Team Second

Jessica Vo

ATLS 4151

11/06/2024

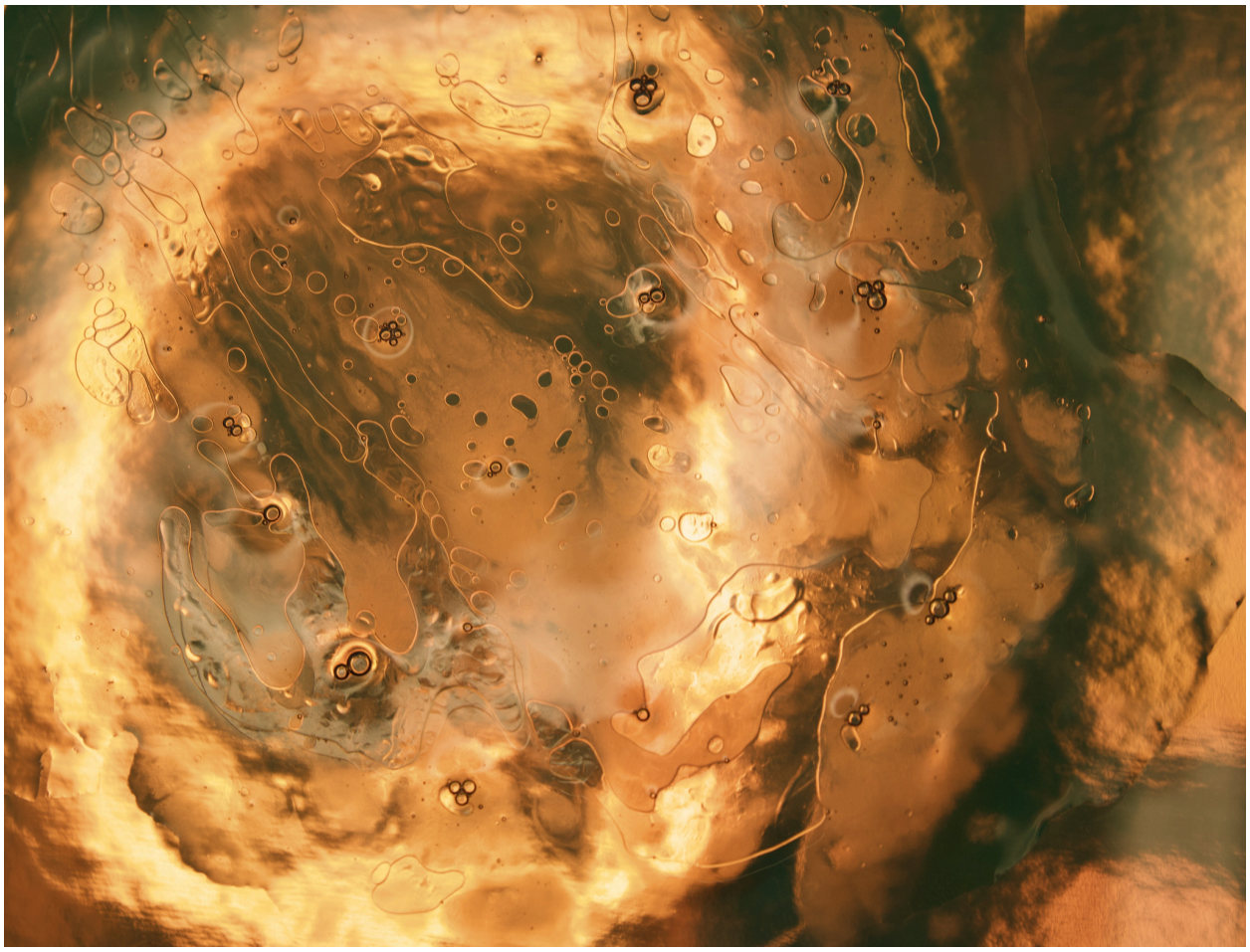

Image 1: Edited Image

Introduction:

For the “Team Second” assignment, I worked with my team to create a distinct visual with more of a basic fluid flow using: oil, water, and soap. We started by picturing how we will gather the materials to make it look more complex. Using a glass sheet, illuminating/semi reflective paper, and a small ring light, we were able to construct a setting for the camera to capture a great image. The effects of the illuminating paper and the light really captured the complexities of the fluid reactions. With the fluid layers and bubbles, it was a stunning way to

enhance the look of a basic experiment. I liked that at different angles, the reflective paper would give off different color appearances. We were able to capture a variety of photos just from changing angles, the lighting and playing with the amount of each liquid. With my captured image, I was able to get this result by playing with a top angle and the ring light that causes an orange “fiery” hue.

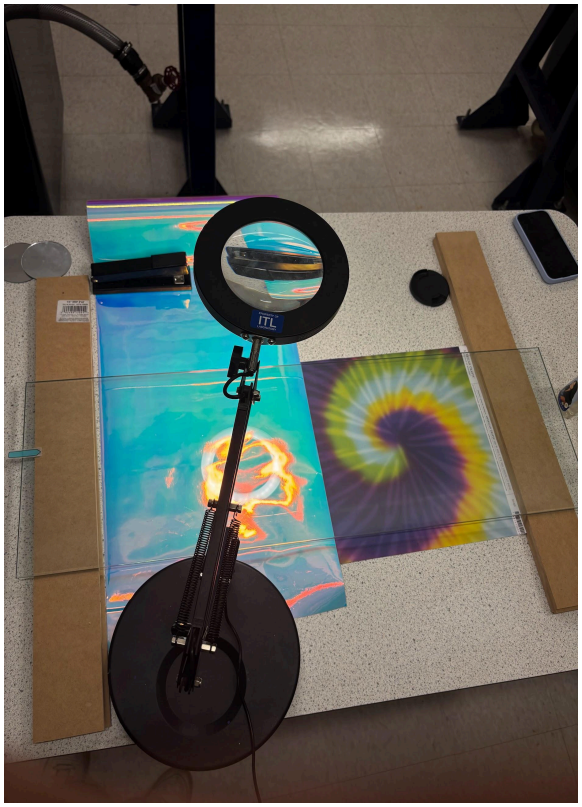

Image 2: Set up and Materials

Image 3: Fluid Dynamics Visualization

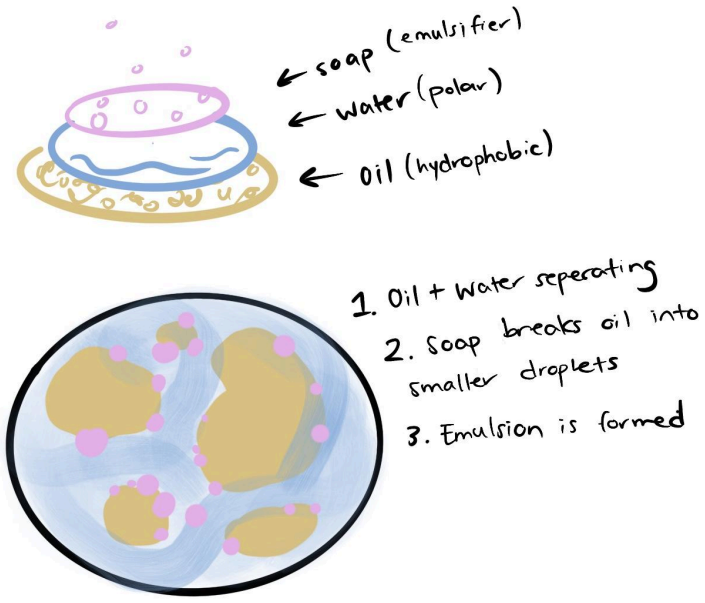

Image 4: Fluid Diagram

Experimental Setup/ Flow Visualization:

Starting the experiment we estimated the amount of liquids we needed to pour so we were able to make unique and distinct fluidity. Water and oil have different densities. Because water is denser than oil, it settles below the oil layer. Oil is hydrophobic and having these polar bonds causes them to not mix. Water also having strong surface tension, helps the spreading of the reaction become less active. Soap plays the role of a surfactant and reduces the surface tension of both liquids. With soap's hydrophilic heads, it faces the water while the hydrophobic tails attach to the oils. It stabilizes the oil droplets so they don't end up merging. Emulsion is created and is able to temporarily bond them through micelles. Through the fluid flow of the experiment, we are able to see the resistance to flow of each fluid. They create swirling patterns due to the dynamic of the viscosity.

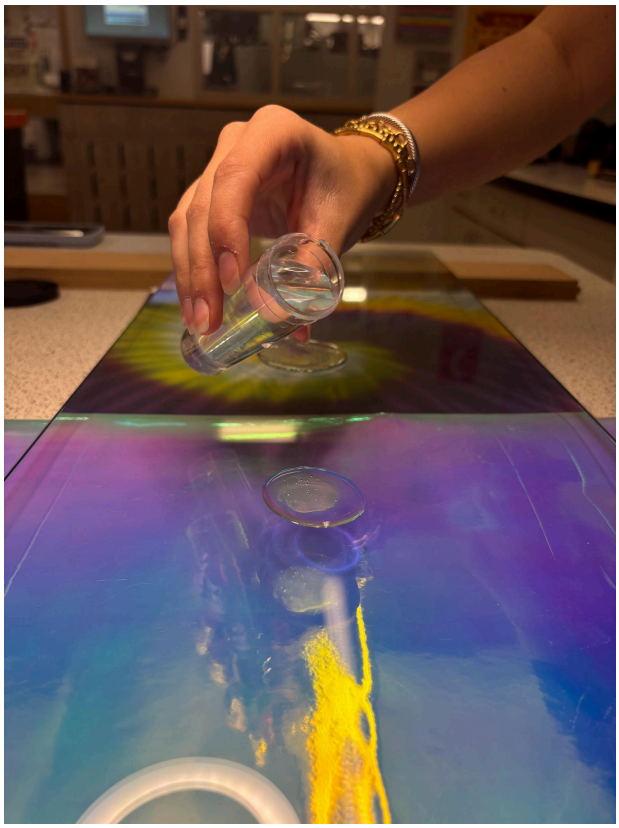

Image 4: Creating the fluid flow

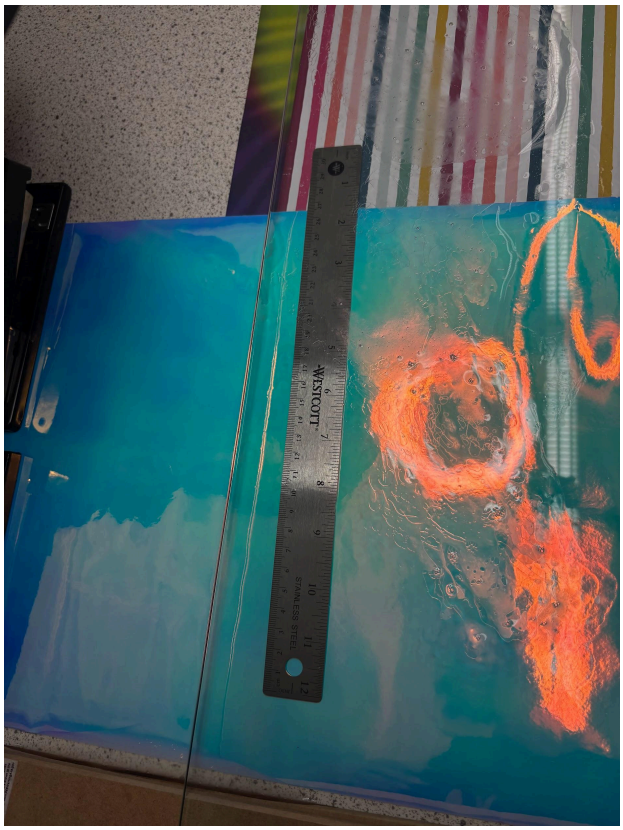

Image 5: Results and spread of the reaction

The spread of the fluid flow was about 1 ft long and 8 in wide. Because of the glass sheet, that also accompanied the amount of spreading that would occur.

With lighting, we set up in the basement of the ITLL. Using the small ring lamp, We were able to get cool shots of different visuals because of how distinct the placement of the lighting stood. The reflective sheet aided the visual effects of the reaction and the angles.

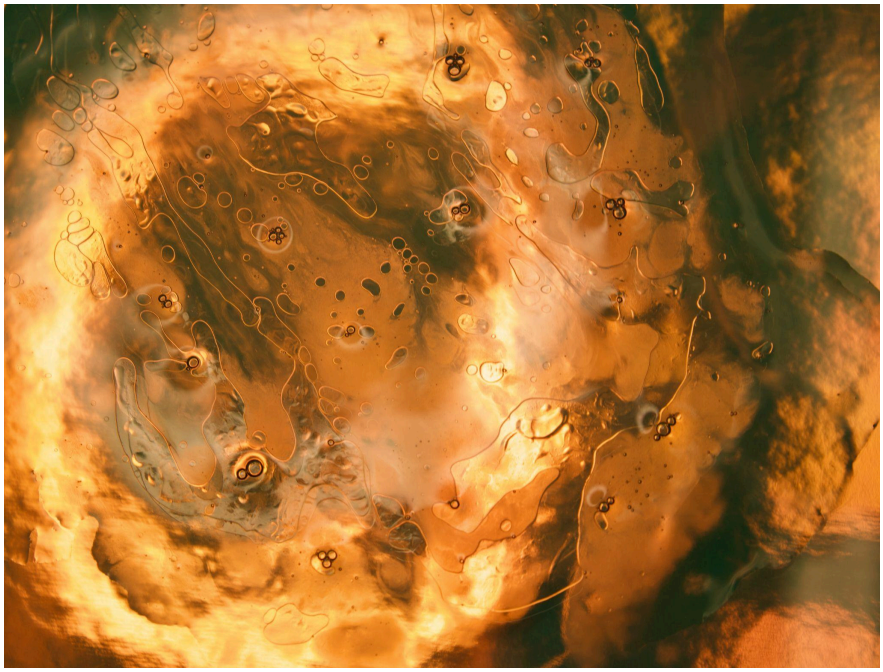

Image 6: Raw image

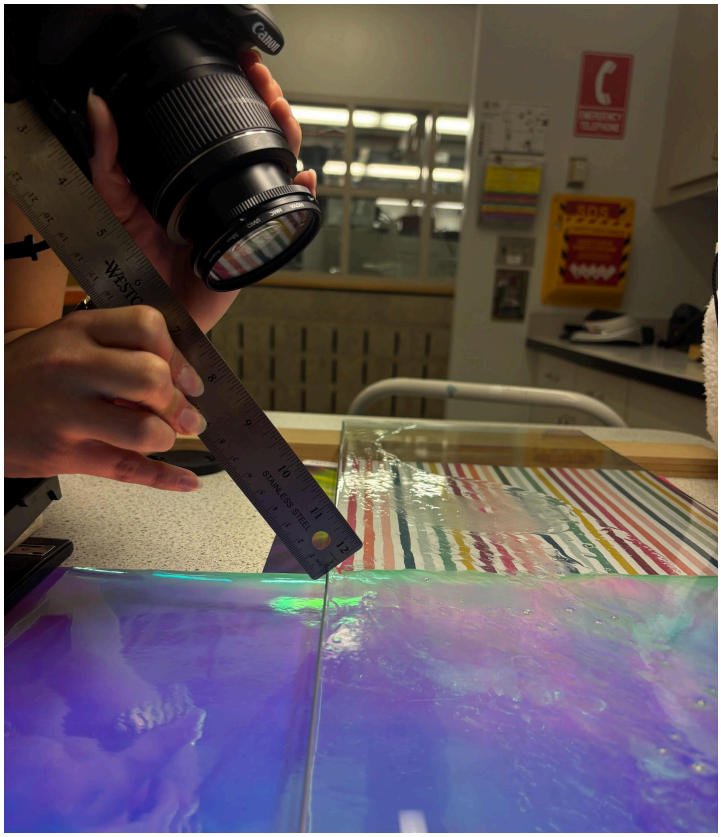

Image 7: Distance of Camera

Photographic Techniques:

Using the Canon EOS 1500D, I wanted to capture a close up observation of the details of the experiment. Aperture: 9, Shutter Speed: 1/60, ISO: 100. The distance of the subject from the camera is about 5”.

Conclusion:

After doing this experiment, I realized how fun and engaging it was to play with materials and lighting. Comparing my raw and edited image, I started to be more fond of my raw image. Something about the contrast and colors really drew out the fiery aspect of the experiment. If I were to do this experiment again, I would’ve captured the image thinking about the theme of fire and work around that.

Reference

Thompson, S. E. (n.d.-a). How Does Soap Mix Oil and Water. YouTube.

https://www.youtube.com/watch?v=sbCODXfczCg