

Water Filtration

Name: _____

Grade 5 – Design Task Assessment

Date: _____

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

1. Filtration is used to help_____.

- A. separate materials that are in water
- B. add minerals to water
- C. conserve water
- D. measure the volume of water

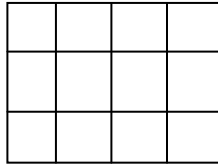
2. You are the mayor of a town in Indiana. The town needs to improve its water treatment facility because it is not large enough to provide clean water for all the people live there. An environmental engineering company has been hired to help design the new water treatment facility.

Who will be the user or users, of the water treatment facility?

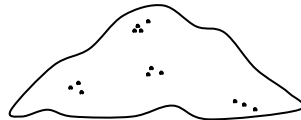
- A. The mayor of the town.
- B. The environmental engineering company.
- C. The whole state of Indiana.
- D. The population living in the town.

3. An organization called Help People wants to provide clean drinking water for a village located in southeast Africa. Help People has hired you as an engineer, to design an affordable water treatment facility for the village. The client is _____.
- A. the village
 - B. Help People
 - C. you the engineer
 - D. the engineering company where you work
4. How would you measure the volume of a glass of water?
- A. Use a triple beam balance.
 - B. Measure it with a ruler.
 - C. Use a graduated cylinder.
 - D. Measure it with a protractor.
5. Purification is _____.
- A. the amount of water each person needs
 - B. the process to used to clean water
 - C. the amount of time it takes to filter water
 - D. a measure of how clean water is
6. Luis measures the volume and mass of a container of dirty water before he filters it. The volume is 250 mL and the mass is 300 g. After he filtered the dirty water, he observed that the filter removed a lot of stones and sand from the water. How does he expect the volume and mass of the water to have changed after it has been filtered?
- A. The volume increases, and the mass increases.
 - B. The volume decreases, and the mass increases.
 - C. The volume decreases, and the mass decreases.
 - D. The volume increases, and the mass decreases.

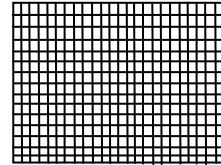
7. As a design engineer, you have been asked to design a filtration system that will filter out large twigs first, then medium twigs, and finally very small pieces of bark. Your filtration system will use the three materials shown below. In which order do you need to place the materials to filter the water the way you have been asked?



1
(piece of wire screen)



2
(sand)



3
(piece of wire screen)

- A. 1, 3, 2
- B. 2, 1, 3
- C. 3, 1, 2
- D. 1, 1, 3

8. Anna has 100 large paper clips. She would like to know how much one paper clip weighs. What's the most efficient way for her to determine this?

- A. Weigh each paper clip by itself.
- B. Weigh each paper clip by itself and divide by 100.
- C. Weigh all 100 paper clips at once, and then subtract 100 from the total weight.
- D. Weigh all 100 paper clips at once, and divide the total weight by 100.

9. Tony is building a water filtration device. He would like to test how well his filtration device works compared to his friend's. What is most important for Tony and his friend to communicate to each other so they can compare test results?

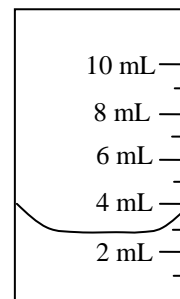
- A. Their predictions of how well their filters will perform.
- B. The possible ways they will redesign their filters.
- C. How much their filters cost.
- D. The procedures they will use to test their filters.

10. The volume of an object is _____.

- A. how heavy an object is
- B. the amount of space an object takes up
- C. how fast the object can move
- D. the same thing as its weight

11. How much liquid is in the graduated cylinder?

- A. 6 mL
- B. 5 mL
- C. 4 mL
- D. 3 mL



12. The water coming out of your faucet at home most likely starts from:

- A. A small pond
- B. A local stream
- C. An underground aquifer
- D. The closest ocean