

Name: _____ Date: _____



Powering The Future Lesson 2a

Capturing Carbon

You are going to carry out an investigation into a simple chemical reaction.

Carry out this investigation on a tray to contain any mess.

1. Place 4 tablespoons of water into the small plastic bottle.
2. Your group will be told how much lemon juice is to be added to the water. Add this using a tablespoon.
3. While 1 person holds open the neck of the balloon as much as possible, another person should place 1 teaspoon of bicarbonate of soda into the balloon.



Tick when complete



Tick when complete



Tick when complete

How many tablespoons of lemon juice did you add to the bottle?

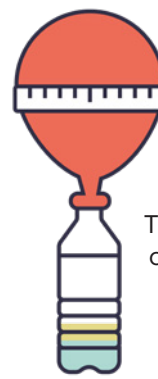
4. Attach the balloon to the plastic bottle, without tipping the bicarbonate of soda into the bottle. Make sure there is a tight seal between the bottle and balloon.
5. While one person keeps a tight hold on the balloon, another person should tip the bicarbonate of soda into the bottle.
6. Once the reaction has started, the balloon should begin to inflate. Using a tape measure, measure the circumference of the balloon once it has inflated as much as possible.



Tick when complete

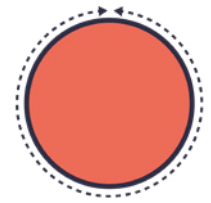


Tick when complete



Tick when complete

The circumference of the balloon is the distance around the edge.



If you're using string instead of a tape measure, wrap the string around the balloon. Place your fingers at the point where the string was wrapped entirely round the balloon. Use a ruler to measure how long this length of string is.





1. What was the biggest circumference you recorded for the balloon?

 cm

2. You released carbon dioxide using a chemical reaction.

What did you notice that suggests a chemical reaction has happened?

3. Clean out the bottle and repeat the experiment, using a different volume of lemon juice of your choosing. Record your results.

How much lemon juice did you add to the bottle?

What was the biggest circumference you recorded for the balloon?

 cm

4. Describe the differences you noticed when you used a different volume of lemon juice.

When carbon dioxide is released from industrial processes, it can be captured and stored using carbon capture technology. This usually requires transporting carbon dioxide in pipes.

Carbon dioxide is often compressed into a liquid, which means it's made to take up less space.

5. Why do you think the carbon dioxide is often compressed into a liquid before it is transported?