CONCEPT: GENOMIC COMPARISON

● Comparing genomic sequences provide insight into evolutionary changes

□ Genome sequences of two species differ by the _____ they have separately evolved

- *Purifying selection* eliminates individuals carrying mutations effecting genes with important functions

- **Conserved sequences** are common between organisms, and therefore are critical for a function (5%)

- **Synteny** describes stretches of genes whose chromosomal order is conserved

□ **Genomic size** reflects _____ of DNA addition or loss

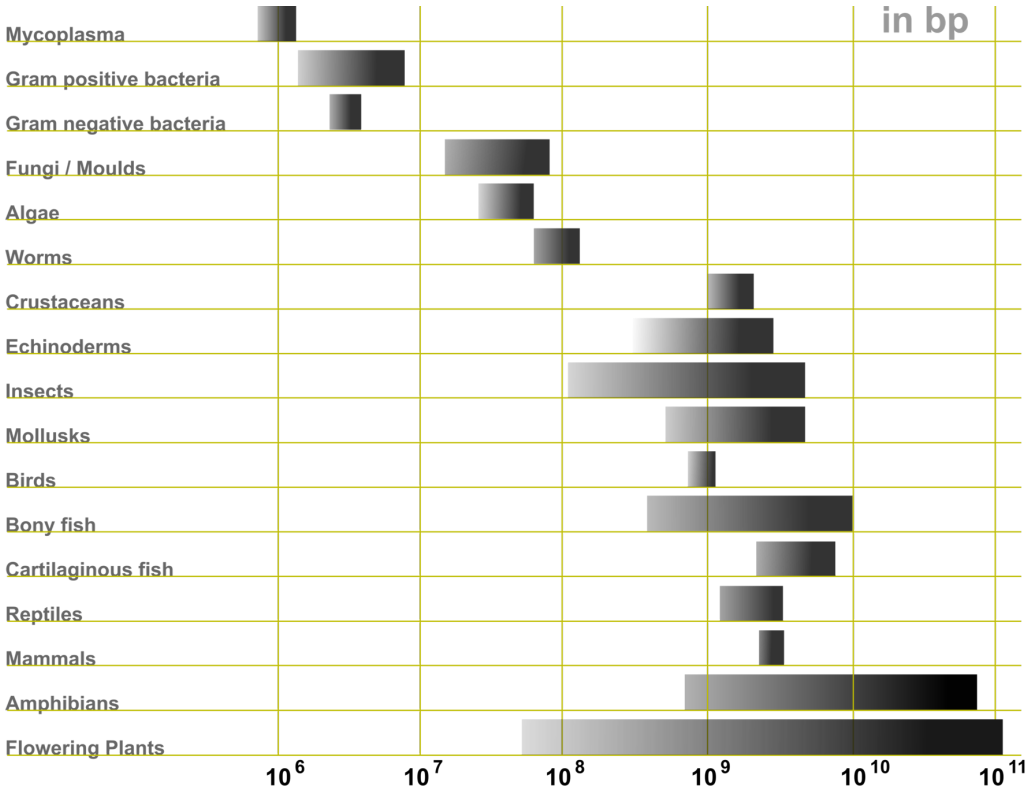
- Doesn't provide information on the number of genes, or organism complexity

- Genomic size depends on balancing the rates of DNA addition and loss

□ Phylogenetic trees are constructed using DNA sequences to trace relationships between organisms

- Rapid changes occur in introns, slower changes occur in conserved genes with critical functions

EXAMPLE: Comparing the genome size of various organisms



PRACTICE:

1. True or False: The larger the genomic DNA sequence is, the more complex the organism is.
    a. True
    b. False

2. Stretches of chromosomes where the gene order is conserved among different species is called what?
    a. Conserved Sequences
    b. Synteny
    c. Purifying Selection
    d. Conserved Selection