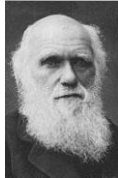
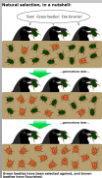
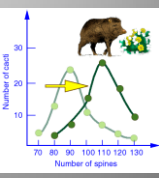


## 7.1 Introduction to Natural Selection

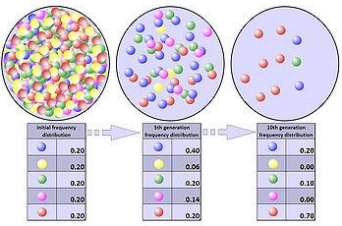






## ENDURING UNDERSTANDING

### EVO-1 Evolution is characterized by a change in the genetic makeup of a population over time and is supported by multiple lines of evidence.

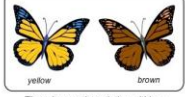


Initial frequency distribution	5th generation frequency distribution	10th generation frequency distribution
0.20	0.40	0.20
0.20	0.05	0.00
0.20	0.20	0.15
0.20	0.14	0.65
0.20	0.20	0.00

### EVO-1.C Describe the causes of natural selection

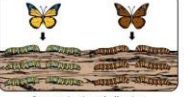
Natural selection is a major mechanism of evolution.

**1 Variation**




There is genetic variation within a population which can be inherited

**2 Competition**




Overproduction of offspring leads to competition for survival

**3 Adaptations**



Individuals with beneficial adaptations are more likely to survive to pass on their genes

**4 Selection**

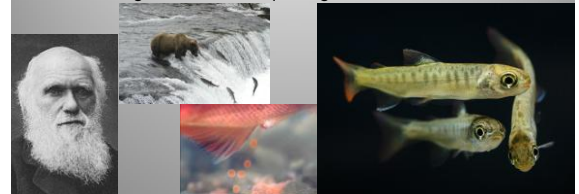


Over many generations, there is a change in allele frequency (evolution)

### EVO-1.C Describe the causes of natural selection




Darwin's Theory of Natural Selection

- Competition for limited resources results in differential survival.
- Individuals with more favorable phenotypes are more likely to survive and produce more offspring
- Passing traits to subsequent generations.

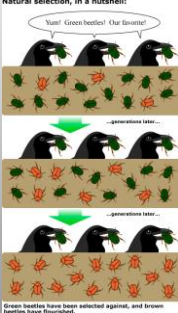


### EVO-1.D Explain how natural selection affects populations.

Evolutionary fitness is measured by reproductive success

**Natural selection, in a nutshell:**





Green beetles have been selected against, and brown beetles have been selected for.

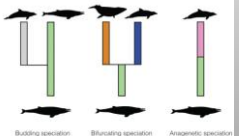

### EVO-1.D Explain how natural selection affects populations.

Environments can be stable or fluctuate

This affects evolutionary rate and direction

Different genetic variations can be selected in each generation.

## EVO-1.D Explain how natural selection affects populations.

- **Adaptation?**
  - Genetic variation that is favored by selection
  - Manifested as a trait that provides an advantage to an organism in a particular environment.

