

Capturing CO₂

Capturing CO₂ from soda

Name: _____



You will need

- Balloon
- Small soda water bottle with screw top lid



What to do

1. Secure the balloon over the neck of the screw top soda bottle.
2. Gently unscrew the lid (with the balloon over the top of the bottle).
3. Note down any observations. You should be able to see something happening in both the liquid and the balloon.
4. Observe what is happening in the bottle – the bubbles of gas filling the balloon are carbon dioxide (CO₂).



Questions

1. Explain what happened to the balloon.

2. What happens to the soda water if you shake the bottle? Does the balloon get bigger?

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What's happening?

CO₂ is found in soda water and other soft drinks. The CO₂ cannot be seen as it is dissolved in the water at room temperature. The bottle is pressurised and sealed. This keeps more CO₂ in the water than would normally be possible.

When the lid of the bottle is unscrewed a pressure change is created, pressure is released. This causes the CO₂ to come out of solution and appear as the bubbles that we see. These bubbles rise up out of the solution.

If there was no balloon on the bottle the CO₂ would be released out into the atmosphere. However, in this experiment you have captured the CO₂ inside the balloon.

Capturing CO₂ is the first part of carbon capture and storage (CCS), however capturing the large volumes of CO₂ from a power station or industrial plant usually requires a number of chemical processes to separate CO₂ out from other gases.