

- The chromosomes are arrested in the metaphase stage of mitosis, photographed and organized
 - Humans have
 - Two different sex chromosomes, X and Y (1 pair)
 - 22 pairs of matching chromosomes, called **autosomes**
 - This makes up the 23 pairs (or 46) chromosomes in each somatic (or body) cell
 - The sexual life cycle requires an alternation of diploid and haploid cells
- The Process of Meiosis
 - In meiosis
 - Haploid gametes are produced in diploid organisms
 - Two consecutive divisions occur, meiosis I and meiosis II, preceded by interphase
 - Crossing over occurs
 - Meiosis I – Homologous chromosomes separate
 - Crossing Over
 - Independent assortment
- When Meiosis goes awry
 - Down's Syndrome
 - Is a condition where an individual has an extra chromosome 21
 - Also called trisomy 21
 - The incidence increases with the age of the mother
 - Accidents during meiosis can alter chromosome number
 - In nondisjunction
 - The members of a chromosome pair fail to separate during anaphase
 - Gametes with an incorrect number of chromosomes are produced
 - Nondisjunction also affects the sex chromosomes.
 - Ex. Klinefelter's Syndrome: XXY
 - A male- sterile
 - Small testes, slightly enlarged breasts
 - Ex. Turner's Syndrome: XO
 - Female- sterile
 - Sex organs don't mature, extra skin at base of neck
 - The only known example where having 45 chromosomes is not fatal

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