

Bernoulli's principle.

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Lesson: Bernoulli's principle.

Grade: 7

Suggested time: 50 min.

Overview

Students will learn why airplanes fly. They will learn the Bernoulli principle and how to apply it by performing various experiments.

Vocabulary

- Structural engineering
- Mechanical engineering
- Transportation
- Aeronautics
- Gravity
- Air resistance
- Fluid
- Bernoulli's principle

Objectives

They will learn the Bernoulli principle and how to apply it.

Required projects Materials

- Computer
- Ping pong ball
- 2 soda cans
- Water
- Paper Sheet
- Compressed air can or hairdryer

Multimedia Resources

The Lesson

Part 1: Introduction (20 min)

1. Ask Students Why do planes fly, what is aeronautics and where they apply the STEAM in aeronautics.
2. They are asked to investigate who was Daniel Bernoulli.
3. It is explained that it is the Bernoulli Principle. (Speed * pressure = energy).

Part 2: Experimentation (25 min)

1. The first experiment is carried out: They are asked for a sheet of paper and asked to blow over it, before doing it they are asked, what do they think will happen? Since they blew, they are asked to explain why that happened.

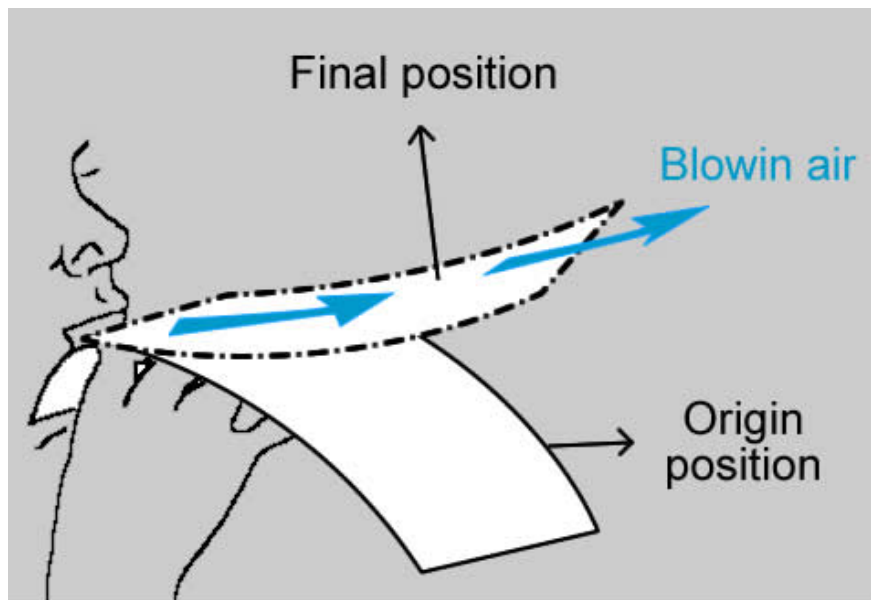


Figure 1: Experiment 1

2. We will do another experiment we will ask them to put the two soda cans on the table and to separate them 1 cm and blow them into the separation. Before they blow, ask what do you think is going to happen? And they must explain why that happened.

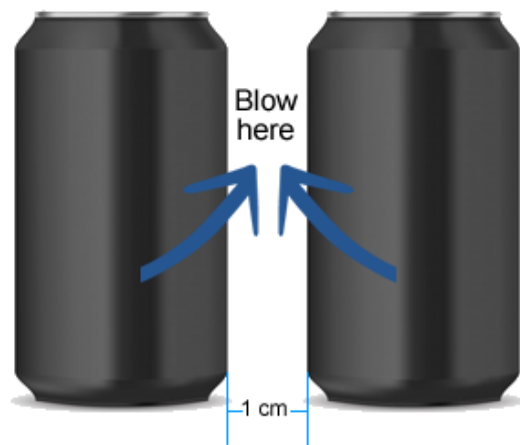


Figure 2: Experiment 2

3. We will do one last experiment to explain Bernoulli's Principle. Use the hairdryer, already turned on, put the ping pong ball and see what happens. Explain what happened.

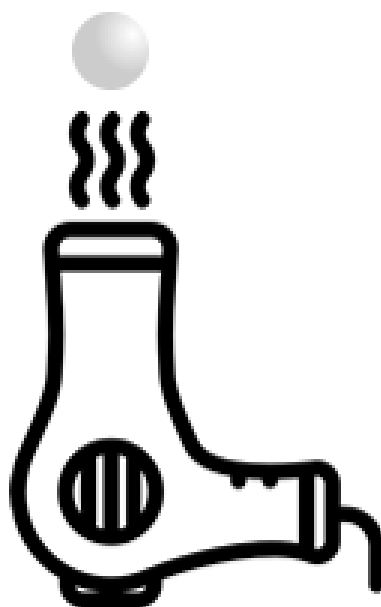


Figure 3: Experiment 3

Part 3. Conclusions

1. Explain why an airplane flies. Explaining Bernoulli's principle.

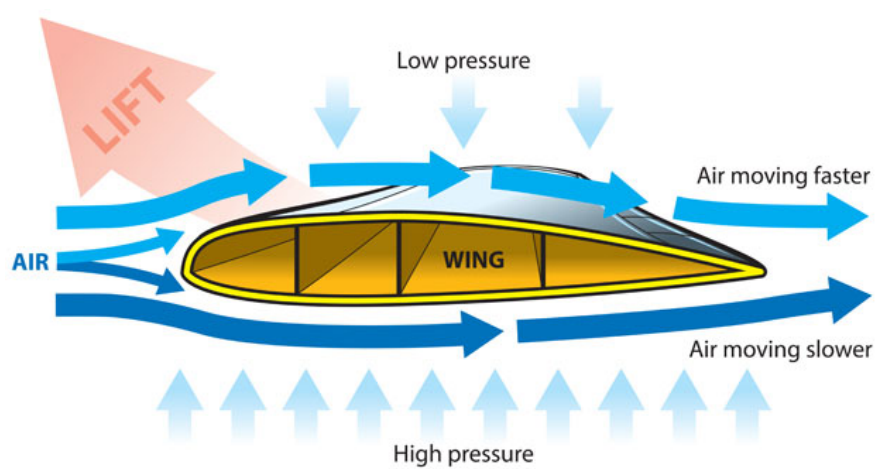


Figure 4: This is a caption

2. Make a paper airplane.

3. Show their designs and explain why their designs and where they observe Bernoulli's principle.
4. Explain for an airplane to fly, other concepts such as the Coanda effect and the Venturi effect must also be known. They will be seen in the following lessons.