

Flying Cups

On SCOPE's Future Transport episode, Elizabeth made a flying contraption out of two foam cups and rubber bands! Here's how you can try it at home!

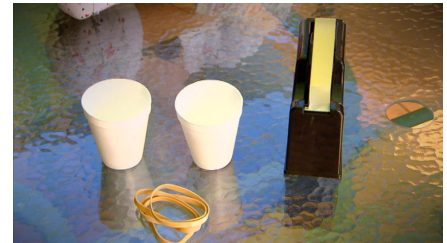


What you need:

- 2 Foam cups
- 4 Rubber bands
- Sticky tape

What to do:

1. Make a long chain of rubber bands by looping them through each other.
2. Position the cups base to base and stick them together with sticky tape.
3. Find an open area to launch your plane (the top of some stairs work well).
4. While holding one end of the rubber band chain, wrap the chain around the middle of the two cups.
5. While still holding the end of the rubber band chain, hold up the cup plane and launch it by allowing the cups to spin out of the rubber band chain (it might take some practise to master the art of launching this one!).
6. Try making the cup plane out of different materials. Do they fly differently?



What's happening:

The reason why this plane flies is to do with the Magnus effect. This effect is the reason why the ball in sports, like soccer, curve when spinning in the air. Basically the spin creates slightly different air pressures on the top and bottom surfaces. This helps the plane to ever so slightly oppose the force of gravity and therefore stay afloat a little longer while spinning through the air!

Elizabeth found that a cup plane made from plastic cups flew well, but didn't stay in the air as long because plastic is a denser material than foam. She also found that a cup plane made from smaller cups wasn't very stable after being unwrapped from the rubber band chain, so that one didn't fly very well at all!

