Brontosaurus Learning

Making science fun!

An Experiment about

Air

Bernoulli's Law

What you will need:

- A ruler
- 2 ping pong balls
- Tape
- String

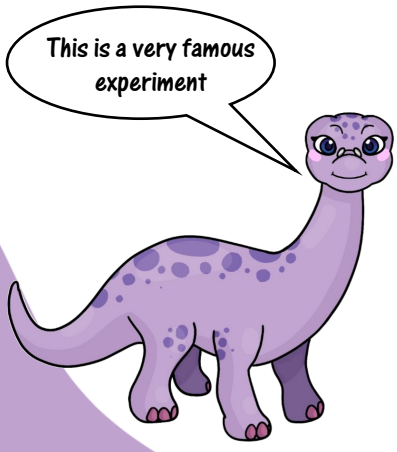
What you will do:

1. Cut 2 pieces of string about 3 inches (7.5 cm) long.
2. Tape one piece of string to each ping pong ball.
3. Tape the other end of the string to the ruler, making sure that both ping pong balls hang evenly and have a 1/2 inch (2 cm) gap between them.
4. Take turns to have one person hold the ruler and another person blow firmly between the ping pong balls and watch what happens.

What is going on?

By blowing between the ping pong balls you make the air move quickly, which in turn lowers the air pressure. The air pressure on the other sides of the ping pong balls is higher so it pushes on the ping pong balls.

This principle was discovered by the Swiss physicist and mathematician Daniel Bernoulli in 1738.



Challenges:

- Research Daniel Bernoulli and the many other discoveries he made in his lifetime.
- Can you explain how Bernoulli's Law helps us understand how a plane flies?

Teaching Notes:

Brontosaurus Learning Experiment: Air A15

Topic: Air Pressure

Key Concepts:

- Bernoulli's Law

Resources:

- Investigation Record IR01– one copy per student
- Experiment Description Air A15 – one copy per student
- Ping Pong Balls (balls of paper will work if you don't have ping pong balls), tape, string, rulers

Lesson Notes:

Remind students to listen carefully to instructions, and to OBSERVE their experiment.
As a class discuss the experiment prior to undertaking it, and students should complete the sections of their Investigation Report IR01 from "Title to "Hypothesis".

What should happen in this experiment, and why?

The balls should bend together when you blow between them as moving the air creates a low pressure area. The higher pressure on the outside of the balls then pushes the balls together.

Follow up discussion questions:

- If moving air has low pressure, can you explain how a tornado works?

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Investigation Record

Experiment Title:

Scientist (that's you!):

Materials: What will I need?

Investigation—what am I going to do in this experiment?

Diagrams are a great idea!

Hypothesis: What I think will happen:

Observation: What I SAW happen:

Diagrams are a great idea!

From my investigation I learnt:

Great work scientist!