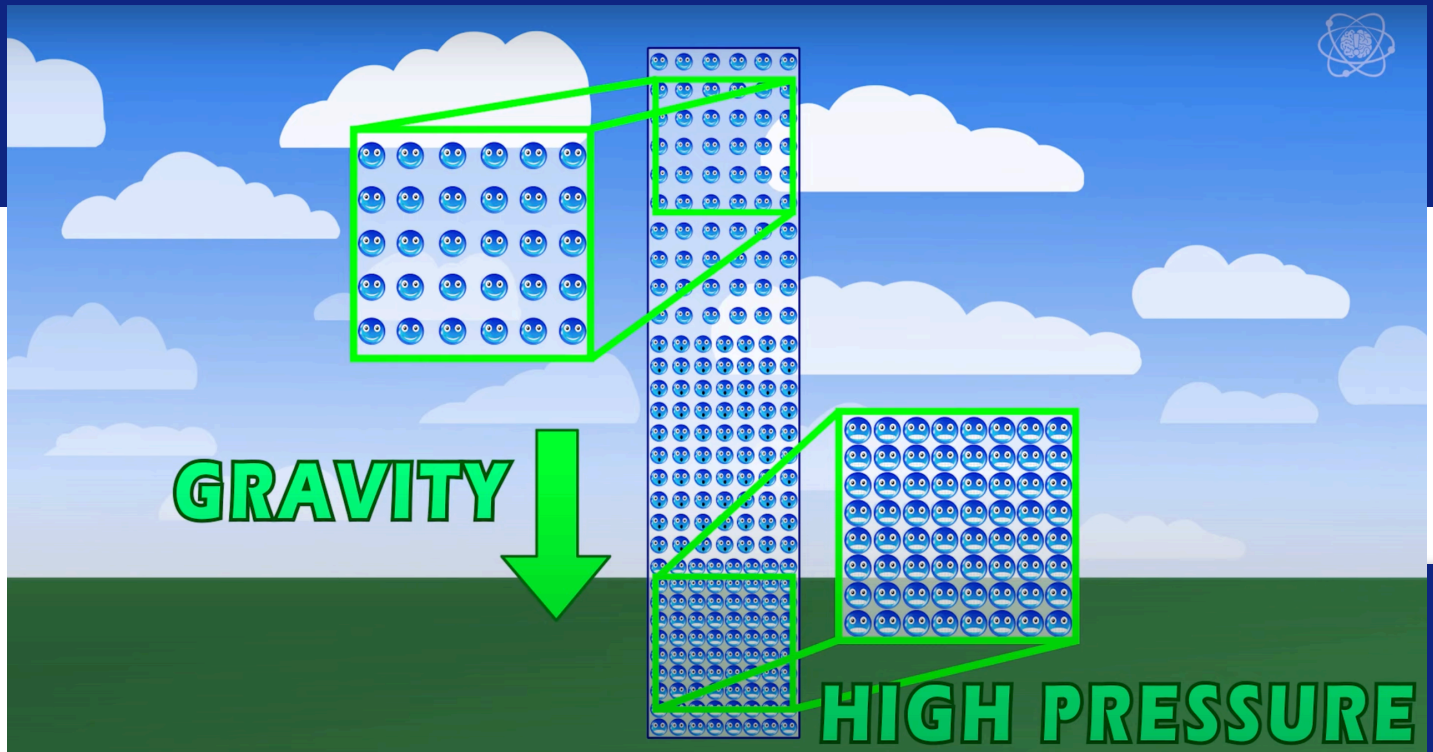


Break Boards with Air Pressure!



IMPOSSIBLE
SCIENCE

Objective: Students will see and feel the power of air pressure to break boards.



Procedure

1. Ask: Do you think that air has weight? Can you feel it pushing you down? Explain to students that air has mass, and that although we don't usually feel it, air exerts almost 15 lbs of pressure per square inch of surface. Explain that today students will use an experiment to help them see and feel the power of air pressure.
2. Show students Impossible Science! Video to 2:37, pausing to clarify and to allow students time to jot down notes (high pressure, low pressure, why we don't feel pressure).
3. Ask: Why don't we feel air pressure? Where is air pressure higher? Why? Where is it lower? Why?

Materials:

- Different sized boards- a wooden ruler, yardstick, thin (about $\frac{1}{8}$ inch pine or balsa boards of different widths).
- Safety goggles
- Newspaper sheets
- Smooth tables

4. Show students Impossible Science! Video to 5:11. Have students write down that air applies 14.7 lbs of pressure per square inch of surface.
5. Ask: knowing that an open newspaper page has over 8,000 lbs of air pressure pressing down on it, what do you think will happen when the ruler is hit? What purpose does the newspaper serve? Share.
6. In table groups, have students set up the experiment, first practicing with no newspaper (goggles on), recording observations.
7. Students should record a hypothesis about what they think will happen when the newspaper is added and why. Remind students to press the paper down over the ruler so very little air gets in. Remind students to hit the ruler quickly.
8. Students should try the experiment and record results (ruler breaks).
9. Show students the remainder of Impossible Science! Video.

Assessment:

Have students perform the trick for a family member and record the performance and explanation of why it works including an explanation of air pressure and surface area.

Safety Note:

Adult Supervision Recommended

Watch the companion
video here:



Lesson Plan by Whitney Gallagher based on the “Impossible Science” series.

Find more at impossiblescience.com

