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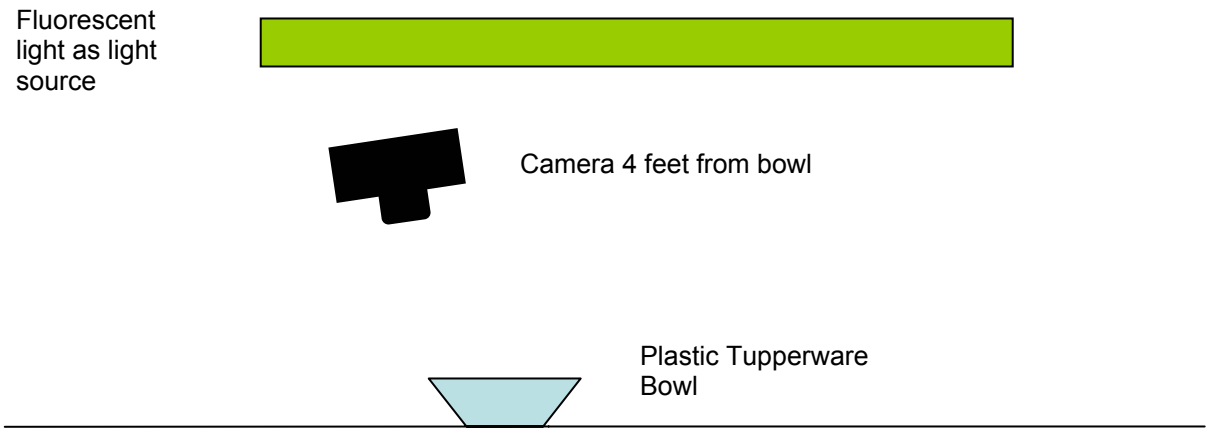
ARTS 5097-100

In this initial project, our assignment was to get our "feet wet" in discovering, identifying, and recording fluid flows. My initial idea was based on the concept of dying eggs. When dying eggs, I use a mixture of vinegar, food coloring, and extra virgin olive oil, basically things I have lying around the house. This mixture creates a marbleized coloration on the eggs. I thought that the eggs looked interesting; perhaps the liquid mixture does too. However, after mixing the concoction, I noticed it wasn't as visually stimulating as the eggs were. Therefore, I began mixing up a new batch of the three ingredients but in different orders. My intent was to create a flow that was both interesting scientifically as well as artistically, demonstrating the dispersion of food coloring in a vinegar and oil solution.



My set up for this image was quite simple; a plastic Tupperware container was placed on my kitchen floor over a piece of white mat board with the fluorescent light from my kitchen illuminating it. An inch of vinegar was added to the Tupperware and then one drop of undiluted blue food coloring. As the dye began to disperse, I added a

small drop of olive oil. This made the blue dye move quickly across the surface of the liquid. I then added one drop of undiluted red food coloring to the left side of the blue drop. This drop began acting similarly to the way the blue dye acted and moved quickly over the surface of the liquid, but in the opposite direction. Once the colors moved to cover a majority of the vinegar, I stood over the image roughly 4 feet from the container and took the image. The basic flow is the flow of the dye in the oil as it dispersed over the vinegar.

The visualization technique used is one drop of undiluted blue and red food coloring as it moved through the oil on top of the vinegar. The lighting was a mixture of my fluorescent kitchen light and ambient sunlight through the kitchen window.

My image is cropped quite a bit from the original, in which the field of view was about 2-3 feet. Since I used a wide angle lens (24mm) to capture the entire image, I needed to crop my image down to a field of view about 9-10 inches to create the most interesting and visually acceptable image. The image size is 270 x 576 pixels at 300 dpi. I stood about 4 feet over the plastic container to take the original image. I used a digital (approximately) 7 mega pixel Nikon D70 with an ISO of 200, an aperture of f 4.5 and a shutter speed at 1/30 of a second. My aperture allowed me a mid range depth of field, which allowed the entire image to be in focus with the light reflections on the plastic container to be muted in a way that created a mirror like effect of movement seen in the dye. My image is not manipulated in Photoshop in any way, but simply used to clean up the image. The levels were corrected to make the optimal exposure, keeping in mind the high lights and low lights, the hue and saturation of the colors were enhanced to create

crisp and bright colors, the unsharp mask was used to ensure the image was crisp, and finally the cropping of the focal point of the image.

When looking at the final image, I noticed a few things about the nature of the dye. Except for a minimal amount of mixing the individual dyes seemed to keep separate. There is even a noticeable line, which distinguishes the paths of the oil and dye. The only mixing noted is with the red dye, which was added after the blue dye began to disperse, which almost lies on top of the present blue dye. I like this visual demarcation in the colors. However, I do not like how some of the blue dye is seen on the plastic sides of the bowl and where the fluorescent light can be seen reflected in the bowl, although these his can easily be corrected with Photoshop.

This visualization shows and hopefully describes the densities as well as the viscosities of the different liquids. Since I have never had a class in fluid dynamics, I really don't know what kind of a phenomenon I am witnessing and I find myself questioning exactly what I am observing and what are the reasons. I am not sure if I completely succeeded in my intent for this image. I did succeed in creating an image that is aesthetically interesting and creative, however, I am not sure if I created a truly scientifically interesting concept. If there were one thing that I could change about this image it would be to look deeper into the physics and reason for the fluid behaviors. Knowing this I would be able to delve deeper into the cause and effect of each liquid on each other and find more materials to make the concept more scientifically interesting and creative.