Learning Target: I can explain how natural selection and adaptation leads to the evolution of populations over time.

Natural Selection Interactive Activity

Natural selection explains how organisms in a population develop traits that allow them to survive and reproduce. Natural selection means that traits that offer an advantage will most likely be passed on to offspring; individuals with those traits have a better chance of surviving. Evolution occurs by natural selection.

Take the giant tortoises on the Galápagos Islands as an example. If a short-necked tortoise lives on an island with fruit located at a high level, will the short-necked tortoise survive? No, it will not, because it will not be able to reach the food it needs to survive. If all of the short-necked tortoises die, and the long-necked tortoises survive, then, over time, only the long-necked trait will be passed down to offspring. All of the tortoises with long-necks will be "naturally selected" to survive. Organisms that are not well-adapted, for whatever reason, to their environment, will naturally have less of a chance of surviving and reproducing.

Every plant and animal depends on its traits to survive. Survival may include getting food, building homes, and attracting mates. Traits that allow a plant, animal, or other organism to survive and reproduce in its environment are called **adaptations**.

Natural selection occurs when:

1. There is some variation in the inherited traits of organisms within a species. Without this variation, natural selection would not be possible.
2. Some of these traits will give individuals an advantage over others in surviving and reproducing.
3. These individuals will be likely to have more offspring.

Imagine how in the Arctic, dark fur makes a rabbit easy for foxes to spot and catch in the snow. Therefore, white fur is a beneficial trait that improves the chance that a rabbit will survive, reproduce, and pass the trait of white fur on to its offspring (**Figure** below). Through this process of natural selection, dark fur rabbits will become uncommon over time. Rabbits will adapt to have white fur. In essence, the selection of rabbits with white fur - the beneficial trait - is a natural process.

Answer the following questions:

1. What does natural selection explain? _____
2. What does natural selection mean? _____
3. What happened to the short-necked tortoise? _____ Explain why. _____

   _____
4. What happened to the long-necked tortoise? _____ Explain why. _____

   _____
5. What are adaptations? _____
6. Provide an example of how an adaptation helps an organism survive in its environment. _____

   _____

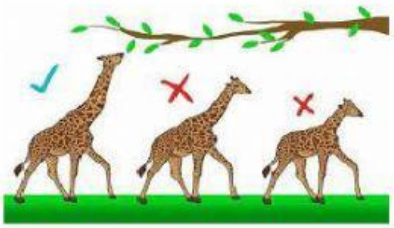
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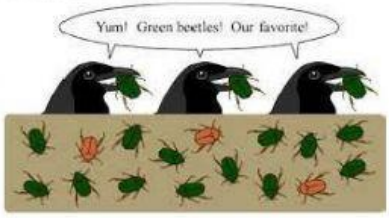
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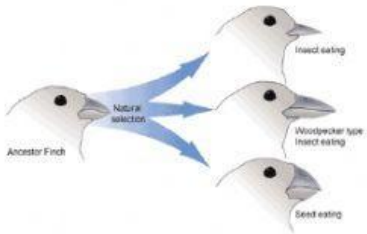
7. What variation is there in the rabbit population in the arctic (2 types) of rabbit? _____
8. How does this variation give certain rabbits an advantage over other rabbits? _____
   _____
9. How does natural selection occur in these rabbits?_____
10. What is the end result in the rabbit population? _____

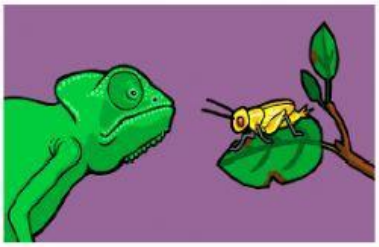
Directions: Select the correct response for why each of the following examples represent natural selection. Give a brief explanation of why each scenario represents natural selection.



Natural selection, in a nutshell:







Scan QR Code to Take Quiz!

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