Name: Date:

HANDS-ON ACTIVITY

Modeling Population Changes

Use a deck of cards to represent the lizard population. The four suits represent four different alleles for tail shape. The allele frequencies of the original population are 25% spade, 25% heart, 25% club, and 25% diamond tail shapes.

MATERIALS

- deck of cards

PREDICT

How can random chance affect the allele frequencies in a population?

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PROCEDURE

1. Shuffle the cards. Holding the deck face down, turn over 40 cards. These cards represent the alleles of 20 offspring produced by random mating of the individuals in the initial population.
2. Separate the 40 cards by suit and then find the allele frequencies for the offspring by calculating the percentage of each suit. Record these values in Data Table 1.

DATA TABLE 1: TRIAL 1

	DIAMOND	HEART	CLUB	SPADE
Number of each allele				
Allele frequency (%)				

3. Suppose a storm isolates a few lizards on another island where they start a new population. Reshuffle the deck and draw 10 cards to represent the alleles of five offspring produced in this smaller isolated population.
4. Repeat Step 2 to calculate the resulting allele frequencies. Record the results in Data Table 2.

DATA TABLE 2: TRIAL 2

	DIAMOND	HEART	CLUB	SPADE
Number of each allele				
Allele frequency (%)				

ANALYZE

1. Compare the original allele frequencies to those calculated in Steps 2 and 4. How did they change?

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2. Does this activity demonstrate evolution? Why or why not? Does it demonstrate natural selection? Why or why not?

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