

The Spinning Pop Can

Action

The flow of water from 4 equally spaced holes in a can will cause it to begin to spin.

Grade Level

Grade 9 - Newton's Laws

Materials

- Empty pop can (with the opener lever intact) or a soup can
- A nail or ice pick
- Fishing line or string
- Water
- A bucket or tub

Instructions

- Lay the pop can on its side and, using the nail or ice pick, carefully punch four small, equally spaced holes around the bottom rim. After you punch each hole, before you remove the nail or ice pick, push the tool to the right (parallel to the rim) so that the hole is slanted in that direction.
- Bend the can's opener lever straight up and tie a short length of fishing line to it. If using a soup can, punch two holes opposite each other at the top of the can and run the fishing line through the holes.
- Immerse the can in water until it is full. Using the fishing line, pull the can out of the water. The water streaming from the holes in the can will cause it to start spinning.

Safety

Be careful when punching the holes so that the nail or ice pick does not slip and cut you. Also be aware of water that may get on the floor and cause it to be slippery.

Hints

If the can does not spin, try making the holes larger or add a fishing swivel to the string just above the can.

Science Principle

This experiment demonstrates Newton's Laws of Motion. The can rotates because the flowing water exerts a force (Newton's First Law). The rate of rotation will vary with different numbers of holes and different diameters of holes in the can (Newton's Second Law). The can rotates in the direction opposite to that of the water streams (Newton's Third Law).