Mechanisms of Evolution (How Evolution Happens) Internet Assignment

Name:	

Visit https://www.questionshouse.com/blog/five-forces-evolution/ and describe the 5 forces of evolution and provide one example of each.

    1. Natural Selection:

Example of Natural Selection:

    2. Genetic Drift:

Example of Genetic Drift:

    3. Mutations:

Example of Mutations:

    4. Gene Flow:

Example of Gene Flow:

    5. Non-Random Mating:

Example of Non-Random Mating:

Go to the Genetic Drift-Bottleneck Event Simulation on Biology Simulations.

1. Run through the simulation once. Describe what happened.

2. In the simulation, only 4 organisms survive the drought. What combinations of colors will result in a final population that doesn't change (the blue and red alleles are still the same)?

3. Run the simulation four times and record the **post-drought frequencies** in the table.

Trial	1	2	3	4	Average
Blue Allele					
Red Allele					
Blue Phenotype					
Purple Phenotype					
Red Phenotype					

4. Describe your results.

5. Describe how endangered species are impacted by the bottleneck event. Research a specific example of genetic diversity in endangered species.

Next visit the Founder Effect Simulation on Biology Simulations

6. Run through the simulation once. Describe what happened.

7. How do the allelic frequencies from the mainland differ from that of the Island. Discuss the data from the graph.

Go to the Population Genetics Simulation at Biology Simulations.

1. Take a few minutes to read the Introduction information and play with the available variables to see how the simulation works.

2. Select your experimental question:

| How does	Population Size		affect change to allele frequency?

3. Write a hypothesis:

The higher the population, the more frequent the change

4. Write your procedure. Be sure to specify the tested range of your independent variable, the settings for controlled variables, and number of trials.

5. Perform your procedure and record the data in an appropriate chart (you can use Insert Table on Docs or use a spreadsheet). Account for starting and ending allele frequencies. Make sure you have a place for each trial and an average.

	Allelic Frequency				
	Generation 1	Generation 2	Generation 3	Generation 4	Generation 5
Blue Allele					
Red Allele					
Blue Phenotype					
Purple Phenotype					
Red Phenotype					

6. Insert an appropriate graph to represent your data.
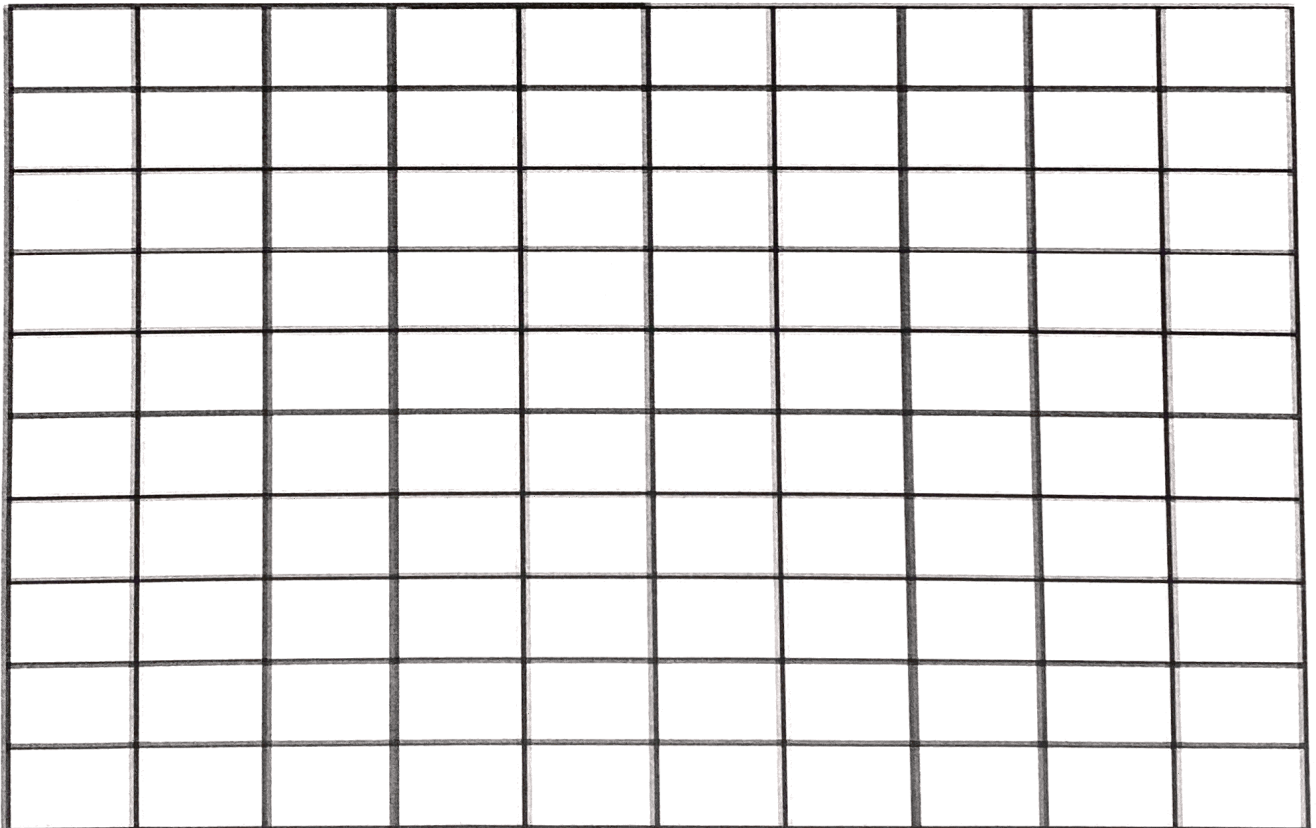
7. Discussion: Describe your data and attempt to explain why the results occurred. Based on the data, answer your original question.

Speciation Scenarios (Reinforcement)

For each scenario, indicate whether it represents Allopatric speciation (A) or Sympatric speciation (S). Indicate the type of isolating mechanism described (temporal, behavioral, mechanical, chemical, geographic).

		Type	Isolating mechanism
	Birds in an area attract mates by offering gifts to the females. One group of birds offers food gifts, like worms. Another group generally offers colored objects for decorating nests.		
	Squirrels on the Kaibab plateau cannot easily reach the valley where gray squirrels live. These two groups do not interbreed.		
	Lunar moths use powerful pheromones to attract mates. Moths of a different species do not respond.		
	A group of closely related mosquitoes that live in Louisiana has a different preference for the type of water they lay eggs in. One prefers freshwater and the other prefers salt water.		
	In snails that are closely related, the direction of shell coiling is either to the left or to the right. Left-coiled snails cannot mate with right-coiled ones.		
	The red-legged frog breeds from November to April. The yellow-legged frog breeds from May-June. Both live in the same area.		
	Cuttlefish flash a sequence of colors to either warn rivals away or attract females. Females of their species will only respond to a specific series of color flashes.		
	The saddleback tortoise lives on a different island than the domed tortoise of the Galapagos. Neither tortoise can swim to the other island.		

Design your own scenario.

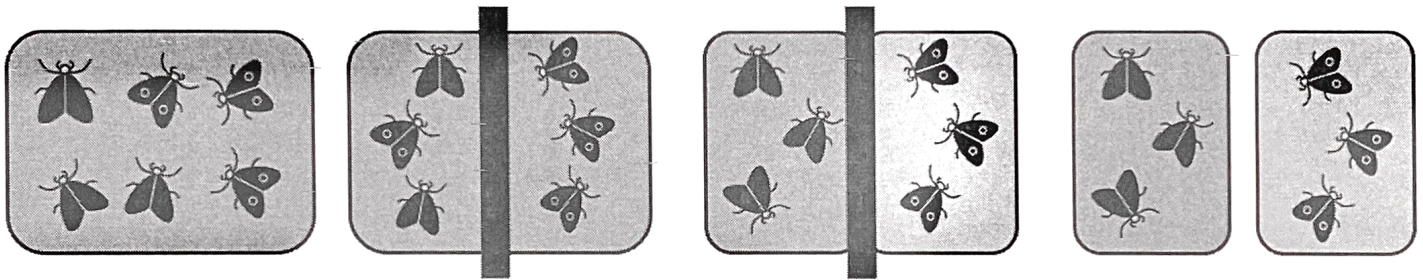|			

Speciation Graphics - For each graphic shown below, identify the type of speciation and write a short caption describing the events occurring in the process.
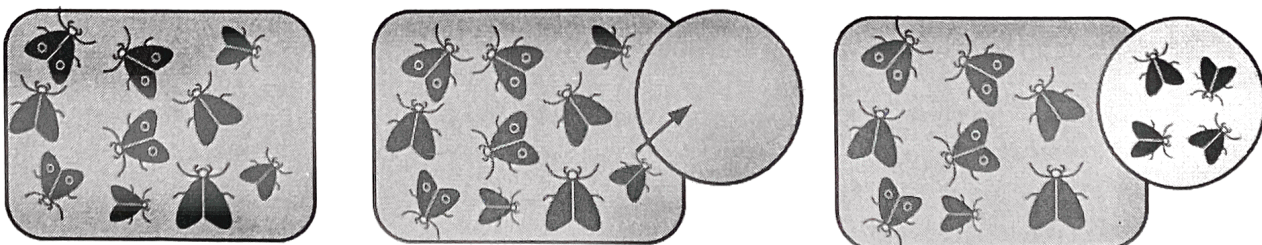
Type of Speciation: _____
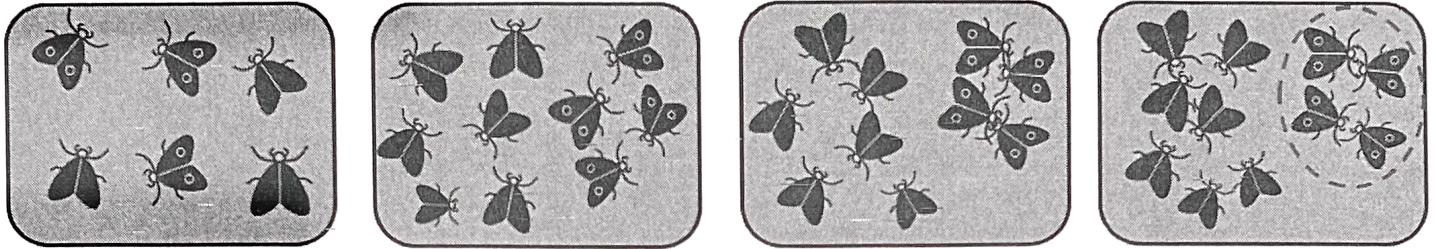
Description:

Type of Speciation: _____

Description:

Parapatric Speciation - The following graphic shows a type of speciation called **parapatric speciation**. In this case, a group of moths were small enough to occupy nests in a new type of plant that was introduced to the habitat. Larger moths could not. Propose a definition or description for the process of parapatric speciation.

Description: