

Genetic Drift Activity

NGSSS: SC.912.L.15.14 Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.

Directions:

1. Grab a bag of Plain M&M's and a paper towel; this represents the original population of the *Colored candius* organism.

Genetic Drift in Colored candius

Color of candy from genetic drift population	# of each color from genetic drift population	% of each color from genetic drift population	Color of candy from original population	# of each color from original population	% of each color from original population
Blue			Blue		
Green			Green		
Orange			Orange		
Yellow			Yellow		
Red			Red		
Brown			Brown		
	Total # of candy in genetic drift population =			Total # of candy in original population =	

3. Carefully tear one corner off the bag and **WITHOUT LOOKING** remove 6 M&M's and place them on the paper towel; this represents the genetic drift population. Record all the necessary information for the genetic drift population.
4. Only after you have recorded all the info for the genetic drift population, empty the rest of the bag and record the necessary information for the original population. The 6 M&M's you removed are included in the original population data.
5. Enjoy your M&M's as you answer all post lab questions.

Post lab questions:

1. Look at the colors in your genetic drift population and the corresponding percentages. Now, compare those to the same colors/percentages in the original population (for example, in the genetic drift population, red might have had percentage of 50% while in the original population red was only 16%). Write these comparisons down in a list format.
2. Does the new genetic drift population accurately represent the original population? Explain by citing your data.
3. What colors in the original population are NOT represented in the genetic drift population?
4. When you compare the percentages of each color, are they the same for the original population and the genetic drift population? Explain.
5. Let's assume that the M&M's are preying mantises and that the new environment consists of lots of greenery and many bright red flowers. Which colors in the genetic drift population would have better fitness in this new environment? Why/how? How might that affect the alleles for those individuals?
6. Which ones would have less fitness? Why/how? What might happen to the alleles for those individuals that have less fitness?

7. Pick a cause for genetic drift...either bottleneck or founder's effect...and write a reason for why the M&M organisms might have experienced genetic drift. (examples: storm, disease, immigration, new predator, lack of food...). Be sure to indicate which cause you are describing.