

## POPULAR SCIENCE CATEGORY - JUNIOR GROUPS (Grades 4-5-6)

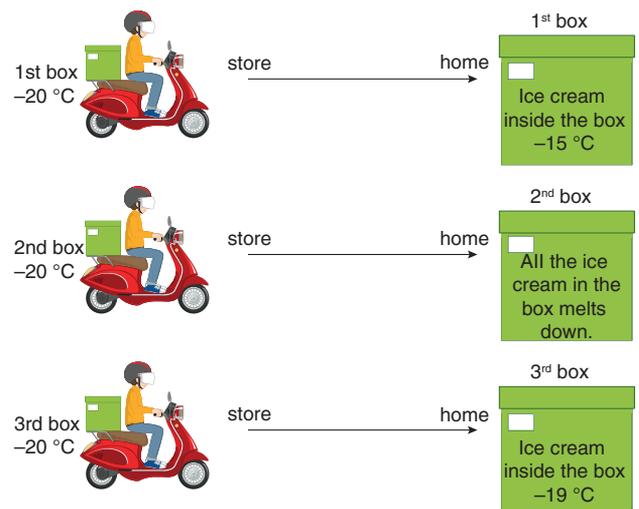
1. Why are park areas with lots of trees or forested areas cooler than city centers in summer?



- I. As a result of the shade created by the leaves of the trees, the air temperature is lower.
- II. Trees that make photosynthesis during the day reduce the greenhouse effect and cool the environment.
- III. As trees absorb a significant amount of sunlight, the amount of hot rays is reduced.
- IV. The water lost in the form of vapor from the leaves of the tree decreases the temperature of the air around the tree.

- A) II and I  
B) I, II and  
C) II, III and  
D) I, II, III and

2. Klaus carries ice creams at -20 degrees from his shop to his home in three separate boxes in order to determine the most suitable storage box to be used for services to houses.



When Klaus came home, the temperature values of the ice cream he took out of the boxes and the results he obtained are as shown above. Accordingly, which of the following is wrong?

- A) The 3rd box is a good heat insulator compared to the 1st box.
- B) The Ice cream melted because the 2nd box could not prevent the heat transfer from ice cream to air.
- C) The material from which the 3rd box is made is most likely plastic or wood.
- D) The material from which the 2nd box is made is most likely metallic.

Junior Groups (Grades 4-5-6)

3. The substance K dissolves in water and water changes its colour

105 cm<sup>3</sup>  
300 gr  
electronic scale

150 cm<sup>3</sup>  
280 gr  
electronic scale

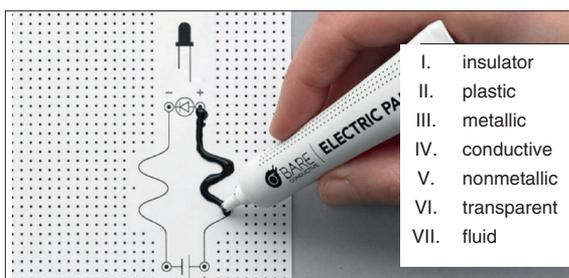
The substance L doesn't dissolve in water

Paul puts equal volumes of K and L solids in the form of cubes into identical grade cylinder vessels with equal amounts of water and mixes them. The changes in volume and mass observed in the experimental setups are as above.

Which of the results Paul obtained about his experiment is wrong?

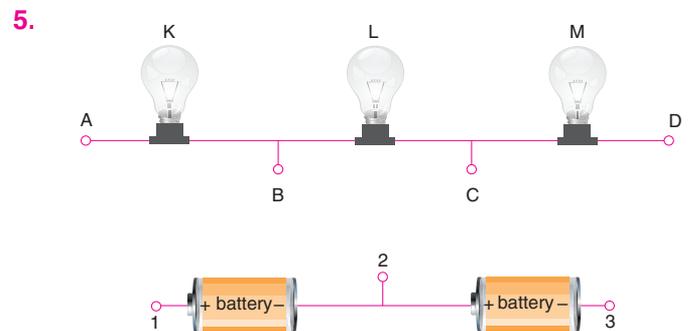
- A) Mass is conserved in physical change
- B) The substance K has more mass than the substance
- C) The volume of water soluble substances cannot be accurately measured with a graduated cylinder.
- D) The substance L is more dense than the substance

4. The circuit building pen is a pen that you can use instead of traditional circuit building methods. Thanks to the paint inside, you can easily create your own circuit by drawing on surfaces such as paper and cardboard.



What properties should the paint in the circuit maker have?

- A) III and
- B) III, IV and V
- C) II, IV and
- D) II, IV and V



In the above experimental setup, some experiments are carried out by establishing a connection between light bulbs and batteries via conductive wires.

Accordingly, which of the following statements is false?

- A) Only lamp L lights up in connection B1 - C
- B) In A1 - D3 connection, the bulbs K, L and M light up the same brightness.
- C) The brightness of the lamp K is equal in t connections A1 - B2 and A1 - C3.
- D) Lamp L does not light in connection A1 - D

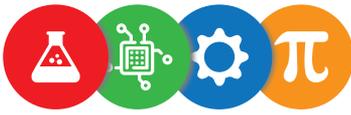
6.



Eskimos living in areas close to the poles make igloos to protect them from the cold. Igloos are made of snow blocks with air trapped inside them. Even if the outside temperature is  $-45^{\circ}\text{C}$ , the temperature inside the igloo is  $+4$  degrees.

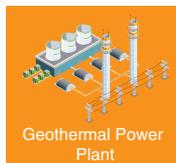
What could be the reason for so much difference in temperature between the inside and outside of Eskimo houses?

- A) Solids conduct heat better than gases.
- B) The heat conduction of still air is lower than the heat conduction of solids.
- C) As the space between the particles forming the substance increases, the thermal insulation decreases.
- D) White colored snow blocks reflect sunlight.



Junior Groups (Grades 4-5-6)

7. The teacher, in the card game he prepared about the production of electrical energy in power plants, instructs his students to turn the pictures of the power plants that are not mentioned on the table, and reads the following features in order.



- I. While electricity is generated in this power plant, there is no CO<sub>2</sub> emission to the atmosphere
- II. Water is not used while generating electricity in this power plant.
- III. Motion/Kinetic energy is not used while generating electrical energy in this power plant.

Accordingly, at the end of the game, which power plant picture will be seen on the table?

- A) Solar power plant
- B) Nuclear power plant
- C) Wind power plant
- D) Geothermal power plant

8.



Farmer Franz cannot install an air conditioning system in his orange storage warehouse due to financial difficulties. Franz is able to protect his oranges from freezing in winter and rotting in summer with the water-filled containers he puts in his warehouse.

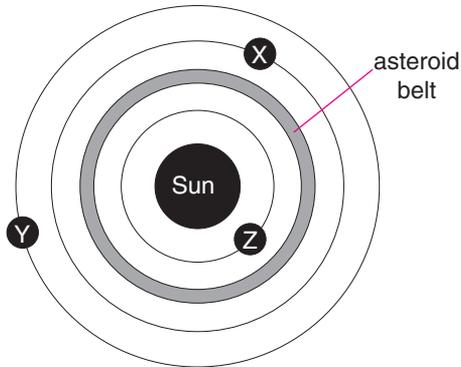
Accordingly, which of the following ideas explains Franz's method best?

- I. The heat released during the evaporation of the water ensures the cooling of the environment in summer.
- II. Water evaporates at any temperature. As the water vapor turns back into the liquid state, it gives some heat to the environment. The heat given increases the temperature of the environment.
- III. The heat released during the freezing of the water in winter increases the temperature of the environment.

- |               |                  |
|---------------|------------------|
| A) Only II    | B) I and II      |
| C) II and III | D) I, II and III |

Junior Groups (Grades 4-5-6)

9. The planets belonging to the solar system and their distances from the Sun are shown below.



Accordingly, which of the following information is not correct?

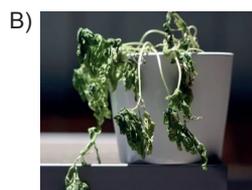
- A) Z is a terrestrial planet
- B) X and Y are gaseous planet
- C) Planet X has a smaller mass than planet Z
- D) There is life on planet Y

10. Living things respond in the form of a reaction to the stimuli they receive from their environment.

Accordingly, which of the following cannot be considered as the behavior of reacting to an impact / stimulus?



The fur of a scared cat getting upright



Wilting of a dehydrated plant



Plants turning towards light



Watering/salivating at the mouth of a dog that sees meat

11. As the weather gets colder, vehicle users use antifreeze in their automobile engines. As antifreeze protects the cooling system against freezing in winter, it is of great importance in preventing the vehicle from boiling water and overheating in regions where the temperature is high in summer.



Accordingly, which of the following information about antifreeze is wrong?

- A) Antifreezes increase the boiling point of the liquid to allow higher coolant temperature.
- B) It prevents the engine from overheating and extends the life of the engine.
- C) Solutions freeze at a higher temperature than the pure form of the solvent.
- D) It decreases the freezing point of the engine cooling water and prevents the engine from being damaged in cold seasons.

- 12.



There are some plants in the world of plants that have special nutritional status. One of them is insect-eating plants. Insects are used to supplement the minerals that plants need.

Which of the following information is wrong about insect-eating plants?

- A) They meet their nitrogen needs from the insects they catch.
- B) Insectivorous plants live in soils poor in nitrogen minerals.
- C) Since insectivorous plants are carnivorous, they do not have roots, stems and leaves.
- D) Insectivorous plants meet their other nutrition requirements by photosynthesis.

Junior Groups (Grades 4-5-6)

13.

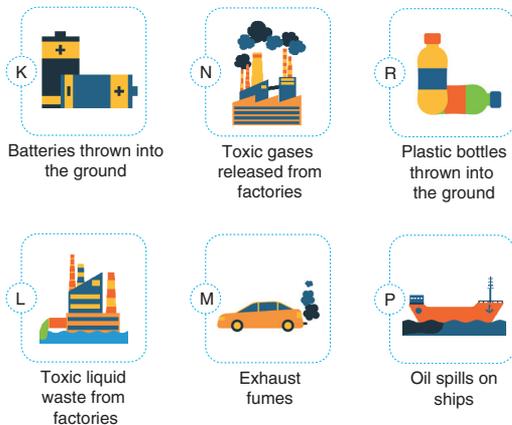


Migratory birds are a group of bird species that spend different seasons in different places. Most migratory birds store the energy required for migration and food in their bodies before embarking on a long journey. This nutrient is like their fuel tank.

Which nutrient is mentioned above?

- A) Carbohydrate
- B) Fat
- C) Vitamin
- D) Protein

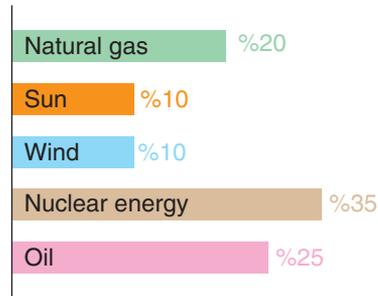
14.



Which of the above pollution factors primarily affect the habitats of fish?

- A) K - N - L
- B) L - P
- C) M - N
- D) R - P - K

15.

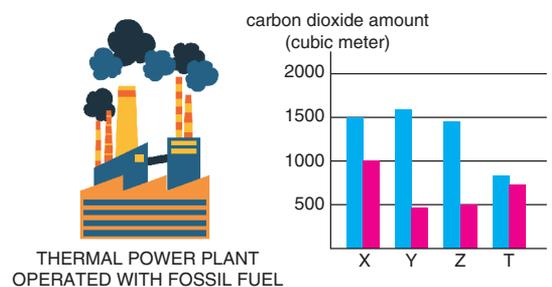


Percentages of energy resources used in a country are given in the chart above.

According to the given chart, which of the following is wrong?

- A) The renewable energy resource used in the country is 20%.
- B) Most of the energy needs are met from non-renewable energy sources.
- C) The proportion of fossil fuels used is 45%.
- D) The country mostly uses environmentally friendly energy resources.

16.



In the graph above, the amount of carbon dioxide released into the air from four separate thermal power plants using fossil fuels is given before (blue) and after (red) filters are installed in the chimneys.

Accordingly, which power plant has taken the most effective measure to prevent air pollution?

- A) Z
- B) Y
- C) X
- D) T