Ch 6.6

**Cytoskeletons**: Network of fibers / Extending throughout the cytoplasm.

* Note: Bacteria cells h/ cytoskeletons.
* In eukaryotic cells the cytoskeleton organizes the structure and activities of the cell.
* Has 3 main molecular structure: *Microtubules*, *Microfilaments*, *Intermediate Filaments*.
* Functions
  + Gives Mechanical Support
  + Maintains Shape
  + Anchors Organelles
  + Can be disassembled and reassembled easily r/ changes shape
  + Involved in Cell Mobility by providing fibers
    - Mobility Proteins move Vesicles

**Mobility Proteins**: Used to move along fibers outside and inside cell

Microtubules

* + - Thickest 25 – 15 nm
    - In All Eukaryotes
    - Made of Tubulin Dimers
      * Made of Alpha Spirals / Beta Plates
    - Are Hollow Rods
    - Support / Shape Cell
    - Are Tracks
      * Motor Proteins a/ Guide Vesicles
    - Grow from Centrosomes (Close to Nucleus)
      * 2 Centrioles Per
        + Made of 9 set of triple microtubules arranged in ring
    - Can form Flagella/Cilia
      * Can propel certain single cell organisms
      * Is found on sperm…
      * Have 9 doublet Microtubules in a ring and 2 in the Center
        + Aka. A 9 + 2 Pattern

Microfilaments / Actin Filaments

* Thin Solid Rods / 7 nm
* In All Eukaryotes
* Made from Actin Molecules
  + Actin = Globular Protein
* Double Helix
* Used in movement
  + Myosin: Protein used to contract muscles
* Amoeba/WBCs use Pseudopodia to move
  + When cell extends cellular extension to crawl on a surface
* Plant cells use Cytoplasmic Streaming / Circular flow of cytoplasm

Intermediate Filaments = Medium Sized

* Only in some Animal Cells
* More Permanent
  + Can’t disassemble/reassemble like other ones
* Sturdy
  + Because shape
  + Make up Nuclear Lamina
    - Lines Interior of Nuclear Envelope