



Middle School Science Virtual Learning

8th Grade Science

Adaptations of Organisms over time

April 17, 2020



Life Science
Adaptations of organisms over time

Objective/Learning Target:

I can explain how organisms have adapted over time to survive



LET'S GET STARTED

CLICK ON THE VIDEO BELOW TO ANSWER THE FOLLOWING QUESTIONS:

[Darwin and Natural Selection](#)

1. List the four (4) conditions that allow Natural Selection to take place.
2. How does the organism's environment influence Natural Selection?



ANSWERS FOR BELL RINGER

THE FOUR CONDITIONS ARE:

1. Individuals within a population differ
2. The differences are passed from parent to offspring
3. Some individuals are more successful at reproducing
4. Successful individuals have inherited traits

An organism's environment will influence physical adaptations.



A Few IMPORTANT TERMS for how organisms change over time to better their survival

- 1) **Natural Selection** - The idea that over time organisms develop characteristics through genetic mutations that give them a better chance for survival. Individuals whose unique characteristics are best suited for their environment tend to survive and produce offspring - producing offspring is very important. Offspring that inherit these characteristics also live to reproduce. Individuals with characteristics that are poorly suited to the environment are less likely to survive and reproduce. Over time, these poorly suited characteristics may disappear entirely from the species. ***This process that makes an individual better suited to its environment is called Natural Selection.***
Check out this video for better understanding: [Natural Selection](#)
- 2) **Adaptations** - Those behaviors and physical characteristics that allow organisms to successfully in their environments.



IMPORTANT TERMS and Learning continued

- 3) **Evolution** - The process by which organisms gradually change over time.
Please Note: Don't think Natural Selection and Evolution are the same thing, they are not. Natural Selection is the mechanism or somewhat the cause of Evolution. Check out this video that explains [Evolution](#).
- 4) **Macroevolution** - Large scale evolution occurring over geologic time that results in the formation of new species and broader taxonomic groups.
- 5) **Microevolution** - Changes in the traits of a group of organisms within a species that do not result in a new species.
- 6) **Fitness** - An organism's capacity to survive and reproduce in a given environment. [Evolutionary Fitness](#)



IMPORTANT TERMS and Learning continued

- 6) **Survival of the fittest** - A term that refers to the survival of only those organisms best able (fittest) to obtain and utilize resources, resulting in the evolution of organisms that are best adapted to the environment. Darwin used metaphorically to describe "natural selection." The phrase was invented by the 19th century philosopher Herbert Spencer. It has been misapplied through history to explain and justify social and economic inequities in human Populations ("social Darwinism") or as a method for improving the human condition through selective breeding (eugenics). Survival alone is insufficient for evolution - it's reproduction - passing on of genes that really counts. Most modern biologists no longer use this term when describing or discussing natural selection.



IMPORTANT TERMS and Learning continued

- 7) **Mutation** - A change in the sequence of one or more nucleotides in DNA. Such changes can alter the structure of proteins or the regulation of protein production. In some cases mutations result in the organism possessing these altered traits to have a greater or lesser chance of surviving and reproducing in a given environment than other members of its species.



PRACTICE

Now that you've learned about little bit about the terms associated with Natural Selection and Evolution, click on the activity below and answer the questions on a separate sheet of paper. You may go back up to previous slides to review or re-watch the videos but don't go to the next slide until you've answered all the questions.

[Evolution by Natural Selection](#)



PRACTICE ANSWERS

Evolution by Natural Selection

Answers



MORE PRACTICE

Click on the link for more practice on Adaptations.
Answer questions 1 - 4 on a separate sheet of paper.
You will be able to check your answers on the next slide.

[Underwater Sight](#)



ANSWERS FOR UNDERWATER SIGHT

1. D

2. D

3. A

4. It is more difficult for humans to see underwater. Moken people depend on the ocean for food, so they need to be able to see well underwater. European children who don't have to dive for food, don't have the same underwater-vision adaptation as Moken children



CHECK FOR UNDERSTANDING

Click on [Adaptations](#) to see what you remembered.