Chapter Seven: The Evolution of Living Things
Section 3: Natural Selection in Action

Bacteria:

- When given an antibiotic, most bacteria are killed by the chemicals in those antibiotics.
- A few are naturally resistant to the chemicals and pass this adaptation on to its offspring
- Therefore doctors recommend taking all antibiotics even when you feel better and not to skip a dose!

The theory of natural selection explains how a population changes in response to its environment

- Individuals that are likely to survive and reproduce are those that are best adapted at the time

People hunt the elephants for their tusks.

- As a result, fewer of the elephants that have tusks survive to reproduce, and more of the tuskless elephants survive passing this trait on to offspring.

Insecticides have been used so much that now more than 500 kinds of insects have developed resistance to certain insecticides.

Generation time: the average time between one generation of offspring and the next

- Fruit flies = 10-12 days
- Cockroach = 60 days
- Humans = 15-25 years
- Elephant = 25 years

Many species have so much competition for mates that interesting adaptations result.

- For example, the females of many bird species prefer to mate with males that have colorful feathers.
- https://www.youtube.com/watch?v=1zxJPQlFFTI

Species: a group of organisms that can mate with each other to produce fertile offspring

Speciation: the formation of new species because of evolution

- Speciation often begins when a part of a population becomes separated from the rest. (*Separation*)
    - canyons, mountain ranges, lakes can divide
- After two groups have separated, natural selection may act on each group in different ways. (*Adaptation*)
    - separated groups evolve different traits
- Over many generations, two separated groups of a population may become very different until the point when they can no longer mate with one another. (*Division*)