

All the quizzes are online

Cell shapes and Sizes -

- Squamous
 - Fried egg - Flat
 - Line the esophagus and forms the surface layer (epidermis) of the skin
- Cuboidal
 - Squared egg
 - Liver cell
- Columnar
 - Columns with egg in the middle
 - Lining cells of stomach and intestines
- Polygonal
 - Bunched Fried eggs squished
 - EX?
- Stellate
 - Splatted fried egg
 - Starlike shape
 - Cell bodies of many nerve cells
- Spheroid
 - Planets
 - Egg cells
 - White blood cells
- Discoid
 - RBC's
 - In red blood cells
- Fusiform (Spindle-shaped)
 - Whicker shaped
 - Smooth muscle cells
- Fibrous
 - Worms
 - Skeletal muscle and axons (nerve fibers) of nerve cells

Cell size and basic components of a cell

- Human cell size
 - Most from 10-15 micrometers (um) in diameter
 - Egg cells (very large) 100 um diameter
 - Light microscope
 - Good but limited
 - Resolution of electron microscopes reveals ultrastructure
- Basic components of a cell
 - Plasma (cell) membrane - made from proteins and lipids
 - Forms the border of the cell
 - Intracellular face

- Inside each cell is the bottom
 - The areas below and above the brown line
 - **98% of molecules in plasma membrane are lipids**
 - **Phospholipids**
 - Phospholipid bilayer
 - Two heads that like and don't like water
 - **Cholesterol**
 - Can stiffen the membrane (make it less fluid) in spots
 - Can also increase membrane fluidity by preventing phospholipids from becoming packed closely together
 - **Glycolipid**
 - Contributes to glycocalyx
 - More carbohydrate than lipid
 - Helps catch things
 - Micro organisms
 - **Transmembrane Proteins- 2%**
 - **Membrane Proteins**
 - **Functions of membrane proteins**
 - **Transmembrane Proteins**
 - **Receptor**
 - Binds to chemical messengers such as hormones send by other cells
 - **Enzyme**
 - Breaks down a chemical messenger and terminates it's effect
 - **Ion Channel**
 - Constantly open and allows solutes to pass in the and out of the cell
 - **Gated ion channel**
 - Opens and closes to allow solutes through only at certain times.
 - **Cell-identity marker**
 - Glycoprotein
 - Proteins for each cell that distinguish them
 - Cell sorting
 - **Cell-adhesion molecule (CAM)**
 - Allows cells to come together and stick
 - **Second messengers**
 - **Chemical first messenger (epinephrine) binds to a surface receptor**
 - **Receptor activates G protein (aka GTP-binding protein)**
 - G protein relays signal to **acetylase cyclase** which converts ATP to **cAMP** (second messenger)
 - **Take one molecule and binding can affect 1000s are activated**
 - **Amplification of a signal**
- **Membrane Transport**

- Plasma membrane – a barrier and a gateway between the cytoplasm and extracellular fluid (ECF)
 - Selectively permeable
- Passive transport mechanisms require no ATP
 - No energy needed
 - Filtration
 - Diffusion
 - osmosis
- Active transport mechanisms consumes ATP
 - Requires energy
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- Carrier-mediated mechanisms.
 - - Extracellular
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 - Cytoplasm
 - Extracellular fluid (ECF)