Bug Hunt Camouflage Lab

Introduction

Organisms develop adaptations that allow them to live long lives and reproduce in a particular ecosystem. An adaptation starts by one organism being born with a mutation and because they can survive and reproduce, they pass on that adaptation to their offspring. Usually, their adaptations will help them avoid predators. Katydids, for instance, are bugs that look like leaves. Their adaptations help them blend in with their habit, so predators cannot easily see them. Organisms that have predators will have different adaptations than organisms with few or no predators. The question we were trying to answer is: Why does a specific version of a trait become more common in a population over time? We think that a trait will become more common if it helps the organism survive because they will live long enough to be able to pass their traits on to their offspring.

Procedure

To start our investigation, we used a bug camouflage simulation. In the simulation, we clicked on all the bugs we saw and found that the colors of the bugs changed according to the ones that we didn't see. We did the simulation for 110 seconds in one environment. After that, we put our data into a table by recording the number of bugs at each hue. Then, we analyzed the data we received from the simulation by looking to see how their color had changed from the beginning to the end of the simulation.

Data

Hue vs. Number of Bugs from Beginning to End

Hue Value	# of Bugs at the beginning	# of Bugs at the end
0-15	1	5
16-30	1	5
31-45	0	0
46-60	1	2
61-75	0	0
76-90	0	0
91-105	1	0
106-120	1	1
121-135	0	0
136-150	0	0
151-165	0	0
166-180	0	0
181-195	1	0
196-210	2	0
211-225	0	0
226-240	2	0
241-255	0	0

Conclusion

A specific version of a trait can become more common in a population over time because the trait can allow an organism to survive and thrive longer. In the data table it shows that bugs with hues 0-15 and 16-30 started with one bug and ended with five. This shows that these hues were harder to see which helped them reproduce and

survive, making it a more common color. On the other hand, hues 226-240 and 196-210 started with two bugs and ended with zero. This shows that these hues were easier to see, causing bugs with these hues to die. This happens because some organisms have a mutation for color which ends up helping them in their environment because they are less likely to be seen. Over time, through the process of natural selection, the organism with the helpful alleles will survive and is able to pass them on to its offspring. To conclude, traits that help an organism survive will become more common in a population overtime because it helped them live longer and reproduce.