AVIATION COOKBOOK

UTAH VALLEY UVU UNIVERSITY

Potato Gun

Concepts Illustrated:

Boyle's law, which is the relationship between pressure and volume.

Time Requirements: 10 minutes

Grade Level of Audience:

This qualitative demonstration is suitable (and enjoyed) for students of all ages.

I. Materials and Equipment

1. One raw potato
2. Knife to cut potato
3. A 1.0 piece of ½" inside diameter copper pipe.
4. A 1.0 ft. piece of ½" diameter wooden dowel.

II. Description of Set-up

1. Make two parallel slices about ½" apart across the potato. This will create a ½" slab of potato.
2. Hold the copper pipe vertically and push down on the potato to get a plug of potato sticking in the end of the pipe.
3. Invert the copper pipe and repeat the process. You now have a slug of potato on each end of the pipe.
4. Position the dowel rod into one end of the copper pipe and give the dowel rod a quick thrust forward. The leading or front slug of potato will go flying forward.

III. Details of Student Implementation

1. Ask students why the front slug went flying forward.
2. The idea is the decreasing volume between the two slugs results in an increased pressure between the two slugs. If the front slug has a higher than atmospheric pressure behind it and atmospheric pressure in front of it, the difference in pressure will result in a forward force.
3. The potato gun must not be aimed at anyone or anything.