



## HANDS-ON ACTIVITY

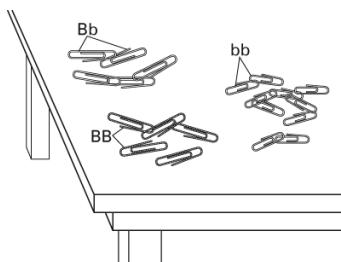
**Investigating an Anole Lizard Population**

Curly-tailed lizards will eat any brown anole lizards that fit into their mouths. In this activity, you will model the effect of curly-tailed lizards on an anole population.

**PROCEDURE**

- Obtain 10 large and 10 small paper clips to represent the initial population of anoles. Spread out the paper clips in front of your group. Large anoles may have genotype BB (large ribbed paper clip) or Bb (large smooth paper clip). Small anoles have genotype bb (small paper clip).

Keep extra paper clips in the "extras" cup.



- Fill out Data Table 1 for Generation 1.

**DATA TABLE 1: EFFECT OF CURLY-TAILED LIZARDS ON A POPULATION OF BROWN ANOLE LIZARDS**

POPULATION STAGE	NUMBER OF ANOLES				GENOTYPE FREQUENCIES			ALLELLE FREQUENCIES	
	Total	BB	Bb	bb	BB	Bb	bb	B	b
1 (Generation 1)									
2 (Generations 1 + 2)									
3 (Generations 1 + 2 + 3)									
4 (Generations 1 + 2 + 3 + 4)									

- Three small anoles are eaten by curly tailed lizards. Put three small paper clips in the "extras" cup.
- Mix up the paper clips that remain in your population and randomly pull 3 aside. These represent the genotypes that get passed on to the next generation.
- Take three paper clips from the cup—one to match each paper clip that you pulled aside in Step 4. The new paper clips represent the new generation. Join the three pairs with the rest of the population, bringing the population total back up to 20.
- Fill in the information for the second population stage in the next row of Data Table 1.
- Repeat Steps 3–6 until you have produced Generation 4.

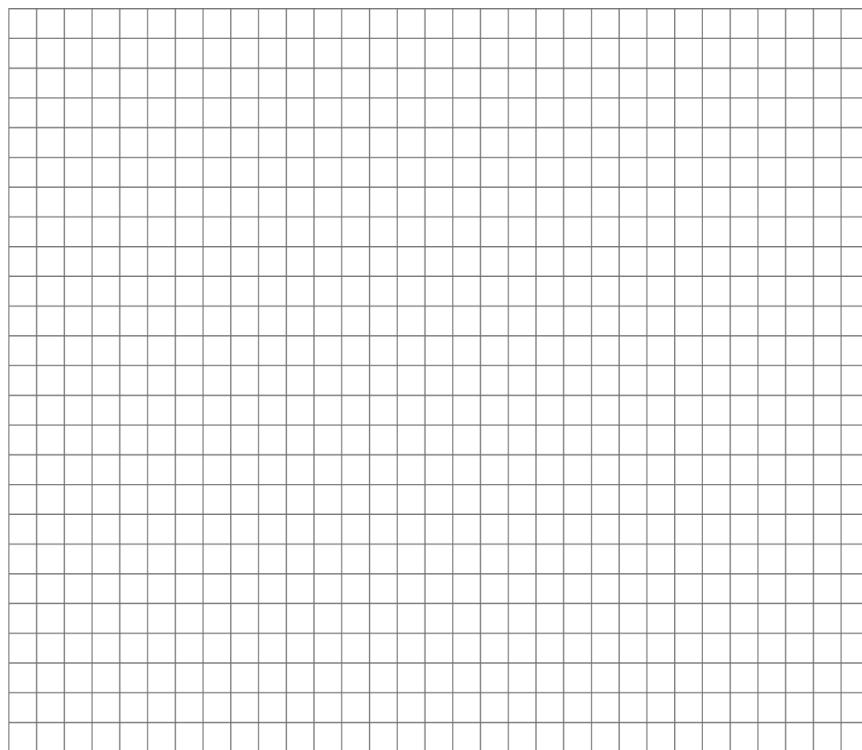
**MATERIALS**

- large paper clips, mix of smooth and ribbed (10)
- small paper clips (10)
- "extras" cup containing 20 additional large paper clips (10 smooth, 10 ribbed)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

8. Draw two line graphs, one each for each allele frequency—B and b. Put Population Stage (1 through 4) on the x-axis and allele frequency (from 0 to 1) on the y-axis.



## ANALYZE

1. What happens to the frequency of each allele over the four generations?

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2. Is this population evolving, or is it in Hardy-Weinberg equilibrium? Explain.

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3. Which of the five conditions required for equilibrium are met and which are not?

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