

# Bacteria Domain

An organism's collection of DNA is called a **genome**. Each cell has a copy of the full genome. A genome usually refers to a particular organism or gene and how it is different in each organism. The size of genomes varies greatly across the domain of life, although the most variation in genome size is found in the eukaryotic organisms between 12 million to 16 billion base pairs.

Average Genome size of Bacteria  
4.7 million base pairs

Average Genome size of Eukaryotes  
12 billion base pairs

Plasmid is a double stranded circular DNA molecule. It's smaller and separates from chromosomal DNA. It can be found in cells in all three kingdoms: bacteria, archaea and eukaryote



# Archaea Domain

DNA is full of gaps! Some parts of DNA code for useful things like proteins and functional RNA. These are called genes, and are made of genes. The bits in called introns, introns have regulatory functions, they help the cells know when to make or not making more proteins and RNA. But introns also include repeat sequences that appear to have no use, some of these are called transposable elements, they can copy and insert themselves randomly in the genome.



# Animal Kingdom



How can humans and mice be 95% alike? Because 95% of their genes and introns are homologous, although that sequence is not identical. They share common function but might differ for the difference in appearance is that each gene is regulated differently in each organism. This helps us know that humans and mice are very closely related.

There is no reason to suspect it is evenly spread! Some fossil? 3 different species of fish in the records of the Cambrian, he realized that one lineage diverges off the tree and branched to three species. The genes include many introns and the more the slightly different, some longer or smaller or with slightly different reads. The particular environment in each record showed which species were most likely to be natural selection, and whether the original population could not detect species as different as the birds above!

Genes from that variety was essential for species to undergo through natural selection. As the species branched where the variation came from. There was more than inheritance and reproduction happen in or other variation can be selected.

# Eukarya Domain



# Protist Kingdoms



Organisms reproduce to create offspring, passing their genetic information on to the next generation. This is called **inheritance**. In sexual reproduction, a parent organism or self creates offspring with the same DNA. In asexual reproduction, DNA from two parents is combined in their offspring. In this case, the offspring might look different from both parents by having characteristics from both.

# Plant Kingdom



**Hybridization** is when two different species or groups are able to produce offspring, combining the characteristics of both to create offspring that are thought of as hybridization. This is similar to the creation of many plants, including with sunflowers, combining both to be the offspring of the species and creating entirely new species.



# Fungi Kingdom

Scientists don't know what to do with **obscure** organisms for the most part. There are also those who study organisms because they affect other parts, and report their DNA into the field and see that bits of new DNA or of being things, sometimes it appears to have help the cell to get knowledge of various molecules. It challenges the idea that DNA only passes between organisms to inheritance how much DNA **horizontal gene transfer** influences evolution?



Octopuses and humans both have eyes - does that mean they share a recent common ancestor? Actually, no. Scientists compare the development of organisms to learn understand how closely related they are, but look can be deceiving. The answer that explains the octopus and amphibians is the human, separated 1.2 billion years ago before either type had eyes for the eyes of octopuses and the eyes of humans developed independently of one another. **convergent evolution**