Skittles diffusion

How to work as a group

If you're able to physically be in the same location as your group members, then feel free to do the physical lab all together. If not, then though you still only need to turn in one group report, I would encourage you to each collect your own data and compare the readings with each other. If there are substantial discrepancies, feel free to put the pictures for multiple people in the same report (you don't have to tell me whose pictures are whose unless you want to).

Quick overview of the experiment

The Skittles-diffusion experiment is a well-known experiment – feel free to Google "Skittles diffusion" and see what you get! Since the two main forces that drive bioelectricity are drift and diffusion, the experiment is also a good way to understand diffusion and start our journey into bioelectricity.

There are numerous Skittles-diffusion videos on YouTube; a nice short and snappy one (that even has nice music) is at https://www.youtube.com/watch?v=oDgNBkxDoPM .

Instructions

Your lab kit should include several Skittles. Find some kind of a dish where you can pour water about half an inch deep. Drop in a few different-colored Skittles evenly spaced around the perimeter of the dish as in the video above.

After it seems to have reached a steady state, snap a picture of your beautiful result. Then answer the discussion questions and turn in the picture and your answers.

Discussion questions:

1. In what way does the lab demonstrate diffusion?
2. The final result, with color zones that have sharp boundaries, seems to defy diffusion. If you had not known this end result, what might you expect the eventual result of the experiment to be?
3. Can you speculate why the colors don't all mix together? True confession: I've never succeeded at finding the answer to this question! (And I've brought in another EE professor who was likewise baffled).