Collapsing can.

This demonstration can be used to show the force that the air around us can exert on an object, as well as the large change in the volume of water when it changes into a gas (steam) (~1600%)

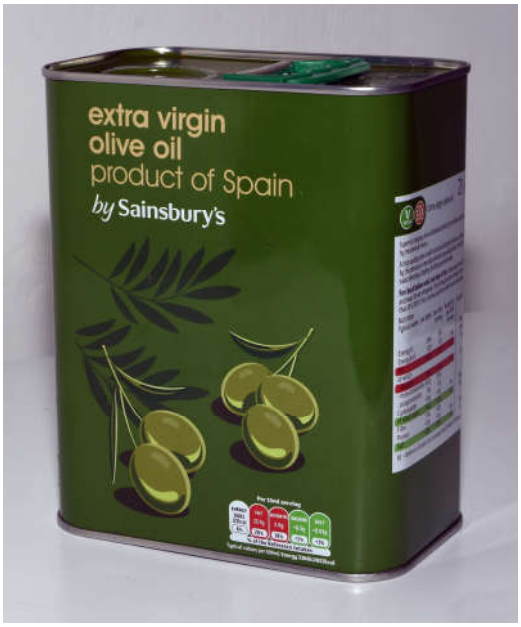
Equipment.

1 x stout metal can (Sainsburies olive oil containers work well).
1 x rubber bung to fit the hole in the can.
A source of heat to boil the water in the can. (e.g. small camping gas burner)
A suitable support for the can while it is being heated. (Tripod if using a bunsen burner).
Heat resistant gloves to handle the hot can and for inserting the bung.
A small amount of hot water.

Method

1). Remove any plastic spouts from the can.
2). Ensure that the bung will fit the hole in the can and form a good seal.
3). The strength of the can may be demonstrated by standing on the top of the can when it is placed on the ground! (Supports my 78kg!)
4). Place can on suitable heating support and add ~200ml of hot water.
5). Put source of heat beneath the can and heat until the water has been boiling for a few minutes.
This is important for success, as the can **MUST** be **FULL** of steam.
6). Remove the source of heat and quickly put the bung into the hole in the can.
Make sure it forms a tight seal.
7). As the steam condenses back to water, the can will start to collapse.
The water may be heard to boil under the reduced pressure even when the temperature falls to ~70°C.
The can may be cooled with cold water to speed up the process.
8). After the can has cooled, the bung can be removed and the can recycled.

BEFORE



AFTER