

# BLOWING OUT CANDELS

The **Coanda Effect** is the tendency of a stream of fluid to stay close to a smooth surface it is flowing past, rather than follow a straight line in its original direction. Sometimes when you try to pour water from a jug the water runs down the side of the jug. This is the Coanda Effect. You also see the effect if you hold a spoon under a stream of water. The moving water will try to follow the lines of the surface, even if it has to change direction to do so. All liquids and gases behave this way

## ENGINEERING CONNECTION

Engineers use the Coanda effect in hydropower stations to prevent fish from entering turbines.

Water containing fish and debris pass over a Coanda screen (a large curved sieve) and particle free water is collected below to power the turbines.

When designing airplane engineers need to be aware of the Coanda and use it in many of their calculations involving air flow.



## HOW YOU CAN DO THIS

1. Light the candle and place the round bottle in front of the flame.
2. Try to blow it out from behind the bottle.
3. Light the flame again and hold the box in front of the flame, the same distance as you held the bottle.
4. Try to blow out the flame from behind the box.

If your demonstration doesn't work too well, try and vary the distance you place the candle from the object in front of it. They should be around 5cm apart.

## WHAT ACTUALLY HAPPENED?

You should find that it is easier to blow out the candle from behind the bottle. When you blow around the bottle, the air follows the curved surface around the bottle before moving on to the candle. The surface of the box does not lead towards the candle in a straight line so the air is dispelled away from the box.

## WHAT YOU WILL NEED

- A candle
- A round bottle
- A small box
- A lighter/match etc.

