# The Funnel and the Ball

# Action

Difference in pressure will allow you to pick up a ping-pong ball from the table using only a funnel.

# Grade Level

Grade 7 - Forces and Motion Grade 9 - The Atmosphere

### Materials

- A ping-pong ball
- A clear, long-stemmed funnel (glass or plastic)

## Instructions

- Ask the class if they know the difference between high and low pressure.
- Set up the funnel and ball as seen in the video clip.
- Ask the students if they know how they could pick up the ball without touching it or rolling it.
- Blow hard into the funnel while lifting it off the table. Stop blowing and the ball will fall.

#### Safety

Ensure that if you are using a glass funnel that there are no chips in the glass.

#### **Science Principle**

Blowing through the funnel creates low pressure inside the funnel. The ball can be picked up from the table because of the lower pressure. The pressure is lowest at the spot where the stem is attached to the conical shape of the funnel. This is because it is the place where the fastest flow of air occurs. The flow rate suddenly increases because the air molecules suddenly have more space to move about. The faster the flow of air, the lower the pressure. The ball cannot be blown out of the funnel because when we blow harder, we are creating an even lower pressure. The difference in pressure holds the ball to the funnel because the air surrounding the funnel wants to move towards the area of lower pressure.