

Let's Build a Pipeline!

Introduction

Once scientists and geologists have found a pocket of natural gas, it's up to engineers to bring it to the surface and into your homes, schools or businesses. They do that by building pipelines that crisscross the entire nation. There are more than 2.4 million miles of pipeline that transport natural gas to more than 177 million Americans throughout the U.S. **Source:** www.aga.org/natural-gas-facts

Today you're going to experiment with building a pipeline that won't carry natural gas, but milk instead.

Objective

To understand how pipelines work to bring natural gas to our homes, businesses and schools.

Procedure

1. Designate one person to be the milk drinker. (To avoid spreading germs, allow only one milk drinker for each set of straws and be sure the milk drinker is not lactose intolerant.)
2. Put the first straw in the milk and have the drinker take a sip. Easy, right?
3. Now attach some more pipeline by slightly squeezing one end of a second straw and inserting it into the first.
4. Have the drinker take a sip of milk using this much longer straw.
5. Now place a piece of Scotch tape over the seam where you connected the two straws. Sip again. Does this make it easier or harder to drink the milk?
6. Add a third, fourth and fifth straw. Used the bend in the straws to make angles and corners as your pipeline travels across the room.
7. Continue until you are out of straws or milk.

Materials (for each group)

- 5-10 drinking straws (bendy straws work best)
- ½ pint milk (in carton)
- Scotch tape

Discussion Questions

1. What did you notice as the pipeline became longer?

- *It took more suction to drink from a longer straw.*

2. What happened if the tape didn't make an airtight seal?

- *It makes it harder to sip when extra air gets in the straw.*

3. Did any groups have a milk (natural gas) leak? How did you fix the problem?

- *Make sure the tape seals up the gaps between straws.*

4. How would this activity change if the straws were bigger or smaller around?

- *Narrow straws are easier to drink with, but you get less milk. Straws that are bigger around give you more milk, but make it harder to create suction, especially over longer distances.*