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Flow Visualization

Get Wet Report



Figure 1: "Drool", a Get Wet image.

When setting up this image there was not much that I was certain about. This being my first image in the course, I was unsure what my final image would look like, however I was optimistic. The lighting was excellent as it was a sunny morning and the weather was calm. When I was thinking about the setup I wanted shoot, I was excited by the idea of experimenting with honey and food coloring. I had envisioned an image where the audience is captivated by amazing colors being suspended in the viscous honey.

The physics in this image is relatively simple. In figure 2 below, is a free body diagram of the forces that are acting on this setup. The flow was moving consistently and was laminar. It is also possible to calculate the Reynolds number of this fluid give some assumptions:

$$Re = \frac{UD}{\nu} = \frac{\left(0.005 \frac{m}{s}\right) * (0.05m)}{9.927e - 6 \frac{m^2}{s}} = 25$$

Although this Reynold's number seems low, the flow is definitely laminar which is what this value indicates. The velocity scale was chose based on how long it took me to take the shots and how far down the box the honey dripped.

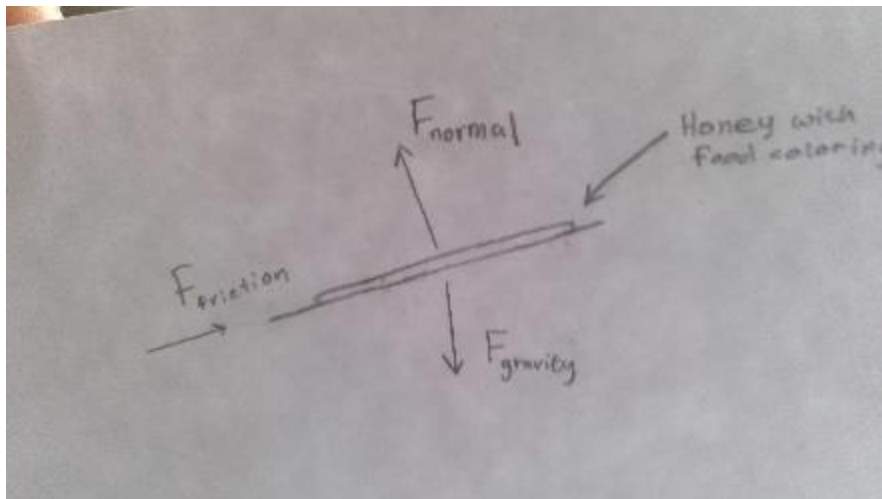


Figure 2: A free-body diagram of the setup

To create this image, I purchased the Safeway brand honey and food coloring. I also used a clear plastic take-out container as a surface. I began by dropping a pool of honey on to the plastic surface and adding drops of food coloring to the top. I used a total of 3 drops of each color and swirled them into the honey using a toothpick. The lighting for the shot was supplied by the sun.

When shooting the flow, I made some decisions about how I would be shooting. I used a relatively high shutter speed and positioned the camera about 24 inches from the fluid at a 30 degree downward angle.

This image reveals that even simple physical forces can have interesting effects on fluid. It also shows the strength of a viscous fluid like honey. Even when you add in another fluid, in this case food coloring, it will not mix due to its stiffness. I like how this image is nicely framed and has good lighting,

color, and focus. I don't like the background showing as well as the blurry label in the image. Given I did not have much expectation for this image, I am very pleased with how it turned out. If I were to reshoot this I would probably try and create the same dripping effect but over other different surfaces.