

## Chapter 16 Test Review Physical Science

Answer the following questions on a separate piece of paper. If you are working on a problem make sure to show your work to receive credit! If the answer requires units, **make sure to include the unit.**

1. How is a solid defined?
2. How is a liquid defined?
3. How is a gas defined?
4. Which state of matter is compressible?
5. Which state of matter is fire?
6. What are two units used for pressure?
7. What is the formula used to calculate pressure?
8. What are the following phase changes:
  - a. Solid to liquid
  - b. Liquid to gas
  - c. Solid to gas
  - d. Gas to solid
9. What phase change occurs when frost forms on a car?
10. What phase change occurs when a window fogs up?
11. Does melting require you to add energy, or remove energy?
  - a. Is this exothermic or endothermic?
12. Does freezing require you to add energy, or remove energy?
  - a. Is this exothermic or endothermic?
13. What states of matter are capable of flowing?
14. What does it mean to be fluid?
15. What is Pascal's principle?
16. What is Bernoulli's principle?
17. What is Archimedes' principle?
18. Which of the above principles explains why you can squeeze ketchup out of a bottle?
19. Which of the above principles explains why an object can float?
20. Which principle explains why an airplane can fly?
21. Draw the shape of an airplane wing cross section, and explain why it has the shape that it does.
22. What is a buoyant force?
23. What force is always working in an opposite direction of the buoyant force?
24. What causes an object to float?
25. If you weighed 135 pounds and you wanted to float in water, what would have to be the weight of the water that gets displaced?
26. If you weigh more than the buoyant force, what will happen?

27. Why can gasses be compressed?
28. Why can't solids be compressed?
29. What happens to the size of a solid when it gets heated?
  - a. Explain why this happens.
30. Suppose water has been boiling for 5 minutes...what would be its temperature under normal conditions?
31. Suppose water has been boiling for 40 minutes...what would be its temperature under normal conditions?
32. Why is it that a canoe may only be able to carry 4 people, but a cruise ship can carry 4000 people?
  - a. Use Archimedes' principle to explain your answer.
33. What happens to air pressure at higher altitudes?
34. If you weigh 500 N and the area of each of your feet separately is 0.025 square meters, what would be the pressure beneath your feet when standing on both feet?
  - a. What would be the pressure if you were just standing on one foot?
35. Would you be able to create more pressure with an ax or a sledge hammer?
  - a. Explain the reason for your answer.
36. What are the two variables used in Charles' law?
  - a. If one of the variables increases, what will happen to the other variable?
37. What are the two variables used in Boyle's Law?
  - a. If one of the variables increases, what will happen to the other variable?
38. If two pistons of different size are used in a hydraulic system, which one will have a greater force acting on it?
  - a. What will be true about the pressure at the two different pistons?
39. What is the measure of average kinetic energy of matter called?
40. What idea states that atoms are constantly moving and colliding with each other?