

Lab Activity: Natural Selection Simulation
Biology B

Name _____ Per _____
Lab Partner(s): _____

Purpose:

To simulate one way in which natural selection operates.

Summary of Background:

In the space provided, give a concise summary of relevant background information about evolution and natural selection that you need to know to complete the lab activity.

Materials:

- 1m x 2m piece of fabric with pattern
- 100 paper chips of assorted colors
- bowl or cup

Procedure:

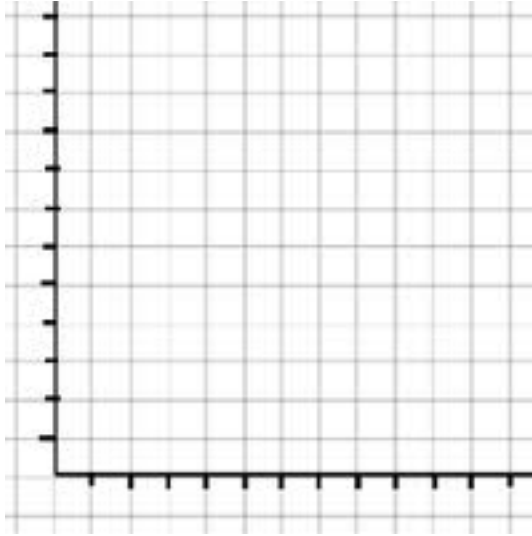
1. Spread out the fabric "habitat" on a table top.
2. Obtain a container of paper chips from the instructor.
3. Examine the paper chips. In the data table in the next section, record the color and number of paper chips that you receive in the data table below. This is your original population.
4. Appoint one team member as the keeper of the paper chips. All other members are predators, whose prey is chips.
5. Predators: turn your backs to the table and allow the keeper to spread the chips uniformly over the fabric, making sure no chips stick together.
6. Imagine yourselves as predators, the paper chips as your prey, and the fabric background as your habitat. One at a time, turn around and select a paper chip using only your eyes to locate it. Do not use your hands to feel the chips. When you have selected a chip, place it in the container and turn around. Continue taking turns until only 25 paper chips remain on the fabric and the keeper signals you to stop.
7. Send someone to the "morgue" with the chips that were "eaten." Place these "deceased" chips in the morgue.
8. Carefully shake the fabric to remove the survivors.
9. Group the survivors according to color by placing chips of the same color together. Arrange them in a row. Record the number of each color that survived this round in the data table below.
10. Assume each survivor produces three offspring. Using the reserve supply provided by your teacher, place three chips of the same color underneath each survivor.

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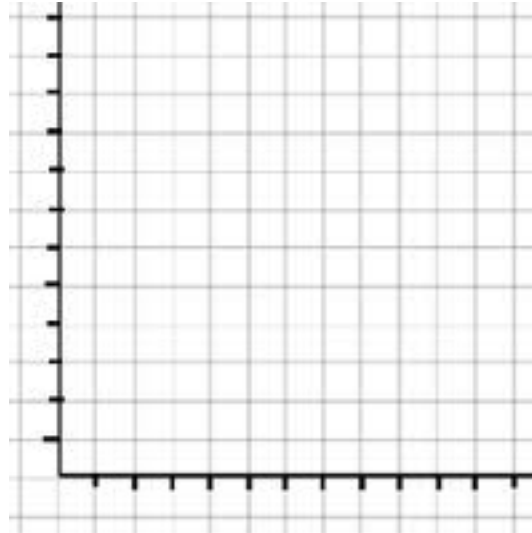
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Histograms:

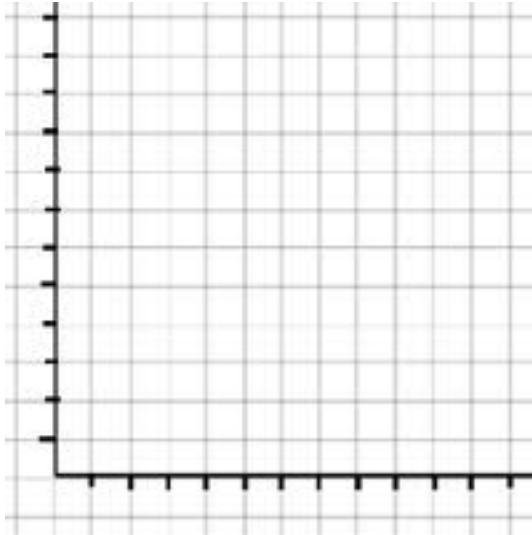
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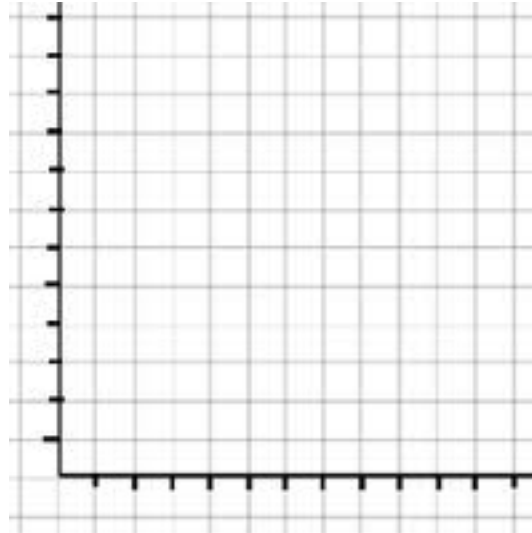
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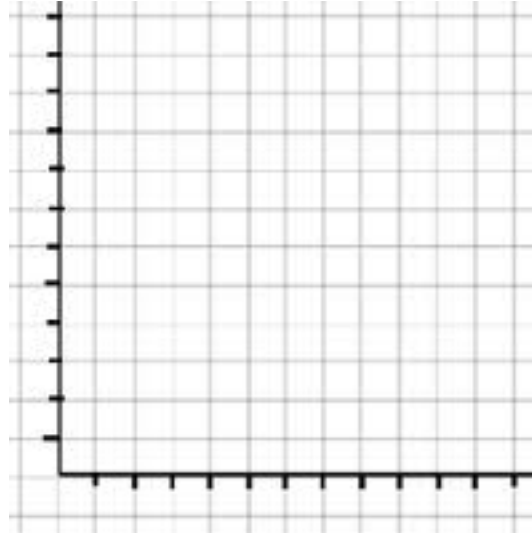
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Analysis and conclusions:

Study the histograms of each generation.

1. Were the different colors more or less equally represented in the Original Population?
2. Was one color chip represented more than others in the Round 2 Initial Population?
3. If one color chip was represented more than others in the Round 2 Initial Population, why do you think these chips survived more successfully than other color chips?

4. Compare the Original Population and the Round 5 Initial Population. What, if any, change occurred between the first and fifth generation?

5. Compare the Original Population and the Round 5 Initial Population.
 - a. Which, if any, color from the Original Population is *not* represented in the Round 5 Initial Population?

 - b. Why do you think the color(s) are not represented in the Round 5 Initial Population?

6. Examine the color of chips in the Round 5 Initial Population, and the fabric habitat. How do the colors of the survivors relate to the colors of the habitat?

