

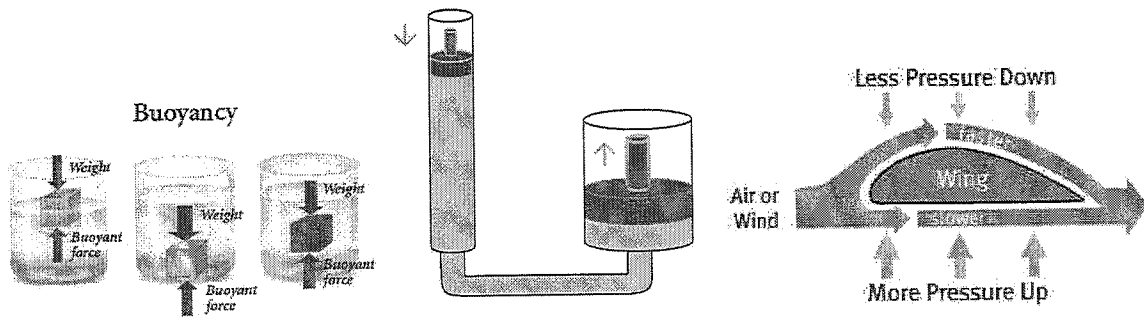
Name: _____

Test #2: Test Objectives

- _____ 1. If an ant were scaled up to the size of an elephant, the ant would be _____.
- A. Much stronger than the elephant
 - B. Of the same strength as the elephant
 - C. Weaker than the elephant, but able to run around
 - D. Too weak to even lift itself off the ground
- _____ 2. Archimedes' principle states that an object is buoyed up by a force that is equal to _____.
- A. The weight of the displaced fluid
 - B. The volume of the displaced fluid
 - C. The mass of the displaced fluid
 - D. The mass of the object
- _____ 3. An industrial container holds 200N of water. The area of the inside bottom of the container is 2m^2 . What pressure does the water exert on the bottom of the container?
- A. 100 N/m^2
 - B. 200 N/m^2
 - C. 400 N/m^2
 - D. 800 N/m^2
- _____ 4. Bernoulli's principle says that _____.
- A. As fluid speed increases, pressure decreases
 - B. As fluid speed decreases, pressure decreases
 - C. As fluid speed increases, pressure increases
 - D. As volume increases, pressure decreases
- _____ 5. When an inflated balloon is exposed to cold air,
- A. The temperature inside the balloon rises
 - B. The pressure inside the balloon rises
 - C. The volume of the balloon decreases
 - D. The volume of the balloon increases
- _____ 6. A fluid is
- A. A solid substance made up of crystals
 - B. A substance that has a definite shape and volume
 - C. A substance that flows
 - D. A substance that melts at a distinct temperature
- _____ 7. Smoke rises up a chimney partly because of
- A. Archimedes' principle
 - B. Pascal's principle
 - C. Bernoulli's principle
 - D. Newton's third law of motion

8. Know the phase change diagram! Going from a solid to a liquid or a liquid to a gas or a gas back to a liquid, etc.

9. Know your science vocabulary!!! This includes understanding Archimedes' Principle, Pascal's Principle, and Bernoulli's Principle.



10. Be able to calculate Pressure using the equation $\text{Pressure} = \text{Force} \div \text{Area}$. What is the pressure if a force of 50N is applied to a 5cm² object?

11. Be able to use Pascal's Principle to calculate output force in a hydraulic system using the equation $P = \frac{F_1}{A_1} = \frac{F_2}{A_2}$

If an input piston has a force of 25N applied to an area of 5cm² and the output piston is 30cm², what is the output force?

12. Understand Charles's Law, Boyle's Law and the Temperature-Pressure Relationship. What does each law state? What does a graph of Charles's law look like? What does a graph of Boyle's law look like? What are some real world examples of each law? Look over the notes we did in class!

13. How do airplanes take flight? Whose law describes this process and how does it work?

14. Why do helium balloons expand as they rise in the atmosphere? What law describes this?