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Investigating Density of Air *(cont.)*

Does Air Have Weight?

Teacher Information

This demonstration will show that air behaves just as the water did in the previous lesson. Thus, the students will develop a better understanding of how warm air rises and cold air sinks.

Overview: *Students will learn that air has weight that changes with temperature.*

Materials

- two paper bags exactly the same size (lunch bags work well)
- electric socket with 60-watt bulb (a “trouble” light may be used)
- simple balance beam
- two paper clips

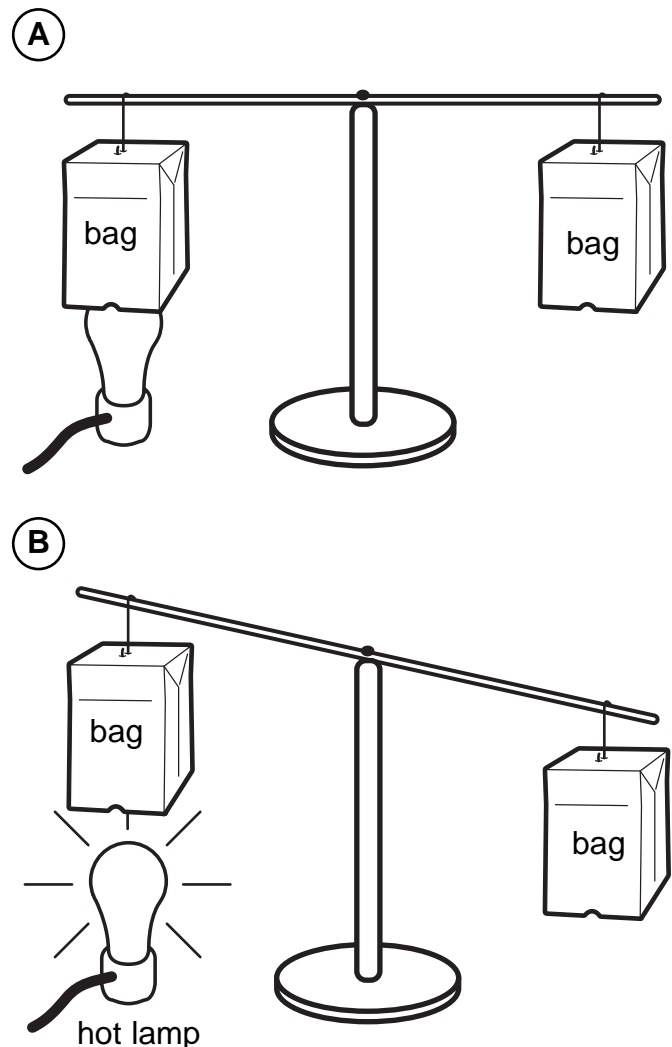
Procedure

1. Place a paper clip on the bottom of each bag and bend it so that it becomes a hanger.
2. Hang each bag at the end of the balance beam, as shown in illustration A. Show that the beam hangs straight, demonstrating that the bags have equal weight.
3. Discuss what is filling the bags (air). Explain that the air inside the bags is the same temperature as all the rest of the air in the classroom.
4. Place the light under one of the bags and turn it on. (See illustration B.) Let the students watch what happens.

Closure

- Ask the student to make a drawing and label it to explain what happened here. (The bag over the hot lamp will begin to rise as the air gets warmer and expands, causing the bag to rise.)
- Discuss how this affects the air which makes up our atmosphere. (When the air get warmer, it will rise, as it get cold, it will drop.) This is what causes winds and clouds to move.

Balance Beam



Hurricanes

Teacher Information

Hurricanes and their close relatives, typhoons and cyclones, are formed in the same way. They are not the normal storms created when cold and warm fronts collide. Use a transparency of this page to describe the process of how a hurricane forms. Continue the study with a transparency of the next page, followed by the lessons on the Coriolis effect and tracking a Hurricane project.

Overview: *Students will learn how hurricanes develop, and are named and tracked.*

6. Pre-existing winds push the hurricane (in the Atlantic Ocean) northwest at speeds between 15–20 MPH (24–32 km/h).

