

The scenario

Topic	Air pressure / Cream cake in a vacuum
Movie length	2:02
Main Objectives	Presentation of phenomena related to pressure reduction.
Specific goal	Explanation of the issue related to the reduction of pressure and the space occupied by objects filled with air.
Structure and description of the experiments	
1. Introduction	The movie shows what happens with objects that are filled with small air bubbles.
2. Main topic	What effect does a change in atmospheric pressure have on a human body?
Part 1	
Experiment 1: 1:20	<p>Materials :</p> <ul style="list-style-type: none"> • Vacuum pump, • vacuum chamber, • cream cake, shaving foam, whipped cream, marshmallow. <p>Description :</p> <p>Place the cream cake inside vacuum chamber. We lower the pressure in the vacuum chamber. The cream begins to increase its volume several times.</p> <p>After introducing air into the chamber, the cream rapidly begins to decrease in volume.</p> <p>Questions :</p> <p>Why does the mass increase in volume in the initial phase? What happens to the air bubbles trapped in the mass? How does the re-air supply to the diffuser affect the mass?</p> <p>Conclusions:</p> <p>Air bubbles that are in the mass when the air is pumped out from under the lampshade increase their volume. We have the impression that the mass is increasing. We allow the air bubbles in the cream to retain a larger volume. Unfortunately, as a result of the rapid pressure reduction, some of the bubbles are burst and the air is removed from under the lampshade.</p> <p>Re-supplying air to the vacuum chamber causes equalization of pressures and the bubbles decrease their volume again. Unfortunately, the cream, due to the fact that some of the bubbles have been destroyed, is no longer so fluffy.</p>
Summary, evaluation and comments	<p>Application:</p> <p>The movie can be used at the beginning of a lesson as an introduction to a lesson about atmospheric pressure. What is indicated by the behaviour of the cake after the air has been pumped out from under the bowl of the vacuum pump?</p>

	<p>The movie can be used as an illustration of the effects of negative pressure during the relevant part of the lesson.</p> <p>The movie can be used when reviewing material on issues related to the concept of pressure.</p> <p>The movie can be an introduction to a discussion about:</p> <p>The impact on the human body of the lack of atmospheric pressure in space.</p> <p>About the use of pressure in daily life.</p> <p>About changes in atmospheric pressure and their impact on people's well-being.</p> <p>Level of education: primary school and high school</p>
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