

## CONCEPT: NATURAL SELECTION & EVOLUTION

### Adaptation Improves Fitness

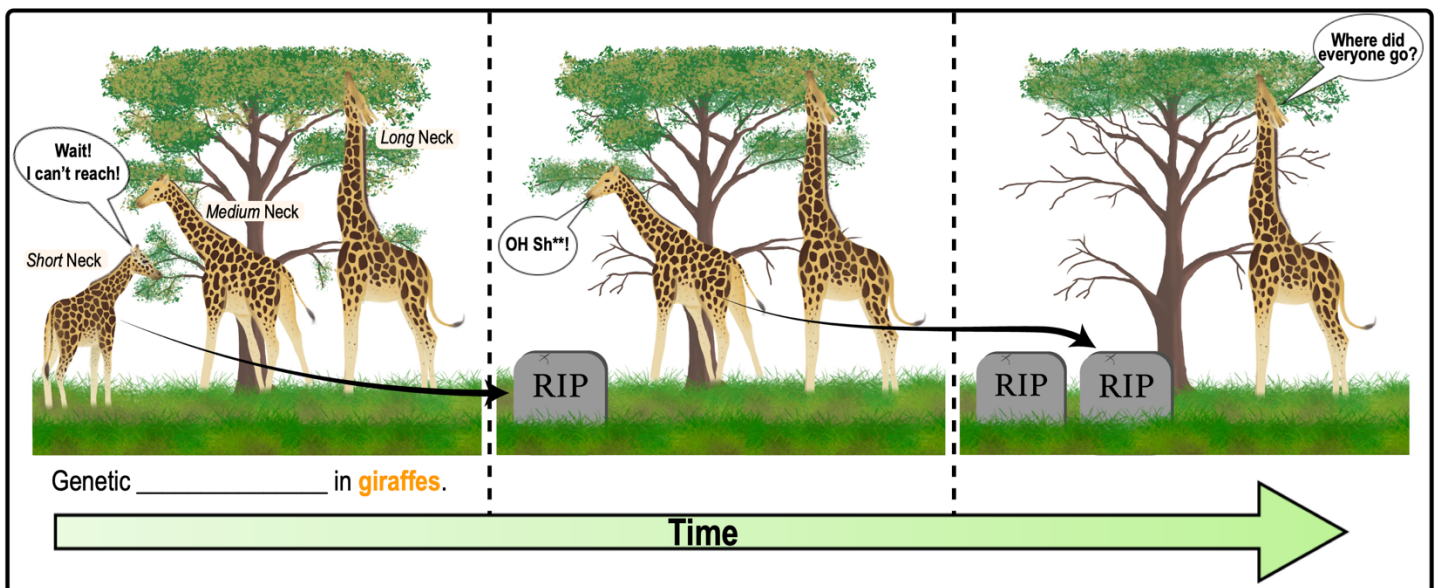
- Living organisms are well suited to their environments due to \_\_\_\_\_.
- *Adaptation*: process that enables organisms to \_\_\_\_\_ survival & reproduction in their environments.
- \_\_\_\_\_: an organism's ability to \_\_\_\_\_ & \_\_\_\_\_.



### Natural Selection Causes Adaptation

- *Adaptation* is a result of the process of Natural \_\_\_\_\_, described by Charles Darwin.
  - *Natural Selection*: the natural environment \_\_\_\_\_ for organisms in a population that are more “\_\_\_\_\_.”
  - Natural Selection ≈ “Survival of the \_\_\_\_\_.”
- Natural Selection has \_\_\_\_\_ requirements:
    - 1) Genetic \_\_\_\_\_ in a population.
    - 2) Selective \_\_\_\_\_ for heritable traits affecting fitness.

### Natural \_\_\_\_\_



**PRACTICE:** Which of the following is true of natural selection?

- It requires genetic variation.
- It requires selective pressure from the environment.
- It involves differential reproductive success.
- a, b, & c

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**PRACTICE:** Which of the following is the best example of natural selection?

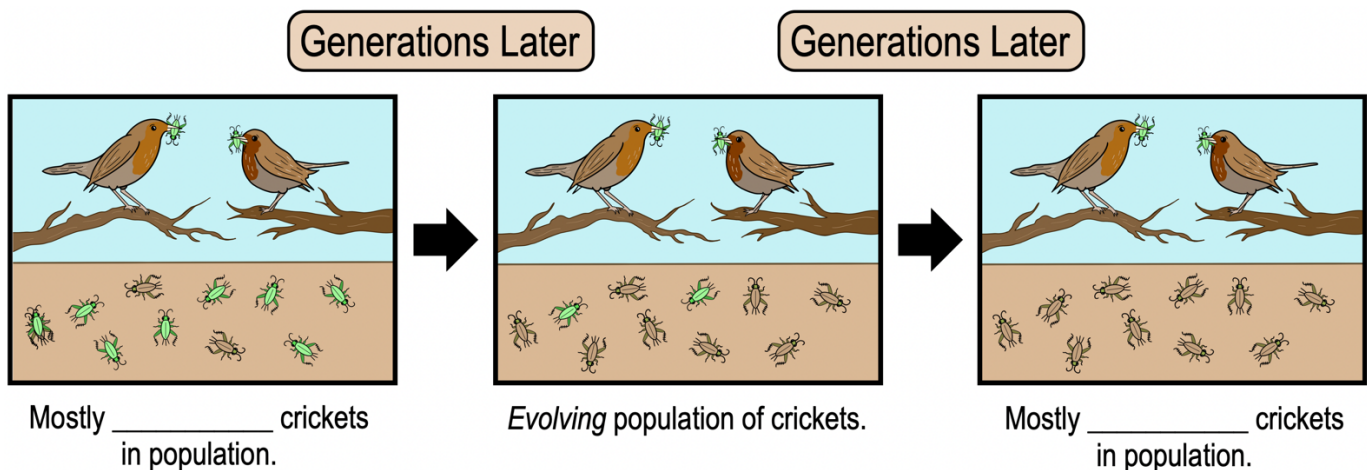
- a) In a very wet year, some plants grow unusually tall stalks and large leaves.
- b) After several unusually cold winters, squirrels with an extra layer of fat have more offspring.
- c) Squirrels may have long or short tails.
- d) Dogs with longer legs are able to run faster than dogs with shorter legs.

## Evolution can Occur Via Natural Selection

● **Evolution:** changes in the \_\_\_\_\_ of a population over *multiple* generations (over long periods of time).

- ☐ Evolution can occur in a \_\_\_\_\_ of ways, but one of them is via *natural selection*.
- ☐ Evolution has shaped all life on Earth & is responsible for life's \_\_\_\_\_.

**EXAMPLE:** Evolution by Natural Selection.



**PRACTICE:** Evolution through natural selection will occur most rapidly for populations of plants that:

- a) Are already well adapted to the environment.
- b) Reproduce sexually and live in an unstable environment.
- c) Live in an unchanging environment.
- d) Are in the same genus.

**PRACTICE:** Charles Darwin's theory of evolution by natural selection explains all of the following EXCEPT:

- a) How an ecosystem decays over time.
- b) How inherited traits are passed from parent to offspring.
- c) How the DNA of a population can change over time.
- d) How evolution takes place in the natural world.