THE PLASTIC BAG AIR LIFT

A. Question: *Can air lift heavy objects?*

B. Materials Needed:

1. Twelve to twenty medium size garbage bags (plastic).
2. Two identical flat top tables.

C: Procedure:

1. Ask students to stand around the table and give them each a plastic bag.
2. Let them spread the bags out on the table and hold the bag's mouth in their hands to get set to blow air in them (let the students stay in a squatting position around the table).
3. Make sure that all students are ready to blow air into the bags with their hands and fingers away from the table top.
4. Ask two or four other students to lift the other identical table, turn it upside down and put it slowly on the first table (this has to be done carefully as it has to move over the heads of the students!).
5. Ask one or two students to climb up and sit on top of the set of tables.
6. Let the squatting students now blow air in the plastic bags all together on the count of three.

D: Anticipated Results:

The students should be able to lift the table when blowing air into the plastic bags.

E: Thought Questions for Class Discussion:

1. Did you expect a heavy weight like that to be lifted by air?
2. What made the table top rise?
3. How did the pressure of the air inside the plastic bags compare to the outside atmospheric air pressure?
4. Where do we find applications of this principle?

F: Explanation:

By blowing in the plastic bags, air is being compressed. This compressed air is exerting pressure underneath the inverted table causing the table to rise. This principle is being applied when pumping tires of a bicycle or automobile, or compressing air in air lifts (at gas stations or garages). Tire pressures are twice or four times as high as the atmospheric pressure, and in air lifts theses pressures go as high as 20 to 50 atmospheres.