

The scenario

Subject	Mechanics of Liquids / Cartesian Diver
Length	1:49
Main objectives	Understanding Pascal's and Archimedes' laws/principles.
Detailed objectives	
Structure and description of experiments:	
1. Introduction	Description: The motivation for the experiment will be to investigate the functioning of submarines and divers.
2. Main subject	Description: Understand Archimedes and Pascal's law and their applications in practice.
Part 1	
Experiment 1 (0:52),	<p>Tools: transparent plastic bottle, water, dropper</p> <p>Description: Fill the dropper with a small amount of liquid (so that it floats in the water bottle) and close the bottle filled almost to the top with water. By pressing the bottle, the dropper will move down, when the pressure is released it will go up again. We also notice the size of the air bubble in the dropper, which changes depending on the amount of pressure on the bottle.</p>
Experiment 2 (1:16),	<p>A detailed view of the movement of the dropper and the size of the air bubble in the dropper, which shrinks when the bottle is pressed and then the dropper sinks to the bottom of the bottle. When the hand is released, the size of the air bubble changes again, the bubble in the dropper increases and the dropper points upwards.</p> <p>Questions: why does the size of the air bubble in the dropper change?</p> <p>Conclusions: Squeezing the plastic bottle increases the pressure in the liquid. The liquid is practically incompressible. The increased pressure is manifested by compressing the air in the dropper. Its volume will decrease, its density will increase. The dropper (depending on its overall density) gradually sinks to the bottom. After releasing the bottle, reducing the pressure in the liquid, the volume of the air bubble will increase and the dropper will rise to the surface.</p>
3. Summary, evaluation and notes	<p>Application: principle of operation of submarines ,</p> <p>We can implement the experiment like a charm, we move the other hand down and the dropper follows the movement of the free hand. Then we move our hand up, release the pressure in the other hand in which we hold the bottle and the dropper moves up. We squeeze the bottle again and "command" the dropper to stop halfway. We then ask the children to explain the "magic".</p> <p>Level: primary school (ISCED 2 / 6th, 8th grade)</p>

