

World Year of PHYSICS 2005

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What Causes a to Shoot

Two 2-liter bottles connected with 2 straws.
Each straw needs to have 4 small holes poked through them
about 1 inch from one of the ends.

What is needed

What to Do

Turn the bottles over and a bubbling,
spurting fountain will occur every time.

When the bottles are inverted,
gravity pulls the water from the upper bottle down through the lower tube and compresses the air pres-
sure in the lower bottle.
When water leaves the upper bottle,
a decrease in pressure, or partial vacuum, is formed.
Air is then forced from the lower bottle, up the fountain tube,
and takes the place of the water as it leaves the upper bottle.

What's

If you examine the clear tubes near where they enter the bottle connector,
you will be able to see several small holes. When the bottle is turned over,
water runs into these small holes and is pushed upwards by the air with enough force to form the foun-
tain at the top of the bottle.
This is the same type of action that moves water in fish tank filters
and some types of coffee percolators.
The tube in the lower bottle has no effect on the formation of the fountain.

Why

Purdue University Physics Dept. Physics on the Road Hands -On Lida Wu Illustrate

