

# Karyotypes, Chromosomes, and Genes

Apr. 9

**Karyotype:** a 'picture' of someone's chromosomes

In the human genome, there are 46 chromosomes (23 pairs):

↳ 44 are **autosomal chromosomes**: are basically the same for everyone

↳ 2 are **sex chromosomes** that determine biological/assigned sex:

- XX: female
- XY: male

Humans have 23 pairs of  
**homologous chromosomes**:

Homologous chromosomes:

→ same length

→ same centromere location

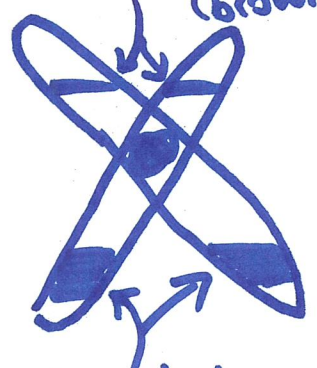
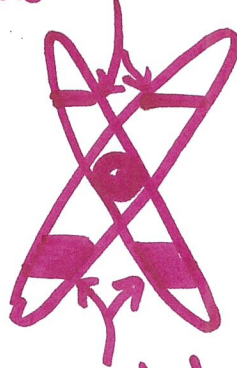
→ same genes at the same locations

- **Gene**:  
a part of

DNA that is responsible for a trait (e.g. hair colour, height, hair texture)

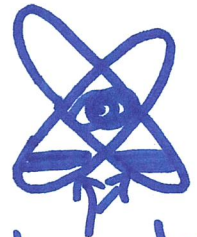
- **Allele**: a version of a gene (e.g. brown/black/blonde/red hair colour alleles)

hair colour (black) hair colour (brown)



height (short)

height (extremely tall)



hair texture (curly)

hair texture (curly)