**CHAPTER 5 CELL MEMBRANE AND TRANSPORT 11-16-18**

**DIFFUSION** – MOVEMENT OF PARTICLES FROM A HIGH TO LOW CONENTRATION.

THREE FACTORS THAT AFFECT DIFFUSION:

1. PARTICLE SIZE – SMALLER PARTICLES CAN DIFFUSE EASIER
2. TEMPERATURE – HIGH TEMP. = FASTER DIFFUSION
3. CONCENTRATION – STEEPER CONCENTRATION GRADIENT = FASTER DIFFUSION

**PASSIVE TRANSPORT** – MOVEMENT ACROSS MEMBRANE W/OUT ENERGY.

MOVE THROUGH LIPID BILAYER: $O\_{2}$ , $CO\_{2}$ , (SMALL NON-POLAR MOLECLUES)

**FACILITATED DIFFUSION** – PASSING THROUGH PROTEIN CHANNEL

**OSMOSIS** – MOVEMENT OF $H\_{2}O$ THROUGH SELECTIVELY PERMIABLE MEMBRANE

WATER WILL MOVE UNTIL EQUALIBRIUM IS REACHED

**HYPERTONIC** = MORE CONCENTRATED (MORE PARTICLES DISOLVED IN SOLUTION)

**HYPOTONIC** = DILUTE SOLUTION

**ISOTONIC** = CONCENTRATION IS EQUAL



**ATP (ADENOSINE TRIPHOSPHATE)**

 STORES POTENTIAL ENERGY FOR CELLULAR ACTIVITY



ATP SYNTHASE – ENZYME THAT CREATES ATP

MOVES H+ ions ACROSS A CONCENTRATION GRADIENT IN THE MITOCHONDRIA.

PLANTS – USE LIGHT ENERGY TO FORM ATP IN CHLOROPLASTS

AND RESPIRATION IN MITOCHONDRIA

ANIMALS – USE ENERGY FROM RESPIRATION IN THE MITOCHONDRIA

**3 USES FOR ATP**

1. ACTIVE TRANSPORT (EXAMPLE: SODIUM/POTASIUM PUMP)
2. MUSCLE CONTRACTIONS
3. POLYMER SYNTHESIS (MAKING LARGE MACROMOLECULES LIKE PROTEINS)

**LUCA:** LAST UNIVERSAL COMMON ANCESTOR

ALL CELLS CONTAIN:

– ATP – RNA & DNA – GLUCOSE

– PROTEINS – RIBOSOMES – MEMBRANES – ION CHANNELS