

STUDENT HANDOUT: Hammers and Natural Selection

Purpose: Determine the hammer allele with the best fit for the environment.

Instruction: Hammers are made up of two parts: 1) The handle that you grasp while using, and 2) the head, which is the part you strike against objects. For our purposes you will view the hammer head as one trait with two potential alleles. You are handed a population of hammers. Half of them have rubber heads (one allele) and the other half have iron heads (second allele). You are to determine which type of hammer is best for a given environment.

1. What do you think is meant by a population of hammers?

Part One

1. Choose the hammer head that is best for striking metal nails into wood boards. Explain why you made this choice.
2. If these hammers were living creatures capable of breeding, and needed to strike metal nails to survive, do you think more of them would have iron heads than rubber heads after many generations? Explain your answer.
3. What percentage of the hammers do you think (estimate) would have an allele for iron heads? For rubber heads? Explain your answer.

Part Two

1. This time you introduce your population of hammers into an environment where they must strike glass, without breaking it, to survive. How do you think the allele distribution would change in this case?
2. What do you think would happen to the allele kind and distribution if a mutation occurred producing a hammer head made out of cork?