

Directed Reading B

Section: Buoyancy and Density (pp. 412-419)

1. The upward force that fluids exert on all matter is called _____.
2. In a fluid, buoyant force exists because the pressure at the _____ of an object is greater than the pressure at the top.
3. State Archimedes' principle.

BUOYANT FORCE AND FLUID PRESSURE

4. The weight of displaced fluid determines the _____ on an object.

WEIGHT VERSUS BUOYANT FORCE

5. If the weight of the water an object displaces is equal to the weight of the object, the object
 - a. sinks.
 - b. floats.
 - c. flies.
 - d. is buoyed up.
6. If the weight of the water an object displaces is less than the weight of the object, the object
 - a. sinks.
 - b. floats.
 - c. flies.
 - d. is buoyed up.
7. If the weight of the water an object displaces is greater than the object's weight, the object
 - a. sinks.
 - b. floats.
 - c. flies.
 - d. is buoyed up.

Directed Reading B continued

Match the correct description with the correct formula. Write the letter in the space provided.

8. when a rock sinks
 - a. Buoyant force is less than weight.
 - b. Buoyant force equals weight.
 - c. Buoyant force is greater than weight.
9. when a duck is buoyed up
10. when a fish is suspended in the water

DENSITY AND FLOATING

11. How does the density of a rock affect its ability to float?

12. Why does an ice cube float in water?

13. Why does a helium balloon float in air?

DETERMINING DENSITY

14. The volume of a regular solid can be determined by
 - a. multiplying together the lengths of its sides.
 - b. dividing the length of one side by another.
 - c. adding the lengths of its sides.
 - d. multiplying its height and weight.

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15. The volume of an irregular solid equals
- a. the volume of water it displaces when fully submerged.
 - b. the volume of water it contains.
 - c. the volume of air it contains.
 - d. the volume of the regular solid that it would fit inside of.

CHANGING OVERALL DENSITY

16. A ship's hollow shape increases its _____ and decreases its overall _____, allowing it to float.
17. If a steel ship were NOT hollow, it would _____.
18. What is the purpose of a submarine's ballast tanks?

19. How is compressed air used in a submarine?

20. How does a fish's swim bladder affect its overall density?

21. How do fish without swim bladders keep from sinking?
