

Suction by blowing

Autor:

Adam Czyżewski

Data dodania:

19.06.2018

Słowa kluczowe:

pressure,powietrze,prawo Bernoulliego,rozpylacz

DZIEDZINA:

Physics

Cel doświadczenia:

The problem to solve is to suck up a table tennis ball by means of a plastic tube and a stream of air from a blower.

Spis materiałów:

- 1. a table tennis ball
- 2. 2 plastic tubes, preferably of a transparent material, with a dimension slightly larger than the ball diameter and a length of approx. 20 cm
- 3. a hair dryer (the higher power, the better) or another air blower
- 4. plasticine

Etapy realizacji:

- 1. Put the ball on a table or on the floor.
- 2. Apply a plastic tube to the ball from above.
- 3. Turn on the dryer (blower).
- 4. Move the dryer closer to the upper end of the tube.
- 5. Observe the ball behaviour.
- 6. What happens when you gently lift the tube?
- 7. In the other tube, at approx. ¹/₄ of its length, cut a hole with a diameter corresponding to the diameter of the first tube.
- 8. Place the first tube in the second one (so that they are perpendicular to each other) and seal the connection with plasticine.
- 9. Apply the plastic tube to the ball from above.
- 10. Turn on the dryer (blower).
- 11. Move the dryer closer to the horizontally positioned tube.
- 12. Observe the ball behaviour.
- 13. Try to hit any target with the ball.

Pytania do doświadczenia:

- 1. Does the positioning of the blower at different angles affect the result of the experiment?
- 2. What will be the course of the experiment if we place an airflow concentrators on the hair dryer, i.e. make the air outlet narrower?
- 3. Does the use of a second tube facilitate or hamper the sucking of the balls, and why?

Opis zjawiska:

Ciekawostki:

- 1. Bernoulli's principle resulting from the pressure difference between the moving gas and gas 'at rest' was used in perfume atomisers. Currently, it is utilised in spray painting.
- 2. In high-speed railways it was necessary to increase the distance between the tracks; otherwise, due to Bernoulli's effect, the moving trains might 'stick together' causing a disaster.
- 3. In football, the track along which the rotating ball moves, so-called 'banana shot', is also associated with Bernoulli's effect. The additional force acting on the ball is the so-called Magnus effect.
- 4. The behaviour of liquids or gases described by Bernoulli's effect is also referred to as a hydrodynamic paradox.