

ACTIVITY NO. - 5 - Blowing between the Balloons

Subject	Physics
Class	XI
Chapter/Unit	Mechanics of fluids
Topic	Bernoulli's Principle
Time	10 minutes
Nature of Activity	Pair Work

What will I learn (Learning Outcome)?

To verify the statement of Bernoulli's theorem which states that an increase in the speed of a fluid occurs simultaneously with a decrease in static pressure or a decrease in the fluid's potential energy

Skills : Analyzing and Creating

What I have to do?

To verify that as the speed of air increases in a region, its static pressure decreases.

What do I require?

Two balloons, a thread roll and a wooden stick/metal rod.

What do I need to know?

Bernoulli's Principle holds true for a fluid that is incompressible, has a streamline flow and is non-viscous in nature. Bernoulli's theorem which states that an increase in the speed of a fluid occurs simultaneously with a decrease in static pressure or a decrease in the fluid's potential energy.

➤ Teacher's Activity

Teacher will

1. discuss the statement of Bernoulli's Principle.
2. make pairs of the students and will explain the steps of the activity.
3. ensure that each participant of the pair performs the activity on his/her own.

How will I proceed?

➤ Student's Activity

1. Blow up two balloons and tie off the ends.
2. Cut two pieces of string 1 foot each. Tie one end of each string to each balloon.
3. Tie both the balloons on a wooden stick/metallic rod.
4. Blow very hard between the two balloons and observe what happens.

What have I observed?

Tick the correct option:

S. No.	After blowing, the balloons come closer	After blowing, balloons move further away from each other
1		

What have I learnt?

As we blow hard between the two balloons, they move _____ as the pressure in between the balloons is _____ as compared to the either sides.

What am I curious to learn?

- Let us take a paper strip and blow above it. What do I observe and why?
- Let us take a hair dryer and keep it in a vertical position. Turn it on and keep a ping pong ball right above the stream of hot air coming out of the hair dryer. What do I observe and why?

Let me evaluate myself

- 1) State Bernoulli's Principle.

- 2) Express Bernoulli's Principle mathematically.

- 3) During a storm/tornado, the roof of the house is blown up. Justify the statement by giving reason.

- 4) It has been observed that it is difficult to hold an umbrella in a strong wind. Explain why?

- 5) Discuss the geometry of a venturimeter and an aerofoil as an application of Bernoulli's Principle.
