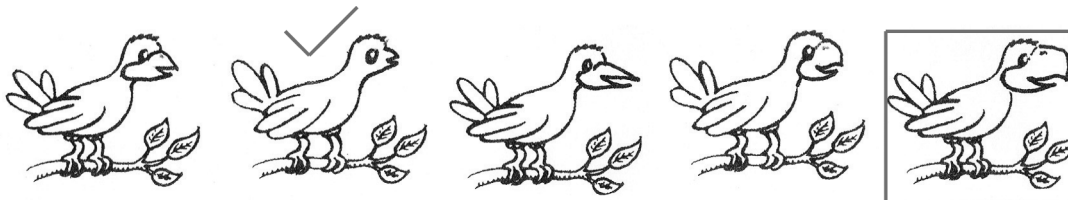


Conceptual Biology

Chapter 8: Natural Selection

Natural Selection

1. On a tropical island, there lives a species of bird called the Sneezlee bird. Sneezlee birds eat seeds. Sneezlee birds also show variation in beak size. Some Sneezlee birds have bigger beaks, and some have smaller beaks.



- a. Draw a box around the bird with the biggest beak.
- b. Put a check mark by the bird with the smallest beak.
2. One year, there are not many seeds available for Sneezlee birds due to a drought in the summer. Small seeds are quickly eaten by the Sneezlee birds. Only larger, tougher seeds are left. Sneezlee birds with larger, stronger beaks are better at cracking these larger seeds.



- a. Draw a box around the two birds most likely to survive the drought.
- b. Mark X's through two Sneezlee birds that are more likely to die.
3. Beak size is a heritable trait. Parent birds with larger, stronger beaks tend to have offspring with larger, stronger beaks. How would the Sneezlee bird population evolve due to the drought?

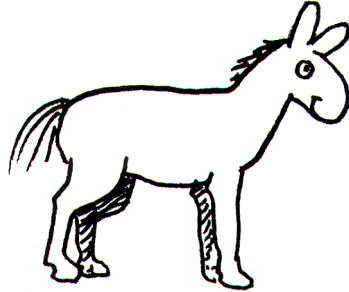
On average, the Sneezlee birds after the drought have larger, stronger beaks.

Conceptual Biology

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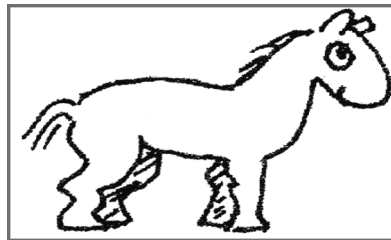
Size and Shape

1. The imaginary mammal below occupies temperate forests in the Eastern United States.

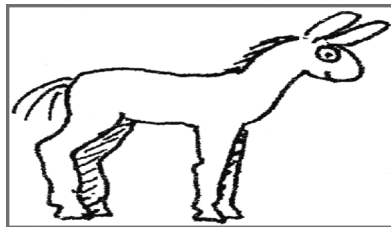


- a. If a population of these mammals moved and successfully colonized an Arctic habitat, how might you predict that it would evolve? Draw the Arctic form of the mammals below.

Think about
ear and leg
length



- b. If a population of these mammals moved and successfully colonized a desert habitat, how might you predict that it would evolve? Draw the desert form of the mammals below.



- c. Explain your drawings.

Think area vs
volume.



The heat an animal produces depends on its volume. The heat it loses
depends on its surface area, because heat is lost through the body's surface.
This affects the size and shape of animals in extreme environments. Big size is
an advantage in cold habitats. Big animals have relatively little surface area to lose
heat considering how big they are. And in fact, animals in cold habitats are often
bigger than related animals in hot habitats. Hot-climate and cold-climate animals
also have different shapes. Desert species have long legs and big ears that
increase the surface area available for losing heat. Arctic species have short legs
and small ears that help save heat.