Recycling Paper

5th Grade – Design Task Assessment

Directions:  For each of the questions below, choose the BEST answer.

1. Alice measures the mass of her backpack with a notebook in it and records a mass of 800 g. If she measures the masses of the backpack and notebook separately, she would expect the sum of the two masses to be:
   A. 400 g
   B. 750 g
   C. 800 g
   D. 850 g

2. Daniel has eight wooden blocks that are the same size and mass. Each wooden block has a mass of 10 g. Using the pictures below, choose the answer that best describes the total mass of all the blocks in each picture.
   - Picture 1 = 80 g, Picture 2 = 30 g
   - Picture 1 = 30 g, Picture 2 = 10 g
   - Picture 1 = 10 g, Picture 2 = 30 g
   - Picture 1 = 80 g, Picture 2 = 80 g

3. Liquid water expands when it freezes. If Tony freezes 10 mL of water, what will happen to the mass and the volume of the water?
   A. Mass and volume will both decrease.
   B. Mass and volume will both increase.
   C. Mass will increase and volume will stay the same.
   D. Mass will stay the same and volume will increase.
4. Alan measures 100 mL of water in a beaker. He added shredded paper to the beaker so that it is completely under the water and the volume of water now reads 150 mL. What is the volume of the paper?

A. 50 mL  
B. 100 mL  
C. 150 mL  
D. 250 mL

5. Angie has a ball of art clay. How can she change the mass?

A. Flatten the ball of clay.  
B. Make a square using all the clay.  
C. Break off a piece of the clay.  
D. Make a rectangle using all the clay.

6. Joe is following a recipe and stirs 5 g of sugar in 200 g of water (there is no splashing). After stirring, the mass of the combined sugar and water will be:

A. 5 g  
B. 195 g  
C. 200 g  
D. 205 g

7. Abby builds a tower from building block pieces (see Picture 1) and measures its mass. She then takes the tower apart and measures the masses of the pieces she used for the tower separately (see Picture 2). Using the information provided below, what will be the total mass of the tower’s pieces shown in Picture 2?

![Picture 1](image1.png)  ![Picture 2](image2.png)

A. 10 g  
B. 15 g  
C. 25 g  
D. 30 g
8. Roberto is measuring the volume of water. Which of the following units would he use?

A. cents  
B. liters  
C. degrees  
D. seconds

9. Which of the following are units for mass?

A. cups  
B. degrees  
C. meters  
D. grams

10. Which of the following would be the best tool to use when measuring the mass of an apple?

A. graduated cylinder  
B. triple beam balance  
C. ruler  
D. protractor

11. Carol has calculated the volume of her notebook by multiplying its length times its width times its height. Which units will she use when she records the volume?

A. square centimeters  
B. centimeters  
C. grams  
D. cubic centimeters

12. George is measuring 100 g of flour. He places a container on the balance pan to hold the flour and then adds flour. What does George need to know so that he ends up with 100 g of flour?

A. The volume of the empty container.  
B. How many grams are in a kilogram.  
C. The mass of the empty container.  
D. He does not need any other information.
Use the following information to answer questions 13-15.

A recycling company, Go Green, currently collects plastic bottles and aluminum cans. Go Green now wants to start recycling newspapers. They have decided they want to offer customers a decorative container that is sturdy enough to hold newspapers.

13. Which statement below best describes the design problem?
   
   A. Design a container to collect plastic bottles.  
   B. Convince people to recycle newspapers.  
   C. Design a container to collect aluminum cans.  
   D. Design a recycling container to hold newspapers.

14. The Go Green design team has identified the design problem. Which statement below best describes the next part of the team’s design process?
   
   A. Improve their solution.  
   B. Test their solution.  
   C. Redesign their solution.  
   D. Brainstorm possible solutions.

15. After several weeks, the Go Green design team has designed and made a prototype. Which statement below best describes the next part of the team’s design process?
   
   A. Name the prototype.  
   B. Test the prototype.  
   C. Brainstorm possible solutions.  
   D. Redesign their solution.