Chapter 2

* **Common cell structures include**
* Cell membrane – separates the interior of the cell from its outside environment
* Cytoplasm – houses organelles in Eukaryotes. Main body of the cell, mostly water.
* DNA – contains hereditary information, and directs cell activities
* Ribosomes – organelles responsible for the making proteins

Classification of cells

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| --- | --- |
|  | Features |
| **Prokaryote** | * Usually unicellular * Organelles are not membrane bound * Most are small * Ribosomes are scattered in the cytoplasm * Single DNA chromosome called the **Genophore** * Nucleoid not contained in Nuclear membrane * Contains cell wall * Some contain Flagellum or Pili to move * Pili can transfer DNA between organisms |
| Bacteria | * Diverse metabolic system makes them adaptable * Can extract energy by photosynthesis or by reducing inorganic compounds * Gram-positive = Thicker cell walls * Gram-negative = Thinner cell walls * Walls made of **Peptidoglycan** |
| Archaea | * **Extremophiles** – live in extreme conditions * Can do this due to their cell membranes mainly consisting of lipids. This allows better adaptivity and protein movement in and out the cell * This effects permeability |
| **Eukaryote** | * Larger and more complex * Contain external and internal membranes * Can sexually or asexually reproduce * Divided into four groups – Protista, Fungi, Plantae, and Animalia |
| Animal/plant | * Membrane bound Nucleus * Mitochondria for cellular respiration   Differences   * Plant – cell walls * Plant – Vacuoles which store minerals and nutrients and maintain cell pressure * Plant – Chloroplasts which are the site of photosynthesis |

Comparison of Prokaryotic and Eukaryotic cells

* Prokaryotes – organelles not membrane bound
* Prokaryotes – No Nucleus, but rather a nucleoid
* Prokaryotes – Cell walls
* Prokaryotes – smaller

