

### **BLM 4-23, Matching Exercise/Vocabulary Check**

#### **Answers**

1. (f) evaporation
2. (n) sublimation
3. (g) liquid
4. (m) freezing
5. (b) change state
6. (o) vaporization
7. (j) melting
8. (a) condensation
9. (c) internal friction
10. (k) solid
11. (d) flow rate
12. (l) gas
13. (e) fluid
14. N

### **BLM 5-20, Fill in the Blanks/ Vocabulary Check**

**Goal:** Students check their understanding of terms from Chapter 5.

#### **Answers**

1. gravity
2. mass, weight
3. Archimedes' principle
4. hydrometer
5. volume
6. floating
7. neutral buoyancy
8. displace
9. force
10. density

### **BLM 5-18, Density and Buoyancy Quiz/Assessment**

#### **Answers**

1. e, d, a, b, g, c, f
2. Archimedes' principle states that "the buoyant force acting on a submerged object equals the weight (force of gravity) of the fluid displaced by the object". This means that the mass of water displaced by an object equals the weight of the object. Students may use the example of someone stepping into a bathtub.
3. (a)  $D = 0.79 \text{ g/cm}^3$ .  
(b) A more accurate way to find the density would be to use several samples of the wood in different sizes. A graph of the results would yield a more accurate density.  
(c) The wood would float on water.
4. Generally, dense things are "stronger" than less dense things. Consider the issue of bones. Bones that are dense are strong and hard to break. On the other hand, bones that are less dense are brittle and break easily.
5. (a)  $D = 10.5 \text{ g/cm}^3$ .  
(b) The crown is likely made of silver.

## BLM 5-21, Word Search/Vocabulary Check

**Goal:** Students use the Word Search Puzzle to see how many terms they recognize.

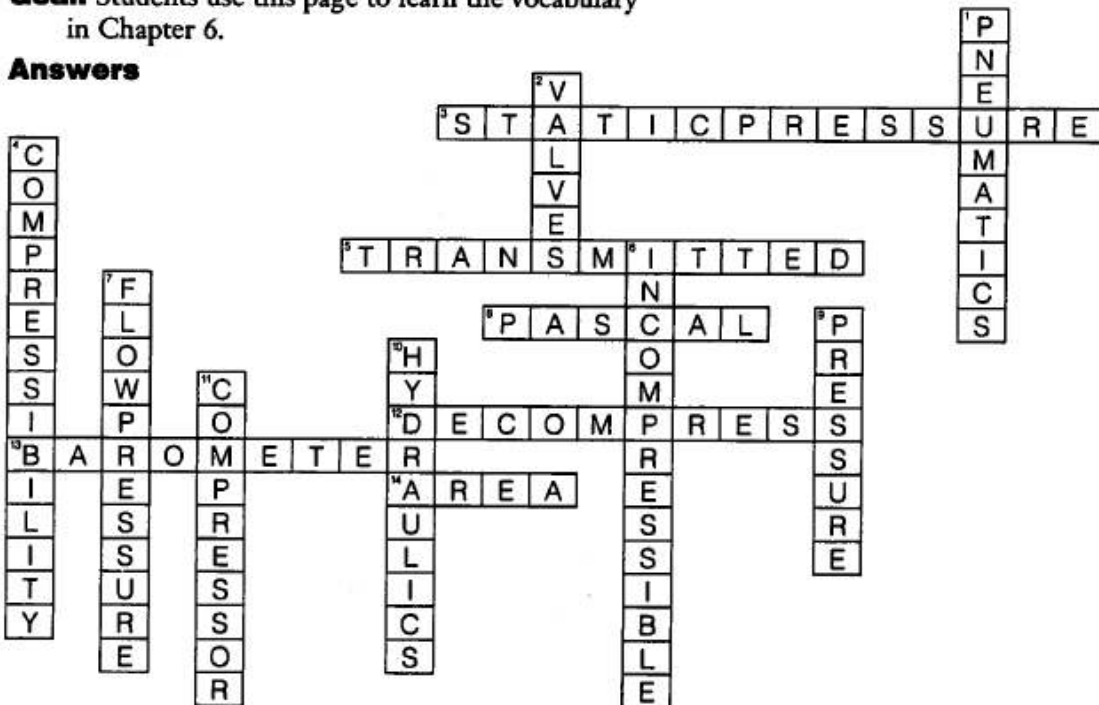
### Answers



## BLM 6-21, Crossword Puzzle/Vocabulary Check

**Goal:** Students use this page to learn the vocabulary in Chapter 6.

### Answers



## BLM 6-23, Unit 2 Test/Assessment

**Goal:** This unit test provides an opportunity for students to demonstrate their understanding of Unit 2: Fantastic Fluids.

### Answers:

1. F The particles of a gas are spread extremely far apart.
2. T
3. F A liquid always has an even surface.
4. F Only gases are compressible.
5. T
6. T
7. F Mass is the amount of matter in a substance.
8. F Temperature and depth both affect fluid pressure
9. T
10. F A pop can will implode if you remove all the air from it and cool it suddenly.
11. area
12. weight
13. density
14. buoyant force, fluid
15. liquid
16. compressible
17. flow
18. hydrometer
19. air
20. viscosity
21. viscosity
22. sublimation
23. hydrometer
24. weight
25. buoyancy
26. static pressure
27. compressible
28. average density
29. density
30. pressure
31. d
32. c
33. b
34. a.
35. d
36. The particle theory states that: (1) all matter is made up of very small particles, (2) all particles of a pure substance are the same; different substances are made of different particles, (3) there is space between particles, (4) the particles are always moving and as they gain energy they gain energy they move faster and (5) the particles in a substance are attracted to each other and the strength of the attractive force depends on the type of particle.
37. "Magic Mud" is a suspension. It can be rolled into a ball but as soon as pressure is removed, it goes back to its liquid state.
38. The particles in the gas lose energy because they are cooled. As energy is lost, the particles move closer together and when they lose enough energy, they change to a liquid.
39. Water is denser than air, and it provides more buoyant force against a body than air provides.
40. Some sources of experimental error in the Investigation The Flow Rate of Liquids could include: using different timers, not cleaning the ramp well between trials, using different ramp heights for different liquids, using different quantities of liquids for different trials, and not tipping the spoon in the same manner for each trial. All of these experimental errors can be avoided by being thorough and consistent when conducting the Investigation.
41. When the temperature of a liquid is increased, the particles of the liquid gain more energy and move further apart. When a gas is heated, the increased energy results in more collisions between particles (internal friction) and an increase in viscosity.
42. The particles in a glass of molasses are more complex and closer together than the particles in a glass of water. It is harder to get air (therefore bubbles) into the spaces between the molasses particles than the water particles.

43. Student answers may vary. The answer should indicate how much (volume) of the drink would move in a period of time. The answer should connect the viscosity of the drink with its flow rate.
44. Student answer may vary. A single coin will have a relatively small mass and relatively small volume. These factors should be taken into account in the answer.
45. Adding salt to the water will increase its density and increase the buoyant force it puts on the egg. This will counteract the pressure from the fluids inside the egg as they change to solids.
46. The air cushion in the shoe is sealed at the factory at a pressure that is higher than atmospheric pressure. The cushion is designed so that there is some room for expansion in normal use, but at 4000 metres, the atmospheric pressure is significantly less than the pressure in the shoe's air cushion and it can rupture. If the air cushion ruptures and goes flat, then in all likelihood a small hole was punctured in the air cushion and the air, under higher pressure moved towards the lower pressure outside the shoe. If the air cushion expanded creating a bulge, then likely there was a weakness in the material that allowed the air particles, which are under relatively high pressure compared to the atmosphere, to move further apart and force the formation of a larger air cushion.