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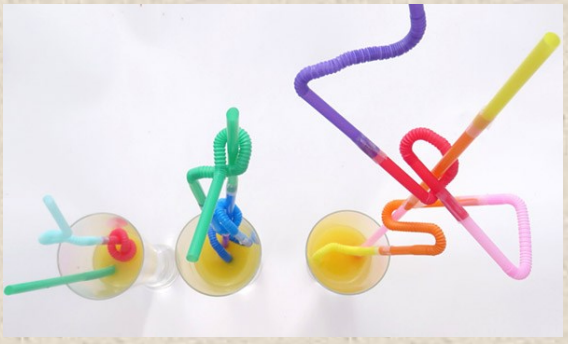
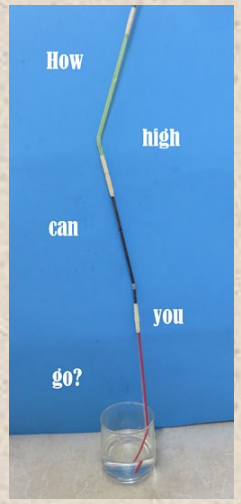
STEM Challenge: Make a Mega- Straw



Sipping a drink through a straw might seem simple. But how does the liquid move through the straw and into your mouth? You are actually using some fancy air pressure changes to move your beverage. The sipping action occurs when you lower the air pressure in your mouth, which allows the atmospheric pressure to push the liquid up the straw.



Air is constantly pressing on us and on the things around us. When you suck air from the straw, less air pushes on the water inside the straw than on the water outside of it. This imbalance causes more water to be pushed into the straw.

Suck harder, or remove more air from your mouth, and a bigger difference in air pressure will cause the water level to rise even higher into the straw. As soon as the water reaches the height of your mouth, you can drink.

Your lung power determines how much air you can remove. Some will have difficulty with a three-foot straw whereas others can successfully drink standing eight feet above their drink!

Using the directions on the next page, build your own mega-straw. Test wide and narrow straws and make predictions about how which one will work the best.

We'd love to see your finished really long straws and hear how well they worked. Take a photo/video and send it to us at eplyouthservices@gmail.com!

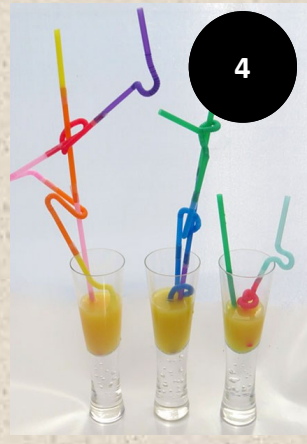
What you need:

12 straws (preferably with a bendy part)
Scissors
Ruler
Tape
Drinking glass
Water or juice

1. Have an adult help to cut two half-inch slits, across from one another, lengthwise in one end of a plastic straw. These cuts will help you slip the end of one straw over another one. Cut 10 more straws in the same way.

2. Slip the cut end of a prepared straw over the end of an unprepared straw.

3. Wrap the area where the straws overlap with tape so you have an airtight seal. Do not hurry; a good airtight seal will help you avoid trouble later.



4. To test your extra-long straw, put a glass of water on level ground. Now hold your straw vertically or close to vertically and try to drink with it.

5. If little or no liquid enters the straw, check the seal where you joined the straws. Is it airtight? If not, add tape or un do and redo this connection. If the seals at all joints seem airtight, check for holes in other areas of your mega-straw and seal them with tape.

6. Play around with your first mega-straw. Suck lightly to remove a little air from the straw then suck hard to remove more air. Observe each time how high the water rises in your mega-straw .

7. Time to add on! Attach another prepared straw to your mega-straw in a similar way and put your lengthened mega-straw to the test. Remember to hold your straw vertically or close to vertically during your test!