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Team Third Report
MCEN-5151
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This photograph was taken in order to demonstrate the effect that charged particles can have on free-falling objects. Static electricity is when there is a build-up of charge on a particular object. For this image, it was the comb. There are a few ways to charge the comb. One would be to comb it through your hair repeatedly. In this case, the comb was rubbed vigorously with a sock, which caused the interchange of electrons between the sock and the comb. The object that loses the electrons becomes positively charged, and the item that gains electrons becomes negatively charged. A charged object will attract small particles. Gravity obviously pulls the water down out of the sink. The charged comb pulls the water towards it as it falls, causing the water to appear as if it is bending.

It would not be easy to calculate the theoretically force on the water from the charged comb. However, given its displacement, and time to fall it wouldn't be too hard to back-calculate the force. This was not done, because it was not possible to measure both of these in addition to getting the image.

I used an iPhone 8 to take the image of the water. The camera specs can be seen in table 1 below. A standard zoom of 1x was used to take the picture, and the lens was approximately 3 inches from the stream of water.

Camera	12 MP
Aperture	f/1.8
Zoom	1-5x

Table 1: Camera Specs

The only edits to the original image was to crop it. This got rid of as many of the distracting elements as possible, while still showing the curvature of the water's path.

The image does a pretty good job of showing the effect of the charged particles on the water. I think it could be a bit better if I was able to add a I used an Iphone 8 to take this image. The camera specs can be seen in table 1 below. A standard zoom of 1x was used to take the picture, and the lens was approximately 3 inches from the first layer of foam. background, which could hide the sink and faucet.

Figure 1: Original, Uncropped Image

Figure 2: Cropped Final Image