

This assignment deals with how food coloring interacts with canola oil, dish soap and water. A number of different setups were performed in order to capture a wide variety of pictures dealing with various combinations of these everyday household liquids. An image dealing with cold water, a small amount of canola oil and three different colored food coloring was chosen due to its excellent clarity and easily visible flow.

This image had a very simple setup. A basic pie pan, which is 10 inches in diameter, is used with a few small drops of canola oil inside. Cold tap water is poured into the pan until it is about $\frac{1}{4}$ full. The pie pan was then slightly tilted and rotated around to make the water and oil spiral. The pan was set on a level surface and as fast as possible red, blue and green

food coloring was added to the moving water. Figure 1 shows the basic setup for the experiment. Since the water is fairly cold the food coloring diffuses slowly into the rotational current in the water. The water itself begins to slow as soon as the rotation is stopped on the pie pan. After about half a minute a colorful, almost tie-dye, effect is produced in the pan. The oil did not appear to have any effect on the food coloring but it may have helped carry it along breaking the colors more into individual strands and not just one big pool of color. The canola oil is less dense than the water so it floats on top but still may help to pull along the food coloring that starts to disperse immediately.

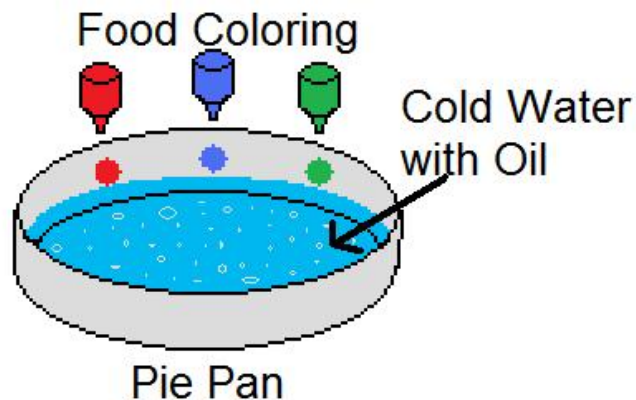


Figure 1

Normal everyday food coloring, normally used for cooking, was used in this experiment. It was not diluted and only one drop was used for each of the three colors. The flash on the camera was used on a slow setting to give a more even drawn out light for the image. The image was taken in the kitchen which only has one florescent light on the ceiling.

The field of view and distance from the object are both about one foot. All other camera specifications can be seen in figure 2. The image was altered some in Photoshop. The colors were enhanced using the curves tool. A small section of dead space was cropped out and the edges around the circular pie pan were blacked out so the focus would be placed on the colors.

Camera Data 1	
Make:	OLYMPUS IMAGING CORP.
Model:	E-410
Date Time:	3/27/2009 – 9:35:46 PM
Shutter Speed:	1/40 sec
Exposure Program:	Creative program (biased toward depth of field)
F-Stop:	f/4.3
Aperture Value:	f/4.2
Max Aperture Value:	f/3.4
ISO Speed Ratings:	100
Focal Length:	21 mm
Lens:	14.0-42.0 mm f/3.5-5.6
Flash:	Fired
	No strobe return detection (0)
	Auto mode (3)
	Flash function present
	No red-eye reduction
Metering Mode:	Pattern
Camera Data 2	
Pixel Dimension X:	3648
	Y: 2736
Orientation:	Normal
Resolution X:	240
	Y: 240
Resolution Unit:	Inch
Compressed Bits per Pixel:	
Color Space:	65535
Light Source:	Unknown
File Source:	DSC

Figure 2

In my opinion this is a great picture which has a simple setup and is easily reproduced. This image clearly shows the spiraling motion of the water with the aid of the food coloring and canola oil flow. I wish the image was in a little better focused but overly not too bad. I'm not entirely sure if the oil or the cold water was the cause for the fairly clean lines between each of the colors.