Level Climb

Okay, so you're thirsty. Stick a straw into the glass full of soft drink and suck up. As you've observed a thousand times before, the soft drink rises up the straw and enters your mouth. It's a pretty neat transport system. But did you know that you can get the soft drink to climb the straw by blowing out?

Materials  
A long straw  
A drinking glass  
A pair of scissors

To Do  
Snip the straw with a pair of scissors, but make sure that you do not cut fully through the straw. Your cut needs to leave a small piece of straw intact so that after the cut, the two halves stick together. The piece that attaches the two straws should be flexible.

Fill a glass two-thirds full of water. Place the modified straw in the glass. Bend the two sections of the straw so that they form a right angle.

Blow through the horizontal straw mouthpiece. Observe the level of liquid in the vertical section. What happens to the liquid as you blow into the straw? What causes this change? How is this like sucking up liquid through a straw? How is it different?

The Science  
As you blew through the horizontal straw section, you created a fast-moving blast of air. This moving air created a region of lower pressure that was centered above the vertical straw's opening. The surrounding air still pressed down with the same pressure on the exposed liquid surface in the glass. The pressure at the top of the straw, however, was lessened. This imbalance of force pushed down on the water's surface, causing the liquid to climb up the straw.

When you suck on a straw, you create the same imbalance, allowing the atmosphere’s pressure to push the liquid up the straw.