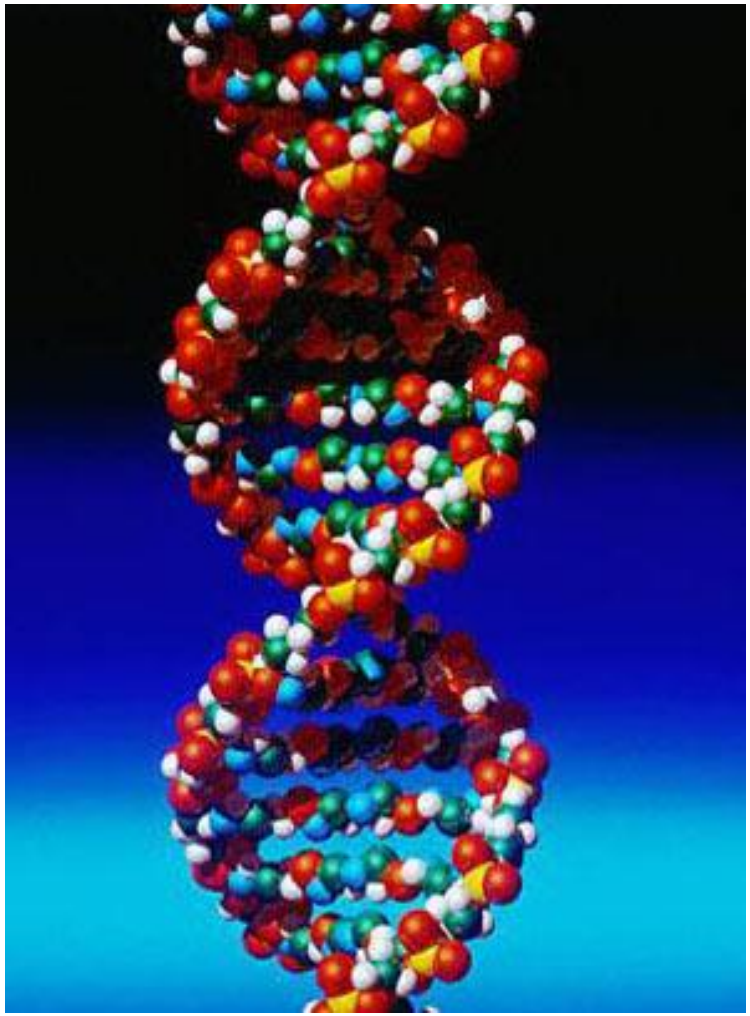
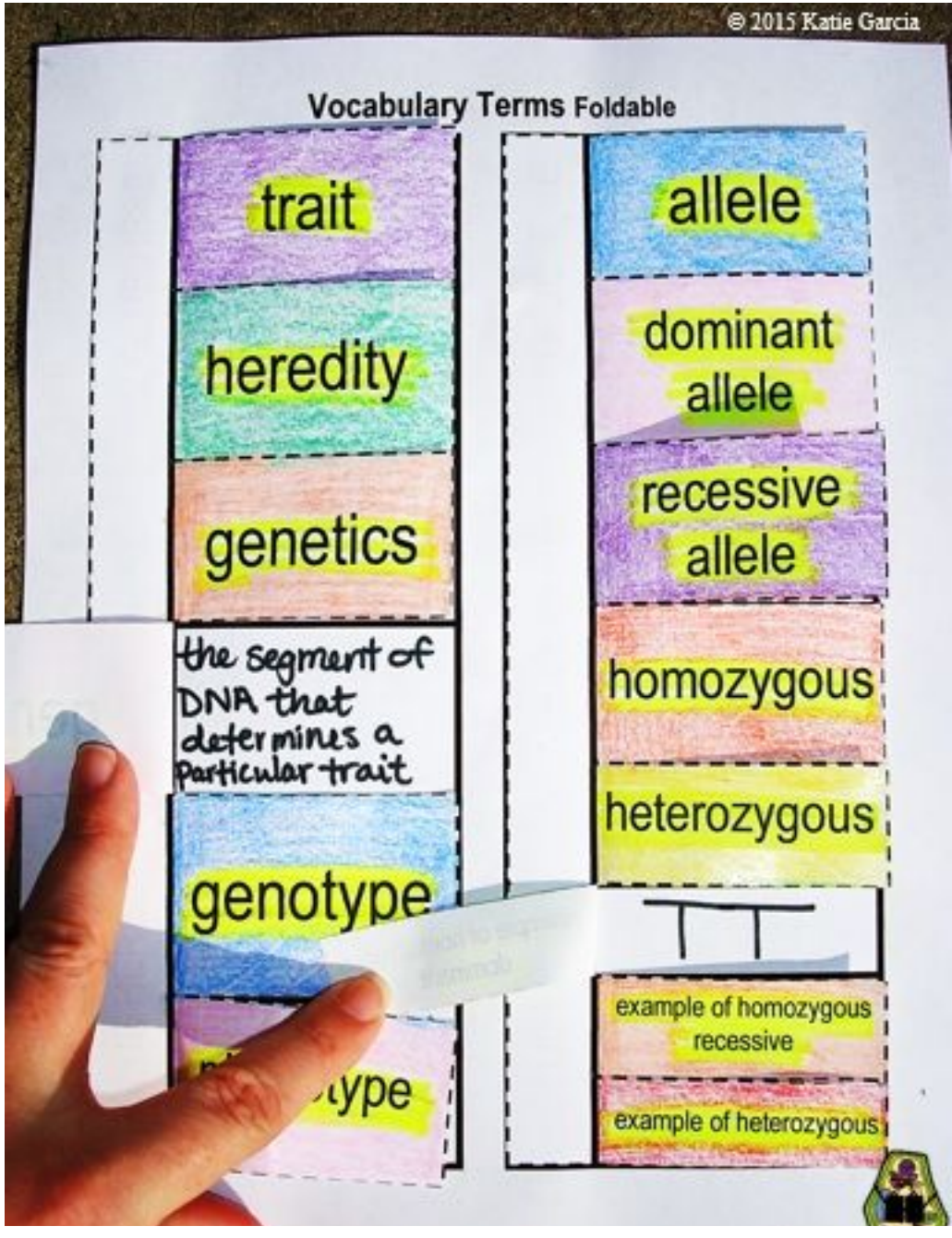
Genetics

The Study of Genes and Heredity



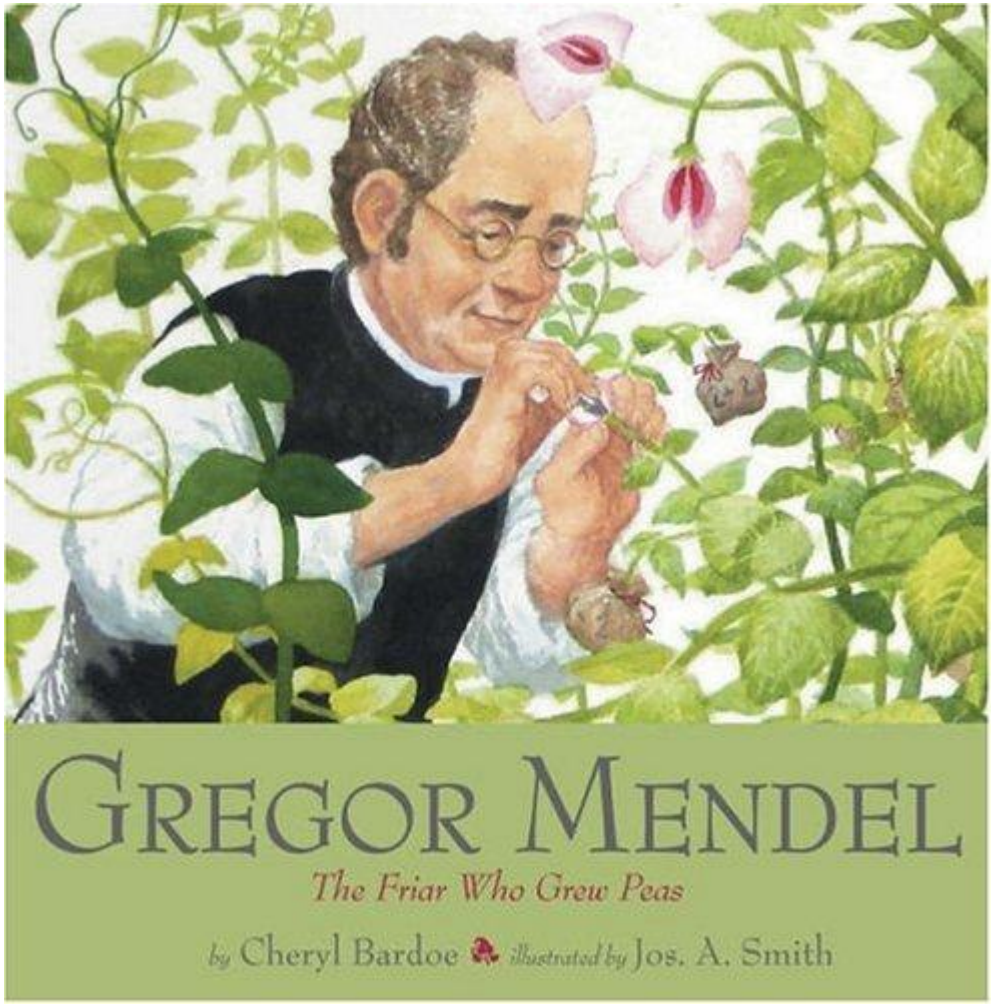
Genetics Foldable

Understanding and applying the vocabulary in this unit will determine your success with the study of genetics.



Gregor Mendel

Known as the "Father of Genetics"; studied genetics and heredity through experiments with pea plants.



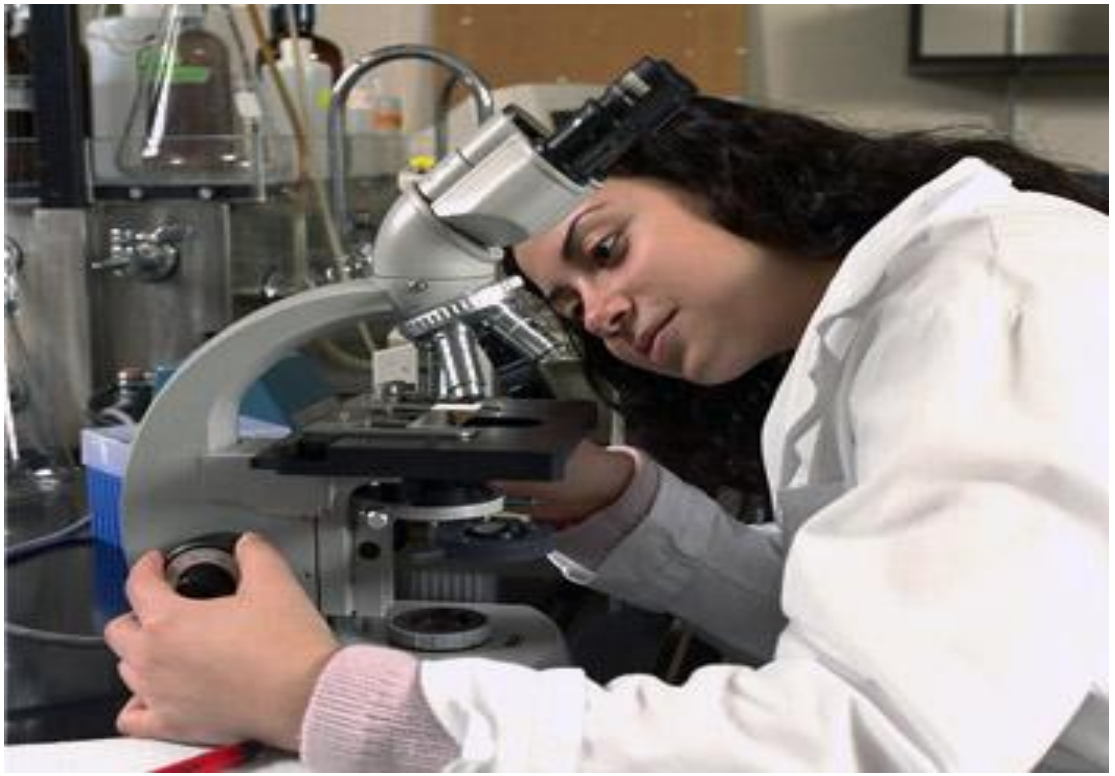
Heredity

the passing of ***traits*** from parent to offspring

Traits can include eye and hair color, nose shape, height, and body shape.

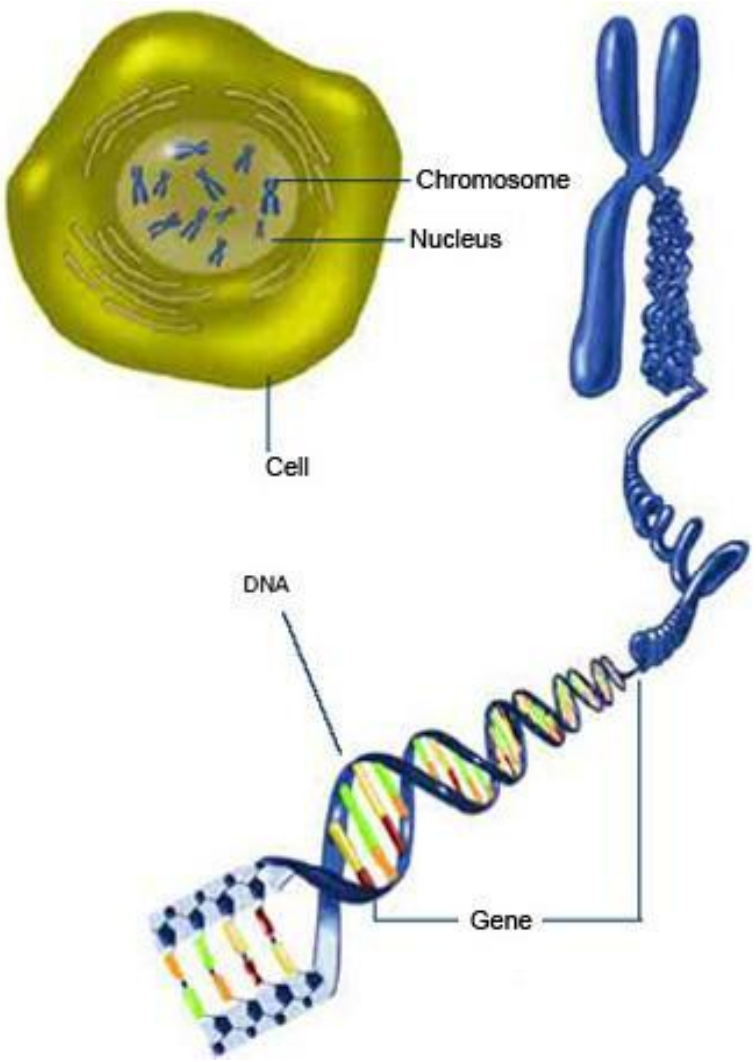
Genetics

the study of genes & heredity



Chromosome

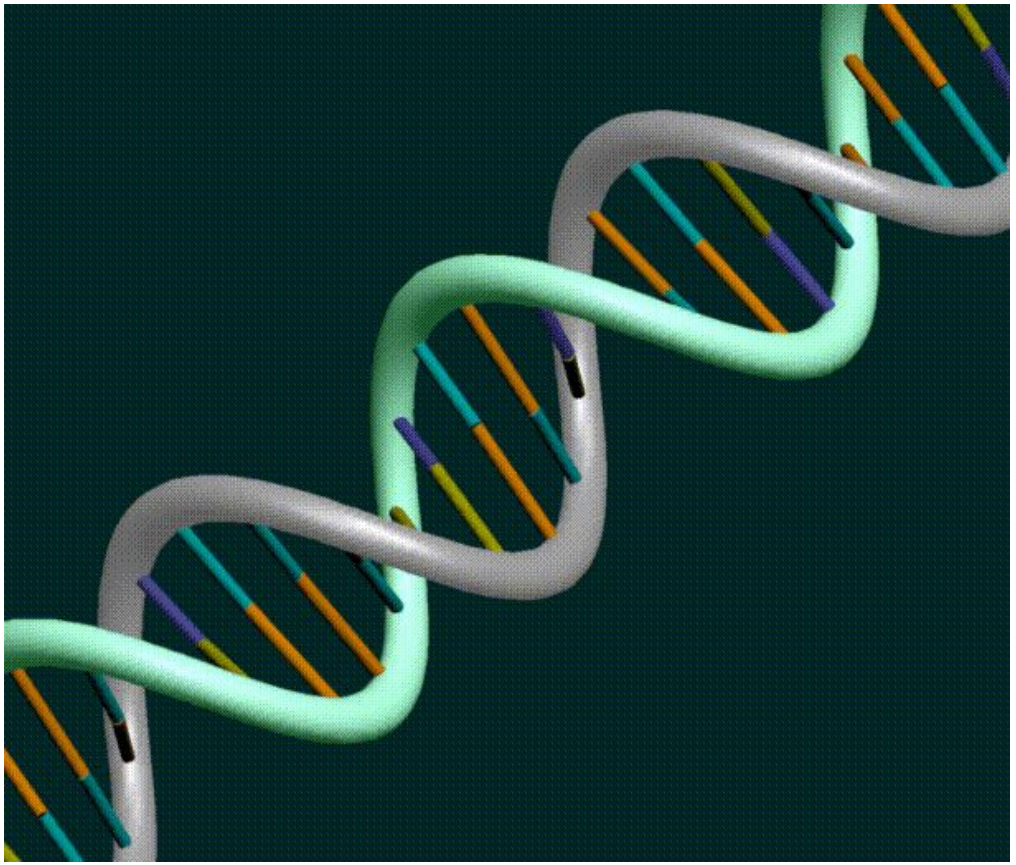
structure in the cell's nucleus that contains hereditary material; made of DNA



A chromosome looks like the letter ***"X"***. Chromosomes are found in the ***nucleus*** of a cell. Chromosomes are made up of ***DNA***. Sections of DNA that code for a specific ***trait*** are called ***genes***. Humans have 46 chromosomes (23 pairs).

DNA

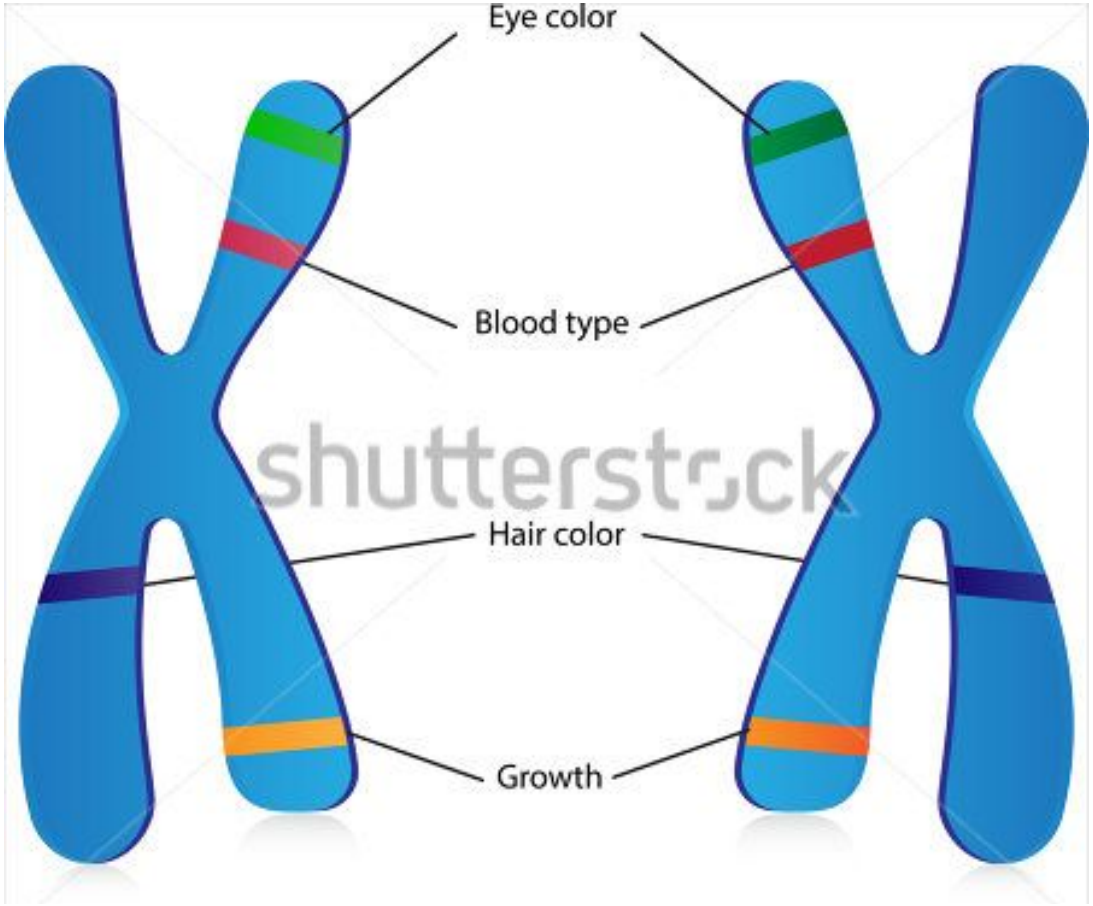
found in the cell's nucleus; carries genetic information.
(Deoxyribonucleic acid)



Under a microscope, DNA appears to be coiled very tightly in a chromosome in order for the chromosomes to fit inside the nucleus.

Gene

Part of a chromosome that controls inherited traits

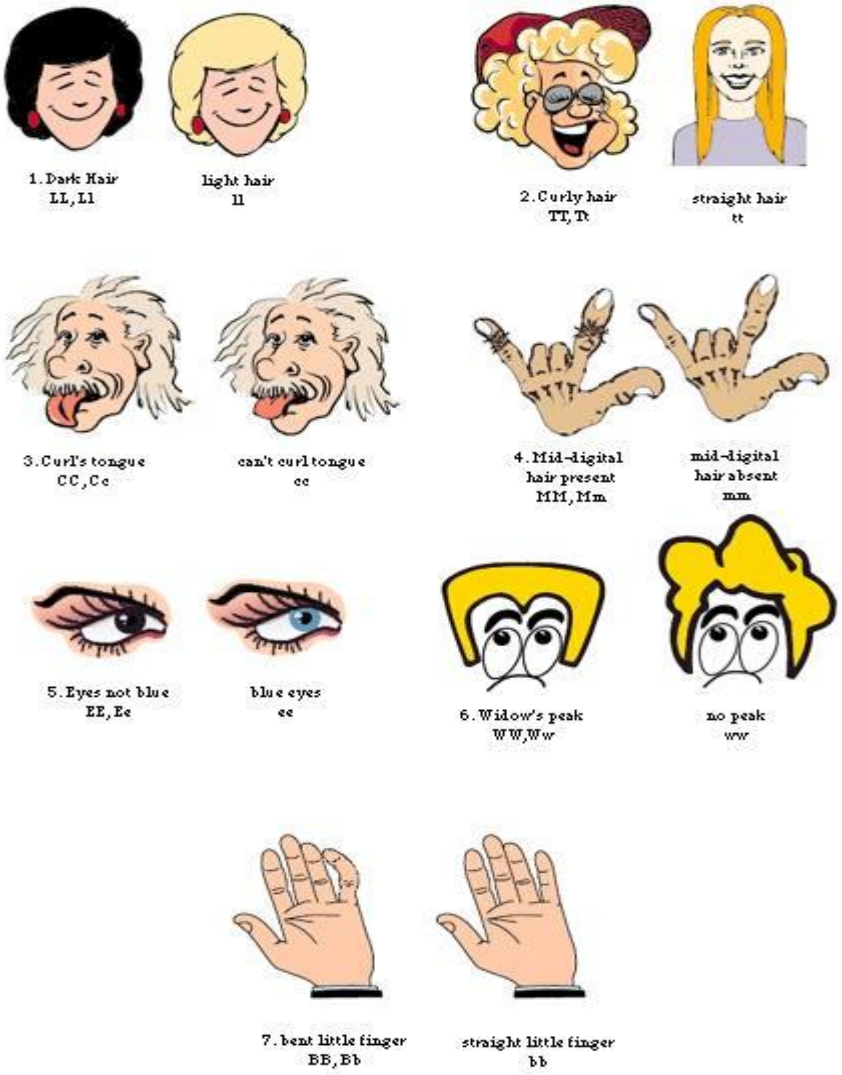


A gene is a section of DNA that codes for a specific trait

Trait

a characteristic that makes an organism unique; can be acquired or inherited.

Inherited traits are traits that you are born with such as eye color and hair color. Acquired traits are traits that you have after you are born such as tattoos or ear piercings.



Allele

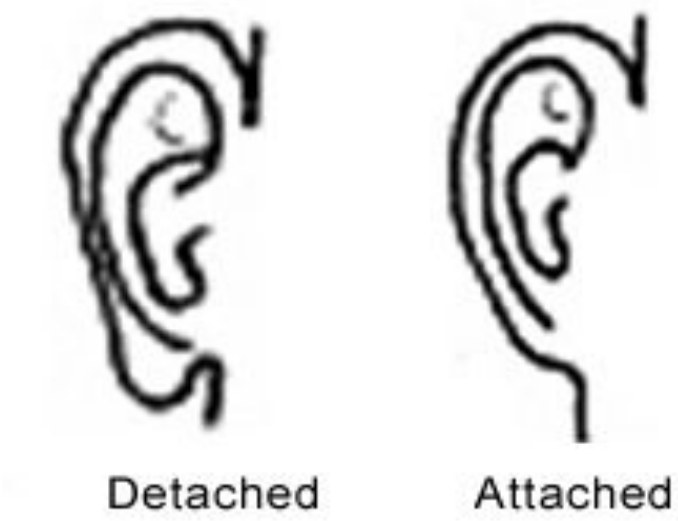
One of the 2 options of a gene

You inherit one allele from mom and one from dad.

Allele Pairs	
BB	Homozygous
bb	Homozygous
Bb	Heterozygous

Dominant

Strong alleles that hide others; represented by a capital letter



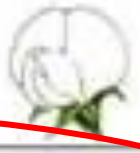
Detached earlobes are the dominant allele. Attached earlobes are the recessive allele.

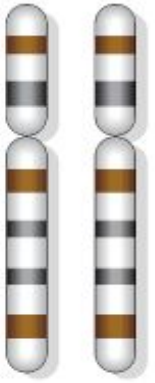
Recessive

Weak often hidden allele; represented by a lowercase letter

Phenotype:

the way an organism looks or behaves

		
Phenotype:	purple flower	white flower
Genotype:	AA or Aa	aa



Genotype

Codes for

Phenotype

The phenotype is the physical appearance of an organism. Remember the "***ph***" in physical and the "***ph***" in phenotype.

Genotype

the genetic make-up of an organism

Every organism, including you, has a genotype. The genotype determines what traits the organism will possess. A genotype is represented capital or lowercase letters.

		
Phenotype:	purple flower	white flower
Genotype:	AA or Aa	aa

Heterozygous

an organism that has ***two different alleles*** for a trait

T t

Alleles are represented by letters. Heterozygous alleles are represented by a capital letter and a lower case letter. This is to show the two different alleles.

Homozygous

an organism that has ***two of the same alleles*** for a trait

T T

t t

Alleles are represented by letters. Homozygous alleles are represented by two capital letters ***OR*** two lower case letters.

Purebred

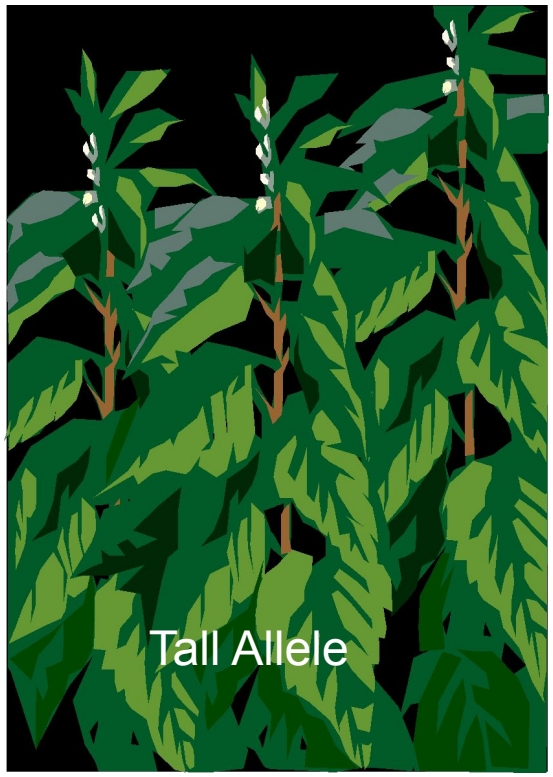
Organism that possesses the same traits generation after generation; homozygous

This is a picture of a purebred Yorkshire Terrier. This Yorkie's traits are passed down from generations of purebred Yorkies. A purebred organism has never been bred with an organism of a different genotype.

TT, tt

Hybrid

an organism that receives different genetic information, or different alleles, from each parent; heterozygous



Tt

Punnett Squares

a tool used to predict the probability of having offspring with certain traits