POPPY SCHOLARS · BIOLOGY: THE LIVING EARTH

Home lab 10 · Unit 10 · about 45 minutes

# Can a small advantage in being hard to see change a population in a few generations?

Name _____ Date _____

## MATERIALS

*You supply everything. Tick each item as you gather it.*

- ☐ Two colors of paper: dark gray or black, and bright yellow or orange
- ☐ A hole punch (to make about 40 dots per color)
- ☐ A page of newspaper, or a patterned fabric, taped to the floor
- ☐ A partner to be the 'predator' (or a timer if you play both roles)
- ☐ A timer, paper and pencil

## SAFETY

No special safety concerns. Use a hole punch carefully, away from fingers, and sweep up all the small dots at the end so that pets and young children do not eat them.

## PROCEDURE

1. Punch dots. Start with 20 dark dots and 20 bright dots, which is 40 prey, and scatter them over the newspaper, so the dark dots blend into the print.
2. The predator looks away, then looks at the page for 20 seconds, and picks up 20 dots by hand, taking whichever they notice first. Do not choose by color on purpose. Count how many of each color were taken.
3. Remove the eaten dots. Each of the 20 surviving dots has one offspring of the same color: punch one matching new dot for each survivor, so the population is back to 40.
4. Scatter the new population and repeat the predation round. Run 4 rounds.
5. Record the number of dark and bright dots at the start of each round, and compute the share that is dark each time.
6. Graph the share of dark dots against the round.

## RECORD YOUR DATA

| Round | Dark at start | Bright at start | Dark taken | Bright taken | Share dark at start |
|---|---|---|---|---|---|
| 1 | 20 | 20 | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| End | | | | | |

## LAB REPORT

Write a report that gives your table and graph, shows the share calculation, and explains your result as an example of natural selection by naming each of the four conditions (variation, inheritance, differential survival

or reproduction, and time) and saying where it appears in your game. Say what this game leaves out about real populations.

*Report the numbers you actually got, even when they disagree with the lesson. Write on the lines, or type your report on the website and send it to a teacher there.*

**Question and hypothesis** *State the question in your own words, what you expect to happen, and why you expect it.*

**Method** *What you changed, what you measured, what you kept the same, and how many trials you ran.*

**Observations** *Describe what you saw, including anything unexpected. Your data tables are added to the report automatically.*

**Calculations** *Show each calculation step by step, with units.*

**Claim and reasoning** *Answer the question using your numbers, then explain why, using the biology from the unit.*

**Limits and next step** *What could have affected your results, and one change you would make next time.*