



Non-Obvious Causes: Condensation

RECAST ACTIVITY

Show the students a glass filled with liquid and ice cubes that has been sitting in a warm humid place. Ask what they notice about the outside of the glass. *[It has water droplets all over it.]* Ask where the water droplets come from. Most students will not know. Depending upon the age of the students, some will suggest “through the glass” even if they can’t think of a way that it could come through the glass. Add food coloring to the liquid in the glass. Then wipe the glass with a white tissue. Did color come through? *[No, but some students might argue that the color can’t come through even if the moisture can.]*

Take a plastic aquarium and turn it upside down. Using a hot plate and a tea kettle, capture some steam under the aquarium (see illustration). Then set up a second glass with liquid and ice under the aquarium. Ask the students what they notice about the glass under the aquarium. *[It should have more water droplets.]*

What is going on? Once students start to notice the non-obvious variable of the water vapor in the air, then they can use their knowledge of condensation to realize that the glass is relatively cooler than the surrounding air so the vapor condenses out onto the sides of the glass.



PREPARATION

Materials

- 2 glasses of the same size
- Water or other liquid
- Ice
- Food coloring
- Hot plate
- Tea kettle
- White tissue
- Clear plastic aquarium

Prep Steps

1. Gather the materials.
2. Arrange for a safe way to capture steam under aquarium.
3. Put ice and liquid in glasses.



RECAST ACTIVITY ANALYSIS

What makes this work as a RECAST activity?

Students typically offer simple models for how the liquid gets on the outside of the glass. They focus on the obvious variable—the **water in the glass**—as the source of the water outside of the glass. Just adding color to the water helps students to see that it is an unlikely explanation. However, in order to get them to shift to a more complex explanation, we need to help them realize that the surrounding water vapor is a part of the causal system. Having them compare the glass under the aquarium to the glass outside of the aquarium draws attention to this non-obvious variable.