

Air Pressure

Action

A glass of water, covered by only a piece of paper, can be inverted and have the water "defy gravity".

Grade Level

Grade 2 - Air and Water

Grade 2 - Weather

Grade 4 - Weather

Materials

- Water
- A glass
- Thick, sturdy paper

Instructions

- Fill a glass almost to the top with water. Place the piece of paper over the top of the glass.
- Holding the paper in place, invert the glass.
- Remove your hand from the piece of paper. The piece of paper should remain in place so the students see an inverted glass full of water being supported by a piece of paper.

Safety

A plastic cup maybe used instead of a glass if students are performing the experiment. This will avoid potential hazards if a glass is dropped and broken glass is scattered.

Hints

It is a good idea to use glossy or sturdy paper. These types of paper will get soggy less quickly than ordinary papers.

Science Principle

Air pressure can support a column of water or other liquids. The air pressure on the bottom of the paper is holding it in place, which in turn also holds the water in the glass. Another example of air pressure being used is when you take a glass of water with a straw in it. You know that if you suck through the straw the water will come up the straw into your mouth. This is accomplished because by sucking you are increasing the pressure inside the straw, which makes the pressure outside the straw seem less. The air pressure outside the straw is pushing down on the surface of the water in the glass. This pressure forces the water to go up the straw.