

NATURAL SELECTION

VOCABULARY – Use the resources on Mr. Hanna’s website to define the following key terms related to heredity.

- 1) SPECIES – a group of organisms that share similar characteristics and can reproduce among themselves to produce fertile offspring
- 2) EVOLUTION – Changes in the characteristics of a species or population that get passed-on over large periods of time
- 3) VARIATION – an inherited trait that makes an individual different from other members of its species
- 4) ADAPTATION – arise in a species when variations (genetic mutations) make an organism better suited to its environment
- 5) NATURAL SELECTION – organisms with traits best suited to their environment are more likely to succeed (survive and reproduce)

SHORT RESPONSE – Provide a short answer (a few sentences or less) in response to each prompt.

- 6) How do “variations” arise within a species?
Variations arise from permanent changes (mutations) in an organism’s genes.
- 7) How can “variations” lead to “adaptations”?
Beneficial mutations can be passed on through many generations and spread throughout a species
- 8) What result would you expect from a species when an individual organism is born with a...
 - a. beneficial mutation (a mutation that gives it an advantage over other individuals)?
Will be passed on to offspring and spread through the population over many generations
 - b. harmful mutation (a mutation that puts it at a disadvantage to other individuals)?
Will likely die out or be very uncommon within the population if it harms individual’s ability to survive/reproduce
 - c. neutral mutation (a mutation that is neither beneficial or harmful to the individual)?
May or may not become common in a population over time (if it doesn’t harm the individual’s ability to survive/reproduce)
- 9) One of the most famous examples of natural selection are Darwin’s Galapagos Finches. Darwin noticed after he reviewed his drawings that finches on different islands had different beak shapes. How did this lead Darwin to his ideas about natural selection?
Darwin inferred that the different shaped beaks were best suited to the food source on each specific island. He theorized that the ancestors of each island’s finches must have at some point developed mutations that made it easier to gather food on that specific island, which spread that genetic trait among that group of finches.
- 10) List some of the factors that may contribute to the evolution of a species over time (changes in its characteristics over many, many generations).
*Environmental changes (temperature, precipitation/drought)
Predator-Prey pressures (new predators, population sizes, adaptations)
Selective Breeding (artificial selection of specific features)
Sexual Selection (traits seen as “attractive” to potential mates)*