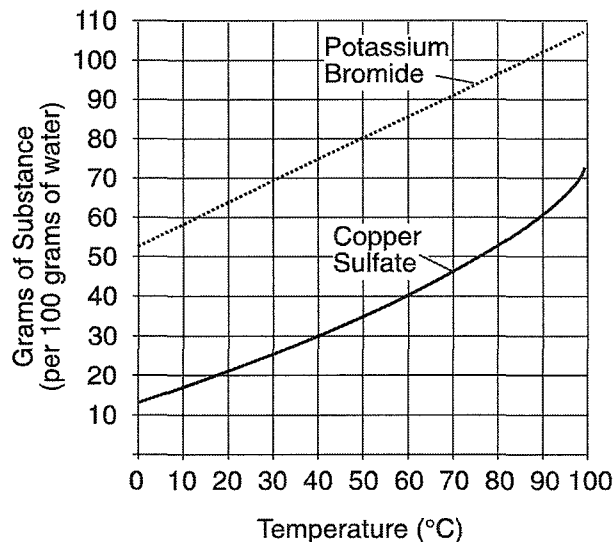
- (1) Minerals in Rocks
- (2) Method of Rock Formation
- (3) The Value of Rocks
- (4) The Time Rocks Take to Form

34 Earth's weather is primarily caused by the

- (1) drifting of Earth's crustal plates
- (2) gravitational attraction of the Moon
- (3) uneven heating of Earth's surface
- (4) changing distance between Earth and the Sun

35 The graph below shows the solubility of two different chemical compounds.

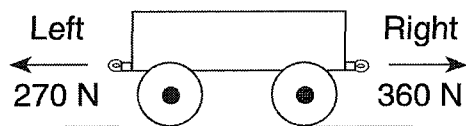
Solubility Graph



Compared to copper sulfate, approximately how many more grams of potassium bromide would dissolve at 90°C?

- (1) 20
- (2) 40
- (3) 60
- (4) 80

36 The diagram below shows a stationary cart on a frictionless surface. Two *unequal* opposing forces are about to be applied to the cart.



If the *unequal* opposing forces are applied to the cart at the same time, what will occur?

- (1) The cart will move to the left.
- (2) The cart will move to the right.
- (3) The cart will alternate between moving left and right.
- (4) The cart will remain stationary.

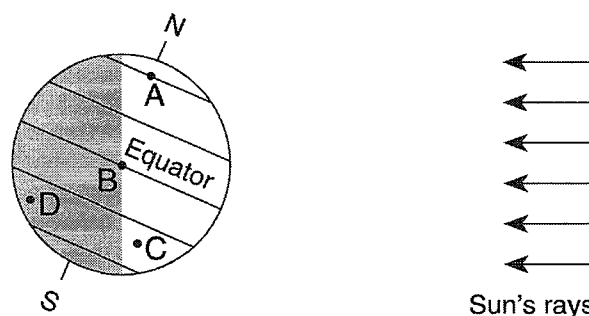
37 Some common substances and their chemical formulas are listed in the chart below.

Substance	Formula
Carbonic acid	H ₂ CO ₃
Oxygen	O ₂
Hydrochloric acid	HCl
Carbon dioxide	CO ₂
Water	H ₂ O
Helium	He

Which of these substances are elements?

- (1) hydrochloric acid and carbonic acid
- (2) carbon dioxide and water
- (3) oxygen and helium
- (4) water and oxygen

38 The diagram below shows Earth as seen from space. Letters A through D are locations on Earth's surface.



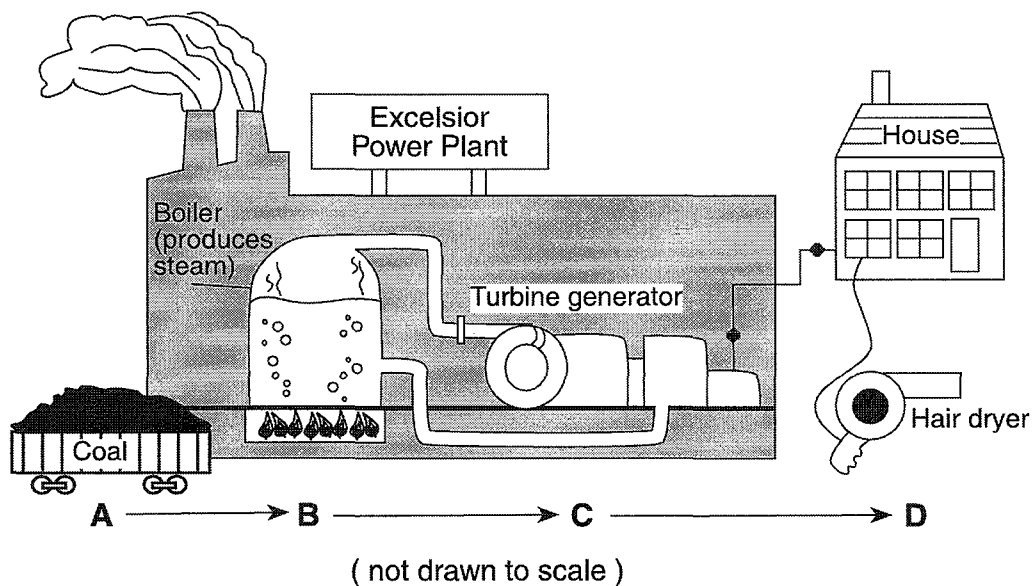
When Earth is in this position, which location would experience the greatest number of daylight hours?

- (1) A
- (2) B
- (3) C
- (4) D

39 A substance has a freezing point of -38°C and a boiling point of 356°C. At what temperature would this substance be in its liquid state?

- (1) -100°C
- (2) -50°C
- (3) 80°C
- (4) 375°C

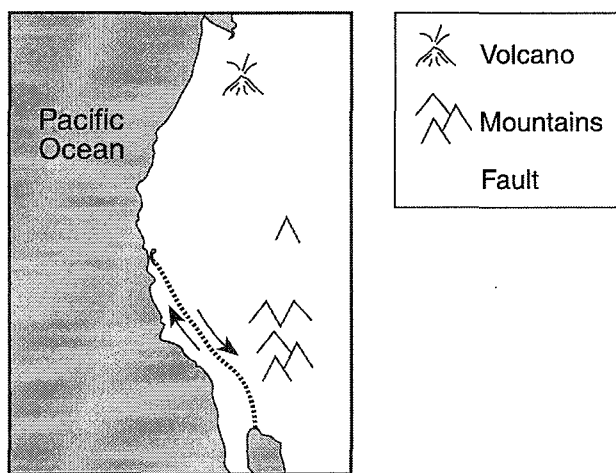
40 The diagram below shows the steps necessary to produce the energy needed to run a hair dryer.



As it moves from location A to location D in the diagram, the energy stored in the coal

- | | |
|--|--------------------|
| (1) is converted to solar energy | (3) is recycled |
| (2) reduces the friction in the hair dryer | (4) is transformed |

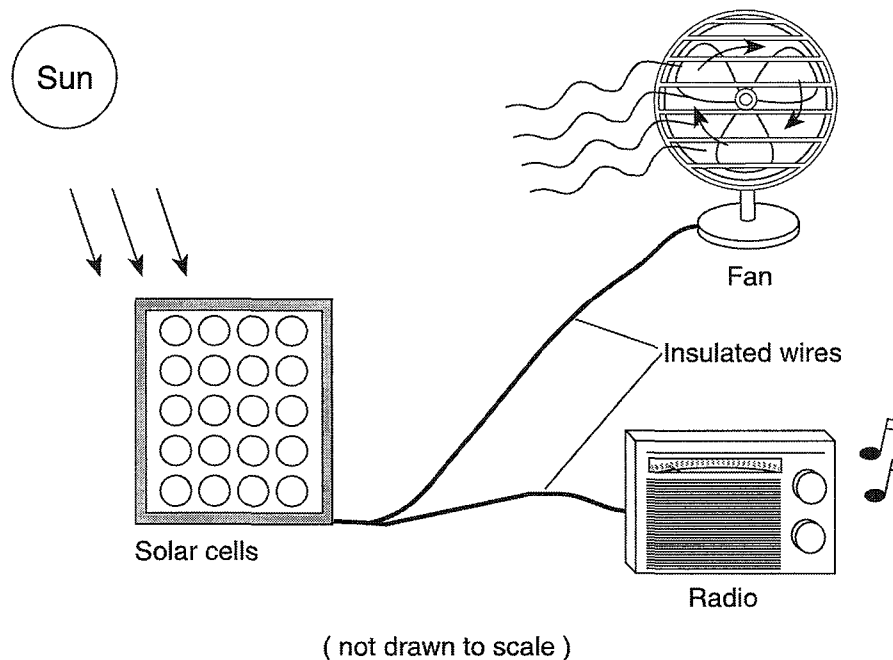
41 The map below shows some geologic features located near the west coast of the United States.



The arrows on either side of the fault represent

- (1) volcanic eruptions
- (2) rock formations
- (3) the relative movement of air masses
- (4) the relative movement of tectonic plates

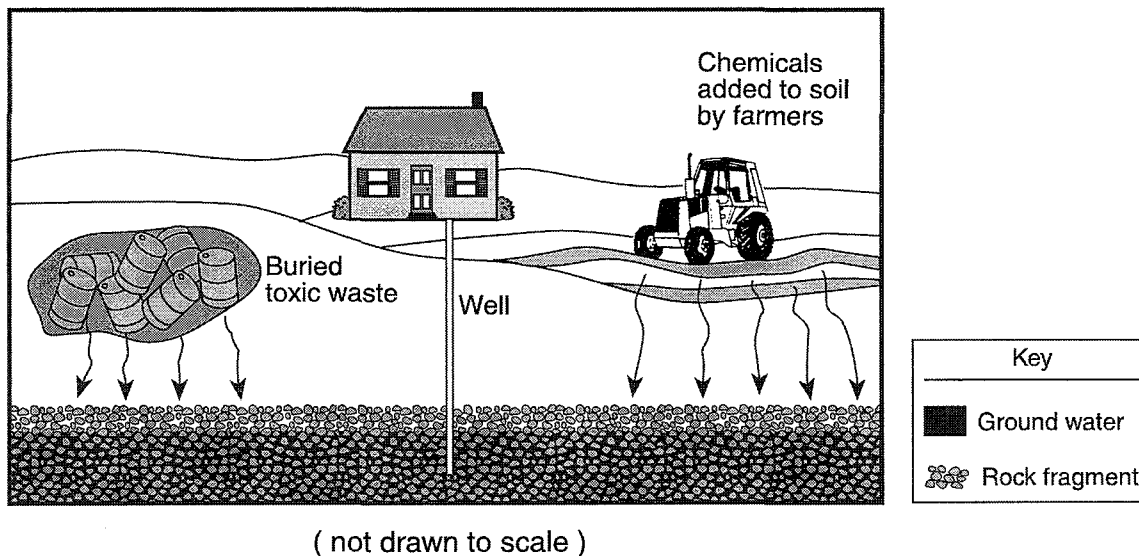
42 The illustration below shows an example of energy changing forms.



Which changes in energy form are illustrated in the diagram?

- (1) electrical → sound → light and mechanical
- (2) sound → mechanical → light and electrical
- (3) mechanical → light → sound and electrical
- (4) light → electrical → mechanical and sound

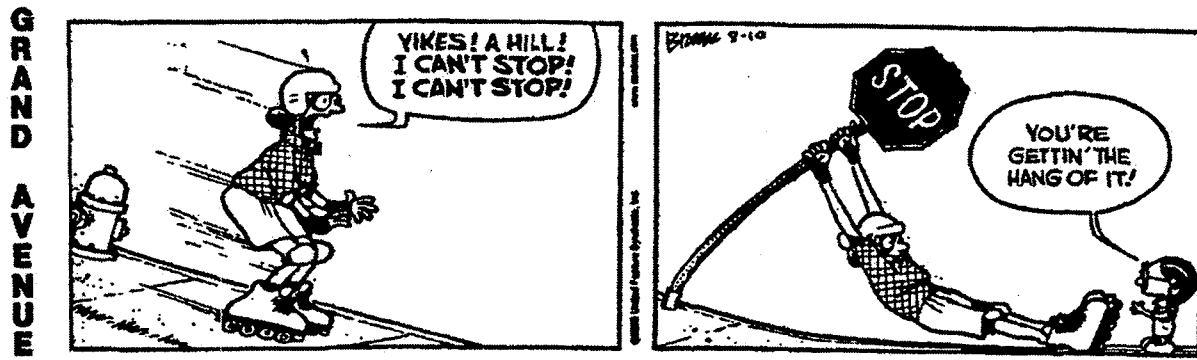
43 The diagram below shows some ways in which groundwater can be affected by humans.



Which statement is best supported by the diagram?

- (1) Chemicals applied by farmers lower the level of pollution in drinking water.
- (2) Drinking water can become polluted from unsuspected sources.
- (3) Human activities do not affect groundwater.
- (4) Toxic waste is safe if buried below the level of the basements of nearby homes.

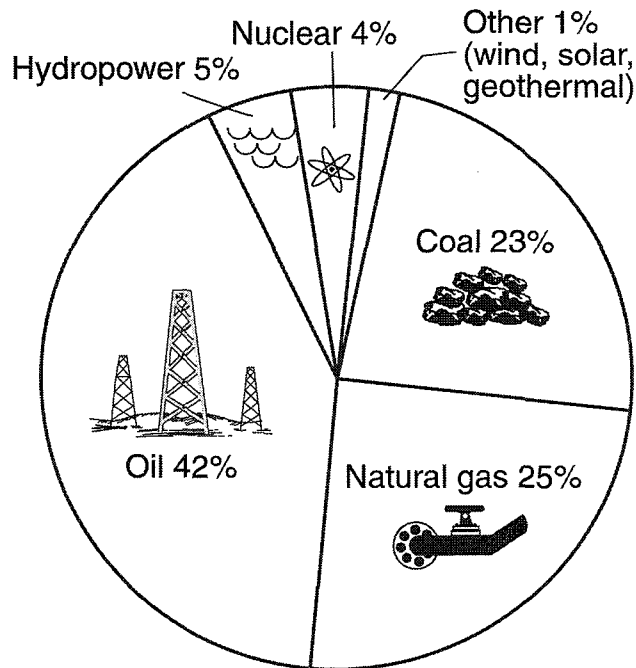
44 The cartoon below shows a humorous view of a law of motion.



Which statement best summarizes the scientific concept shown in the cartoon?

- (1) A falling body accelerates at a constant speed.
- (2) The motion of an object is constantly changing due to magnetic forces.
- (3) The force of friction causes an object in motion to move faster.
- (4) A body in motion will remain in motion unless influenced by an outside force.

45 The pie chart below compares the amounts of energy from different sources used in the United States each year.



Which two energy sources together provide more than 50% of the energy needs of the United States?

- (1) nuclear and natural gas
- (2) hydropower and oil
- (3) oil and coal
- (4) natural gas and coal