Balloon Lung

1. **Cut** or saw off the bottom of a plastic bottle.
2. **Cut** the end off a balloon and stretch over the opening at the bottom of the bottle.
3. **Insert** a second balloon so it hangs inside the top of the bottle, stretching the end of the balloon around the rim.
4. **Pull** the bottom balloon membrane. What happens to the balloon inside the bottle?

Under Pressure

Air is trapped inside the plastic bottle. When you pull the bottom balloon, you increase the **volume** of the bottle, which causes a decrease in **pressure**. This is known as **Boyle's Law**. The air in the top balloon comes from outside the bottle, expanding the balloon as it pushes against the low pressure created in the bottle. When you let go, the volume decreases, pressure increases, and air is pushed back out.

Breathe Deep

When you **inhale**, your **diaphragm** contracts and flattens out. The volume in your chest increases, decreasing the pressure, so outside air rushes in, just like the balloon. When you **exhale**, your diaphragm relaxes, decreasing the volume in your chest, increasing pressure, and forcing air out of the lungs.

NAVY NOTES

Pressure is higher as you go deeper underwater, so divers must take precautions as they return to the surface. A rapid ascent could cause expanding air in the lungs to rupture lung tissue, known as an embolism.