

HOPPER POPPER

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David A. Katz

Chemist, Educator, Science Communicator, and Consultant
133 N. Desert Stream Dr., Tucson, AZ 85745, USA
voice/fax: 520-624-2207 email: dakatz45@msn.com

A Hopper Popper is approximately one-half of a rubber ball that, when turned inside out and dropped, bounces (or rebounds) several feet in the air. A Hopper Popper demonstrates how a rubber ball bounces. When it is first turned inside out it is similar to a ball being compressed when hitting a hard surface, then it springs back to its original shape, with a popping sound, resulting in a rebound or bounce.

PROCEDURE

1. Materials needed:

hollow rubber ball (such as a racquet ball)
knife
scissors
sandpaper: coarse and medium grits

2. Safety Precautions:

The rubber ball portion, when turned inside out, may snap back with a fair amount of force and hurt your hand. Hold an inverted Hopper Popper by its edges. Exercise care when using it with children.

3. Experimental Procedure:

Locate the seam or center line on the ball. Using a sharp knife, cut the hollow rubber ball in half along the seam (See Figure 1). You may use a combination of the knife and scissors to cut the ball in half. Some balls, once they are cut, will peel apart along the seam easily. Some balls, however, may tear. If the ball does not peel apart easily, use the knife or scissors to cut it completely apart. Take care not to tear the rubber. (See Figure 2)

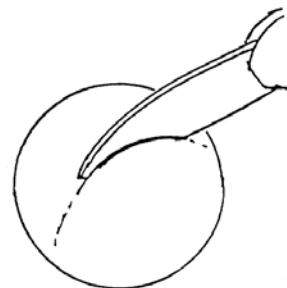


Figure 1. Cut the ball along the seam.

Using the scissors, trim about 5 mm of rubber off the ball all the way around the open section.

Turn the ball section inside out (See Figure 3) and drop it open side down onto a hard surface such as a tile or wood floor (See Figure 4). It may pop and bounce up (See Figure 5). If it does, sand the edges smooth with sandpaper (See figure 6). (**NOTE:** If not trimmed before attempting to turn it inside out, the ball section may tear.)



Figure 2. The cut ball section

If the ball section does not rebound or pop, trim about 2 mm of rubber off the edge and try again. Continue this process until the ball section rebounds upon dropping it onto a hard surface.

When you obtain a rebound, sand the edges of the ball smooth with sandpaper. (**NOTE:** If the half-ball is too large, it will not rebound. If it is too short, it will not stay inside out.) Sanding the edges does shorten the ball. Take care not to sand off too much of the rubber.

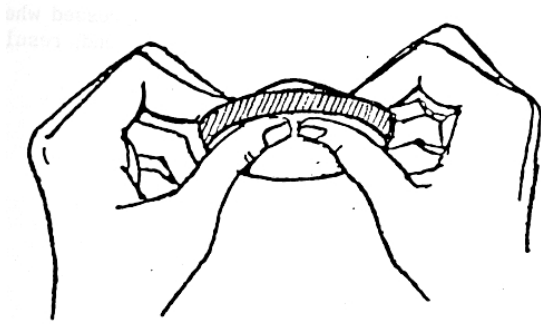


Figure 3. Turning the ball section inside out.

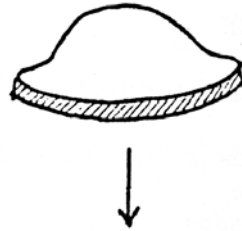


Figure 4. Dropping the ball section.

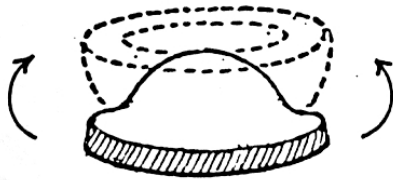


Figure 5. The ball section springing back.

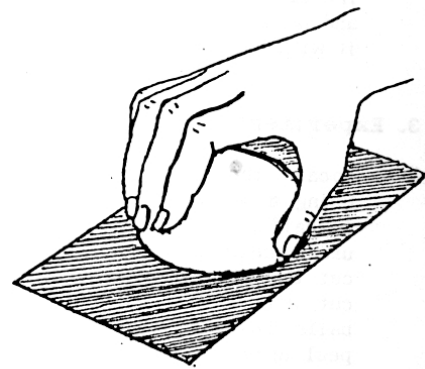


Figure 6. Sanding the edges.