

# Natural vs Artificial Selection

EQ: How are natural and artificial selection similar and different?

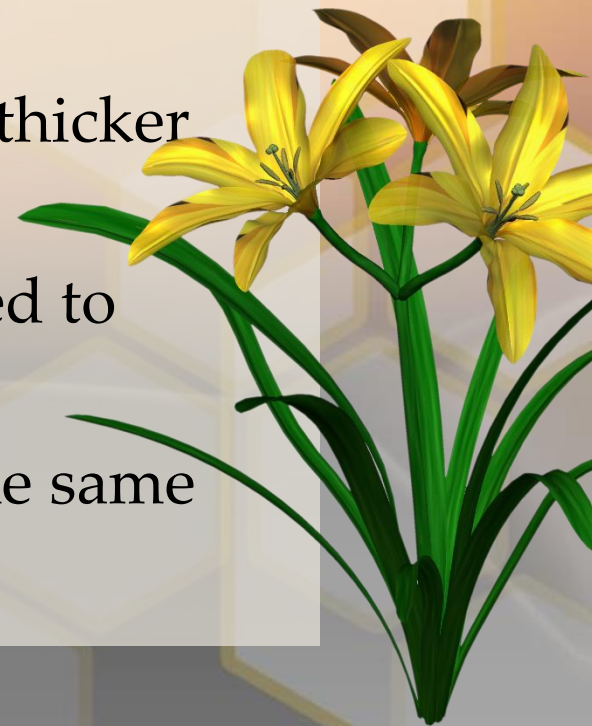


# Natural Selection

**Natural Selection** – the process by which traits become more or less frequent in a population, depending on the advantage or disadvantage they offer for survival and reproduction.

Darwin's idea came from 3 basic observations:

- Organisms of the same species exhibit variations (faster, thicker fur, bigger horns, etc.)
- All organisms produce many offspring, more than needed to replace themselves
- Although population size can vary, most are generally the same





# Natural Selection

From his observations, Darwin realized that most organisms that are born, fail to reproduce.

- Only organisms with characteristics that help them survive can breed
- Pass traits on to offspring
- Differences from parent to offspring can be small, but build up over time
- Through these changes, species become better adapted

Darwin realized this process happens everywhere in nature, and so named it Natural Selection





# Natural Selection

- Natural Selection is a continuous process
- The better adapted to conditions an organism is, the more likely it is to reproduce and pass on those traits
- Each successful minor change produces better versions of effective/complex structures





# Artificial Selection

Artificial Selection – selective breeding of plants and animals by humans

In his studies, Darwin began talking to farmers and animal breeders

Learned that organisms with specific desirable traits would often be bred together

Ex: plants producing largest fruit crossed with those that best resisted cold weather. Offspring could be both cold resistant and produce large fruit.





# Artificial Selection

Darwin recognized that this process was like Natural Selection, but humans made the decisions rather than nature.

Used these findings to argue and show that different organisms shared common ancestors

- Crossed different breeds of pigeon, selecting for a variety of traits
- Noticed that all of the young still resembled one type
- Concluded that was their common ancestor

Artificial selection gave Darwin a way to model the process of Natural Selection

