

Special structures help cells to communicate

- Four types of connections between cells:

Desmosomes

- Link adjacent cells to prevent tearing as organisms move
- Complexive proteins and intermediate filaments
- Animal cells only*

Tight junctions

- Make cell attachments leak-proof
- “Stitch” membranes together
- Animal cell only*

Gap junctions

- Channels that connect the cytoplasm of adjacent cells
- Hormones, ion, nutrients, and electrical signals can pass through channels
- Only in animal cells*

Plasmadesmata

- Holes in the walls of adjacent cells
- Lined with plasma membrane
- Water, nutrients, hormones, etc. passes freely between cells
- Plant cells only*
- Ex. Roots trying to pass nutrients and water up the rest of the plant

Chapter 6 Energy Flow in the Life of a Cell 09/25/2013

Energy- the capacity to do work

Work- the transfer of energy into an object causing it to move

Chemical energy- energy contained within molecules and released by chemical reactions

- Stored molecules such as glycogen and fat
- Converted to ATP and used to perform work

Potential Energy

- Stored energy
 - Chemical energy stored in bonds (ATP or sugars)
 - Electrical energy stored in a battery
 - Positional energy stored in an object like the penguin in 6.1 (gravity can pull him down, dependent on where you are placed)

Kinetic Energy

- The energy of motion
 - Light energy (Movement of photons)
 - Heat energy (Movement of molecules)
 - Electricity (Movement of electrically charged particles)
 - The movement of larger objects (Penguin)
- Kinetic energy can be transformed into potential energy and vice versa.
 - Cliff jumper
 - Photosynthesis (taking kinetic light energy and transferring it to potential energy in ATP)