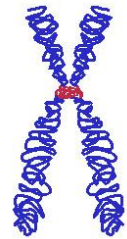


Vocabulary: Human Karyotyping



Vocabulary

- **Autosome** – a chromosome that is not a sex chromosome.
 - Humans have 22 pairs of autosomes.
- **Chromosomal disorder** – a type of genetic disorder that involves missing or extra copies of chromosomes or a change in chromosome structure.
 - Chromosomal disorders are typically caused when an error occurs during cell division and the chromosomes do not separate properly.
 - Down syndrome is one of the most common chromosomal disorders. It affects approximately 1 out of every 800 babies.
- **Chromosome** – a rod-shaped structure within a cell's nucleus that is composed of DNA and proteins.
 - Chromosomes are passed from one generation to the next.
 - All of the chromosomes in a human cell contain around 6 million nucleotides and 30,000 genes.
 - Chromosomes exist in duplicated or unduplicated forms. A duplicated chromosome is shown at right. The *Human Karyotyping* Gizmo shows unduplicated chromosomes.
- **Genome** – the complete set of genetic material possessed by an organism.
- **Karyotype** – a picture of a cell's complete set of chromosomes grouped together in pairs and arranged in order of decreasing size.
 - Karyotypes are used to detect chromosomal disorders and to study the relationship between different species.
- **Sex chromosome** – one of two chromosomes that determine an individual's sex.
 - In humans and most other mammals, the two sex chromosomes are the X chromosome and the Y chromosome. Females have two X chromosomes (XX). Males have one X chromosome and one Y chromosome (XY).
 - Not all animals have the same sex chromosomes as humans. For example, the sex chromosomes of birds and some lizards are the Z and W chromosomes. Female birds are ZW, and male birds are ZZ.



A duplicated chromosome