

Name: _____



You will need

- 1 medium bottle
- Water with a little food colouring (to make it easy to see)
- 1 container to catch water
- Plasticine to seal the mouth of the bottle
- 2 bendable straws or flexible tubes



WARNING: Safety first! Please wear safety glasses to prevent any food colouring splashing into your eyes. And please use one straw per person – no sharing straws.



What to do

1. Fill the medium bottle with coloured water - just leave a small space at the top of the bottle.
2. Use the plasticine to create a lid for this bottle with two bendy straws going into it. One has the short end going into the bottle to stay above the water level and the other has the long end in the bottle going into the water. Mould the plasticine to make it as airtight around the straws as possible.
3. Carefully bend the straw from the water over to drain into the waste water container.
4. Blow gently into the long straw that ends above the water.



Questions

1. Write or draw what happens when you blow into the long straw.

2. Did you manage to get coloured water coming out of the short straw?

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3. If you did not manage to get coloured water coming out of the short straw, then your plasticine seal was probably not tight enough. Fix your seal and try again – did it work this time?



What's happening?

This experiment demonstrates how CO₂ can move or 'displace' other fluids like water or oil that are stored inside porous rocks deep underground.

In this demonstration the bottle filled with water is a model of an oil reservoir deep underground. It formed there over millions of years and the oil is trapped under a cap of rock (the plasticine seal).

When CO₂ is injected (or in our experiment blown) into the oil reservoir, it fills up space in the reservoir (or bottle) and pushes aside the oil (coloured water).

It is very hard to compress or squash a liquid, but the second straw provides a way out, so the fluid is pushed up and out through the second straw – in scientific terms the CO₂ gas has displaced the original reservoir fluid.

In some parts of the world, companies are using CO₂ to push oil out of the ground that traditionally would have been very hard to reach. This process is known as CO₂ enhanced oil recovery or CO₂ EOR