

# Karyotyping

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# What is karyotyping

- \* A karyotype is a picture of all 46 chromosomes in a cell.
- \* During the metaphase step of mitosis, the chromosomes of a cell become visible. At this time, a scientist photographs these chromosomes in their random order.

# How They Are Arranged

- \* Next, the photograph is uploaded onto a computer where they are artificially stained for easy matching. Once colored, the computer matches the chromosome pairs, arranges them in decreasing size, and creates a karyotype.

# Banding

- \* The dye used in karyotypes makes the banding pattern on each chromosome visible. These bands can be used to determine the origin of each chromosome (whether they come from the mom or dad).

# Why Karyotype

- \* Scientists can determine if extra chromosomes are present within a person's cells. An extra chromosome indicates that the person has a genetic disorder.

\* For example, if a karyotype shows an extra chromosome #21 that person has Down's Syndrome.

# Common Disorders

Name of Disorder	What is Looks Like
Patau Syndrome	Extra chromosome 13
Edward Syndrome	Extra chromosome 18
Down Syndrome	Extra chromosome 21
Klinefelter Syndrome	XXY