

**PRESSURE**

**Use the resources on Mr. Hanna's website to complete the following assignment.**

**VOCABULARY:**

- 1) PRESSURE – *a force pushing on a surface*
- 2) FLUID – *a substance with no fixed shape which yields easily to pressure (liquid or gas)*
- 3) ATMOSPHERIC PRESSURE – *the result of the air that is weighing down on a specific point*
- 4) BERNOULLI'S PRINCIPLE – *the pressure exerted by a faster moving fluid is less than the pressure of the surrounding fluid*
- 5) BUOYANT FORCE – *upward net force acting on a submerged object as a result of the difference in pressure acting on the bottom and the top of the object*
- 6) ARCHIMEDES' PRINCIPLE - *the buoyant force on an object is equal to the weight of the fluid displaced by the object*

**SHORT ANSWER:**

- 7) What types of substances would be considered a "fluid"?  
*Liquid or gas*
- 8) Why does atmospheric pressure drop when you go to a higher elevation (like climbing a mountain or flying in an airplane)?  
*There is less air mass weighing down on you.*
- 9) What is responsible for sucking your shower curtain in when you take a hot shower?  
*Bernoulli's principle – the warmer, faster moving fluids inside the shower have lower pressure, so the higher pressure outside the shower pushes the curtain in on you*
- 10) Why do deep-sea divers need to wear special equipment to help them breathe and avoid being crushed?  
*Pressure increases with depth, so the high pressures deep under the sea must be balanced by the special equipment*
- 11) How is the concept of density important in determining whether an object sinks or floats in a fluid?  
*Objects which are less dense than the fluid they're in will float; objects which are more dense than the fluid they're in will sink. That's why when you blow up a balloon it will sink, because the carbon dioxide you breathe out is more dense than the air. However, a balloon filled with helium will float because helium is less dense than air.*
- 12) How does the buoyant force determine if an object will sink or float in a fluid?  
*In order to float, the buoyant force must be equal to the force of gravity on the object (the object's weight).*
- 13) According to Archimedes' Principle, what must a boat do in order to float in water?  
*In order for a boat to float, it must displace enough water to equal its own weight.*
- 14) Why does a tennis ball float lower in the water than a beach ball?  
*Because a tennis ball is heavier than a beach ball, it must displace more water to balance out the force of gravity.*

