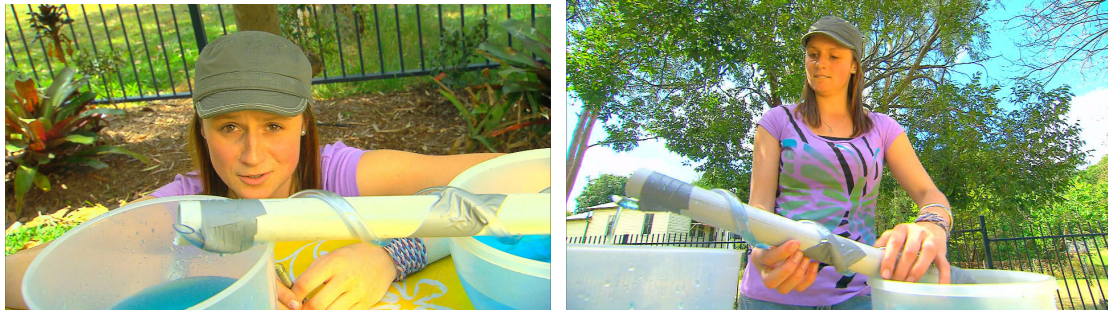


## Activity: Archimedes' Screw

On SCOPE's More Famous Scientists episode, you saw Julia make an Archimedes' screw!

Here's how she did it:



### What you need:

- 2 large bowls
- 1.5 metres of clear plastic tubing (from the hardware store)
- Something to elevate one bowl e.g. bricks
- Thick tape
- Scissors
- Approx 50cm PVC pipe (from the hardware store)
- Food colouring

### What to do:

1. Using the thick tape, attach one end of the plastic tubing to one end of the PVC pipe.
2. Twist the tubing around the outside of the pipe, making sure that each new coil begins on a slight angle. As you go, secure the tubing in place with the thick tape.
3. When you reach the other end of the pipe, cut off the tubing so there is about 5cm of it hanging over the edge.
4. Add water to one bowl.
5. Add food colouring to the water.
6. Place the empty bowl about 30cms away from the bowl of water, and elevate it about 10cm.
7. Place one end of the screw (with the tubing hanging over the edge) in the water, and place the other end over the empty bowl.
8. Keeping the end in the water, rotate the screw, making sure it turns in the correct direction so the tubing scoops up some water as it rotates.
9. Before long, the water will be move uphill, against gravity, to the empty elevated bowl!

### What's happening?

Archimedes invented the screw around 2300 years ago. It was originally used to do things like help Egyptian farmers take water from the Nile to irrigate their fields.

So how does it work? How can water seemingly travel upwards? For starters, the force of the rotation provides enough momentum for water to be scooped into the tube. Also, the slope of the screw means in the next rotation, the water is raised to a higher point in the tube, while another portion of water is scooped up into the tube. The constant rotation of the screw means the portions of water move further and further along the tube until they reach the other bowl.

Today, we're still using Archimedes' invention. Of course there is the hardware screw but then there are also windmills, irrigation pumps and even fish hatcheries – they use a similar principle to transport fish from one pool to another! Archimedes truly was ahead of his time!