

Activity: Bottle Accelerometer

On SCOPE's Things That...Go Fast episode, you saw Julia make a Bottle Accelerometer. Here's how she did it:



What you need:

2-litre plastic soft drink bottle full of water
A piece of string 30cm long
A thumbtack
A cork

What to do:

1. Attach the string to the cork using the thumbtack and place the cork in the bottle.
2. Feed the rest of the string into the bottle, leaving a little bit of string sticking out the top of the bottle, and screw the lid on so it holds the string in place.
3. Turn the bottle upside down...the cork should float up in the water, ready to use!

What's happening?

So how exactly does the bottle accelerometer work? When there's no acceleration, the cork stays in the middle of the bottle. When you're accelerating forwards, the cork also moves in that direction. That's because the cork is less dense than the water. When the bottle moves forward, the water sloshes back and pushes the cork forward. And when you decelerate the opposite happens!