The Great Cooking Oil Trade Off

Can you trade a glass of cooking oil for one of water without pouring one into the other? Have a friend help you try.

**What to do:** Begin with two glasses exactly the same size. Juice glasses are perfect. Cut a piece of cereal box cardboard about 4 inches (10 cm) square, large enough so that when you place it over the mouth of a glass, it sticks out three fourths of an inch (18 mm) on each side.

Fill one of the glasses to the top with water. Fill the other to the top with cooking oil. For safety's sake, set both on a baking sheet. Place the cardboard on top of the glass of water. Hold the cardboard firmly in place and turn the glass over so it looks like the illustration above. Put the upside-down glass of water, with the cardboard still in place, on top of the glass of The cooking oil. Don't let the cardboard slip!

Hold both glasses steady and slowly move the cardboard sideways. Here's where your friend comes in. You need an extra hand to hold things in place. Move the cardboard until its edge is exactly where the rims of the glasses meet. If a drop of water leaks out, don't worry about it. Pull the cardboard very slowly a tiny bit until there is an opening between the water on top and the oil below.

**What happens:** A few oil bubbles rise into the water glass. They will form a little oil dome on the bottom of the water glass (which is at the top, of course). Pull the cardboard a bit farther and suddenly you'll see the oil begin to roll upward into the water glass. At the same time, water flows down to replace the oil. In a minute or less the top glass is full of oil and the water is in the bottom glass.

**Why:** Because water is heavier than cooking oil, the water flows downward, forcing the lighter weight oil upward. This is why oil and water don’t mix and oil floats on water.