Natural Selection

Natural Selection

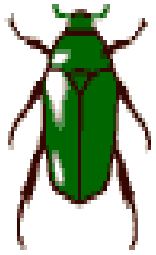
- A process in which some individuals have traits that improve survival or reproduction and thus have more offspring.

Natural Selection at work.

- Because the offspring also carry the genes for these traits, the advantageous traits become more common in populations and the disadvantageous traits to become less common in populations.

Fitness

- How good an organism is at passing its particular genes to the next generation relative to other organisms.
- A more fit organism will produce more offspring that survive.

		
Number that survive compared to total	95 %	33 %

Fittest not strongest

- The fittest individual is not necessarily the strongest, fastest, or biggest.

- A genotype’s fitness includes its ability to survive and produce offspring

Fitness and Environment

- A organisms fitness depends on the environment in which the organism lives.

- The fittest organism during an ice age, for example, is probably not the fittest organism once the ice age is over.

What Natural Selection is NOT!

- First, natural selection is not all-powerful; it does not produce perfection.

- Second, it is mindless and mechanistic. It has no goals; it’s not striving to produce “progress” or a balanced ecosystem.

So what does it all mean?

- The most fit genotype will be naturally selected over time to be the most frequent genotype.

- Evolution is the change in allele frequncy of a population over time.

Artificial Selection

- people (instead of nature) select which organisms get to reproduce.

- Farmers and breeders allowed only the plants and animals with desirable characteristics to reproduce.