

Mix and Flow of Matter

Grade 8 – Unit 1 Test

Student

Class

1. All fluids flow and can be observed by many of the characteristics below. Which of these characteristics would you use to observe a gas flowing?
 - A. their effect
 - B. hearing
 - C. seeing
 - D. feeling
2. Properties fall into two categories. Physical properties and Properties of behaviour. Which of the following is a behaviour?
 - A. colour
 - B. density
 - C. crystal size
 - D. poisonous
3. Does it burn? Does it rot? Does it explode? These describe this type of property of a substance.
 - A. physical
 - B. behaviour
 - C. solubility
 - D. chemical nature
4. Chlorine is useful because of this property
 - A. crystal structure
 - B. poisonous
 - C. acidity
 - D. reactivity
5. Copper II Sulphate can be hydrated or anhydrous. This means the presence or absence of ...
 - A. oxygen
 - B. a gas
 - C. water
 - D. crystals
6. Many substances can be clear, colourless and odourless. Others can be coloured, have an odour or can be soluble in water. To determine whether a substance is a mechanical mixture, we look for the number of ...
 - A. particles in the substance
 - B. parts visible
 - C. atomic particles
 - D. properties
7. Mortar is a mixture of sand and cement. It is a type of material used to bind rocks or bricks together. One of the important factors to make mortar work effectively is to ensure ...
 - A. suitable types
 - B. correct temperature
 - C. proper conditions
 - D. proper proportions

8. To determine if a substance is pure, looking for this, in a standard reference table, will help you identify the substance.

- A. **crystal structure**
- B. **colour**
- C. **state**
- D. **density**

9. Certain substances when heated, will decompose. This property can account for the fact that certain pure substances do not have a ...

- A. **density**
- B. **colour**
- C. **boiling point**
- D. **crystal structure**

10. Windshield washer fluid is a solution that helps automobile drivers clean the mud off their windshields. One of the most important properties manufacturers should consider when making this solution for winter conditions is the ...

- A. **behaviour**
- B. **melting point**
- C. **density**
- D. **texture**

11. In order to increase the speed of flow of oil in a pipeline, the oil should be ...

- A. **heated**
- B. **cooled**
- C. **expanded**
- D. **compressed**

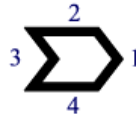
12. Fluid A has a flow rate of 10.5 ml, per second. Fluid B has a flow rate of 11.3 ml, per second. Compared to fluid A, fluid B is ...

- A. **more viscous**
- B. **less viscous**
- C. **more dense**
- D. **less dense**

13. The drag exerted on objects moving through air is caused by air molecules ...

- A. **colliding with the object**
- B. **spinning within the object**
- C. **combining behind the object**
- D. **gliding along behind the object**

14. Use the diagram below to answer the next question.



The shape shown here travels through a fluid.

This shape would experience the most drag if it were moving in direction ...

- A. **1**
- B. **2**
- C. **3**
- D. **4**

15. When your dad or mom start the cold car in the morning, they may mention that the viscosity of the motor oil would be decreased by ...

- A. **running the engine**
- B. **charging the battery**
- C. **changing the antifreeze**
- D. **replacing the thermostat**

16. The long, narrow flexible pipes, used to carry fibre optic cables, are hauled on flatbed trailer trucks. The front of the pipes is covered with a tarp. This is done to increase the fuel efficiency of the truck because it limits the movement of air through the pipes, which reduces the ...

- A. **viscosity of the air within the pipes**
- B. **air resistance within the pipes**
- C. **air pressure on the truck**
- D. **weight of the truck**

17. The shop teacher asks you to help change the oil in a truck. If it takes 70 seconds for 50 ml of dirty oil to flow out of the engine, the flow rate is ...

- A. **0.71 mL/s**
- B. **1.4 mL/s**
- C. **20 mL/s**
- D. **35.0 mL/s**

18. Steam is injected into tar sand formations to facilitate the extraction of oil. The oil separates from the sand so that it can be pumped out of the ground. The steam causes the oil to separate from the sand because viscosity ...

- A. **decreases when there is an increase in water content**
- B. **increases when there is an increase in water content**
- C. **increases when there is an increase in temperature**
- D. **decreases when there is an increase in temperature**

19. Your friends collected rocks from a lake to build a perimeter for the fire pit. They noticed that the rocks weren't as heavy while they carried them partially submerged in the water. This is because of the ...

- A. **mass of the rock**
- B. **density of the water**
- C. **buoyant force of the water**
- D. **buoyant force of the rock**

20. Which of the following pools would give the most buoyancy?

- A. **Banff Hot Springs pool at 40°C**
- B. **Southland Leisure Centre Hot Tub at 40°C**
- C. **Fairmount Hot Springs pool at 35°C**
- D. **West Edmonton Mall Wave pool at 35°C**

21. Because wind speed and wave action are the same on the lake as on the ocean, the difference in speed is most likely due to the ...

- A. **ocean water exerting a greater buoyant force than the lake**
- B. **greater force of gravity on the lake**
- C. **lake water exerting a greater buoyant force than the ocean**
- D. **greater force of gravity on the ocean**

22. When you place an unknown metal in the graduated cylinder, the weight of the object appears to drop from 1.55 N to 1.40 N. The buoyant force exerted by the water on the unknown metal is ...
- A. 0.15 N
 - B. 1.40 N
 - C. 1.55 N
 - D. 2.95 N
23. Density and buoyant force are related. As the ...
- A. density of a fluid increases, the buoyant force decreases
 - B. density of a fluid decreases, the buoyant force increases
 - C. density of a fluid increases, the buoyant force remains the same
 - D. density of a fluid decreases, the buoyant force decreases
24. Three sealed jars were dropped into water. Each jar contained 150 cc of a different substance, crushed salt, sugar, and flour. Each jar floated at a different height because of its ...
- A. density
 - B. volume
 - C. composition
 - D. viscosity
25. A window washer notices that the spray hoses he uses are spraying water at too high a pressure and damaging the trim on the windows. The rate of flow could be reduced by ...
- A. shortening the hoses
 - B. lengthening the hoses
 - C. increasing the nozzle opening
 - D. decreasing the nozzle opening
26. Snowshoes make it easier to walk over snow because they ...
- A. make the person wearing them lighter
 - B. spread out the force over a larger area
 - C. increase the mass of the person wearing them
 - D. decrease the density of the person wearing them
27. Why are wider, thicker tires used on mountain bikes or an all terrain vehicles, instead of, thinner, narrower tires?
- A. The bigger tires have more air making the vehicle lighter.
 - B. The bigger tires offer better traction or grip on the terrain.
 - C. The bigger tires with more air make the vehicle less dense.
 - D. The bigger tires exert less pressure on the ground due to increased area.
28. What is the water pressure at a depth of 1 m below the water surface in a swimming pool?
- A. 100 000 Pa
 - B. 100 Pa
 - C. 10 000 Pa
 - D. 1 000 Pa
29. A garbage can weighs 15 N. The base of the can has an area of 0.1 m². The pressure exerted is ...
- A. 1.5 Pa
 - B. 15 Pa
 - C. 1500 Pa
 - D. 150 Pa

30. A force of 300 N is exerted over an area of 2m^2 . The pressure is ...
- A. **1200 Pa**
 - B. **600 Pa**
 - C. **450 Pa**
 - D. **150 Pa**
31. Farmer's fields are most often irrigated with a sprinkler system. To increase the area that the sprinkler sprays, the best option is to ...
- A. **increase the diameter of the main pipe and increase the size of the nozzle opening**
 - B. **decrease the diameter of the main pipe and decrease the size of the nozzle opening**
 - C. **increase the diameter of the main pipe, and decrease the size of the nozzle opening**
 - D. **decrease the diameter of the main pipe and increase the size of the nozzle opening**
32. Valves are devices used to ...
- A. **regulate the flow of a fluid**
 - B. **increase the density of a fluid**
 - C. **decrease the density of a fluid**
 - D. **determine the viscosity of a fluid**
33. In a model hydraulic press model built by an apprentice, a pedal is used to push down the large piston, while the small piston lifts up a load. The apprentice's model didn't work. What is wrong with it?
- A. **The pistons should have the same diameter.**
 - B. **The load should be on the larger piston.**
 - C. **Both pistons should be smaller.**
 - D. **Both pistons should be larger**
34. Two identical syringes are used to build a model of a hydraulic press. The press does not lift the loads you expect. To remedy the situation, you should use ...
- A. **larger syringes**
 - B. **longer syringes**
 - C. **smaller syringes**
 - D. **syringes with different diameters**
35. In terms of design, the device that most resembles a hydraulic press is a ...
- A. **barometer**
 - B. **submarine**
 - C. **hot air balloon**
 - D. **disc brake system**
36. If the maximum force applied by the hydraulic lift operator is 200 N, then the maximum load that can be lifted by the large piston (which is 10 times larger than the small piston) is ...
- A. **2 000 N**
 - B. **2 500 N**
 - C. **5 000 N**
 - D. **10 000 N**
37. The primary function of a pump is that it is a device used for ...
- A. **moving fluids**
 - B. **filtering fluids**
 - C. **analyzing fluids**
 - D. **measuring fluids**