Meteorology Temperature, Pressure and Density Questions

1. What is the definition of temperature?
2. What does absolute-zero temperature mean? What is the value in Celsius?
3. What is the relationship of hotness and coldness of a glass thermometer and the volume of the liquid inside?
4. What temperature does water boil in degree Fahrenheit and Celsius at sea-level?
5. What temperature does water freeze in degree Fahrenheit and Celsius?
6. What happens to the boiling point of water, as you increase in elevation?
7. What is Charles Law? (or what is the mathematical relationship of Temperature and Volume of an Ideal Gas?)
8. Why do cold and warm fronts even exist?
9. The formula for pressure is Pressure = Force/Area. What unit is Force measured in? What unit is Area measured in?

What is a Pascal? (Pa)

1. Can you dig a well so deep you cannot pump water from it? Explain.

1. How do soda straws really work? Illustrate below

1. How high is the sky?

1. Why do we still have an atmosphere? Explain.

1. Which way do all fluids move?

1. How much of the atmosphere mass resides between the 1000 and 500 millibar levels?
2. What is the atmospheric pressure at sea level in psi?
3. What is the atmospheric pressure at sea level in pascals?
4. What is the atmospheric pressure at sea level in millibars?
5. What is the atmospheric pressure at sea level in inches of mercury on a barometer?
6. What is the atmospheric pressure at sea level in feet of water on a barometer?
7. Density = Mass/Volume
8. What is the Density of water?
9. What is the Density of Air?
10. If Volume of a gas increases, what happens to its density?
11. If Density decreases of a gas, does the gas rise or fall?
12. What does increasing the pressure on a gas do to the volume and density of that gas? (Assume the temperature stays the same)
13. What is the significance of the ideal gas law towards the atmosphere?

1. Does atmospheric pressure increase or decrease with increase of elevation?
2. Nothing sucks in Nature! Explain.
3. . We have described pressure as largely being the weight of the overlying air. Actually, anything above us should increase the downward force. But, if that’s true, why aren’t we discomfited, or even crushed, when a large, very heavy airplane flies overhead? (Hint: It has nothing to do with lift).

1. On very hot days, jumbo jets are not permitted to take off or land at some airports, owing to insufficiently long runways, Why?