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* *Prokayotic* cells have do not have a nucleus (bacteria) while *eukaryotic* cells do.
* *Phospholipids* are the basic components of biological membranes, including plasma membranes of prokaryotic and eukaryotic cells.
  + *Ampiphatic* molecules – containing both water-insoluble (hydrophobic) hydrocarbon chains (tails) joined to water-soluble (hydrophilic) head groups that contain phosphate.
  + In water, phospholipids spontaneously aggregate into a bilayer with the phosphate-containing head groups on the outside in contact with water while the hydrocarbon tails in the interior in contact with each other.
  + The bilayer forms a stable barrier or enclosure that separates the interior of the cell from its external environment.
* *Adenosine 5’-triphosphate ­* (ATP)🡪 all cells use ATP as their source of metabolic energy to drive the synthesis of cell constituents and carry out energy-requiring activities (such as movement).
* *Glycolysis* 🡪 the anaerobic breakdown of glucose to lactic acid, with the net energy gain of only 2 molecules of ATP.
  + (generates 2 ATP)
* *Photosynthesis* 🡪 uses energy from sunlight to synthesise glucose from and , while releasing as a by-product.
* *Oxidative metabolism* 🡪 The highly reactive released by photosynthesis breaks down glucose to and , yielding much more energy compared to glycolysis.
  + (generates 36-38 ATP)
* Present-day cells use oxidative reactions as their principal source of energy due to this efficiency advantage.