

# Air Pressure

#Creating  
Science  
AirPressure

Air pressure is one of the easiest concepts to understand, but one of the hardest to believe!

INQUIRY SCIENCE

1. Is air weak? Try to *squash* a clean, empty soft drink bottle. Notice how it feels to squish the bottle?



2. Now put the lid on the bottle, is it just as easy to squish the bottle now?



3. Why it is harder to squish the bottle with the lid on? Can *anyone* squish the air?



1. Scrunch some paper into the bottom of a cup.



2. Put the cup upside down in water.



3. Why doesn't the water come into the cup? The paper will even stay dry!



1. Is air strong enough to hold up a person? Blow up enough balloons to hold up an inverted table.



2. Have someone stabilise the table while someone else stands on it carefully!



3. Why don't the balloons all squish flat, even with a heavy grownup?



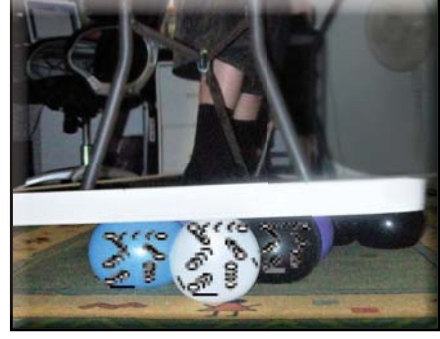
The answer to all these questions is that *air has pressure*. Imagine the air as billions of tiny bouncing particles. These particles are always bouncing and never get tired. Even though the individual particles are very small, all of them bouncing together create enormous **pressure**. The pressure created by ordinary air is enough to keep water out of a cup, prevent a bottle from being crushed, or hold a grown up off the ground! This idea, called air pressure, helps to explain many of the properties air has.



Air pushes the water out!



Air stops the bottle crushing!



Air can hold you up!

## Try some more fun with air pressure!

### #CreatingScienceUndrinkable Bottle



1. Get yourself a glass drink bottle with a thin opening and a lot of something to drink inside.
2. Thoroughly block off the opening (but not the straw!) using Blue Tac or similar.
3. Try and drink though the straw - can you? Air pushes the drink into your mouth!



### #CreatingScience Peeing Can

Check this out! I have a pee-on-command can! It's leaking water right now, but when I click my fingers... it stops!

How is that possible?!?

Easy! The top and bottom have a hole in them. When I click, I cover the top hole, and after a second, water won't come out the bottom either... But good science tends to create more questions for every question that it answers: so why does covering the top hole stop water coming out the bottom?!?

Is it the air pressure pushing on the water underneath, preventing it from leaving when there's not enough air pressure from above?



Here's how to make a pee-on-command cup: have a grown up punch two holes into the top and bottom of an old, clean, can. Fill with water and enjoy - finger on top, water stays in. Finger off, water pees out - why?!?



**Trickier science!** Air particles don't weigh very much, so we can push them away with our hands, but there's so many of them that all together they make an enormous push - almost a whole kilogram on a space the size of your fingernail! That's about a ton of pressure over your whole body, almost as much as a car! You can hardly even feel it though because it's always been there. The higher up you go the less air there is, so there is less pressure.