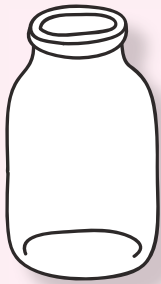




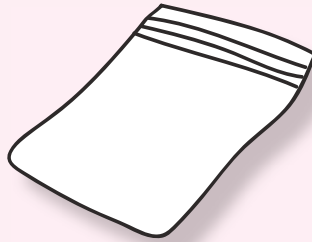
Science Under Pressure

Find What You Need..

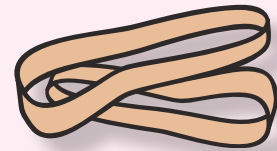
- A Large glass jar
- A freezer bag or other strong plastic bag, about a gallon size
- 2 or more strong rubber bands, large enough to fit over the mouth of your jar at least once



Large Glass Jar



Gallon Size Plastic Bag



2 Strong Rubber Bands

How can ordinary air push two materials together?

You probably don't notice it, but *air pressure* – the force caused by the weight of the atmosphere – is pushing down on you right now. You would notice if pressure got much higher, however. Some planets have an atmospheric pressure great enough to crush you. Other planets – such as Mars – have thinner atmospheres that aren't very pushy at all.

Airplanes stay in the air because air pressure is higher under the wings than above them. This causes air to push



up on the wing – and keeps the plane from falling from the sky. In this activity, you can experience the “push” of air pressure, using it to keep a bag “magically” sealed to a jar.

Fact:

The very low air pressure on Mars would make any water on the surface boil away - even if the water was near-freezing!

Activity Instructions

1. Place the bag inside the jar so that the plastic lines the jar as tightly as possible, with little room for air.
2. Fold the edge of the bag over the lip of the jar. Seal the bag to the jar using rubber bands. Make the rubber bands as tight as possible so little air can escape!
3. Now, test the power of air pressure: Reach into the jar and slowly try to pull out the bag. Do you feel a tug holding the bag in place? What's going on? Air pressure is pushing the bag down, and there's not enough air under the bag to push back up.

Tip: If it becomes very easy to pull out the bag, check for a hole in the plastic. Air pressure is powerful enough to pop it!

4. A Fun Challenge: See if you can stop the bag from going in to the jar. Puff up the bag like a chef's hat and place it over the mouth of the jar. Use a rubber band to seal the bag to the jar. Try to push the bag into the jar. Do you feel anything "push back"? What is it?

Conclusions

Did anything surprise you about this activity? What are at least two ways you can "prove" that air pressure exists? What might happen if you tried this activity on Mars?

Brain Buster:

Try a different air pressure activity and explain how it works. Fill a deep bowl with water. Hold an empty glass upside down, and lower it straight down into the water.

Did water fill the glass? Pull the glass straight out and see if the bottom is wet. Explain this in terms of air pressure



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are presented by
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Pulse of the Planet



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