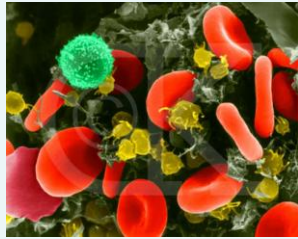


# CELLS & ENERGY

## Ch's 6&7

Need energy to:

- move
- change shape
- repair structure
- make new cell parts
- transport food
- expel wastes



Sun is ultimate source of energy

**Autotrophs** – make own food

**Heterotrophs** – eat other orgs



Energy is obtained through **Biochemical Pathways**

= linked chemical reactions

(product of one is reactant of another)

## 2 Important Pathways

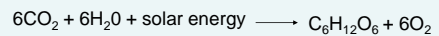
**Photosynthesis**- Light energy converted to chemical energy of organic compounds (carbs)

Autotrophs only

**Cellular Respiration**- Organic compounds broken down to create ATP

Autotrophs & Heterotrophs

## PHOTOSYNTHESIS

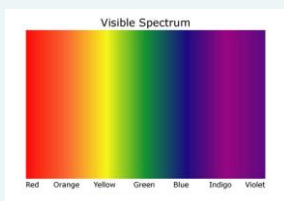


- Occurs in leaves where chloroplasts are abundant

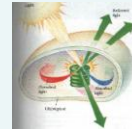


## Capturing Light Energy

•White light made of visible spectrum (different wavelengths)



- Plants contain pigments (compounds that absorb light)
- Chlorophyll – reflects green light (green leaves); uses red & blue



- Carotenoids – reflect yellow, orange, brown (fruits/flowers)



## Converting Light Energy

### 3 STAGES

1. Energy captured from light
2. Energy used to make ATP & NADPH (high energy compound)
3. ATP & NADPH used to make carbs from  $\text{CO}_2$

