<u>Genetic Drift Activity</u>

Objectives:
This activity will demonstrate the effects of genetic drift on a small population.

Procedures:
1. Grab a baggie of Skittles and a paper towel; this represents the original population of the *Colored candius* organism.
2. Count the number of Skittles in your baggie and record this data in Table 1.
3. Count the number of each color and record this in Table 1.
4. Calculate the percentage of each color present in this population

$$\% = \frac{\text{\# of colored skittle}}{\text{\# of whole population}} \times 100$$

5. Open your baggie and WITHOUT LOOKING, remove 6 Skittles and place them on the paper towel; this represents the genetic drift population.
6. Count the number of each color and record this in Table 1 under "Genetic Drift Population"
7. Like before, calculate the percentage of each color in this population.
8. Enjoy your Skittles as you answer **all** post lab questions.

**Table 1: Population Numbers of Original and Genetic Drift Populations**

	Original Population		Genetic Drift Population	
	Amount	Percent %	Amount	Percent %
Whole Population		100%	6	100%
Red Skittles				
Orange Skittles				
Yellow Skittles				
Green Skittles				
Purple Skittles				

Data Analysis:
Use the circles below to show the percentage of each color present in each of the populations
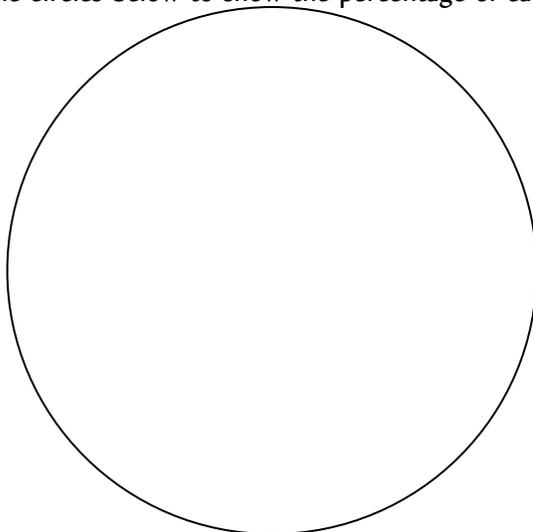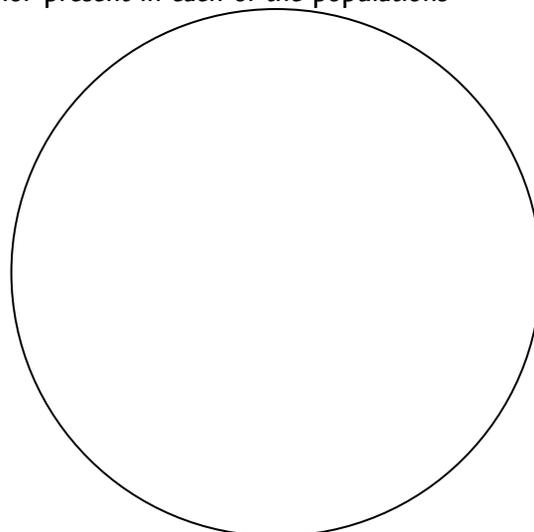
Original Population   **Genetic Drift Population**

Post lab questions:

1. Look at your pie graphs for each generation. Does the new genetic drift population accurately represent the original population? Why or why not? Cite the data where necessary.

_____
_____

2. What colors in the original population are NOT represented in the genetic drift population?

_____

3. When you compare the percentages of each color, are they the same for the original population and the genetic drift population? Explain.
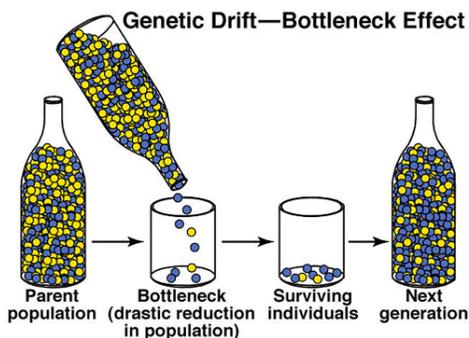
_____
_____
_____

4. Let's assume that the Skittles are a species of *Preying Mantises* and that the new environment consists of lots of greenery and many bright red flowers.

   a. Which colors in the genetic drift population would have better fitness in this new environment? Why/how?

   _____
   _____
   _____

   b. How might that affect the alleles for those individuals? In other words, will the alleles for those individuals increase/decrease or stay the same? Explain.

   _____
   _____
   _____

   c. Which ones would have less fitness? Why/how? What might happen to the alleles for those individuals that have less fitness?

   _____
   _____
   _____
   _____

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

_____
_____
_____
_____

Genetic Drift—Bottleneck Effect

Parent population

Bottleneck (drastic reduction in population)

Surviving individuals

Next generation

Genetic Drift- Founder Effect