2023-2024 Gr5 Science Benchmark Unit 1

Question 1.
The amount of space an object takes up is its _____.

A. matter

B. mass

C. volume

D. property

Question 2.
Select from drop down menu using the available answer choices.

A boiled egg in its shell weighs

A. more than

B. the same as

C. less than

a raw egg in its shell.

Question 3.
Select from drop down menu using the available answer choices.

When mixing two substances, bubbles start to form. This is an sign of a

A. chemical

B. physical

change.

Question 4.
Select from drop down menu using the available answer choices.

Mixing sugar and tea creates a

A. homogeneous

B. heterogeneous

mixture.

Question 5.
Two students are discussing matter. One student claims that air is matter. Another student disagrees.

Which model best illustrates that air is matter?

A. taking the temperature of air at different locations

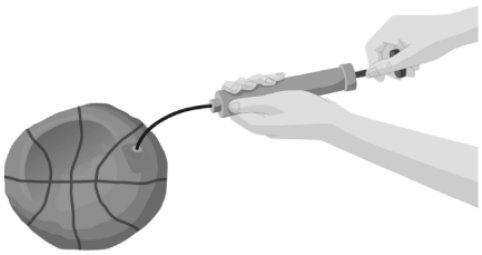
B. measuring the length of a balloon before and after it is blown up

C. filling the balloon with water and observing how the shape changes

D. using a weather vane to determine the direction of the wind

Question 6.

How does the model show that matter is made of tiny particles that cannot be seen?



A. The air inside the ball cannot be seen, but adding air to the ball makes the ball larger.

B. The person is removing invisible air, making the ball smaller.

C. The air inside the ball duplicates itself, making the ball larger.

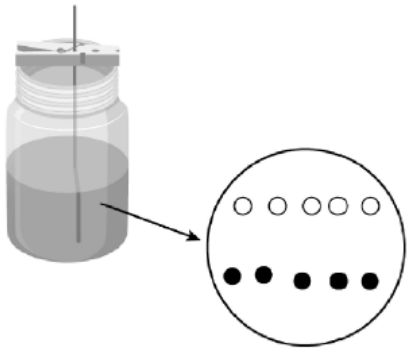
D. The individual parts of the ball cannot be seen, but the air inside of it can be.

Question 7.

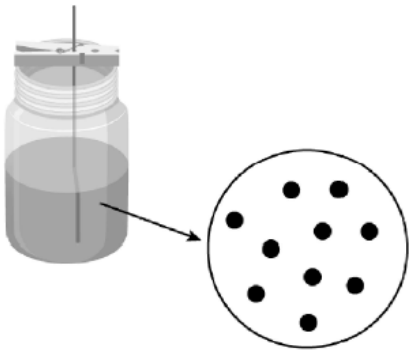
One of the lab groups swirls the jar with water and sugar. They then construct models of the mixture. They represent water particles with white circles and sugar particles with black circles.

Which diagram **best** models the water and sugar particles after sugar was added to the water and the sugar is no longer visible?

A.



B.



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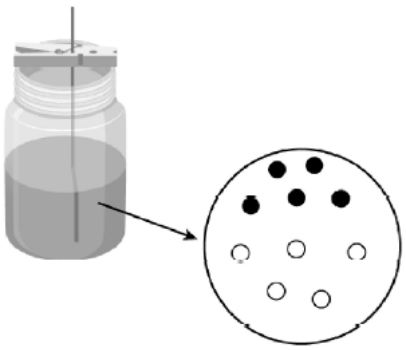
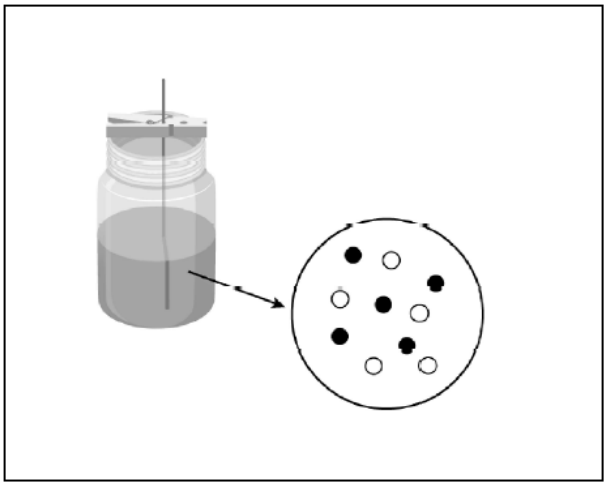


D.

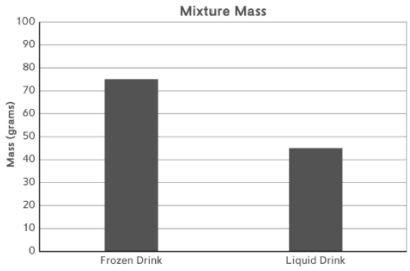


Question 8.

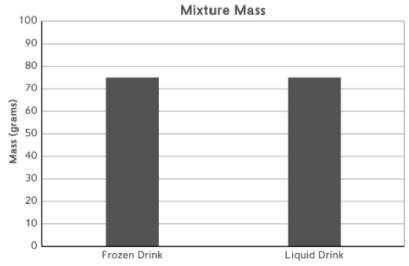
Students mix water and a drink mix together in a container. Next, the mixture is placed into a freezer. Once the mixture is frozen, the students find and record its mass. Finally, they heat the mixture until it turns back into a liquid. Again, they find and record the mass of the mixture.

Which graph shows the mass of the frozen drink and the liquid drink?

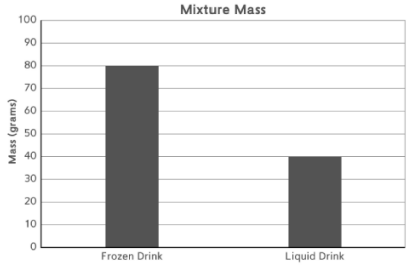
A.



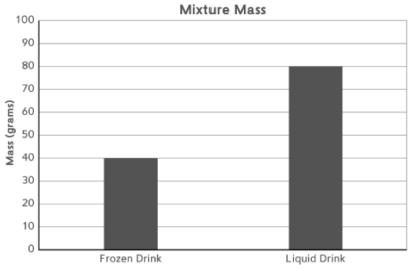
B.



C.



D.



Question 9.

A group of students are discussing the best method to test the properties of matter for a piece of aluminum foil. One student suggests they hold the foil under a light and record if it is shiny or not. Another disagrees and says this process will not be helpful.

Which explanation would support the benefits of applying the light test?

A. It can show the conductivity of the foil.

B. It can show the reflectivity of the foil.

C. It can show the magnetism of the foil.

D. It can show the solubility of the foil.

Question 10.

A student is sorting materials based on their properties to investigate which materials have the most common properties. The student puts a material that reflects light in the same category as a material that attracts magnets.

Why are these two materials in the same category?

A. These two materials should not be in the same category.

B. These two materials are both solids.

C. Materials that reflect light always attract magnets.

D. The materials are both metals.

Question 11.

A student collected three magnets, two paper clips, a beaker of water, 10 g of salt, a mirror, a cloth, and some clear tape. The student used the magnets to test each of the materials for magnetic properties.

Which of the tests demonstrates the property of magnetism?

A. A magnet that has been cut in half leaves a streak across a piece of paper.

B. A beaker of water is able to conduct electricity after salt is added to it.

C. A magnet lifts several paper clips above a table at the same time for 30 seconds.

D. A mirror becomes much shinier after it is rubbed with a cloth several times.

Question 12.

The student realizes that another important characteristic of roasting sticks is the time it takes for heat to travel through the metal. The student wants to investigate this property, but she is not sure what it is called.

Which property does the student want to investigate?

A. electrical conductivity

B. hardness

C. magnetism

D. thermal conductivity

Question 13.

A teacher has students make observations while mixing substances together. She gives the students water, iodine, and cornstarch to mix together. First, the students measure 80 mL of water. Then they add three full droppers of iodine solution. The mixture turns yellow/orange in color because of the iodine. Then the students add one spoonful of cornstarch to the iodine solution and stir. The solution turns blue.

Which student observation provides evidence that mixing the substances resulted in a chemical change?

A. The mass of the substances was the same before and after mixing them together.

B. The flask was turned upside down in order to mix the substances.

C. The color of the liquid changed from yellow/orange to blue.

D. The total mass of the substances mixed was measured.

Question 14.

A student wants to create a new substance. She places 50 g of sugar and 25 g of salt into a beaker. Using a metal spoon, the student mixes the materials together. The beaker is left to stand for 10 minutes. The student records her observations.

What evidence would show if a new substance had been made?

A. The salt would dissolve into the sugar.

B. The sugar would float on top of the salt.

C. The mixture would have different properties.

D. The liquid mixture would have to change into a solid.

Question 15.

A student completed four trials of mixing two different chemicals together in a beaker of water. The student changed the quantity of Chemical B each time and recorded the results.

1	12	14	blue	chunks
2	12	9	clear	no chunks
3	12	12	clear	no chunks
4	12	18	blue	chunks

What properties best show that a new substance was formed?

A. the color change and chunks in the liquid

B. the number of trials for the entire experiment

C. the lack of color and chunks in two of the trials

D. the different masses of each chemical that was used

Question 16.

Which of the following indicate that a chemical reaction has occurred?

A. the formation of gas bubbles

B. a change in color

C. an odor

D. all of these indicate that a chemical reaction has occurred.

Question 17.

You are performing an experiment combining two substances in a closed container. You first pour 350 mL of substance one followed by 430 mL of substance two. A chemical reaction occurs. Choose the equation that would best explain the total mass of the combined substances.

A. 430 mL – 35 0 mL = 80 mL

B. 350 mL × 430 mL = 780 mL

C. 350 mL + 430 mL = 780 mL

D. 780 mL – 430 mL = 350 mL

Question 18.

Which mixture is a solution?

A. muddy water

B. cranberry juice

C. potting soil

D. milk

Question 19.

Describe a physical change that can occur in your home.

Question 20.

When water changes from a liquid to a solid, some properties of the water may change. Students conduct an investigation in a classroom on the effects of temperature change on water. Figure 1 shows a plastic bag containing cold water. It is placed in a freezer. The bag, which holds 100 milliliters of water, is cooled in a freezer for 24 hours.

Figure 1. Frozen Water in Plastic Bag

The volume and weight of the water in the bag are measured every 6 hours for 24 hours. The data are shown in Table 1.

Table 1. Volume and Weight of Water in Freezer

Time (hr)	Volume (mL)	Weight (g)
0	100	100
6	102	100
12	103	100
18	105	100
24	105	100

Based on information from the table, which statement is supported by the data?

As the water cools in the freezer,

A. the weight and the volume of the water remain the same.

B. the weight of the water increases and the volume decreases.

C. the weight of the water decreases and the volume increases.

D. the weight of the water remains the same and the volume increases.

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Students want to conduct a new investigation using a larger bag of water. Using Table 1, predict the weight of 300 grams of water after 72 hours.

Complete the sentences by choosing the correct answer from each box.

In the new investigation, the weight of water is predicted to be [Y] grams after 72 hours. This demonstrates that [Z] in a system over time.

Box Y

A. 300

B. 315

C. 600

D. 900

Box Z

A. weight of matter is conserved

B. weight can increase

C. volume is conserved