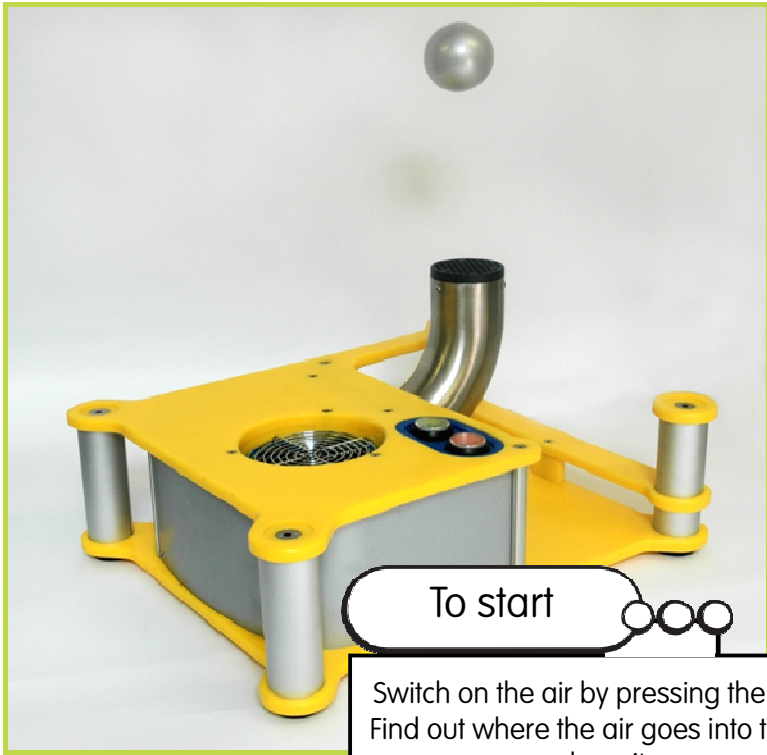


AIR STREAM

Challenge



To start

Switch on the air by pressing the green button. Find out where the air goes into the exhibit and where it escapes. Position the air vent so the air flows straight up. Introduce the blue ball gently into the air stream and let it go

1. Describe what happens to the ball.

AIR STREAM

2. What force has to be overcome for the ball to hover?

3. With the ball hovering - and without touching it- hold the strip of paper;

a) above the ball

b) to the side of the ball

Where is the air flow fastest?

Can you make the paper wrap itself around the ball?

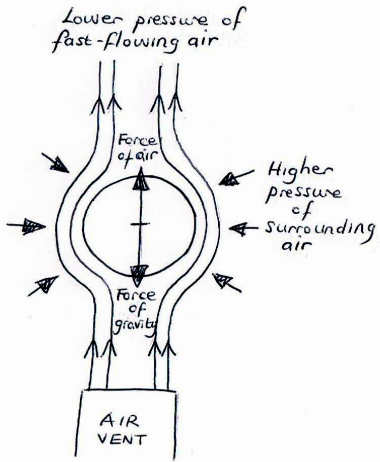
4. With the ball hovering, slowly adjust the angle of the silver air vent so it is pointing sideways.

What do you notice?

The force of gravity acting on the ball is the same, but the upwards force of the air is now lower (because it is at an angle). So how does it stay upright?

AIR STREAM

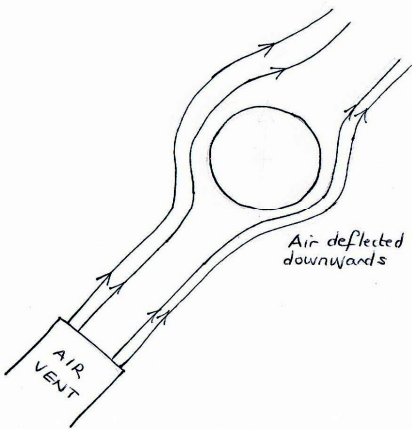
4. What's happening?



With air vent vertical

- The ball moves up until the force of the air (pushing up) is equal to the force of gravity (pulling down).
- The fast flowing column of air has a lower pressure than the air surrounding it.
- The higher pressure of the surrounding air pushes in on the ball – holding it in position.

With air vent diagonal



- As the air stream moves over the curved surface of the ball, the air flowing **underneath** the ball is deflected downwards.
- As the air is forced to move **down**, it in turn forces the ball **up**.
- This additional force - called **LIFT** – helps keeps the ball floating.

AIR STREAM

5. Experiment: Different types of ball

Return the air vent to its vertical position and try hovering the different balls

Type of ball	Observation	Explanation of difference
Blue plastic ball		
Fluffy ball		
Ping pong ball		
Hard foam ball		
Ball with holes		

6. Try this!

Can you hover the blue and pink balls at the same time?