Name _____ Date _____ Period _____

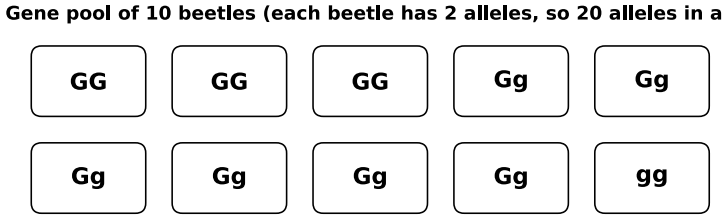
ZornScience
zornscience.org

Selective Pressures and Allele Frequencies

Biology

Answer in complete sentences. Show your work for calculations.

1. The drawing shows the gene pool of 10 beetles.



(a) How many G alleles are in the gene pool?

(b) What is the frequency of the g allele? Show your setup.

2. A population of 50 plants has 30 AA, 10 Aa, and 10 aa. Find the frequency of each allele. Show your setup.

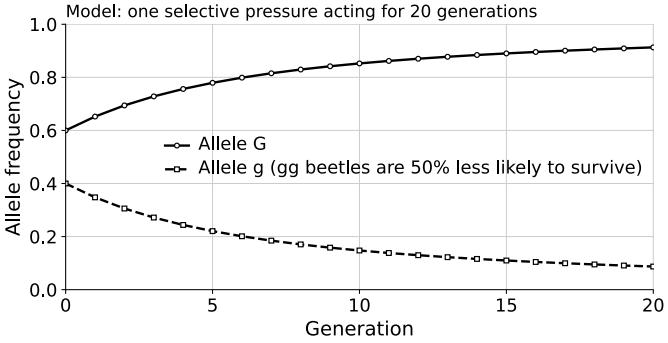
(a) Frequency of A

(b) Frequency of a

3. A disease kills all 10 aa plants in question 2 and none of the others. Find the new frequency of allele a. Show your setup.

CC BY-NC-SA 4.0 | zornscience.org

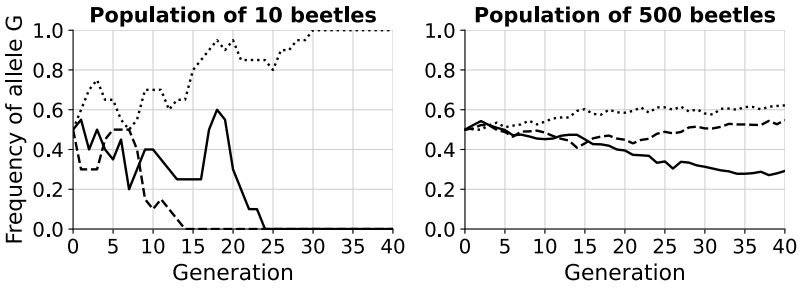
4. The graph models a population where beetles with genotype gg are 50% less likely to survive.



(a) By about how much did the frequency of allele g fall from generation 0 to generation 10?

(b) Explain why the frequency of g falls more slowly in later generations.

5. The graphs show simulations with no selection.



Simulation: no selection at all. Three runs each, starting at 0.50.

(a) Which population showed larger changes in allele frequency?

(b) What name is given to this random change in allele frequencies?

6. A few bacteria in a large population have a mutation that makes them resistant to an antibiotic. Explain why most of the bacteria are resistant after the population is treated several times.

CC BY-NC-SA 4.0 | zornscience.org