



Florida Coach Jumpstart, 2.0 Edition, Science, Grade 8

Posttest

Name: _____

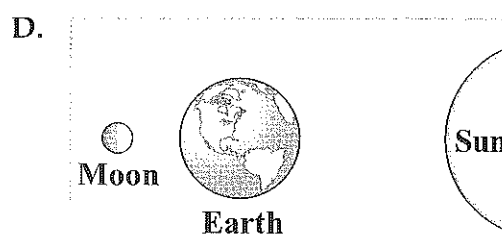
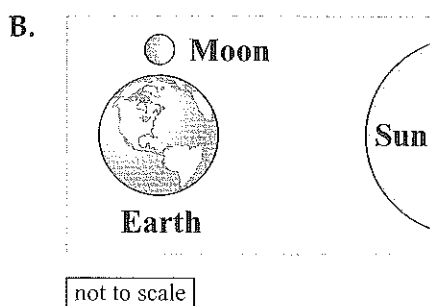
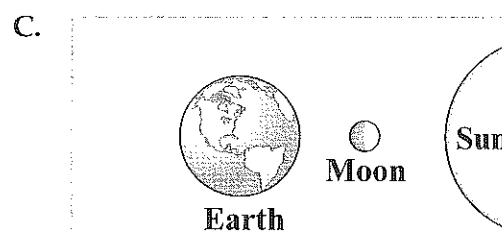
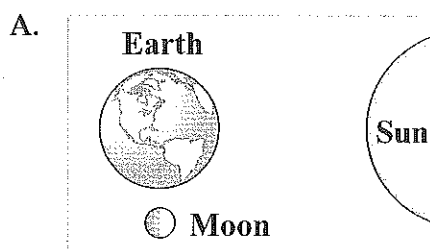
You may need the periodic table to help you answer some of the questions in this test. You may refer to the periodic table on page 109 of this book as often as you like.

- 1 Grace wants to find out how many kinds of organisms live in tide pools on a certain rocky shore. Which of the following would be the **best** investigation for Grace to conduct?
- A. survey
 - B. field study
 - C. experiment
 - D. laboratory study
- 2 Elements are building blocks of matter that combine chemically to form countless compounds. Which of the following are examples of elements?
- F. acid, base, and salt
 - G. silicon, iron, and aluminum
 - H. water, methane, and glucose
 - I. proton, neutron, and electron
- 3 Objects in the solar system have similarities and differences. Which of the following statements **best** describes how Jupiter and Earth compare?
- A. Jupiter is many times larger than Earth.
 - B. Jupiter's period of revolution is shorter than Earth's.
 - C. Jupiter and Earth both have hot surface temperatures.
 - D. Jupiter and Earth are both composed of rock and iron.

- 4 A heartworm lives inside and gets food from a dog. In the process, the dog is harmed by the heartworm. Which of the following relationships is **most** similar to the relationship between the heartworm and the dog?

- F. Rabbits in a pine forest are hunted, killed, and eaten by wolves.
- G. A shark is not affected as it scares away predators that would harm a pilot fish.
- H. Mistletoe damages a pine tree as it grows into and takes up nutrients from the tree.
- I. A bird spreads mistletoe seeds when it eats berries and drops wastes on tree branches.

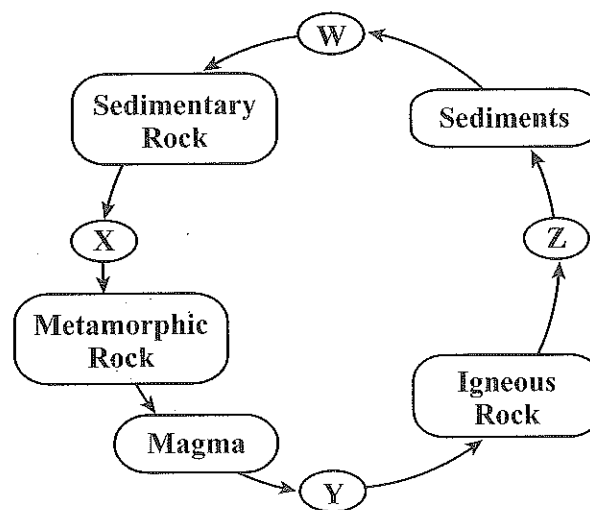
- 5 The changing positions of the moon and Earth relative to the sun can cause an eclipse. Which of the following diagrams shows the positions of the sun, moon, and Earth during a solar eclipse?



- 6 Animal cells and plant cells contain some but not all of the same structures. Which of the following would be found in a plant cell but not in an animal cell?

F. cell membrane
G. cell wall
H. mitochondria
I. nucleus

- 7 Deep inside Earth, heat and pressure cause chemical changes in limestone. The diagram below shows part of the rock cycle.



At which point in the cycle shown above would the process of heat and pressure chemically changing a rock occur?

A. W
B. X
C. Y
D. Z

- 8 The following statements were taken from the procedures of four different investigations.

INVESTIGATION PROCEDURES

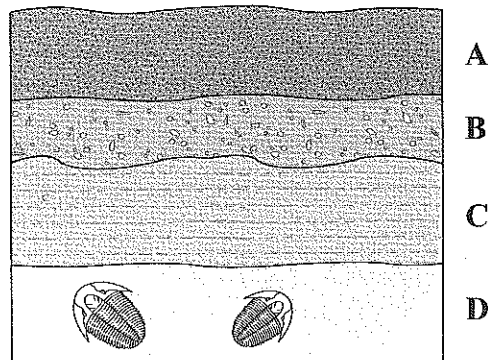
Investigation	Statement
1	Leave the wood outside to see if it combines with oxygen and changes color.
2	Burn the wood with a lighted match until ash forms.
3	Drop the wood in acid to see if bubbles form.
4	Sand the wood until its surface feels very smooth.

The statement from which investigation is an example of how to cause a physical change?

- F. 1
- G. 2
- H. 3
- I. 4

For questions 9, 10, and 11, refer to the following passage and illustration.

Scientists learn about Earth's history by studying rock layers and the fossils they sometimes contain. The diagram below shows undisturbed sedimentary rock layers and fossils found in one of the layers. The rock layers are exposed on a hillside. The fossils formed from the remains of trilobites, ocean animals that lived millions of years ago.



- 9 Which of the following statements **best** describes the relative ages of the rock layers in the diagram?
- A. D is older than B.
 - B. B is older than C.
 - C. A and B are the same age.
 - D. A was the first layer to form.

- 10 Which of the following is a conclusion supported by evidence in the sedimentary rock layers shown in the diagram?
- F. All organisms in this location have become extinct.
 - G. The environment at this location has changed over time.
 - H. The environment at this location has not changed over time.
 - I. The organisms living in this location have not changed over time.
- 11 Which of the following describes a specific relationship in nature that can be used to determine the relative ages of rock layers and fossils?
- A. theory of evolution
 - B. law of superposition
 - C. theory of plate tectonics
 - D. law of conservation of energy

- 12 Scientific ideas about the solar system have changed over time. Which of the following statements **best** compares older models of the solar system with the currently accepted model?
- F. In older models, Earth's distance from the sun changed, while in the current model, Earth's distance from the sun is constant.
 - G. Older models showed planets moving in circular orbits, while in the current model, planets move in elliptical orbits.
 - H. In older models, Venus was closest to the sun, while in the current model, Mercury is closest to the sun.
 - I. Older models included ten planets, while the current model includes eight planets.
- 13 Christopher states the hypothesis that a mouse's body temperature decreases as the air temperature around the mouse decreases. He wants to design an experiment to test his hypothesis. What should the dependent variable be in this experiment?
- A. the air temperature
 - B. the mass of the mouse
 - C. the mouse's body temperature
 - D. the amount of time for the experiment
- 14 When David's body temperature drops, his musculoskeletal system responds by making his teeth chatter. Which system in David's body triggers this response in his musculoskeletal system?
- F. nervous system
 - G. skeletal system
 - H. circulatory system
 - I. respiratory system

- 15 Litmus paper is often used as an indicator to find the pH of a substance and determine if the substance is an acid or base. The procedure for an investigation using litmus paper to classify substances is shown below. The steps of the procedure should be performed in a certain order.

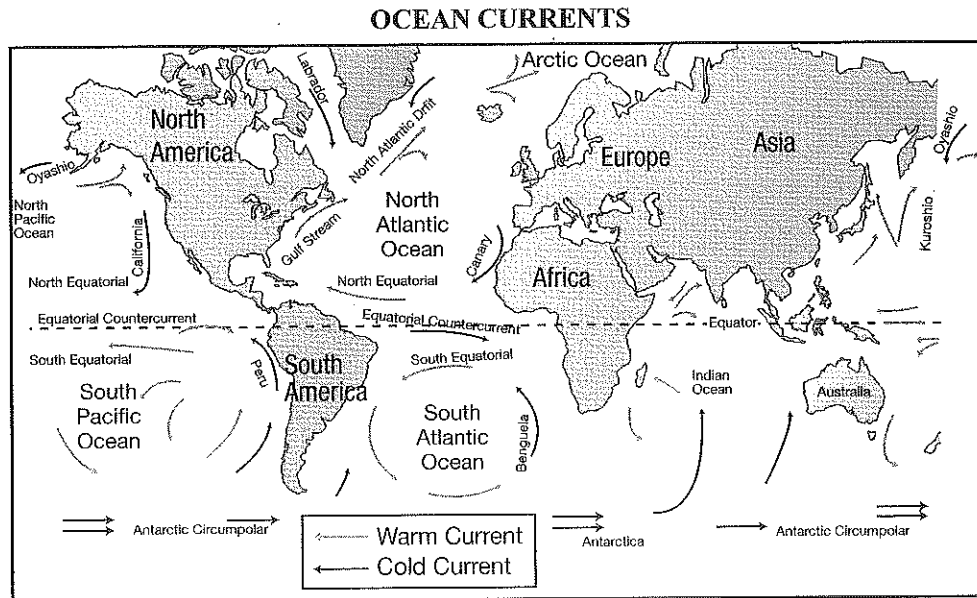
STEPS IN AN INVESTIGATION

Step	Procedure
1	Label each cup with the name of the substance.
2	Dip a strip of red litmus paper into each cup. Record your observations.
3	Put a small amount of each substance into the cup matching its label.
4	Dip a strip of blue litmus paper into each cup. Record your observations.
5	Gather some common acids and bases such as lemon juice, ammonia, vinegar, and milk of magnesia.
6	Dispose of your materials properly and clean up your work station.
7	Arrange your results in a data table.

Which of the following lists these steps in the order in which they should be performed during the investigation?

- A. 5, 1, 3, 2, 4, 6, 7
- B. 5, 2, 4, 3, 1, 6, 7
- C. 5, 6, 1, 3, 2, 4, 7
- D. 5, 1, 3, 2, 7, 6, 4

- 16 The map below shows the paths of some of Earth's ocean currents.



Which of the following is **most likely** an effect of the Gulf Stream on the east coast of Florida?

- F. cooler water temperatures
- G. warmer air temperatures
- H. higher air pressure
- I. lower humidity

- 17 Elements are organized on the periodic table according to their properties. A section of the periodic table is shown in the diagram below.

	9 F 18.998 Fluorine	10 Ne 20.179 Neon
16 S 32.065 Sulfur	17 Cl 35.453 Chlorine	18 Ar 39.948 Argon

Which two elements **most likely** have similar properties?

- A. argon and chlorine
 - B. chlorine and fluorine
 - C. fluorine and neon
 - D. sulfur and chlorine
- 18 An alligator needs a mate in order to produce offspring. Which of the following **best** describes the process by which alligators produce offspring?
- F. asexual reproduction by meiosis
 - G. asexual reproduction by mitosis
 - H. sexual reproduction by meiosis
 - I. sexual reproduction by mitosis

19 Which of the following describes one way in which electrical force and magnetic force are similar?

- A. Both electrical force and magnetic force act only between objects that touch each other.
- B. Like electrical charges attract each other, just as like magnetic poles attract each other.
- C. Both electrical force and magnetic force act between all objects in the universe.
- D. Both electrical force and magnetic force are noncontact forces.

20 A population of raccoons lives in a wetland. The raccoons have many inherited variations in their traits. Which of the following statements **best** describes the genetic variation of this population?

- F. It increases the population's chances of survival if the wetland changes.
- G. It decreases the population's chances of survival if the wetland changes.
- H. It increases the population's chances of survival if the wetland stays the same.
- I. It decreases the population's chances of survival if the wetland stays the same.

21 Gabriel used an old basketball to model the sun. He altered the ball's surface to show the sun's surface features. First he painted the surface orange. Then he used a dark brown marker to draw groups of small ovals on the surface, and he filled the ovals in. Which of the following did these ovals **most likely** represent?

- A. prominences
- B. solar flares
- C. solar wind
- D. sunspots

- 22 The following statements were taken from the procedures of four different investigations.

INVESTIGATION PROCEDURES

Investigation	Statement
1	To make a mixture, stir together the following five substances in a beaker: salt, pepper, glass beads, iron filings, and water.
2	Tear the paper strip into five pieces of about the same size.
3	Conduct five trials, measuring and comparing the total mass of the substances before and after the chemical reaction occurs.
4	In each of the two beakers, dissolve 10 grams (g) of sugar in 200 milliliters (mL) of water.

The statement from which investigation is an example of repetition?

- F. 1
- G. 2
- H. 3
- I. 4

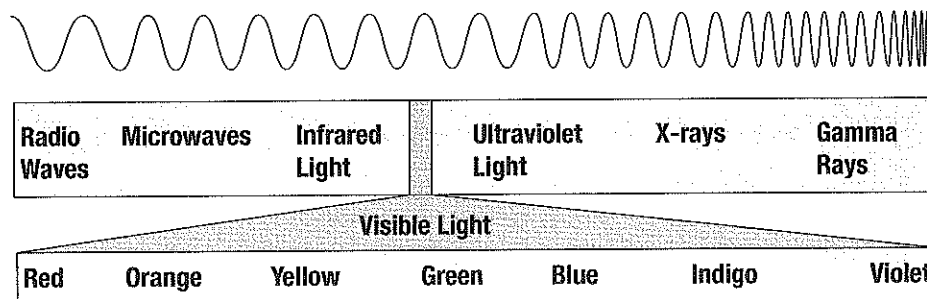
- 23 The geosphere is one of Earth's many parts. Which of the following statements describes part of the geosphere?

- A. Sediment includes the sand and pebbles found on a beach.
- B. Horses and earthworms are many-celled organisms.
- C. Nitrogen gas is the most common substance in air.
- D. Glaciers are huge sheets of ice that move slowly.

For questions 24, 25, and 26, refer to the following passage, illustration, and table.

Mia studied the range of electromagnetic energy that makes up the electromagnetic spectrum. She used what she learned to draw a diagram and compile a table like the ones below. She also learned that red light has the longest wavelength of all colors of visible light.

ELECTROMAGNETIC SPECTRUM



TYPES OF ELECTROMAGNETIC RADIATION

Type	Characteristics and Uses
Radio waves	Lowest energy; transmit radio and television signals
Microwaves	Used in microwave ovens and cell phones
Infrared light	Can be felt as heat
Visible light	Can be seen by humans; used by plants to produce food
Ultraviolet light	Used to treat some skin conditions
X-rays	Can travel through soft objects such as skin; used for imaging
Gamma rays	Highest energy; used to sterilize medical equipment

24 Based on what Mia learned, which of the following types of electromagnetic radiation has the longest wavelength?

- F. red light
- G. violet light
- H. radio waves
- I. infrared light

25 Based on what Mia learned, which of the following types of electromagnetic radiation has the highest frequency?

- A. ultraviolet light
- B. radio waves
- C. red light
- D. X-rays

26 Based on the information in the table, which of the following types of electromagnetic radiation provides the energy used in the process of photosynthesis?

- F. radio waves
- G. microwaves
- H. visible light
- I. X-rays

27 The inherited traits of a whale include the ability to swim and reproduce. Which of the following statements **best** describes these traits of a whale?

- A. The traits are controlled by the whale's eggs or sperm in its reproductive system.
- B. The traits are controlled by the chromosomes located inside the whale's genes.
- C. The traits are controlled by genetic instructions called reproductive organs.
- D. The traits are controlled by genes located on the whale's chromosomes.

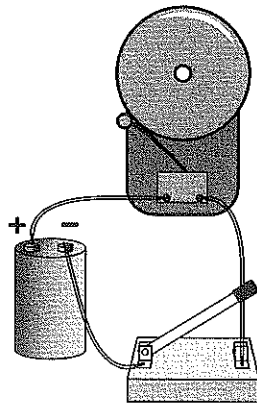
28 A light-year is a unit of measurement. One light-year is the distance light travels in one Earth year, which is equal to about 9.5 trillion kilometers. Which of the following distances would this unit of measurement be **most** appropriately used to measure?

- F. Earth to the sun
- G. the sun to Jupiter
- H. Earth to the moon
- I. the sun to another star

29 An earthquake occurs when rock in Earth's crust breaks or slips, quickly releasing pressure. In which location is an earthquake **least likely** to occur?

- A. in the middle of a plate
- B. at a boundary where plates pull apart
- C. at a boundary where plates push together
- D. at a boundary where plates slide past each other

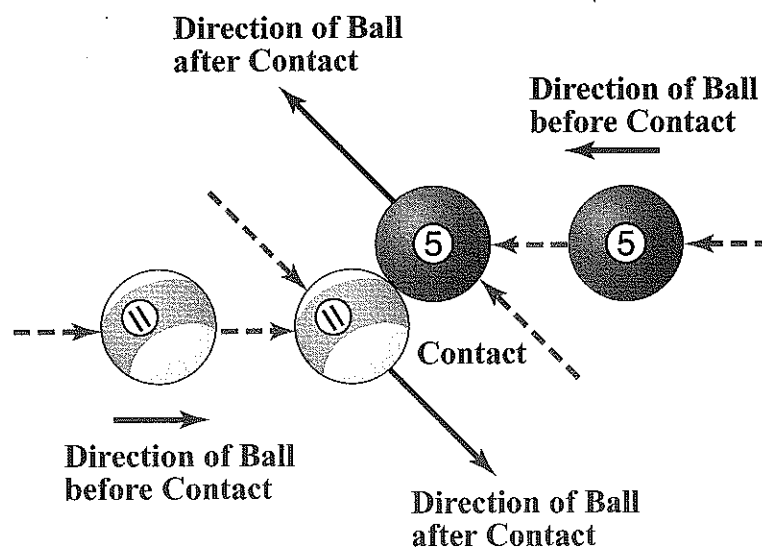
- 30 Anthony has constructed the circuit shown in the diagram below. When the switch is closed, electrical charges flow through the circuit, causing the clapper to move. The clapper strikes the bell, causing it to ring.



Which of the following **best** describes the energy transformation that takes place between the clapper and the bell?

- F. Mechanical energy is transformed into electrical energy.
 - G. Electrical energy is transformed into mechanical energy.
 - H. Mechanical energy is transformed into sound energy.
 - I. Electrical energy is transformed into sound energy.
- 31 Animals and plants use the process of cellular respiration to release energy stored in their food. Which of the following statements **best** describes cellular respiration?
- A. More energy is present after cellular respiration than before.
 - B. Less energy is present after cellular respiration than before.
 - C. Energy does not change during cellular respiration.
 - D. Energy changes form during cellular respiration.

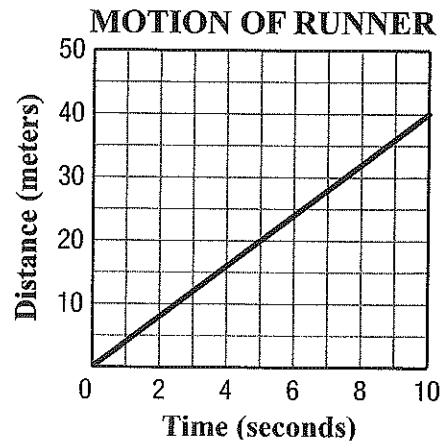
- 32 The diagram below shows the motion of two pool balls before and after they collided.



Which of the following statements **best** describes the forces that act on the balls when they collide?

- F. Balanced forces act on both balls.
- G. Unbalanced forces act on both balls.
- H. Balanced forces act on the 5 ball, and unbalanced forces act on the 11 ball.
- I. Unbalanced forces act on the 5 ball, and balanced forces act on the 11 ball.

- 33 The graph below shows the motion of a runner over time.



Based on the information in the graph, which of the following statements **best** describes the motion of the runner?

- A. The runner's speed was less at 4 seconds than at 2 seconds.
 - B. The runner's speed was decreasing for the last 4 seconds.
 - C. The runner's speed was increasing for all 10 seconds.
 - D. The runner's speed was constant for all 10 seconds.
- 34 The interaction between the atmosphere and the hydrosphere can affect weather in and around Florida. Which term describes water moving from the atmosphere into the Gulf of Mexico?
- F. groundwater
 - G. precipitation
 - H. runoff
 - I. transpiration

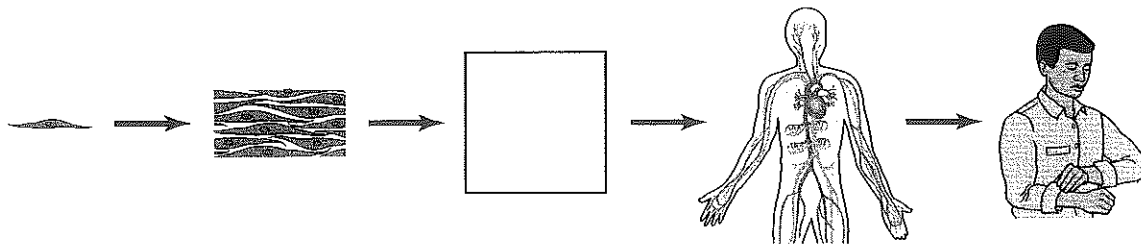
- 35 Abigail sorted six kinds of organisms into three groups, as shown in the table below.

GROUPS OF ORGANISMS

Group 1	Group 2	Group 3
Cotton plants Palm trees	Deer Snakes	Certain bacteria Mushrooms

Which of the following organisms could Abigail add to Group 1?

- A. algae
 - B. earthworms
 - C. grasshoppers
 - D. minnows
- 36 The structures in an animal's body work together to perform certain functions. The diagram below shows the organization of structures found in a boy's body.

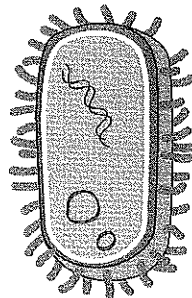


A picture of which of the following structures belongs in the box above?

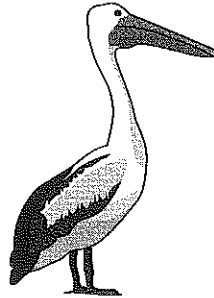
- F. cell
- G. organ
- H. organ system
- I. tissue

- 37 Joshua has a mixture of sand and iron filings. Which physical property would **best** help Joshua separate the filings from the sand?
- A. conductivity
 - B. density
 - C. magnetism
 - D. solubility
- 38 Using a telescope, Emily observes two stars. She records her observations that star A is yellow and star B is blue. Which of the following inferences can Emily make based on her observations?
- F. Star A is farther from Earth than star B.
 - G. Star A is closer to Earth than star B.
 - H. Star A is hotter than star B.
 - I. Star A is cooler than star B.

- 39 The cell theory applies to all organisms, including the two shown below.



Bacterium



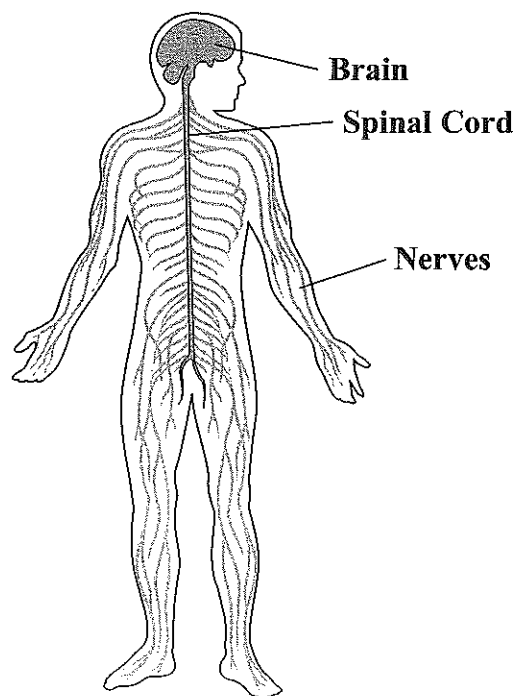
Pelican

not to scale

Which of the following statements describes how these organisms are examples of the cell theory?

- A. The organisms are made up of cells that make their own food.
 - B. The cells of the organisms come from other living cells.
 - C. The organisms are made up of more than one cell.
 - D. The cells of the organisms have cell walls.
- 40 There are a variety of different landforms throughout Florida and the United States. Which of the following landforms are found in other states but are NOT found in Florida?
- F. dunes
 - G. floodplains
 - H. mountains
 - I. lakes

- 41 The human body contains several organ systems, each with a specific function. The diagram below shows one organ system of the human body.

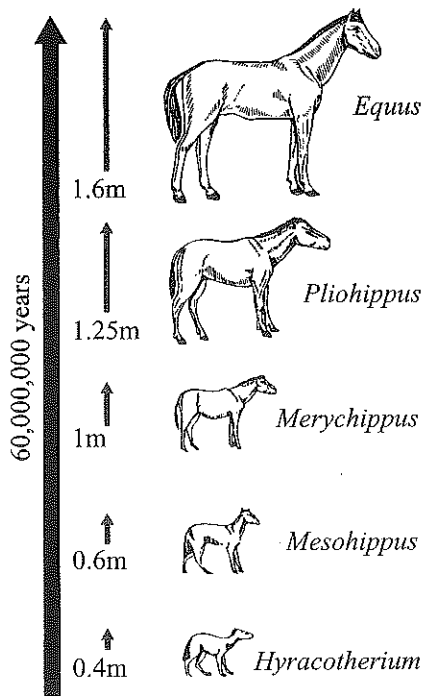

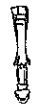










What is the function of this organ system?

- A. to remove waste products from blood and release them from the body
- B. to break down food into substances that the body's cells can use
- C. to transmit messages between different parts of the body
- D. to defend the body against organisms that cause disease

- 42 Scientists think that the modern horse (*Equus*) is related to a long line of extinct organisms that once lived on Earth. Scientists have learned about the horse's extinct ancestors from their fossils. The chart below is based on this fossil evidence.

EVOLUTION OF THE HORSE

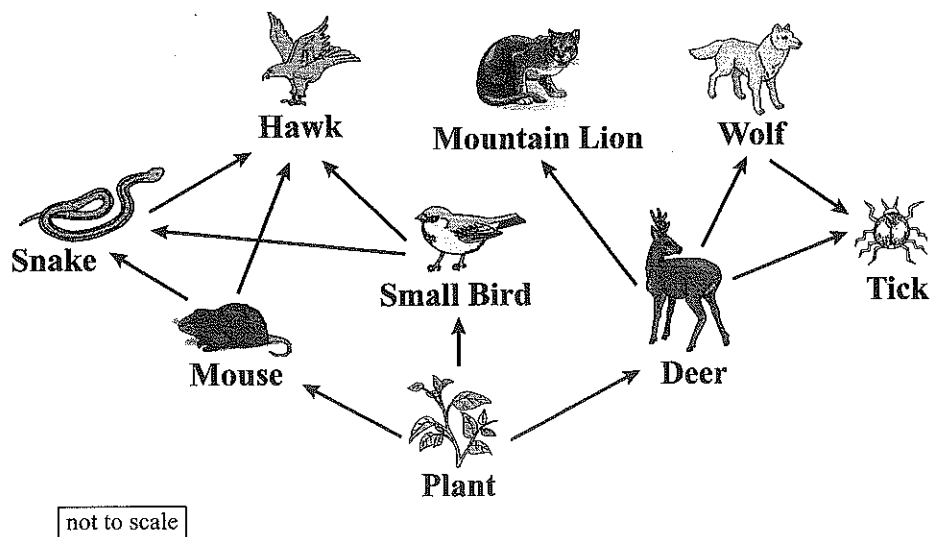
Equid Species (height)	Forefeet	Molar Teeth
 60,000,000 years 1.6m <i>Equus</i> 1.25m <i>Pliohippus</i> 1m <i>Merychippus</i> 0.6m <i>Mesohippus</i> 0.4m <i>Hyracotherium</i>	 One hoof  One toe  Three toes  Three toes  Four toes	 Larger, long-crowned, cement-covered  Larger, tougher, short-crowned, with cement  Larger, stronger, short-crowned, with cement  Larger, short-crowned, without cement  Small, short-crowned, without cement

Based on the fossil evidence in the diagram, which of the following is the **best** conclusion about the evolution of the modern horse?

- F. The modern horse evolved from an animal that had twice as many teeth.
- G. The modern horse evolved from an animal that was probably a predator.
- H. The modern horse evolved from an animal that had two toes on each forefoot.
- I. The modern horse evolved from an animal that was less than one-third the height of the modern horse.

- 43 Elijah observes a flower and sees that its color is yellow. Which of the following describes why Elijah sees this color of the flower?
- A. The flower absorbs and reflects light.
 - B. The flower absorbs and refracts light.
 - C. The flower reflects and refracts light.
 - D. The flower refracts and blocks light.
- 44 When the sun rises, it warms the surface water in a pond and a metal boat floating in the water. The water evaporates, and the metal expands and rusts. Which of the following is an example of a chemical change?
- F. the water warming up
 - G. the water evaporating
 - H. the metal expanding
 - I. the metal rusting
- 45 Most scientists today classify all organisms in three domains. Which of the following domains are made up of organisms whose cells do not have nuclei?
- A. only Archaea
 - B. Archaea and Bacteria
 - C. Archaea and Eukarya
 - D. Bacteria and Eukarya

- 46 Food webs show the relationships among different kinds of organisms. The diagram below shows a food web.



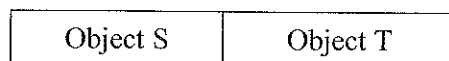
Which group of organisms is missing from the food web shown?

- F. consumers
 - G. decomposers
 - H. parasites
 - I. producers
- 47 The universe is a vast place made up of many different structures. Which of the following statements **best** describes how two structures of the universe compare?
- A. A galaxy is many times smaller than the solar system.
 - B. The solar system is many times smaller than the sun.
 - C. Earth is many times larger than the solar system.
 - D. The sun is many times larger than Earth.

- 48 Jada measured the masses of a small amount of baking soda and a small amount of vinegar. She mixed the baking soda and vinegar together in a large graduated cylinder. She observed that bubbles formed in the mixture. When the bubbles stopped forming, she measured the mass of the cylinder's contents. She found that this mass was less than the combined mass of the baking soda and vinegar before mixing. She concluded that a gas had formed and escaped into the air. Which of the following statements **best** defends Jada's conclusion?

- F. Mass is always conserved when substances undergo a chemical change.
- G. Energy is always conserved when substances undergo a physical change.
- H. Solids are always destroyed when substances undergo a physical change.
- I. Gases are always produced when substances undergo a chemical change.

- 49 At noon, two objects were arranged as shown in the diagram below. For one hour, heat flowed from object T to object S.



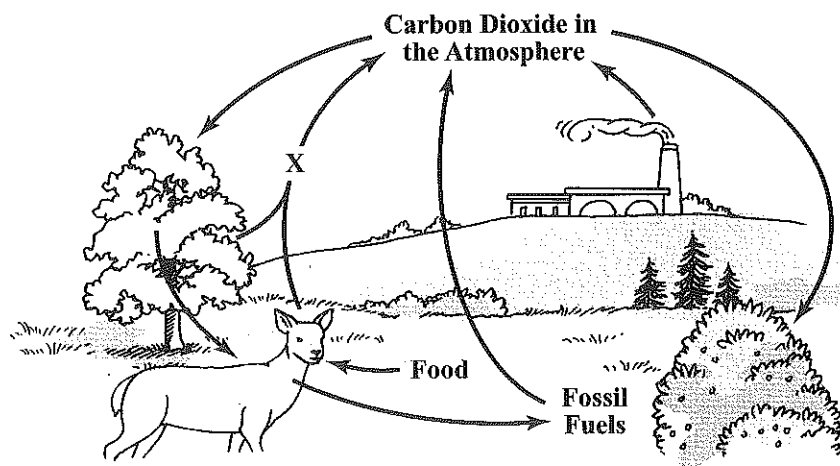
Based on this information, which of the following **best** compares the two objects?

- A. At noon, the temperature of object T was lower than the temperature of object S.
- B. At noon, the temperature of object T was higher than the temperature of object S.
- C. At noon, the temperature of object T was the same as the temperature of object S.
- D. At 1:00 p.m., the temperature of object S was higher than the temperature of object T.

- 50 A mouse is hunted and eaten by a hawk. Which of the following statements **best** describes the relationship between the organisms?

F. The mouse is the hawk's predator.
G. The mouse is the hawk's parasite.
H. The mouse is the hawk's host.
I. The mouse is the hawk's prey.

- 51 A diagram of the carbon cycle is shown below.



In the diagram, which process does the arrow labeled with the letter X represent?

- A. cellular respiration
B. combustion
C. decomposition
D. photosynthesis

52 Different methods are used in conducting investigations in different fields of science. Which of the following is a scientist in the field of physics **most likely** to do?

- F. model how volcanoes erupt
- G. observe fish in ocean ecosystems
- H. conduct laboratory experiments on light
- I. conduct laboratory experiments on rocks

53 Deposition is a process that builds up Earth's surface. Which of the following events **most likely** causes deposition to occur?

- A. A glacier melts.
- B. Rain falls slowly.
- C. A river flows faster.
- D. Ocean waves pick up speed.

54 At a science conference, a scientist presented the results of his field study on dinosaur fossils. Other scientists disagreed with the conclusions, and a debate occurred. How might this debate **most likely** benefit scientific knowledge?

- F. by leading to fewer investigations of fossils and more direct observations of dinosaurs
- G. by leading to the rewriting of the law of superposition and other scientific laws
- H. by leading to new investigations and a greater understanding of fossils
- I. by leading to fewer field studies and more laboratory experiments

- 55 The equation for density is shown below.

$$\text{density} = \frac{\text{mass}}{\text{volume}}$$

or

$$D = \frac{m}{V}$$

The density of gold is 19.3 g/cm^3 . The density of iron is 7.9 g/cm^3 . A sample of silver has a volume of 4.0 cm^3 and a mass of 42 g . How does silver compare with gold and iron in density?

- A. Silver is denser than either gold or iron.
- B. Silver is less dense than either gold or iron.
- C. Silver is denser than gold and less dense than iron.
- D. Silver is denser than iron and less dense than gold.

- 56 The table below lists the speed of sound, in meters per second (m/s), in seven different materials.

SPEED OF SOUND IN MATERIALS

Material	Speed of Sound (m/s)
Carbon dioxide	259
Oxygen	316
Air	331
Water	1482
Lead	1960
Glass	5640
Steel	5960

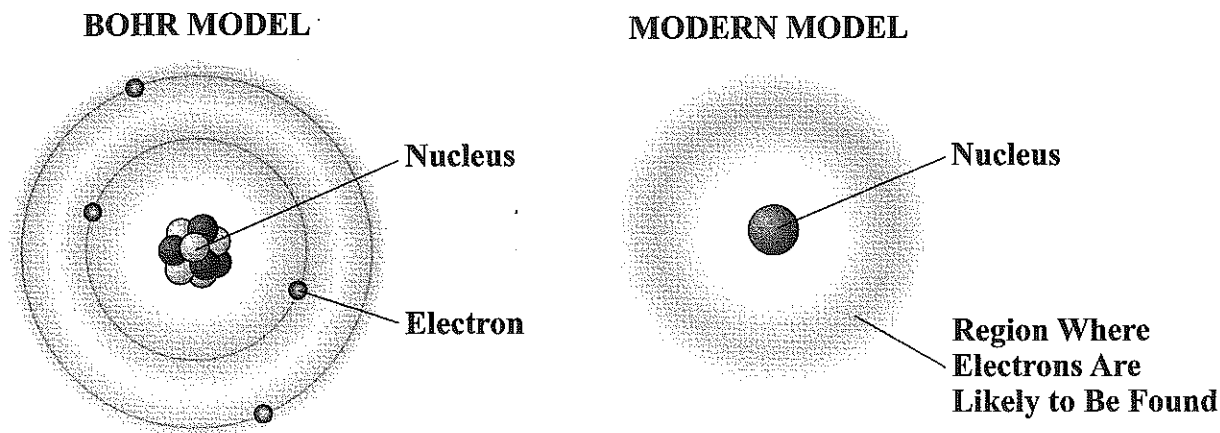
Based on the information in the table, which of the following is the **best** conclusion about the speed of sound?

- F. Sound travels more slowly through liquids than through gases.
- G. Sound travels faster through water than through other liquids.
- H. Sound travels at about the same speed through all solids.
- I. Sound travels faster through solids than through gases.

- 57 A scientist designs and conducts an experiment to see if a new skin cream heals burns faster than an existing cream. Which of the following should the scientist do next to make sure the investigation and results are valid?

- A. conduct many trials of the same experiment
- B. share the results right away with other scientists
- C. design and conduct a new experiment to test a different cream
- D. design and conduct a new experiment to test more than one variable

- 58 Two recent models of the atom are shown below. The modern model has replaced the Bohr model in current scientific thinking.



Which of the following statements **best** explains why the atomic model has changed?

- F. Evidence from new investigations led to the development of the modern model.
 - G. Scientists developed the modern model to support a new hypothesis.
 - H. Too many years passed after the Bohr model was developed.
 - I. Scientists decided that the Bohr model was too complicated.
- 59 Temperatures in Florida tend to be cooler in January than in July. Which of the following explains this difference in temperatures during different times of the year?
- A. How fast Earth spins on its axis changes during the year.
 - B. The tilt of Earth's axis changes during the year.
 - C. Earth's distance from the sun changes during the year.
 - D. How much direct sunlight Florida receives changes during the year.

60 Energy can be transformed from one form into another. Which of the following is an example of electrical energy being transformed into mechanical energy?

- F. an electric fan turning
- G. an electric light glowing
- H. a drummer playing a drum
- I. a river turning a water wheel

61 A new species of woodpecker with a very long beak evolves. Which statement **most likely** explains how the environment influenced the development of this new species?

- A. The long beak is a trait developed through genetic engineering to make the woodpecker more popular with breeders.
- B. The long beak is an adaptation developed through natural selection to help woodpeckers fight off newly evolved predators.
- C. The long beak is an adaptation developed through natural selection to help woodpeckers hunt insects that live deep in tree trunks.
- D. The long beak is a trait inherited from another bird species that moved to the woodpecker's environment to mate with woodpeckers.

62 When new information is discovered, scientific knowledge changes. Which of the following would NOT be a result of new evidence changing scientific knowledge?

- F. A new volcanic island is added to a map of the Pacific Ocean.
- G. A prey population decreases when a new predator moves into an area.
- H. New data about a space body results in its being reclassified as a moon.
- I. A newly discovered organism from the deep ocean is classified as an animal.

- 63 The data table below lists the properties of four unknown substances.

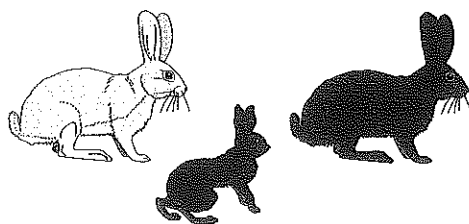
SUBSTANCE PROPERTIES

Substance	pH	Color	State
1	1.5	Yellow	Liquid
2	4.5	Clear	Liquid
3	7.0	Clear	Liquid
4	10.2	Clear	Liquid

Based on the data in the table, which substance is a base?

- A. Substance 1
 - B. Substance 2
 - C. Substance 3
 - D. Substance 4
- 64 There are many different fields of science, each with its own ways of pursuing scientific knowledge. In which field of science would a laboratory experiment on cell division **most likely** be conducted?
- F. biology
 - G. chemistry
 - H. geology
 - I. physics

- 65 The sun's energy heats Earth's surface unevenly, resulting in convection currents in the atmosphere. Which of the following result from these convection currents?
- A. global winds and local winds
 - B. land breezes but not sea breezes
 - C. global winds but not local winds
 - D. local winds but not global winds
- 66 Two rabbits, one with white hair and one with black hair, produce an offspring. The diagram below shows the rabbit parents and offspring.



In rabbits, black hair (B) is a dominant trait, while white hair (b) is a recessive trait. Which of the following statements **best** explains the young rabbit's hair color?

- F. The young rabbit inherited at least one allele for black hair from one of its parents.
- G. The young rabbit inherited at least two alleles for white hair from one of its parents.
- H. The young rabbit inherited at least two alleles for black hair, one from each of its parents.
- I. The young rabbit inherited at least two alleles for white hair, one from each of its parents.

Periodic Table of the Elements

(based on $^{12}_6\text{C} = 12.0000$)

Representative
Elements

14	Atomic number
Si	Symbol
Silicon	Name
28.086	Average Atomic Mass

Group

Period	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1A	2A											3A	4A	5A	6A	7A	8A
2	Li Lithium 6.941	Be Beryllium 9.012											B Boron 10.81	C Carbon 12.011	N Nitrogen 14.007	O Oxygen 15.999	F Fluorine 18.998	Ne Neon 20.180
3	Na Sodium 22.990	Mg Magnesium 24.305	3B	4B	5B	6B	7B						Al Aluminum 26.982	Si Silicon 28.086	P Phosphorus 30.974	S Sulfur 32.06	Cl Chlorine 35.453	Ar Argon 39.948
4	K Potassium 39.098	Ca Calcium 40.078											Ga Gallium 69.723	Ge Germanium 72.61	As Arsenic 74.922	Se Selenium 78.96	Br Bromine 79.904	Kr Krypton 83.80
5	Rb Rubidium 85.468	Sr Strontium 87.62											In Indium 114.82	Sn Tin 118.710	Sb Antimony 121.757	Te Tellurium 127.60	I Iodine 126.905	Xe Xenon 131.29
6	Cs Cesium 132.905	Ba Barium 137.327											Tl Thallium 204.383	Pb Lead 207.2	Bi Bismuth 208.980	Po Polonium 209	At Astatine 210	Rn Radon 222
7	Fr Francium 223	Ra Radium 226.025																

Metals

Nonmetals

Transition Metals

Inner Transition Metals

Lanthanide series

58	Ce Cerium 140.12	59	Pr Praseodymium 140.908	60	Nd Neodymium 144.24	61	Pm Promethium (144.913)	62	Sm Samarium 150.36	63	Eu Europium 151.96	64	Gd Gadolinium 157.25	65	Tb Terbium 158.925	66	Dy Dysprosium 162.50	67	Ho Holmium 164.930	68	Er Erbium 167.26	69	Tm Thulium 168.934	70	Yb Ytterbium 173.04	71	Lu Lutetium 174.967
90	Th Thorium 232.038	91	Pa Protactinium 231.036	92	U Uranium 238.029	93	Np Neptunium 237.048	94	Pu Plutonium 244.064	95	Am Americium 243.061	96	Cm Curium 247.070	97	Bk Berkelium 247.070	98	Cf Californium 251.080	99	Es Einsteinium 252.083	100	Fm Fermium 257.095	101	Md Mendelevium 258.10	102	No Nobelium 259.101	103	Lr Lawrencium 260.105

Actinide series

