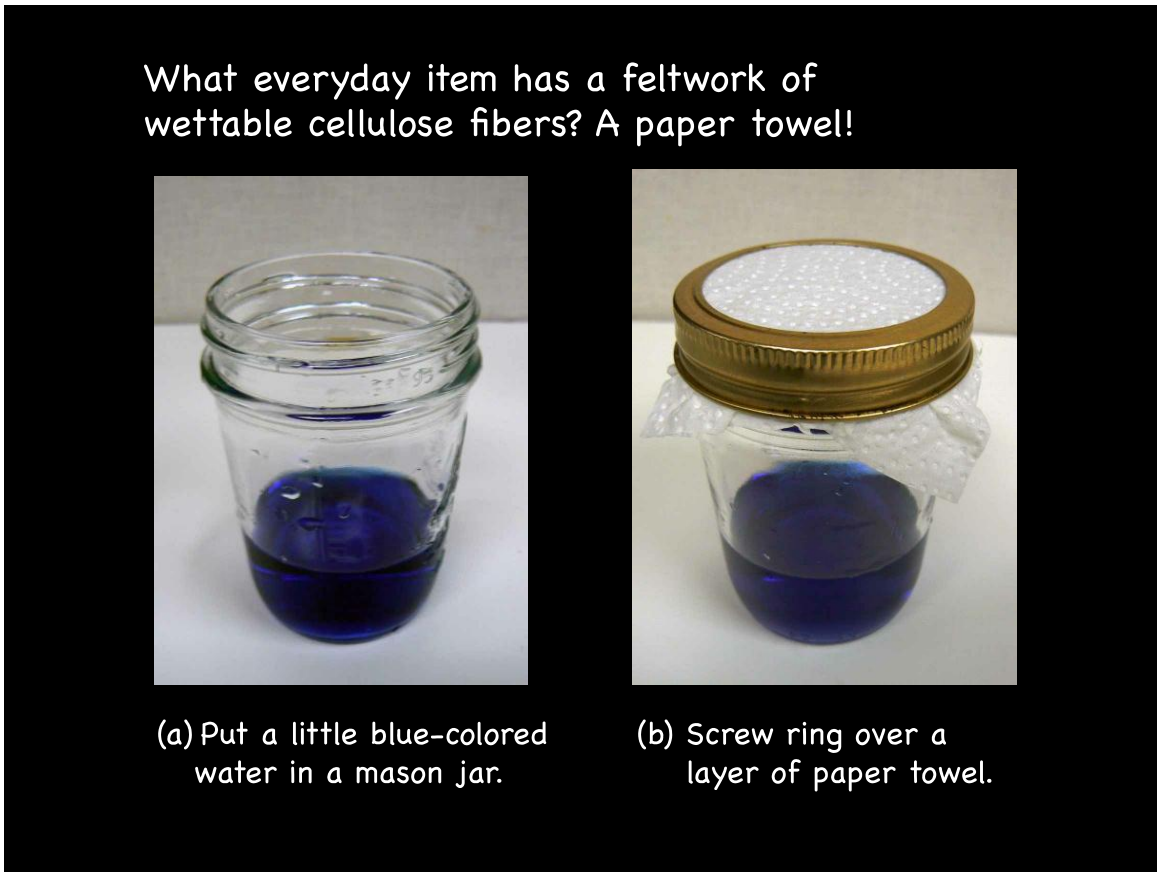
A Classroom Demonstration for *The Life of a Leaf*

From www.press.uchicago.edu/sites/vogel/ Created by **Steven Vogel** svogel@duke.edu

Interface as Pressure Barrier (Page 125):

A paper towel (I've used the least expensive from Costco) is a proper cellulose feltwork, deliberately make hydrophilic. So it ought to serve as a model of the cell walls of the air-exposed cells within leaves. A tighter mesh would probably support still more liquid, but I haven't done a lot of exploring—part of the message is the ordinariness of what's needed. An 8-ounce Mason jelly jar with the top ring but no disk provides the container; in the pictures the water has been colored with a tiny bit of Evans blue. Food coloring would undoubtedly work as well. The brown towels in my lab do not work.



Invert jar and let it drip a while.

Dripping stops with most of water still in the jar.

Water is held up by lower pressure in the air above it, and those little interfaces between the cellulose fibers.

Jar, again right side up.

Notice the way the paper towel has been stretched inward by the pressure drop.

Yet air doesn't get through it—the little interfaces resist the pressure.