

- This selective barrier leads to the description of a membrane as a fluid mosaic
 - A high diversity of proteins
 - Cytoplasm
 - Chromosome
 - Ribosomes
- Cell Surfaces
 - Most cells secrete materials that coat their outside surfaces
 - External to the plasma membrane
 - Helps protect and support cells
 - Many cells also have structures that facilitate interactions with their neighbors
 - Cell Junctions
 - Adhesion (skin)
 - Gap (heart)
 - Tight (bladder)
- Plant cells have cell walls outside their membranes
 - Protect the cells
 - Maintain their shape
 - Keeps the cells from absorbing too much water
 - Made mostly of cellulose
- Structure and function of the nucleus
 - The nucleus is bordered by a double membrane called the nuclear envelope
 - Pores in the envelope allow materials to move between the nucleus and cytoplasm
 - The nucleus contains a nucleolus where ribosomes are made
- Ribosomes
 - Responsible for protein synthesis
 - Components are made in the nucleolus
 - Are suspended in the fluid of the cytoplasm
 - Or can be attached to the endoplasmic reticulum
- The endomembrane system
 - Several membranous organelles belong to the ES
 - Endoplasmic reticulum
 - Modifies an enormous variety of proteins that are first made on ribosomes
 - Is composed of smooth and rough
 - Smooth: Produces lipids
 - Detoxifies foreign molecules
 - Golgi apparatus
 - Partners with ER
 - Refines, stores, and distributes the chemical products of cells
 - Lysosomes

Preview from Notesale.co.uk
 Page 10 of 12

- A sac of digestive enzymes that break down
 - Proteins
 - Polysaccharides
 - Fats
 - Nucleic Acids
- Can also:
 - Destroy harmful bacteria
 - Break down damaged organelles
- Vacuoles
- Nuclear envelope

9-11

Vacuoles

- Are membranous sacs
 - Contractile vacuoles of protists
 - Central vacuoles of plants

Chloroplasts and Mitochondria

- Most of the living world runs on the energy provided by photosynthesis
- Photosynthesis: The conversion of light energy from the sun to chemical energy of sugar
- Chloroplasts are the organelles that perform photosynthesis
- Chloroplasts have 3 major compartments
 - The space b/w 2 membranes
 - The stroma: The fluid w/in the chloroplast
 - The space within grana: The structures that trap light energy and convert it to chemical energy
- Mitochondria
 - The sites of cellular respiration which produce ATP from the energy of food molecules
 - Are found in almost all Eukaryotic cells
 - An envelope of 2 membranes encloses the mitochondrion
 - An outer smooth membrane
 - An inner membrane that has numerous infoldings called cristae
- Mitochondria and chloroplasts contain their own DNA which encodes some of their own proteins
- This DNA is evidence that the mitochondria and chloroplasts evolved from free-living prokaryotes in the distant past

Cytoskeleton

- A network of fibers extending throughout the cytoplasm
- Provides mechanical support to the cell
- Maintains its shape
- Contains several types of fibers made from different proteins
 - Microtubules
 - Are straight and hollow