Make Your Own Magnus Glider

How do you build your own glider for less than a dime that uses the same physics as a curve ball to fly? Pretty simple, actually, as this new Science Short demonstrates!

Here’s what you need:

- two 16 oz. Styrofoam cups
- about 12-18 inches of ¾” masking tape
- four size #19 rubber bands (3½” x 1/16”) OR any combination that gets you over a foot long. Make sure the rubber bands are thin – too thick will break your cups
Here’s what you do:

1. Tape the two ends of the cups together so that the open mouths face away from each other.

2. Create a rubber band chain from your rubber bands.

3. Wrap your chain around the point where you taped the two cups together. You want it tight, but not too tight, as it will break the cups. See the video for more details.

4. Hold the cups so the rubber band is coming up over the top of the cups. Hold the cups over your head, then let go of the cups at the same time you pull down on the rubber band. The cups should spin and slowly glide to the floor. The video may help see this motion better.

NOTE: Doing this from the top of the stairs or a balcony really enhances the effect.

What’s going on? This glider uses the **Magnus Effect** to give it the slow, gentle glide you see. The Magnus Effect occurs when a spinning object (the cups) moving through a fluid (air) creates a sort of “whirlpool” around itself. This “whirlpool” of fluid exerts a force on the object, in this case an upward force. The overall effect is like that of an airfoil (like an airplane wing) only using the spinning motion to create lift.
The Magnus Effect has a critical role in sports. The highly undesirable “slicing” and “hooking” of a golf ball are caused in large part to the Magnus Effect. Good Ping-Pong/table tennis players can put many different spins on balls causing them to move erratically thanks to the Magnus Effect. And then there is the infamous curve ball in baseball, owing its strike success to the Magnus Effect.