

Study Questions for 3/18 Lecture

1. Imagine in a population of beetles, an error in DNA replication during S phase leads to a mutation and the introduction of a new allele for blue wings. Describe the process through which the new allele would lead to the production of blue wings (hint: how does an allele end up making a protein?)
2. If the allele for blue wings was b and the allele for green wings was B , and B is dominant to b , what would the possible genotypes of a green beetle be?
3. If the blue wings provided an adaptive benefit to beetles, do you predict that the frequency of b would go up, down, or stay the same in the population of beetles?
4. If the frequency of the b allele went from 0.1 to 0.3 from generation 1 to generation 2, but then stayed the same in generation 3, would evolution have occurred between generations 2 and 3?
5. What inspired Wallace and Darwin to come up with the theory of natural selection? What influenced them, and how did they come up with the idea?
6. Do you think Darwin acted shadily in the way he handled the letter from Wallace? Why/why not?
7. What kinds of diagrams do we draw to represent the evolution of species over large amounts of time? What do we call the places where branches meet on these diagrams, which represent common ancestors?
8. Do individuals evolve? Why/why not?