

common assessment one

Question 1

A student designs an experiment to determine how surface type affects the amount of force needed to roll a ball 20 meters. What is the independent variable?

- A the lengths of the surfaces
- B the force needed to roll the ball
- C the type of surfaces used
- D the type of ball chosen

Question 2

The table below shows data used to calculate the speed of 4 identical toy cars moving down a ramp.

Table of Toy Car Trials

Car Color	Trial 1 Time (seconds)	Trial 2 Time (seconds)	Distance (centimeters)	Timer
Red	31	39	300	Student 1
Blue	30	33	300	Student 2
Yellow	37	40	300	Student 3
Green	33	28	300	Student 4

Which part of the experiment is most likely the source of error in this investigation?

- (A) Car Color
- (B) Car Type
- (C) Distance
- (D) Timer

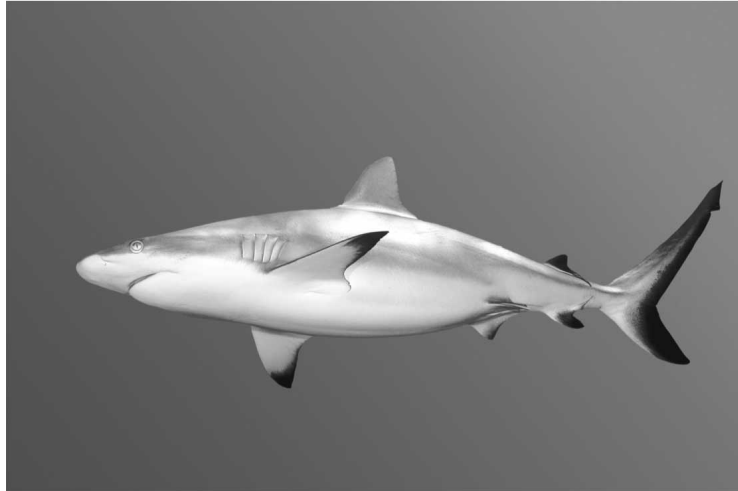
Question 3

A technology company has identified the need for smaller, longer-lasting batteries to use in hybrid vehicles. What would be the first step engineers would take to design and produce an improved battery?

- A test the new battery
- B reshape the existing battery
- C research current battery technology
- D build a prototype battery

Question 4

An organism like the one shown in the picture below is caught in a net.



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Classification Key

- | | |
|---|----------------------|
| 1a. The organism has feathers | Class Aves |
| 1b. The organism has no feathers..... | Go to 2 |
| 2a. The organism has no hair..... | Go to 3 |
| 2b. The organism has hair or hair-like structures.... | Go to 4 |
| 3a. The organism has gills..... | Class Chondrichthyes |
| 3b. The organism has lungs..... | Class Reptilia |
| 4a. The organism has four legs | Class Mammalia |
| 4b. The organism has six legs | Class Insecta |

Using the classification key above, identify the organism's class.

- A Class Insecta
- B Class Reptilia
- C Class Mammalia
- D Class Chondrichthyes

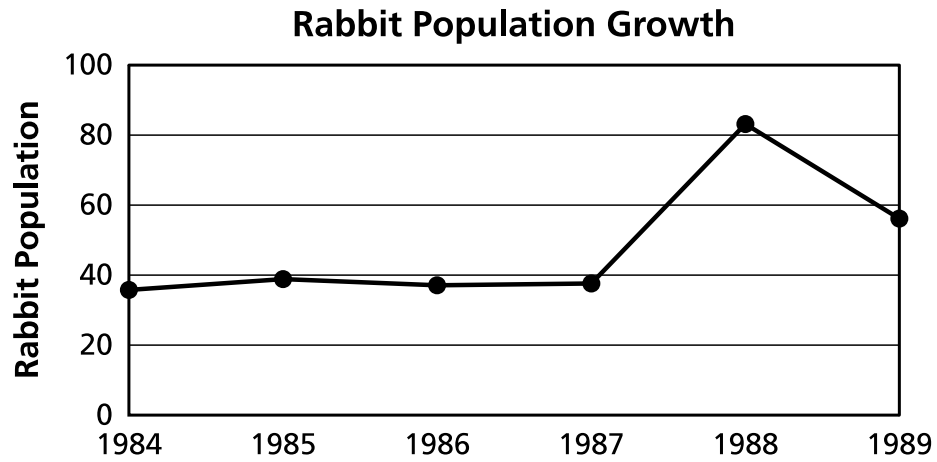
Question 5

Which population would best be adapted to maneuver in a rocky, mountainous region?

- (A) a population of organisms with hooves
- (B) a population of organisms with thick fur
- (C) a population of organisms with gills
- (D) a population of organisms with moist skin

Question 6

The graph below illustrates the growth of a rabbit population.

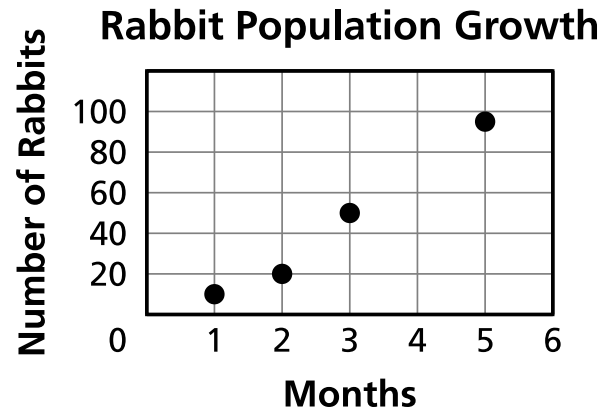


Which most likely occurred between 1987 and 1988?

- (A) There was a decrease in available amount of food.
- (B) There was an increase in competition.
- (C) There was a decrease in the predator population.
- (D) There was an illness among the population.

Question 7

The graph shows a rabbit population that has increased due to the lack of predators.



Which table correctly displays the population data?

Rabbit Population

(A)

Months	Population
1	5
2	50
3	60
5	85

Rabbit Population

(C)

Months	Population
1	10
2	15
3	35
5	75

Rabbit Population

(B)

Months	Population
1	10
2	20
3	50
5	95

Rabbit Population

(D)

Months	Population
1	20
2	30
3	75
5	120

Question 8

Ethanol, often produced from corn, is being added to gasoline in an attempt to reduce the amount of fossil fuel usage. Which is an unintended consequence of ethanol use?

- A cost of corn products increases
- B improvement in gas mileage
- C conservation of fossil fuels
- D improved health of environment

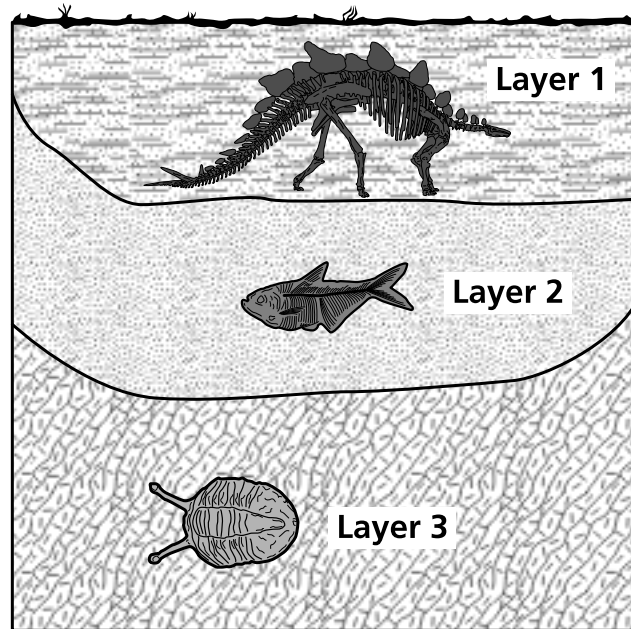
Question 9

The clear-cutting of forests due to urban development will most likely result in

- A decreased forest biodiversity.
- B increased oxygen production.
- C decreased urban populations.
- D increased organism diversity.

Question 10

The diagram below shows three substrate layers with fossils.



Which statement is best supported by the diagram?

- A The fossil in Layer 1 is older than the fossil in Layer 2.
- B The fossil in Layer 3 is older than the fossil in Layer 2.
- C The fossils in Layers 2 and 3 are from closely related organisms.
- D The fossils in Layers 1 and 3 are from closely related organisms.

Question 11

A new substance is usually formed when two or more substances combine and form new

- A protons.
- B chemical bonds.
- C physical shapes.
- D electrons.

Question 12

Which is classified as an element?

A NaCl

B CO₂

C Na

D H₂O

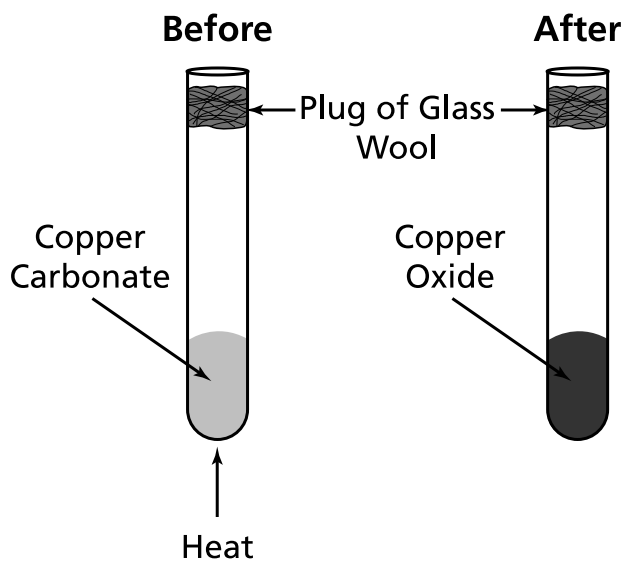
Question 13

Which combination of substances is a compound?

- (A) salt and water stirred in a glass
- (B) food coloring in frosting
- (C) peanut butter and jelly sandwich
- (D) sulfur dioxide and water forming acid rain

Question 14

Copper carbonate being heated in a test tube is shown in the diagram below.



Which statement best describes what happened in this experiment?

- (A) Copper carbonate reacted with the glass wool, causing a physical change.
- (B) Copper carbonate decomposed when heated, causing a chemical change.
- (C) Copper oxide reacted with the glass wool, causing a physical change.
- (D) Copper oxide decomposed when heated, causing a chemical change.

Question 15

The steps used to determine the mass of sugar dissolved in a beaker of water are shown in the table below.

Table of Lab Steps

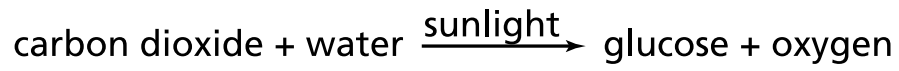
1. Find the mass of the sugar crystals on the wax paper
2. Boil the sugar water solution in the beaker
3. Scrape the sugar crystals out onto the wax paper
4. Find the mass of a piece of wax paper
5. Subtract the mass of the wax paper from the total mass
6. Wait until all the water has evaporated to collect the sugar crystals

Which correct sequence of steps should a student follow?

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

Question 16

The equation below illustrates the reaction that occurs in chloroplasts during photosynthesis.

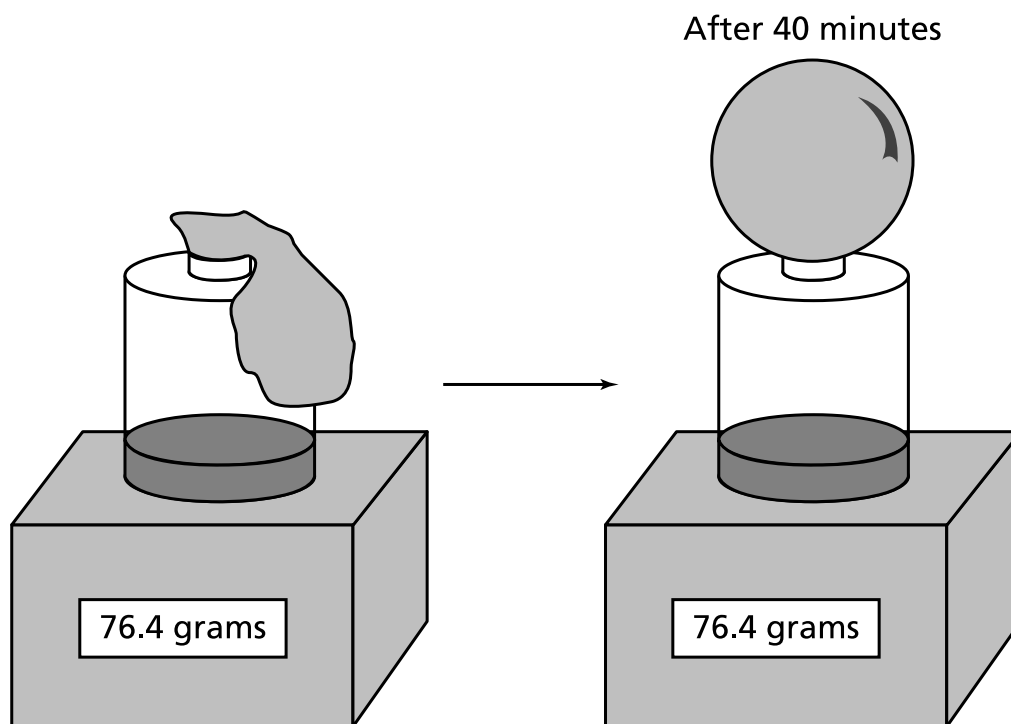


Which is a product of photosynthesis?

- A carbon dioxide
- B water
- C sunlight
- D oxygen

Question 17

A student adds 5 grams of baking soda to 50 grams of vinegar in a container and quickly attaches a balloon to the top of the bottle. The student's investigation is shown below.



What occurred in this investigation?

- (A) The reaction produces heat, which causes the plastic of the balloon to soften and change shape.
- (B) The reaction in the container produces gas, which causes the balloon to inflate.
- (C) The outside air pressure pushes on the container and forces air inside the balloon.
- (D) The air molecules from the container move into the balloon and form a solid substance.

Question 18

Which sample equation best illustrates the law of conservation of mass?

- (A) 12 grams reactant X + 10 grams reactant Y → 2 grams product Z
- (B) 5 grams reactant E + 5 grams reactant F → 20 grams product G + 5 grams product H
- (C) 4 grams reactant U + 3 grams reactant V → 7 grams product W
- (D) 10 grams reactant Q + 9 grams reactant R → 90 grams product S + 90 grams product T

Question 19

Which is the pH of a weak acid?

A 9.1

B 8.2

C 7.0

D 6.5

Question 20

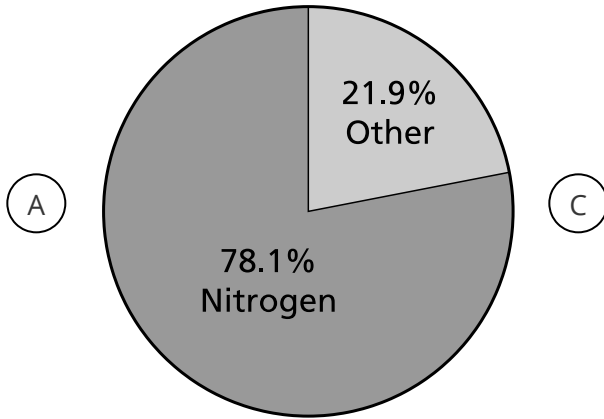
A glass of ice water is on a table in a room where the room's air temperature is 20 degrees Celsius. What do the drinking glass, ice, water, and air all have in common?

- A All four are in a solid state.
- B All four are at the same volume.
- C All four are at their freezing points.
- D All four are made of atoms.

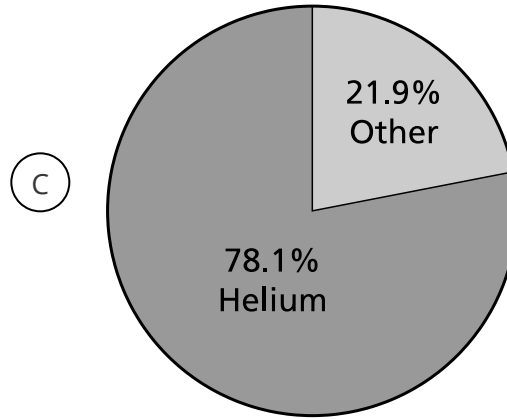
Question 21

Which circle graph correctly identifies the percentage makeup of the atmosphere of Earth?

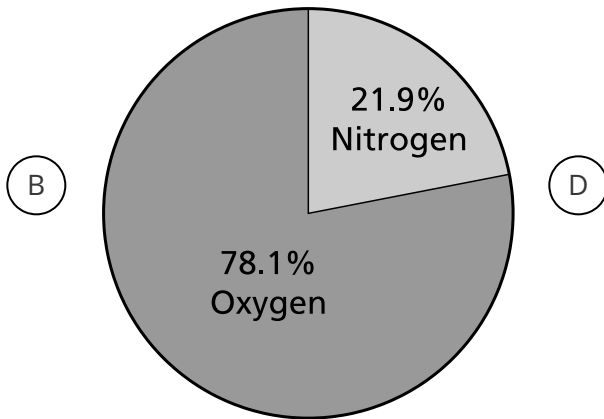
The Atmosphere of Earth



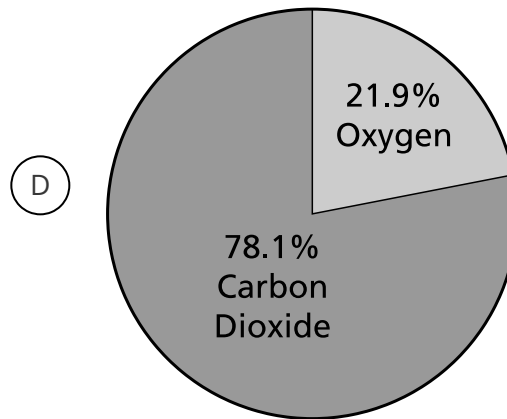
The Atmosphere of Earth



The Atmosphere of Earth

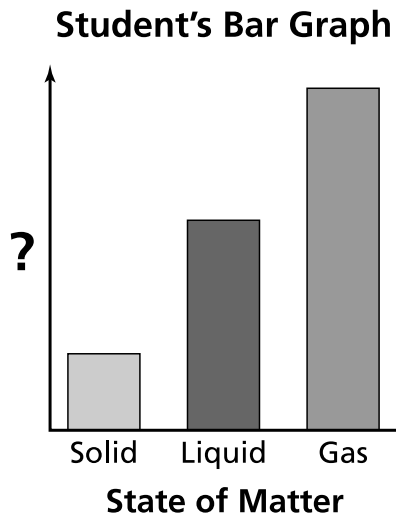


The Atmosphere of Earth



Question 22

A student created this bar graph to show how the physical state of matter is related to another factor.

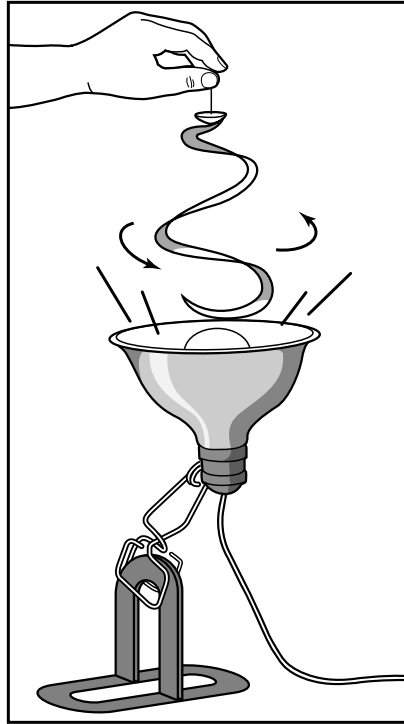


Which of these is the most appropriate label for the graph's vertical axis?

- (A) weight
- (B) shape
- (C) speed of particle
- (D) electrical charge

Question 23

When the lamp below is switched on, the paper will spin.



Which most likely causes the paper to spin?

- (A) warm air rising
- (B) warm paper expanding
- (C) cool air sinking
- (D) cool light bulb expanding

Question 24

A student is given an object and is asked to identify its density. The object has a volume of 3 cubic centimeters and a mass of 6 grams.

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$
$$D = \frac{m}{v}$$

Using the formula above, what is the density of the object?

- A 2 grams/cubic centimeter
- B 3 grams/cubic centimeter
- C 6 grams/cubic centimeter
- D 9 grams/cubic centimeter

Question 25

In the periodic table shown below, some elements are shaded.

H																		He
Li	Be											B	C	N	O	F	Ne	
Na	Mg											Al	Si	P	S	Cl	Ar	
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	
Fr	Ra	Ac	Unq	Unp	Unh	Uns	Uno	Une	Unn									

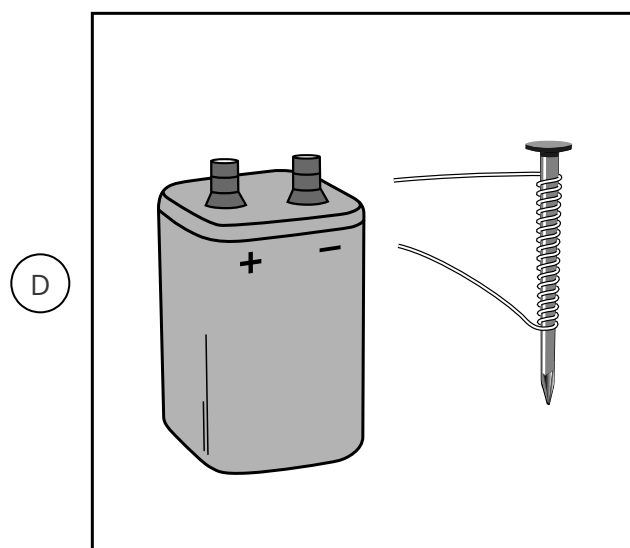
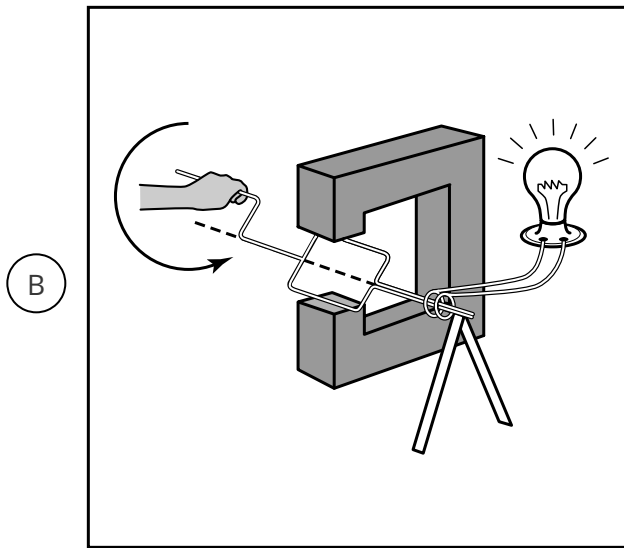
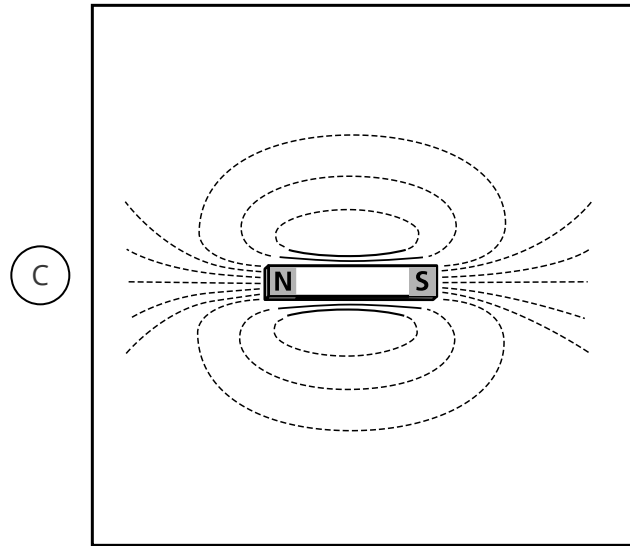
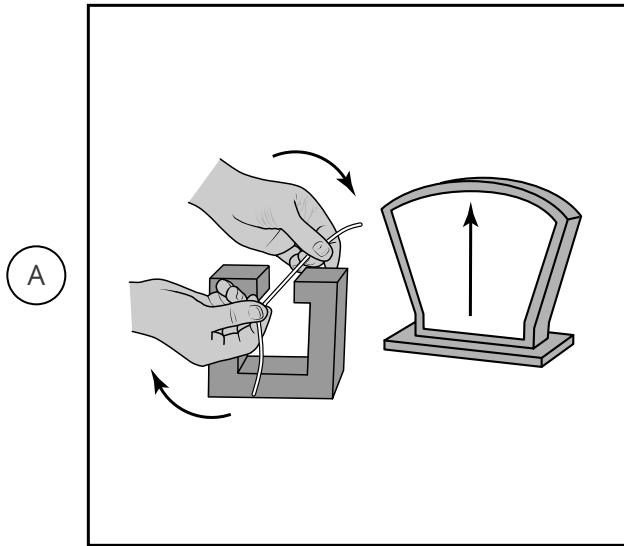
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

Based on its position in the periodic table, which element is the heaviest?

- A helium (He)
- B neon (Ne)
- C argon (Ar)
- D krypton (Kr)

Question 26

Which diagram best identifies how an electric current is produced?



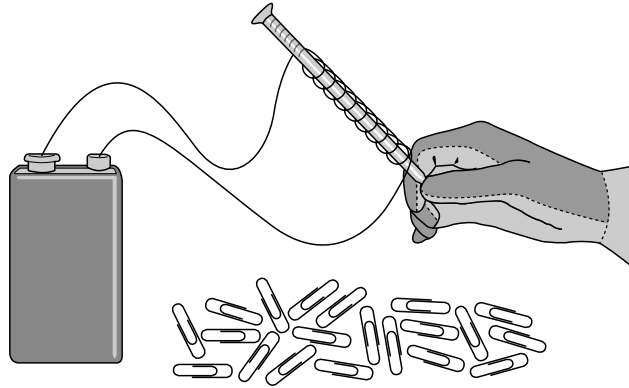
Question 27

Which is generated when a bar magnet is moved through a wire coil?

- A electric current
- B mechanical energy
- C thermal energy
- D gravitational field

Question 28

A diagram is shown below.

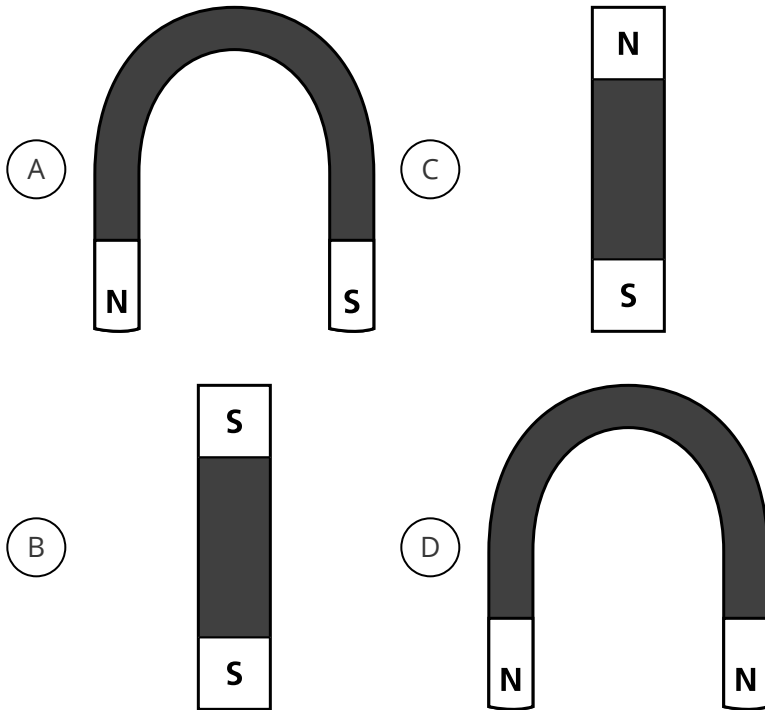


What device is the diagram representing?

- A a barometer
- B a bar magnet
- C an electromagnet
- D an electric scale

Question 29

Which magnet below would provide the best example for the magnetic poles and magnetic fields of Earth?



Question 30

Students are to build a model bridge using toothpicks and wood glue. The design of the bridge must support a specific weight and measure 20 centimeters long. Which tools would best help determine if the model bridge meets the design requirements?

- A ruler, weights, and string
- B string, beaker, and water
- C hammer, string, and nails
- D pliers, saw, and string