

FLUIDS

Substances which can flow
are called Fluids.



LIQUIDS

GASES









SPEED
LIMIT
30

FLUIDS

*FLUIDS EXERT **PRESSURE***

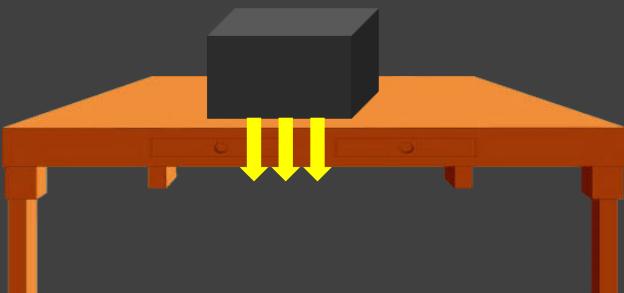


LIQUIDS

GASES

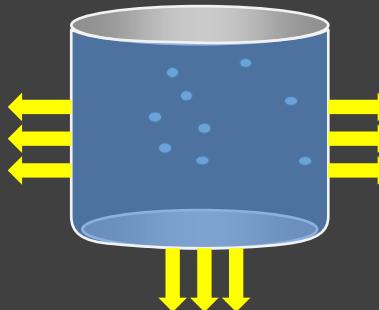
PRESSURE IN FLUIDS

Solids exert pressure
due to its weight



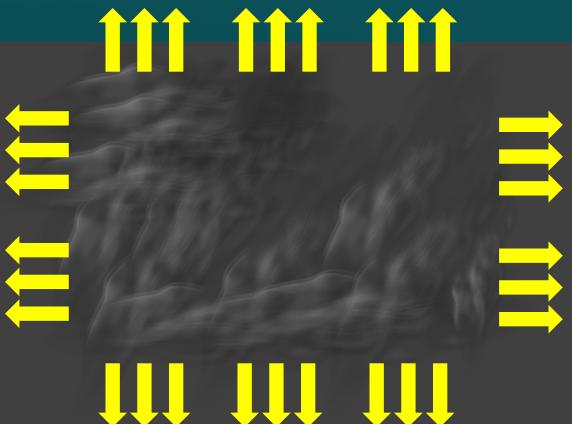
PRESSURE IN FLUIDS

Liquids exert pressure on base and wall of container



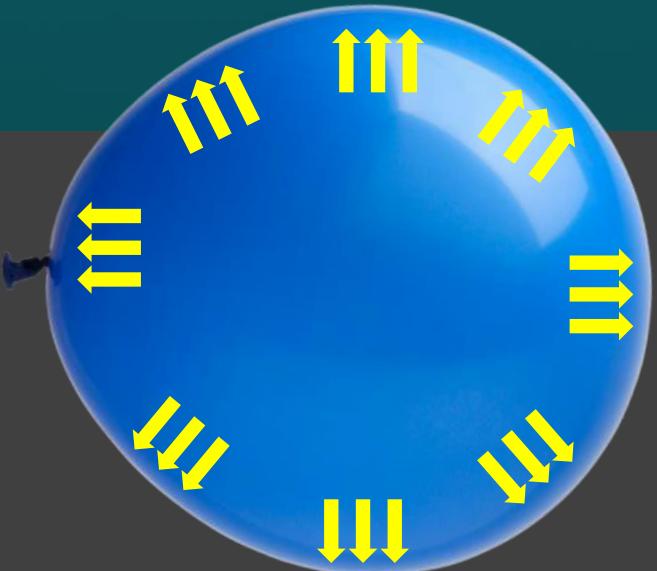
PRESSURE IN FLUIDS

Gases exert pressure
in all directions



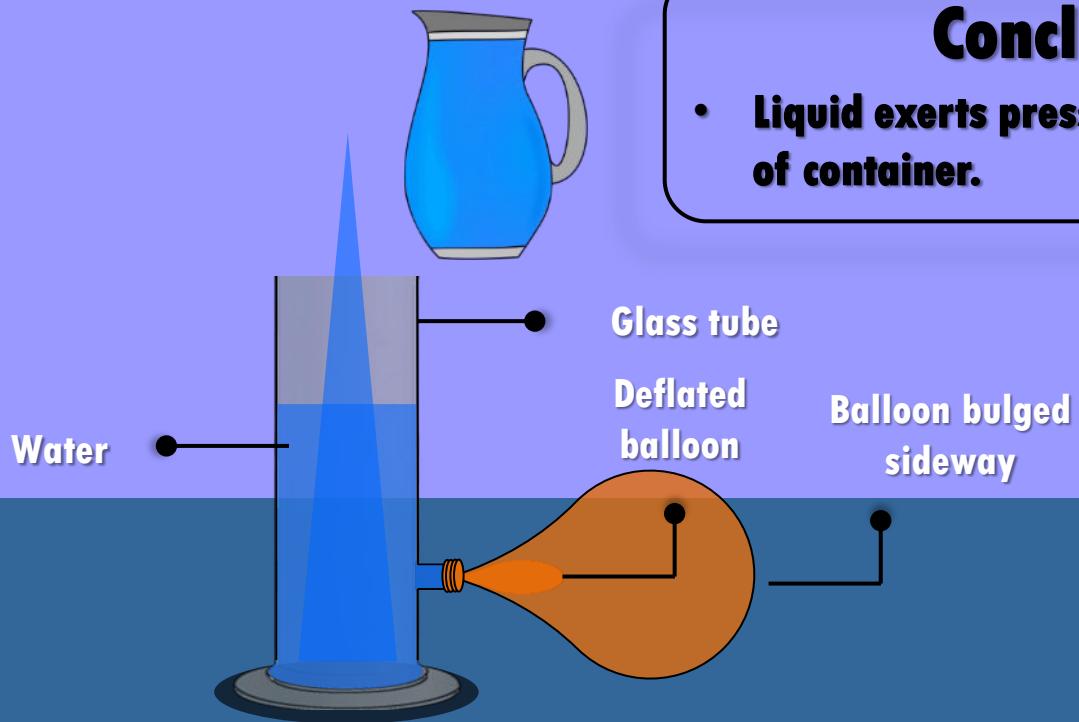
PRESSURE IN FLUIDS

Gases exert pressure
in all directions



Let us understand different activities for liquid pressure

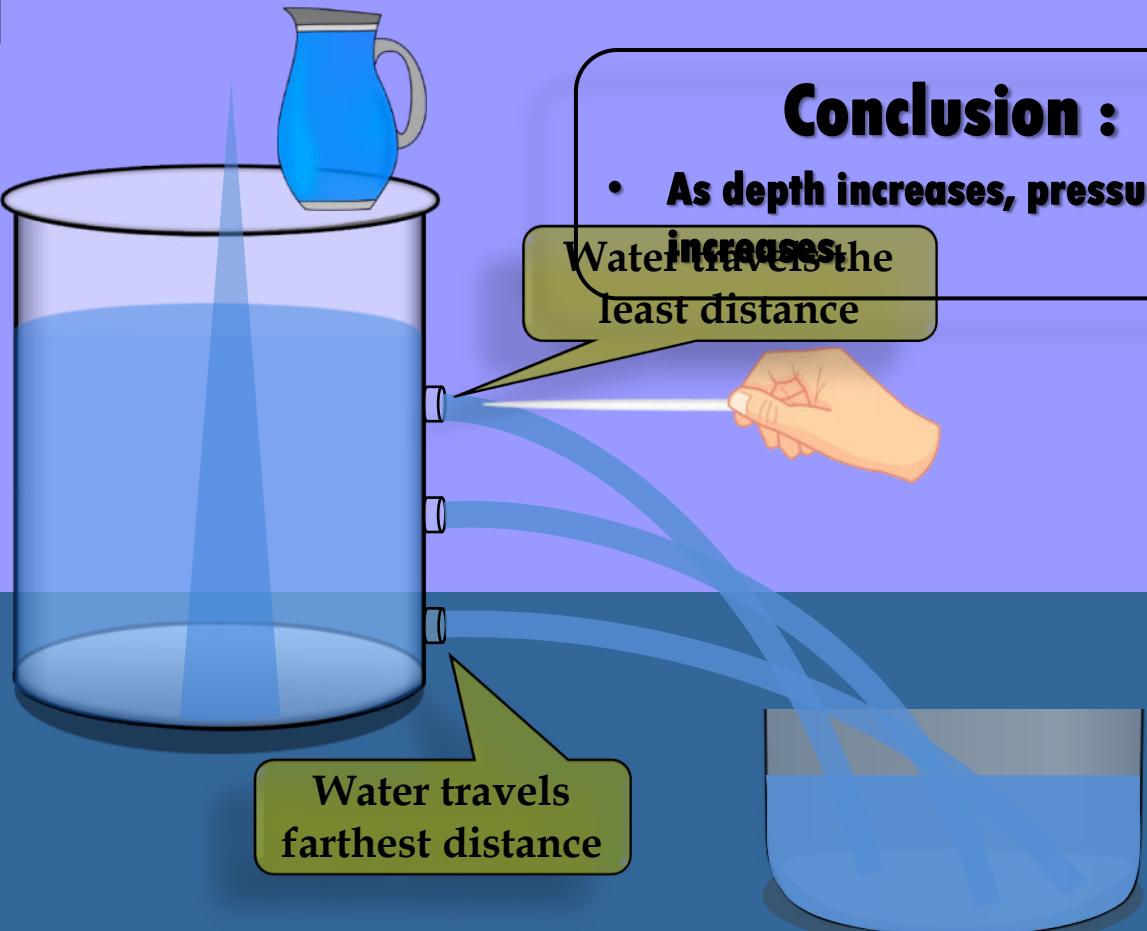
Pressure in Liquids



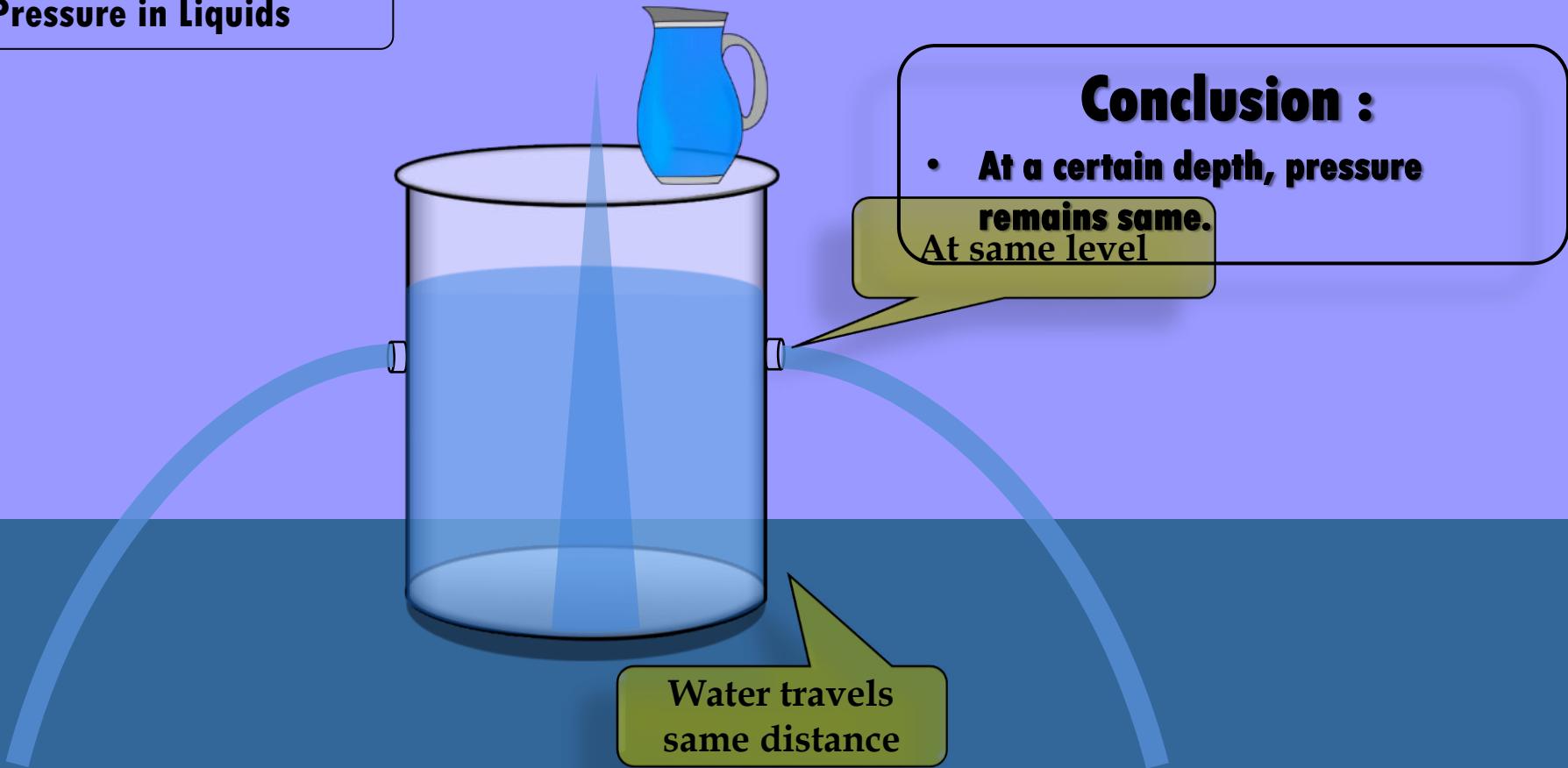
Conclusion :

- Liquid exerts pressure sideways on the walls of container.

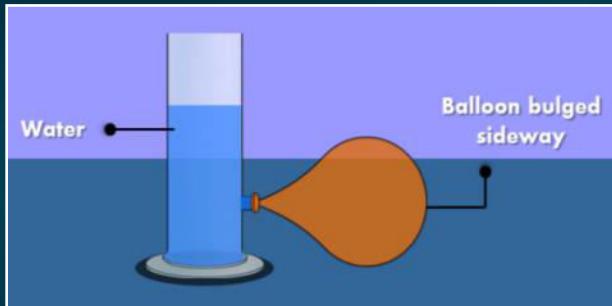
Pressure in Liquids



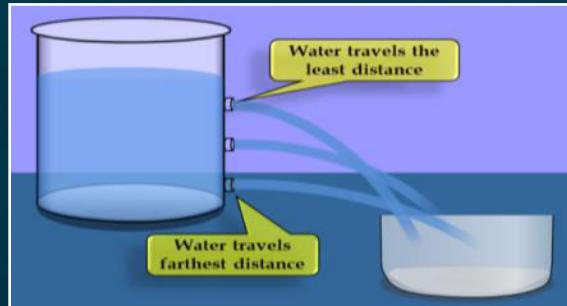
Pressure in Liquids



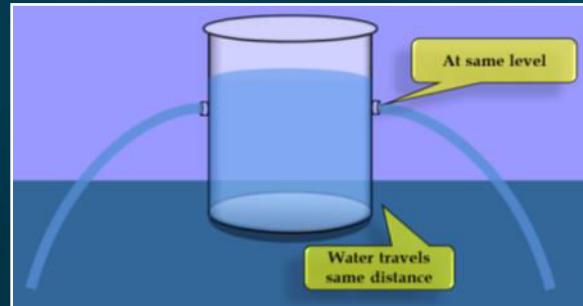
REVISION OF PRESSURE IN LIQUIDS



Liquid exerts pressure sideways on the walls of container.

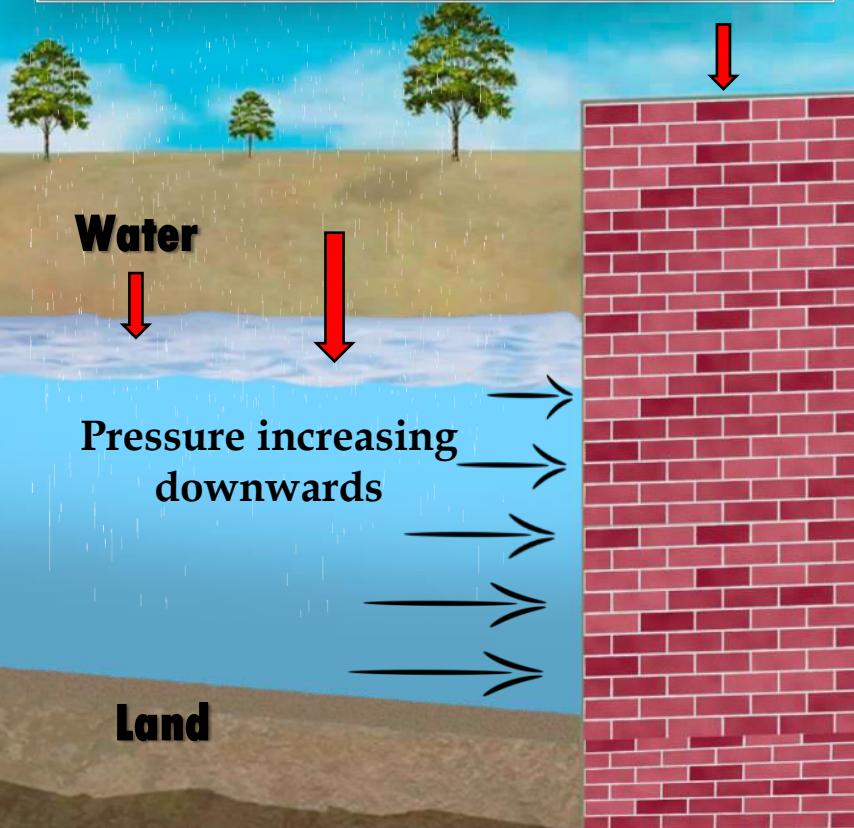


**As depth increases,
pressure increases.**



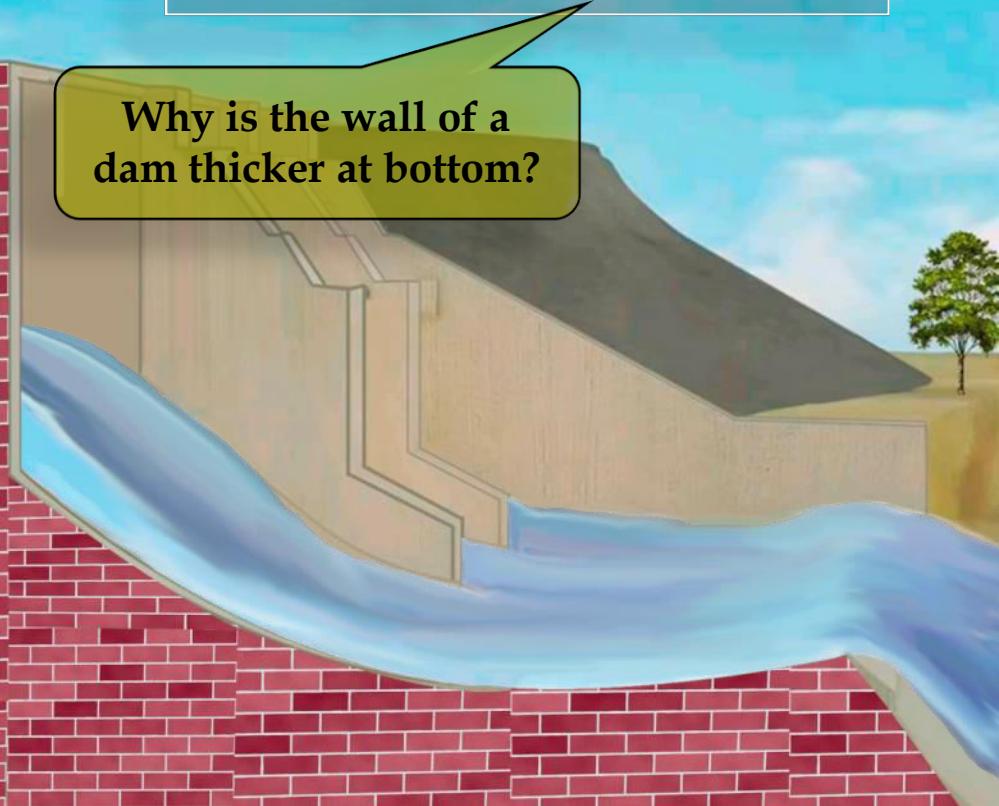
**At a certain depth, pressure
remains same.**

A thicker wall is required to withstand a
Because the pressure at the bottom is
exerted by water on the wall of dam.
Wall of water



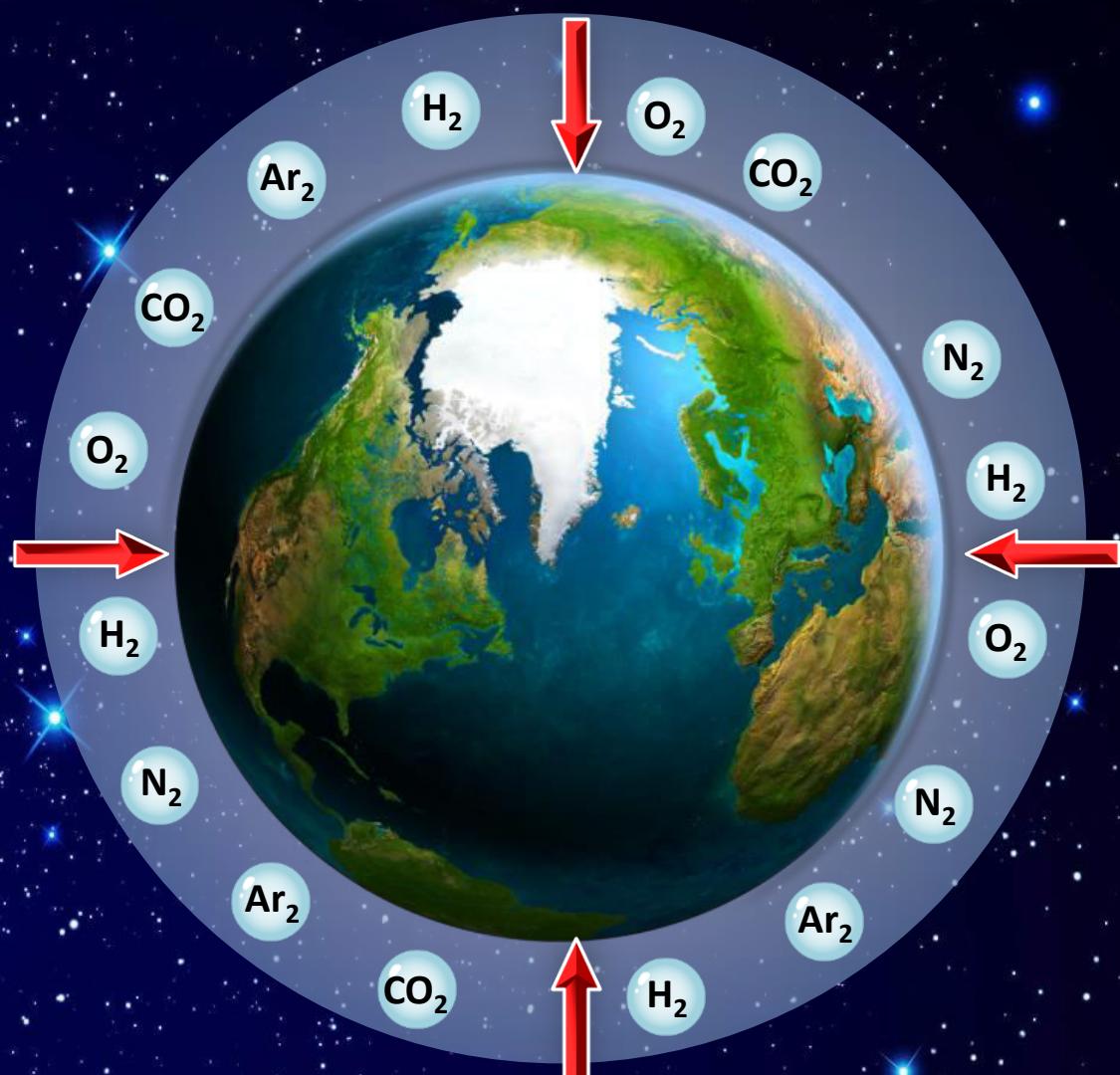
The wall of a dam is made thicker
at the bottom:

Why is the wall of a
dam thicker at bottom?



Atmospheric pressure

The pressure that the atmosphere exerts is called **atmospheric pressure**.



Atmospheric pressure

We know ~~that the atmosphere has weight~~ How do we survive carrying such a hundred ~~tremendous~~ tremendous weight on our head ?



This is because, inside body we have fluids, which exert outward pressure. So we do not feel the atmospheric pressure



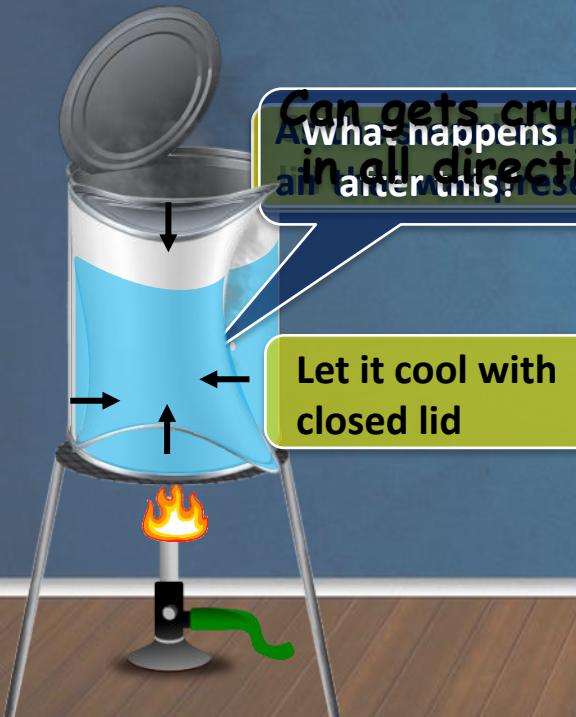
$10 \text{ cm} \times 10 \text{ cm}$





Let us conduct one more experiment to explain the **effects of atmospheric pressure**

Atmospheric pressure



Why this happens?
Give reason.

- The pressure inside the can becomes far less than that of the atmospheric pressure outside.
- Therefore, the can is crushed under the external pressure, i.e. the atmospheric pressure.
- This shows that the atmosphere exerts pressure on an object equally in all directions.

Applications of atmospheric pressure

1

Rubber sucker



Rubber sucker



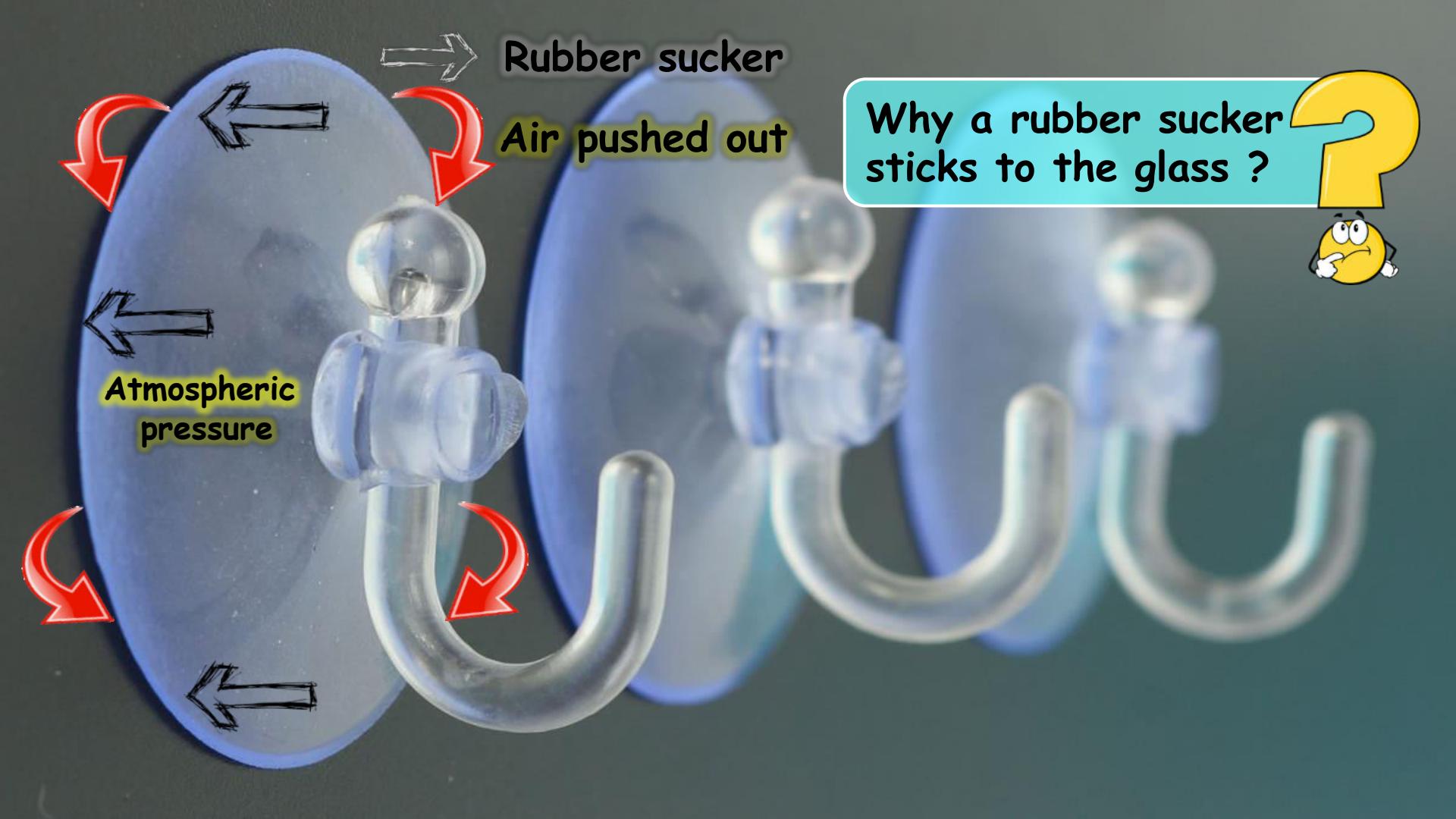
Air



Air



Air



Rubber sucker

Air pushed out

Atmospheric
pressure

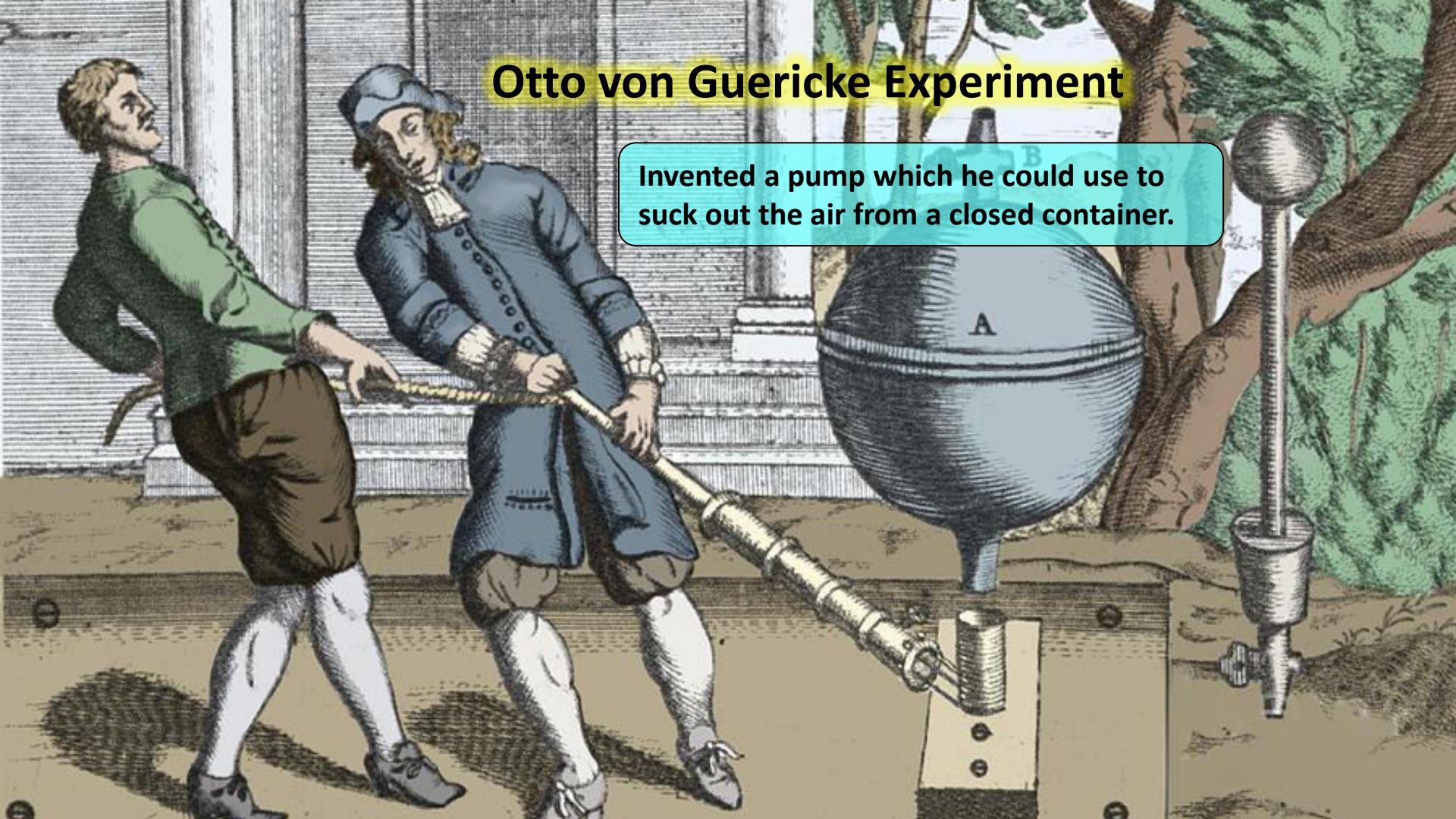
Why a rubber sucker
sticks to the glass ?



Fact from history

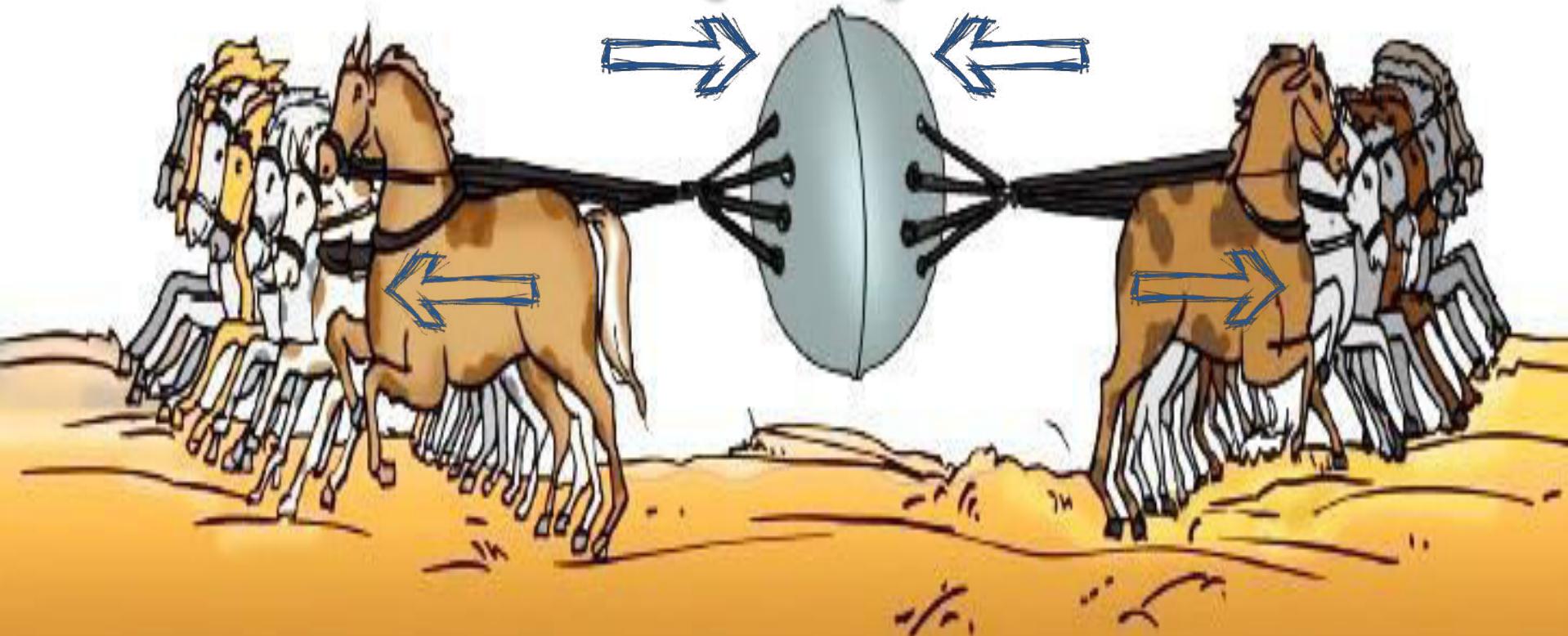
Otto von Guericke Experiment

Invented a pump which he could use to suck out the air from a closed container.



Otto von Guericke Experiment

Atmospheric pressure



Applications of atmospheric pressure

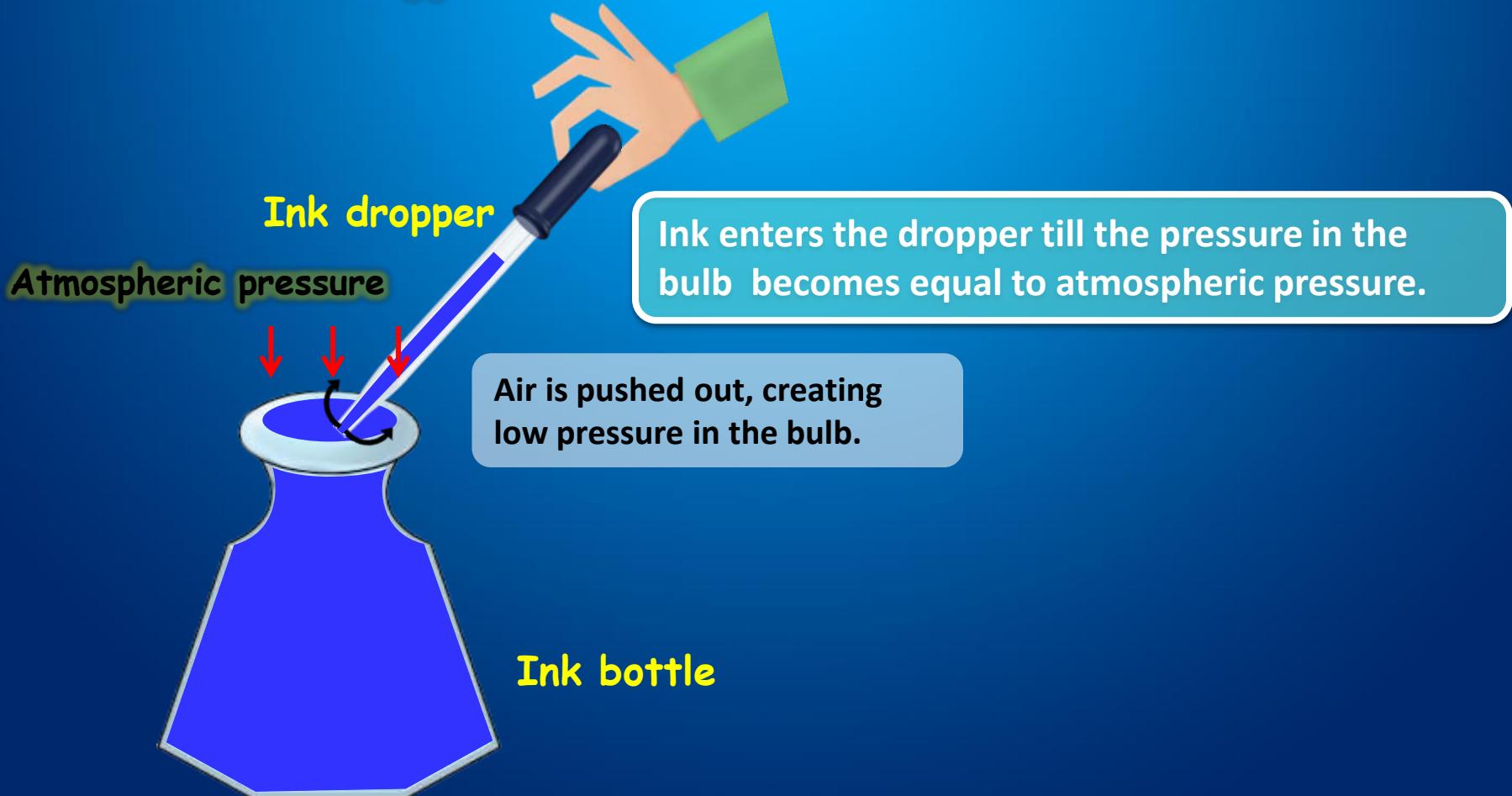
1 Rubber sucker

2 Ink dropper





Ink dropper



Applications of atmospheric pressure

1 Rubber sucker

2 Ink dropper

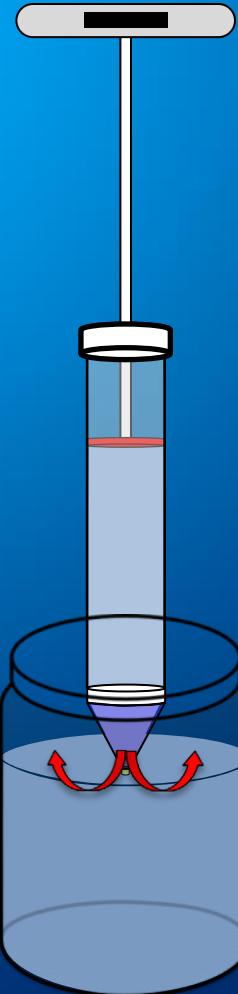
3 The spray pump

Spray pump



→ The spray pump

As the pressure of the water inside is equal to the atmospheric pressure outside, the water does not fall out.



Thank You