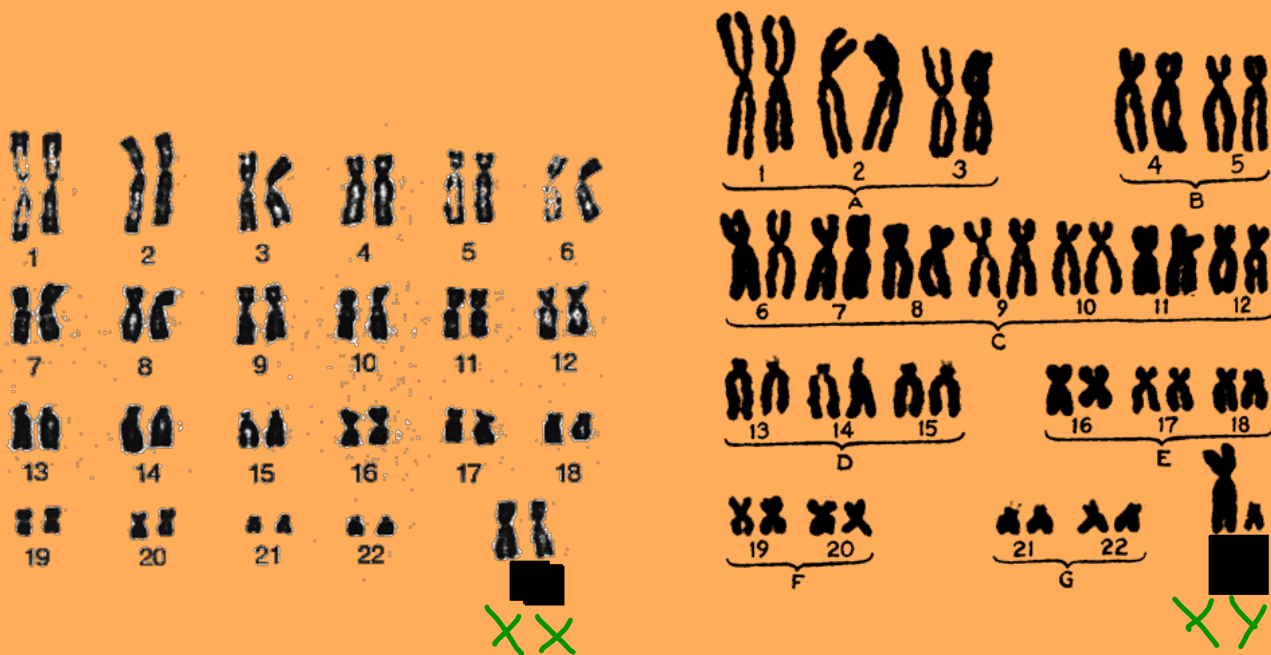


## Human Heredity

- When scientist want to study chromosomes they need to look at cells that are undergoing mitosis.
- At this time the chromosomes become condensed and easier to see under the microscope
- A picture is taken of the chromosomes and then the chromosomes are cut out of the picture and arranged in homologous pairs. This arrangement of chromosomes is called a karyotype chart.

Which is the karyotype of a boy?



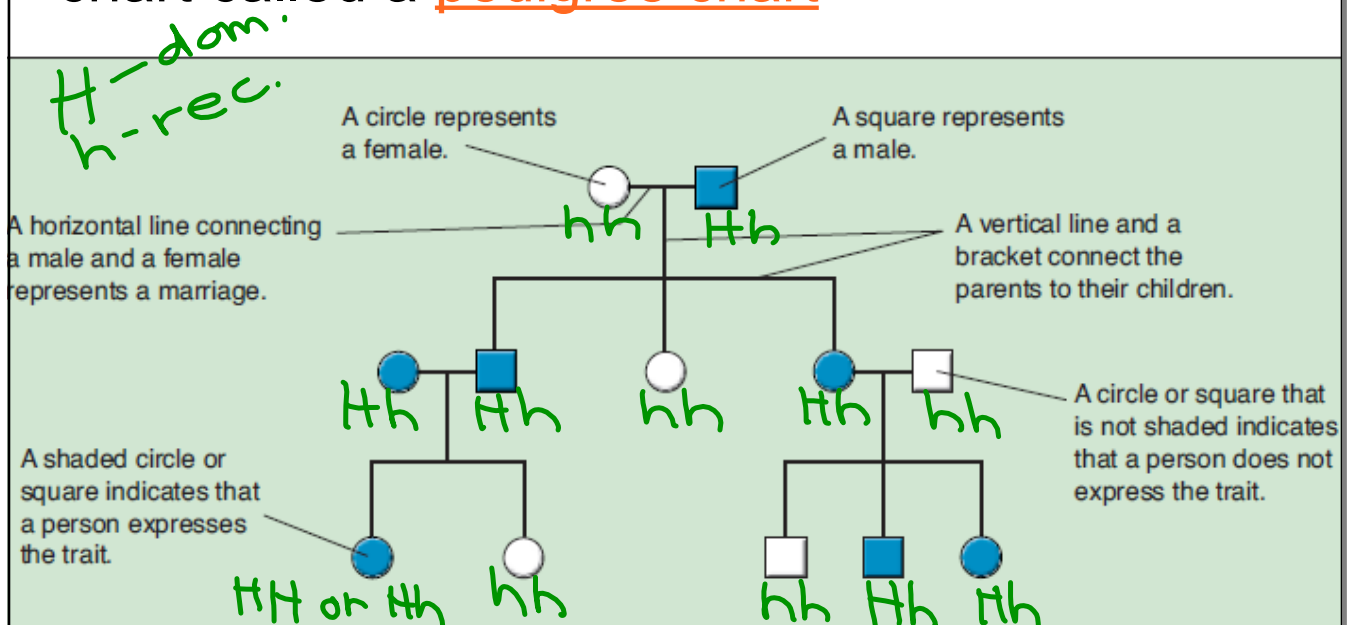
1 pair of sex chromosomes

22 pairs of autosomal chromosomes

## Human Genome Project

- involved in analyzing the human gene sequence
- began in the 1990's and by the earlier 2000's a copy of the human genome was complete (about 6 billion base pairs)
- gene therapy = replacing or repairing faulty genes = very new technology
- functioning gene is attached to a virus
- virus enters cell/nucleus and attaches to a chromosome/gene and replaces faulty part with a new gene
- is this ethical?
- is curing diseases OK?
- how about creating a perfect??human

- to study the passing of traits from 1 generation to the next, biologists use a flow chart called a pedigree chart



\*sometimes unshaded expresses the trait

Do a count to see what occurs most often - shaded or unshaded  
which ever shows up most represents the dominant trait

- this chart represents the trait of a lock of white hair just above the forehead
- the white forelock is a dominant trait
- based on this information determine the genotypes of each person