



Student Exploration: Evolution: Mutation and Selection

Directions: Follow the instructions to go through the simulation. Respond to the questions and prompts in the orange boxes. Complete the lab Assessment

Define Each Vocabulary Word:

adaptation-the biological mechanism by which organisms adjust to new environments or to changes in their current environment

allele-a variant form of a gene

allele sequence-the DNA sequences controlling our traits, are usually found in two copies in eukaryotic genomes

chromosome-a structure found inside the nucleus of a cell

evolution- the change in the characteristics of a species over several generations and relies on the process of natural selection

fitness-being able to live long enough to reproduce and keep the population or species alive

gene-the basic physical and functional unit of heredity

genotype- the genetic makeup of an organism

mutation-occurs when a DNA gene is damaged or changed in such a way as to alter the genetic message carried by that gene

natural selection-the process through which populations of living organisms adapt and change

phenotype trait- the observable physical properties of an organism

Prior Knowledge Questions (Do these BEFORE using the Gizmo.)

1. Imagine a white lizard and a brown lizard sitting on a brown rock. A hawk is circling overhead hunting for its next meal. Which lizard do you think the hawk would most likely try to catch? Explain your choice.

The white lizard because it is more noticeable and sticks out more.

2. Now imagine that the same two lizards were sitting on a dune of white sand. Which lizard do you think the hawk would then most likely try to catch? Why?

The brown lizard because it doesn't blend in with the white sand.

Gizmo Warm-up

How long could a parrot survive in Antarctica? It would probably not survive long. Parrots do not have **adaptations**—or helpful characteristics—to survive icy cold weather. Because of this, a parrot is not fit for Antarctica. **Fitness** describes how well an organism can survive and reproduce in an environment.

In the *Evolution: Mutation and Selection* Gizmo, you will see how a species' fitness can change over time as it becomes better adapted to its environment.

1. On the SIMULATION pane, what is the **Average fitness** of the population?

50

Elgizmos Student Exploration Evolution Key

Christian Drosten



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