Activity 2: Seeing Double

Construct a "wonder spinner" and create an optical illusion using your own drawings!

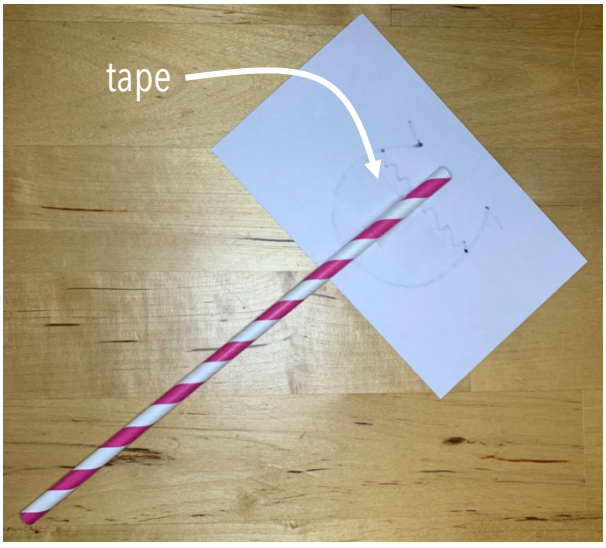
Materials:

- Index cards
- Crayons
- Tape
- Drinking straw

Join us on **Nov. 14** at **3pm** to do this activity together! **bit.ly/satsci20**

1. Draw two images that go together, one on each index card. These can be anything you'd like––a goldfish on one and a fishbowl on the other; a bird and an empty cage; a butterfly and a jar; a brain and a head! Whatever will look nice when, as an illusion, the two overlap!

2. Tape the back of one index card to the end of the straw, as shown.



3. Tape the other index card to the back of the first, so both drawings are facing outward and are attached to the end of the straw.

4. Hold the bottom of the straw between your palms and roll your hands back and forth to spin it. What do your two drawings look like? If you slow down or speed up, what happens?

The device you just made is called a *thaumatrope*, or "wonder spinner." It works by spinning faster than your eyes can see. Your brain processes vision in chunks of about $^{1}/_{10}^{th}$ of a second, so when your drawings switch back and forth faster than that, they both appear as one!

Can you think of any other devices that work like this? What else might be made up of pictures shown really quickly that appear together?

Further fun: Use this idea to create an animated flipbook that turns your drawings into a story!