Prokaryotes

- ➤ Some prokaryotic cells have *plasmids*
 - 0 Small loops of DNA with some extra copies of genes
 - Not connected to the main DNA thread 0
 - 0 Replicates independently of the chromosomal DNA
 - It is not required by the cell under normal conditions 0
 - It mainly helps the cell *adapt* to unusual circumstances
- > Prokaryotes have only one single, circular DNA thread
 - Thus only one chromosome
 - Divided through binary fission 0
 - Only one parent

Eukaryotes

- > When a cell is not dividing, DNA is wrapped around histones forming a structure called *chromatin*
 - The whole structure with all nucleosomes 0
- When the cell prepares for cell division, DNA is condensed every into chromosomes
 - Carry information necessary
- > Most eukaryotes have mult pepairs of chromes
- some will carry plifferent set of instructions for the cell Each
 - Dt per human cell containse, Pars of chromosomes, so totally 46 chromosomes
 - They are said to be *homologous pairs*, meaning that they are similar in 0 shape and size and they carry the same genes, but different alleles
- > The chromosomes are shown doubled, due to replication
 - Identical copies which will be pulled apart 0
- > While the sister chromatids are attached, they are part of a single chromosome

| | Prokaryotes | Eukaryotes |
|-----------------------|----------------------------------|--|
| Number of chromosomes | 1 | 2 or more (some can have 1, like male bees and wasps) |
| Shape | Circular | Linear |
| Histones | Not present, except archaeans | Present |