Blow up that Balloon

Of course we could blow up a balloon using our mouths or even a pump, but what if we want to talk while blowing up the balloon and the pump is broken? There is another option when it comes to blowing up balloons: good ol' science.

You need:

- 350ml White vinegar
- 3 tablespoons Baking soda
- Empty 1 litre bottle (at least)
- Funnels
- Balloon
- Pokey stick.

Method:

1. Stretch the balloon, so that it's nice and loose for filling up with CO2.
2. Using a dry funnel (this is important, if the funnel is wet the baking soda will stick to the funnel) and pour the baking soda into the balloon (the pokey stick can help if the baking soda is not going through easily). Lay the balloon to one side for later use.
3. Using the funnel to help prevent spillage, pour the vinegar so it fills about 1/3 of the empty bottle.
4. Without tipping the balloon up so that the baking soda spills out, wrap the mouth of the balloon over the opening of the bottle with vinegar in it.
5. Make sure the opening of the balloon is secured and airtight around the opening of the bottle, maybe use a rubber band to secure this if necessary.
6. When you're ready, lift the body of the balloon up so the baking soda tips into the vinegar.
7. The baking soda and vinegar will start to fizz, causing the balloon to inflate.
8. Give the bottle a little shake to help mix baking soda and vinegar if the reaction slows, this will help with inflation if needed.
9. Once the balloon has got to the desired inflation, take it off the bottle and tie off the end.

What's happening?

Baking soda is an alkaline. Vinegar is an acid. When these two ingredients combine a chemical called carbonic acid is made. This new acid doesn't last long and creates carbon dioxide gas as it decomposes. It's this gas which is 'blowing up' the balloon.

Experiment with different amounts of vinegar and baking soda to see how the size of reactions is affected.