

Air pressure experiences for students

1. Demonstration by teacher:

- Place a meter stick on a table and cover it with a piece of newspaper, leaving a small portion of the meter stick hanging over the edge of the table.
- Ask students to predict what will happen when the meter stick is struck powerfully by an adult's hand.
- Ask students to share their predictions and discuss WHY they think their prediction will occur.
- Once students' predictions have been shared, hit the end of the meter stick. The result is the air pressure pushes down on the newspaper with the same amount of force that the hand strikes the meter stick. The meter stick snaps, surprising the students.

2. Low-cost alternative to breaking a meter stick that can be performed by students:

- Place a deflated, fresh balloon on a flat table surface so that its opening is hanging over the table's edge.
- Place a textbook flat on top of the balloon maintaining access to the balloon's opening.
- Ask students to predict what will happen when someone blows into the balloon.
- Ask students to share their predictions and discuss WHY they think their prediction will occur.
- Once students' predictions have been shared, instruct students to inflate their balloon, which will cause the book to lift due to the force of the air inside the balloon.

3. Follow-up activity for students to illustrate omni-directional air pressure:

- Ask students to inflate a balloon and reflect on why the balloon takes on a rounded shape as it inflates.
- Ask students to share their reflections.
- If students do not come to the idea of air pressure inside the balloon pushing outward in all directions, demonstrate how even a long skinny balloon becomes longer, wider, and cylindrical.
- Ask students to reflect and share why the balloon becomes this shape.

4. Follow-up demonstration by teacher:

- Place a sheet of cardstock paper over the opening of a clear glass of water.
- Ask students to predict what will happen when the glass is flipped over.
- Ask students to share their predictions and discuss WHY they think their prediction will occur.
- Once students' predictions have been shared, carefully continue to hold the cardstock against the opening of the glass while flipping the glass upside down (practice this in advance of the lesson). Remove your hand from the cardstock, and the cardstock remains in place against the opening of the glass as air pressure pushes up on the cardstock.

