The Candy Gene Pool

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Last semester I tried a new strategy to teach macro-evolutionary processes. I have used a simple chart for years (see below), which I thought was quite succinct; if they could explain the chart they could explain the processes & thus demonstrate their understanding of them. It didn't work for every student, however, & some still seemed unable to understand the processes. It was Halloween & I had lots of candy, so I brought in bags of candy so students could use it to illustrate the various processes. It could be used with anything really, but the candy was fun, cheap, & they can eat it as a reward or in the process.

I broke them up into groups & gave them assorted candy—candy being genes (or alleles). For gene flow, we divided the candy (genes), then "introduced" some new candy/genes into the existing gene pool. This demonstrated how variation within the group increased, there was more variety in their candy/gene pool, & there were also more similarities between the 2 candy populations, thus the decrease in variation between populations. Then, there was a natural disaster, or out-migration, that wiped out part of the candy/gene pool, strategically, certain "genes" were lost, the variation within the pool decreased, which they could see, as well as the increase in variation between populations. The chart is projected the entire time, so they can connect what they are doing with the chart. So it went, for natural selection (they ate the candy they liked, or gave away what they didn't like), mutation also offered numerous possibilities (candy could be partially eaten, squished, or the like)—this part was a little bit more challenging to come up with more positive mutations, so introduction of new candy was also used as a mutation. I'm sure someone out there is clever enough to offer a suggestion.

I've only done it the once, but students responded really well. They enjoyed the session; they said they understood the processes because they could visualize what was happening. I'll continue to use it & work out some of the glitches, as the exam scores showed that those who were there got it. I'm hoping others can build on this idea, or maybe already do something more advanced, so as to keep improving my germ of an idea.

Evolutionary Process	Variation within the Population	Variation between Populations
natural selection	increases/decreases	increases/decreases
genetic mutation	increases	increases
gene flow	increases	decreases
genetic drift	decreases	increases