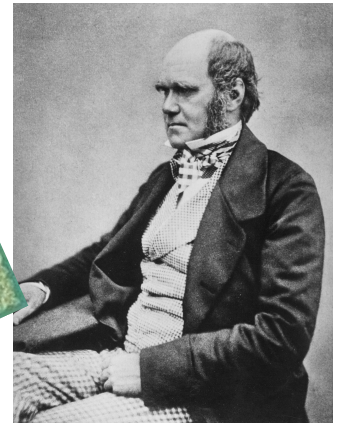
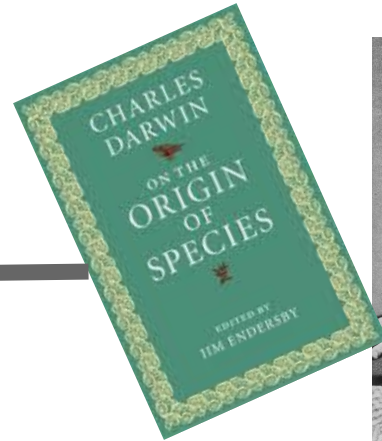
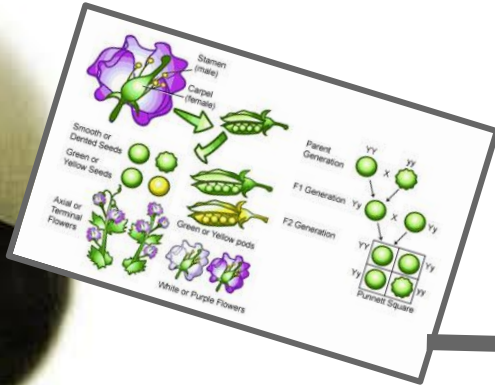
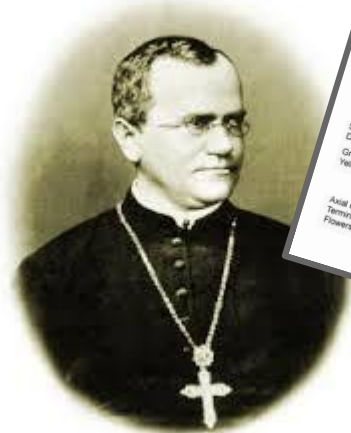


CHAPTER 16.1: GENES & VARIATION

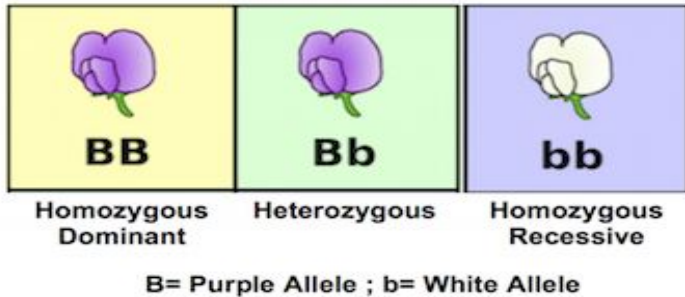
Darwin had no idea **how** heritable traits pass from one generation to the next.

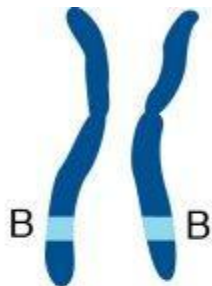
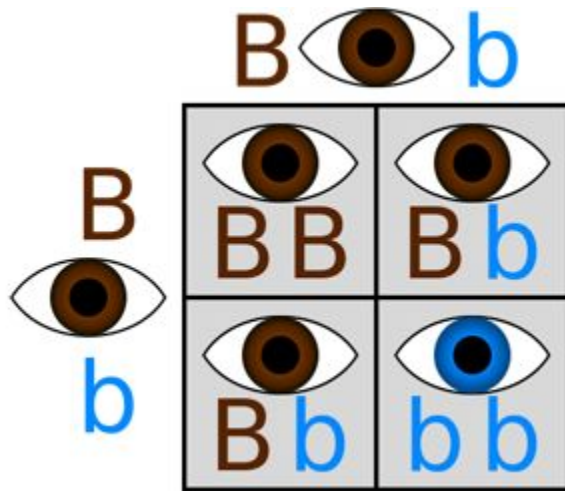
In the 1930's, evolutionary biologists connected Darwin and *Mendel's* work to further understand natural selection.



What we already know about genetics & inheritance:

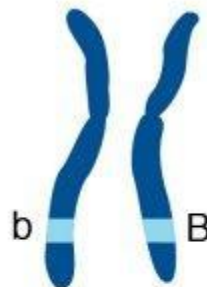
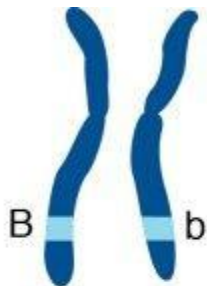
- Genes typically have two alleles
- Some genes are controlled by multiple alleles
- Some traits are *visible* (physical characteristics)
- Some traits are *invisible* (behavioral or biochemical)
- Traits can be homozygous dominant, heterozygous, or homozygous recessive





Homozygous

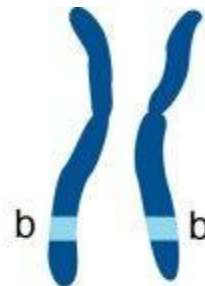
BB



Bb

bB

Heterozygous



Homozygous

bb

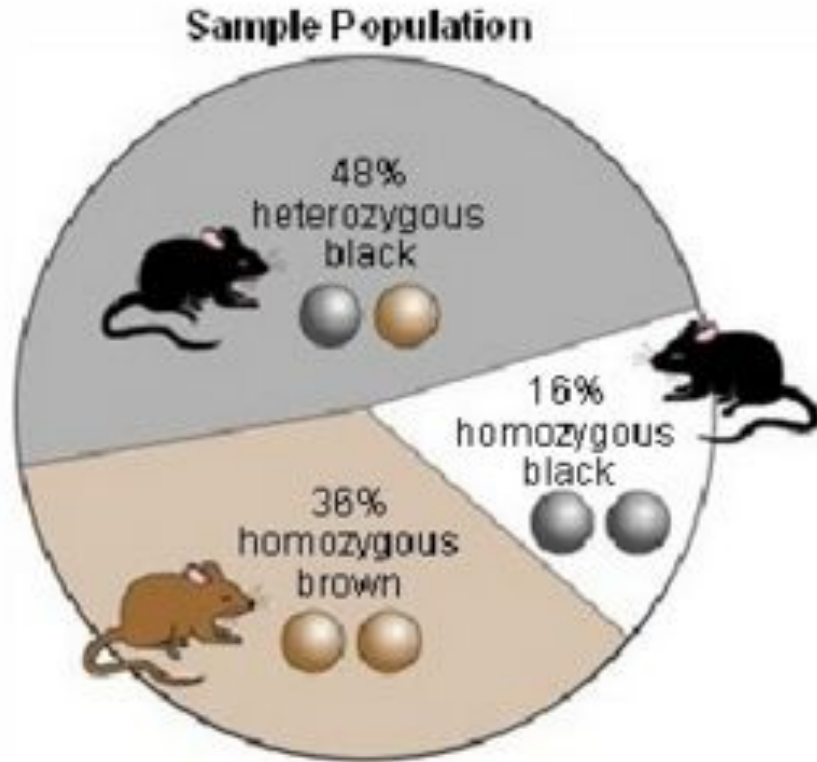
Population: a group of individual organisms of the same species which interbreed



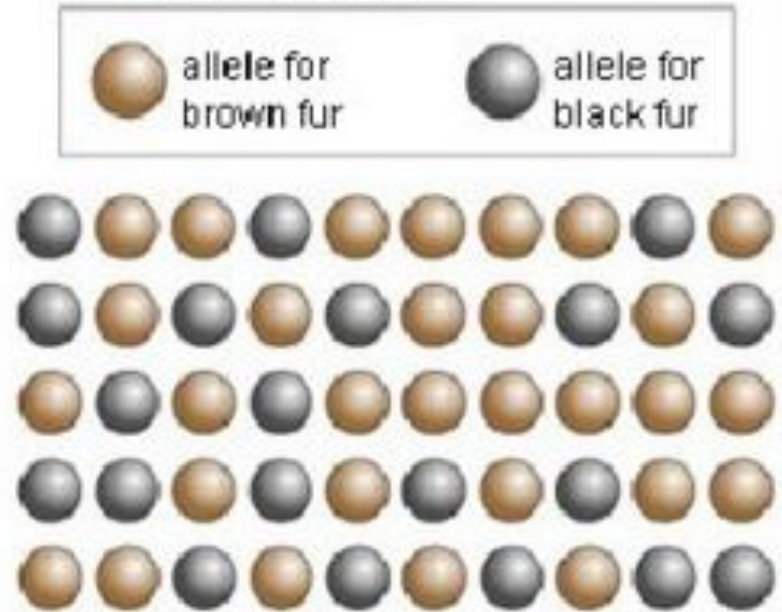
Gene Pool: consists of all genes, including all the different alleles, that are present within a population.



Relative frequency: the number of times that an allele occurs in a gene pool



Frequency of Alleles



Sources of genetic variation

Mutation is any change in a sequence of DNA.

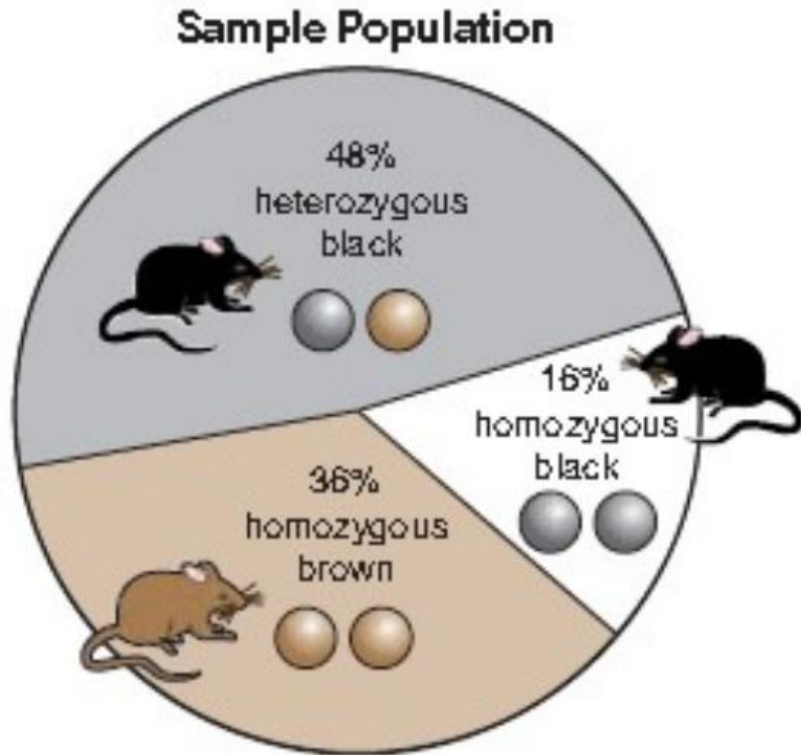
- Mistakes in replication of DNA
- result of radiation or chemicals in the environment.

Remember mutations do not always affect phenotype...

... but they can affect *fitness*,
or ability to survive



Population genetics show how evolution occurs when there is a change in the relative frequency of alleles in a population.



If the relative frequency of the dominant allele in this mouse population **decreased**, what do you think would change in this population?

[Population Genetics- Crash Course](#)