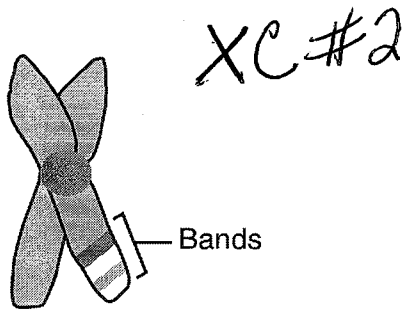


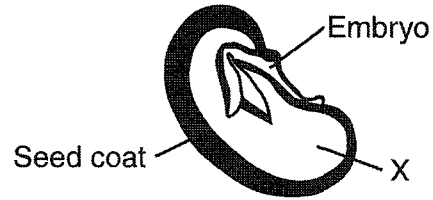
- 8 The drawing below represents a pair of chromosomes.



The area labeled "bands" shows the location of

- (1) egg cells
 - (2) sperm cells
 - (3) reproductive hormones
 - (4) specific genes
- 9 Many cars today are designed to get better gas mileage than those made in the past. This change resulted from a need to
- (1) recycle materials
 - (2) improve safety
 - (3) produce chemicals
 - (4) conserve resources
- 10 A scientist crosses two different varieties of corn to produce a single variety that has traits from both parents. This technique is an example of
- (1) competition
 - (2) natural selection
 - (3) selective breeding
 - (4) ecological succession
- 11 What is the nutrient source for some fungi?
- (1) sunlight
 - (2) oxygen
 - (3) carbon dioxide
 - (4) dead organisms
- 12 Which event is the best example of competition between species in a pond environment?
- (1) dragonflies landing on lily pads
 - (2) frogs and toads eating flies
 - (3) lizards and snakes lying in the sun
 - (4) hawks eating mice

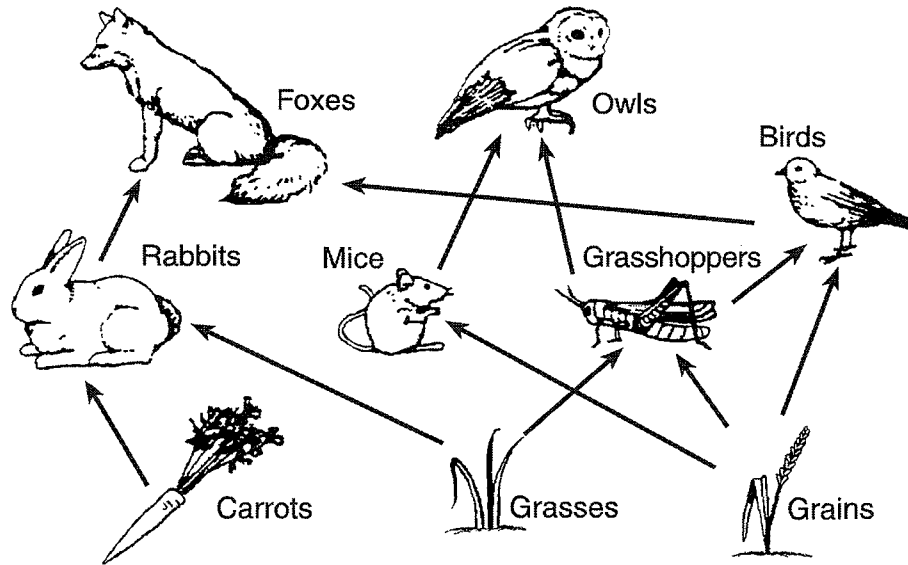
- 13 The diagram below shows a cross section of a bean seed.



The function of part X in the bean seed is to

- (1) provide protection for the embryo
 - (2) provide nutrients for the embryo
 - (3) prevent mutations in the plant
 - (4) fight off infections in the plant
- 14 Grasses, shrubs, and trees are called producers because they make
- (1) water
 - (2) carbon dioxide
 - (3) minerals
 - (4) food
- 15 A broken bone heals through the process of
- (1) adaptation
 - (2) mutation
 - (3) cell division
 - (4) chemical digestion
- 16 Which substance do all living things require to survive?
- (1) blood
 - (2) water
 - (3) carbon dioxide
 - (4) organic soil
- 17 What advantage does a species that reproduces sexually have over a species that reproduces asexually?
- (1) There is greater variation among the offspring.
 - (2) The offspring are identical to the parents.
 - (3) Only one parent is necessary for reproduction.
 - (4) No sex cells are needed for reproduction.
- 18 What are produced in both the male and female reproductive systems in humans?
- (1) sperm
 - (2) nutrients
 - (3) fertilized eggs
 - (4) sex cells

22 The diagram below shows a food web for a community.

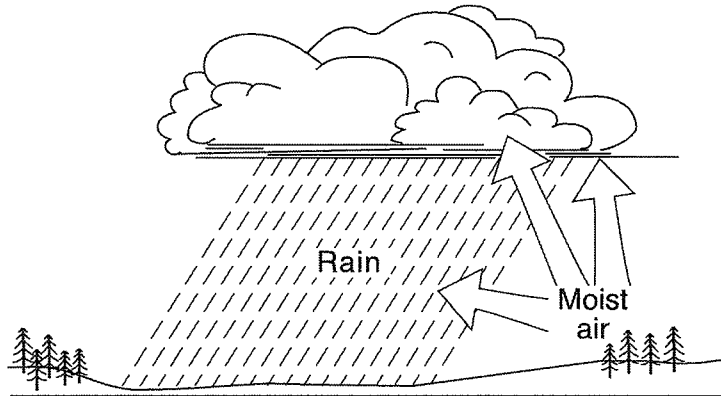


(Not drawn to scale)

Which organisms in the diagram are carnivores?

- (1) rabbits and birds
- (2) carrots and grasses
- (3) grasshoppers and mice
- (4) foxes and owls

23 The diagram below shows a material being cycled between the living and nonliving environments.



Which material is being cycled?

- (1) carbon dioxide
- (2) nitrogen
- (3) oxygen
- (4) water

24 Which information would probably be most helpful to someone trying to identify a mineral sample?

- (1) location and mass of the sample
- (2) shape and texture of the sample
- (3) hardness and streak of the sample
- (4) color and size of the sample

25 In which type of rock is the fossil imprint of a fern leaf most likely to be found?

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

26 Studies of earthquake waves have helped scientists determine the

- (1) structure of Earth's interior
- (2) depth of the oceans
- (3) cause of dinosaur extinction
- (4) age of Earth

27 An object accelerates at 3 meters per second² when a 10-newton (N) force is applied to it. Which force would cause this object to accelerate at 6 meters per second²?

- (1) 5 N
- (2) 10 N
- (3) 20 N
- (4) 30 N

28 Which statement would most likely be included in a news report about an approaching hurricane?

- (1) Open the windows to equalize air pressure.
- (2) Install snow tires and check the antifreeze in the car radiator.
- (3) Evacuate low-lying areas near the coast.
- (4) Expect wind speed to decrease for the next several hours.

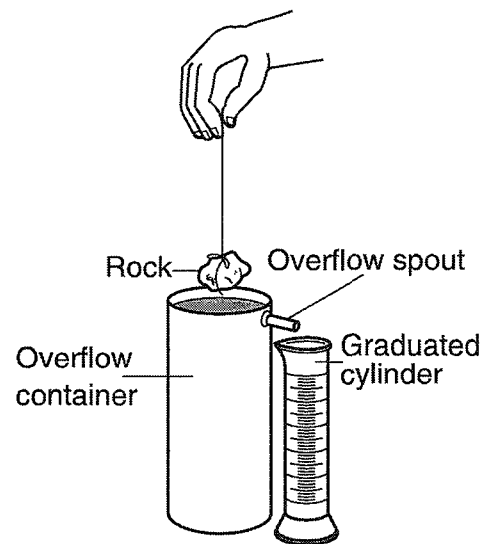
29 The surface of Earth is covered mostly by

- (1) solid rock
- (2) molten rock
- (3) ice
- (4) water

30 Part of the east coast of South America and the west coast of Africa have matching fossils within the same series of rock layers. This provides evidence that these two continents were once

- (1) separated by a much larger ocean
- (2) joined together as one landmass
- (3) located near the North Pole
- (4) in a different hemisphere

31 The diagram below shows a rock suspended above an overflow container filled with water up to the overflow spout. A graduated cylinder is positioned next to the container to collect water that comes out of the overflow spout.



Which property of the rock can be directly determined when the rock is placed in the overflow container?

- (1) mass
- (2) density
- (3) volume
- (4) hardness

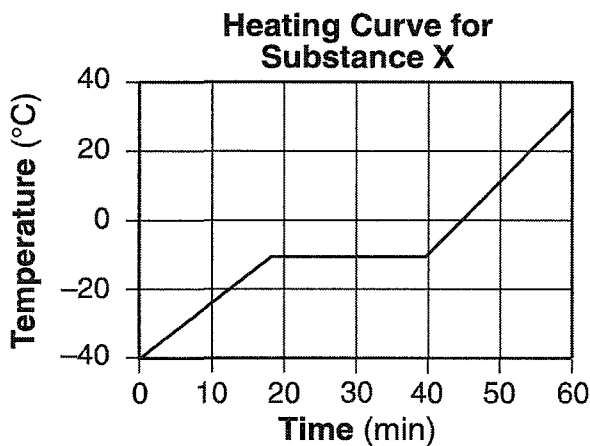
32 A sudden change in the weather at a certain location is most likely caused by

- (1) the arrival of an air mass
- (2) a severe earthquake
- (3) a high ocean tide
- (4) an eclipse of the Moon

- 33 Which process is an example of a physical change?
- (1) wood burning (3) ice melting
 (2) iron rusting (4) milk souring

- 34 Which statement best describes the energy changes that occur while a child is riding on a sled down a steep, snow-covered hill?
- (1) Kinetic energy decreases and potential energy increases.
 (2) Kinetic energy increases and potential energy decreases.
 (3) Both potential energy and kinetic energy decrease.
 (4) Both potential energy and kinetic energy increase.

- 35 The graph below shows the heating curve for substance X.



At approximately which temperature does a phase change begin?

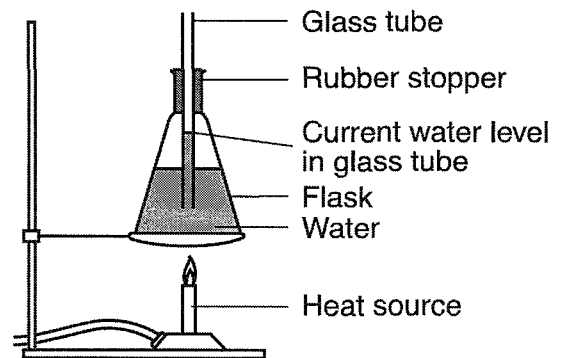
- (1) -30°C (3) 0°C
 (2) -10°C (4) 18°C

- 36 Which example best demonstrates the process of conduction?
- (1) A piece of paper is torn in half.
 (2) Warmed air rises above a lit candle.
 (3) A metal spoon gets warm when used to stir hot soup.
 (4) Sunlight brightens a dark room.

- 37 All matter is made up of

- (1) cells (3) molecules
 (2) atoms (4) compounds

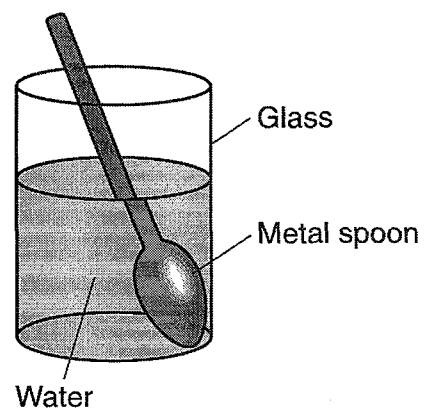
- 38 The diagram below shows water being heated in a flask. The flask has a rubber stopper with a glass tube extending through it. The current level of the water in the glass tube is indicated. The temperature of the water is 25°C .



If heating continues, the water in the glass tube will most likely

- (1) turn into a solid
 (2) become more dense
 (3) move into the flask
 (4) rise higher in the tube

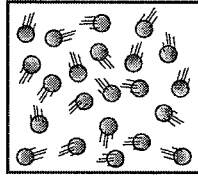
- 39 The diagram below shows a metal spoon in a glass of water.



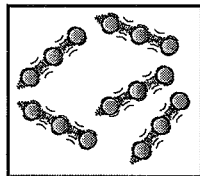
Which process causes the metal spoon to appear split or broken?

- (1) absorption (3) convection
 (2) refraction (4) reflection

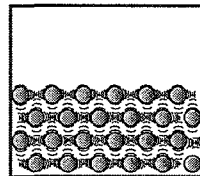
40 The diagram below shows a model of a sample of gas particles at room temperature.



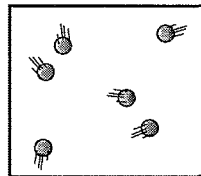
Which diagram best shows the results of removing heat from this sample until it freezes?



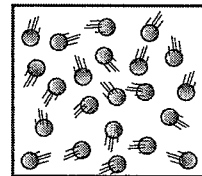
(1)



(2)

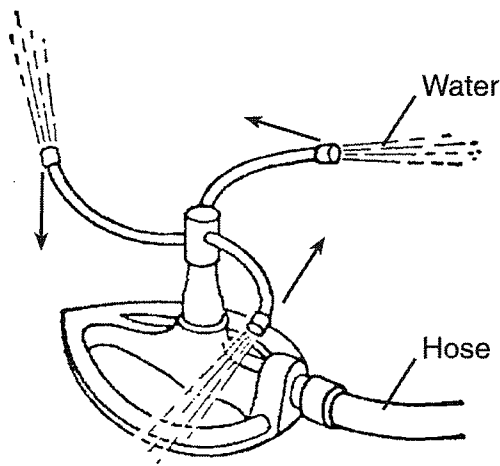


(3)



(4)

41 The diagram below shows a spinning water sprinkler. Water comes through a hose and is sprayed by the sprinkler.



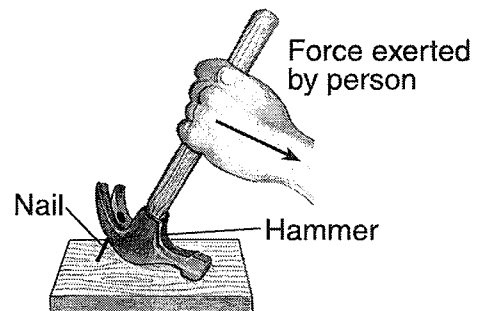
Which principle best explains why the sprinkler spins?

- (1) Every action has an equal and opposite reaction.
- (2) Solid substances are usually more dense than liquid substances.
- (3) Energy is released when water condenses.
- (4) Most substances expand when heated and contract when cooled.

42 The gravitational force between the Moon and Earth depends on

- (1) their masses, only
- (2) their diameters, only
- (3) their masses and how far apart they are
- (4) their diameters and how far apart they are

43 The diagram below shows a hammer being used by a person to remove a nail from a piece of wood.



The hammer is being used as which type of simple machine?

- (1) wheel and axle
- (2) inclined plane
- (3) lever
- (4) pulley

- 44 The data table below shows changes in four different measurements as a human develops from birth to adulthood. Each measurement is expressed as a percentage of the adult value.

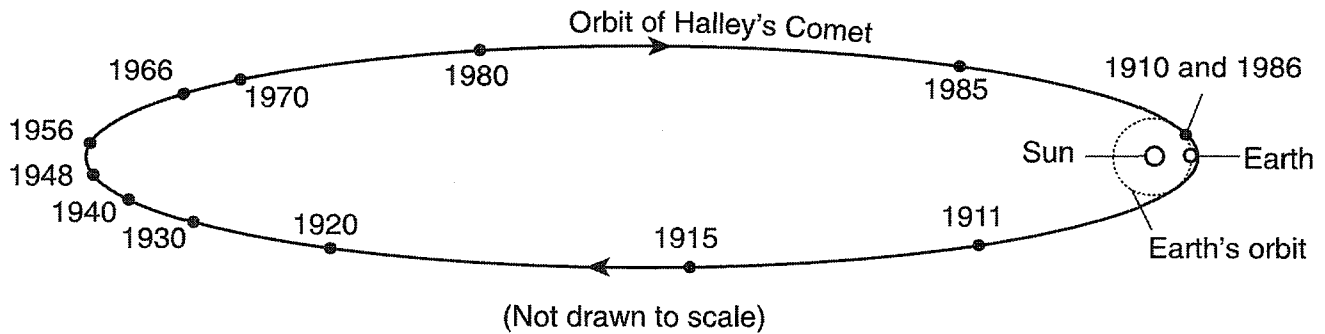
Data Table

Measurement	Percentage of Adult Value (%)		
	Birth	5 Years	Adult
brain weight	25	90	100
head size	60	90	100
height	30	65	100
total body weight	5	30	100

According to the table, which measurement shows the greatest percentage increase from birth to age 5?

- (1) brain weight
 (2) head size
 (3) height
 (4) total body weight

- 45 The diagram below shows the orbit of Halley's Comet around the Sun as viewed from space. Earth's orbit is also shown.



The only years shown in which Halley's Comet could be viewed from Earth without the use of a telescope were 1910 and 1986. What is the next year in which Halley's Comet will be visible from the Earth without the use of a telescope?

- (1) 2010
 (2) 2062
 (3) 2086
 (4) 2110