



# How Organisms Obtain Energy

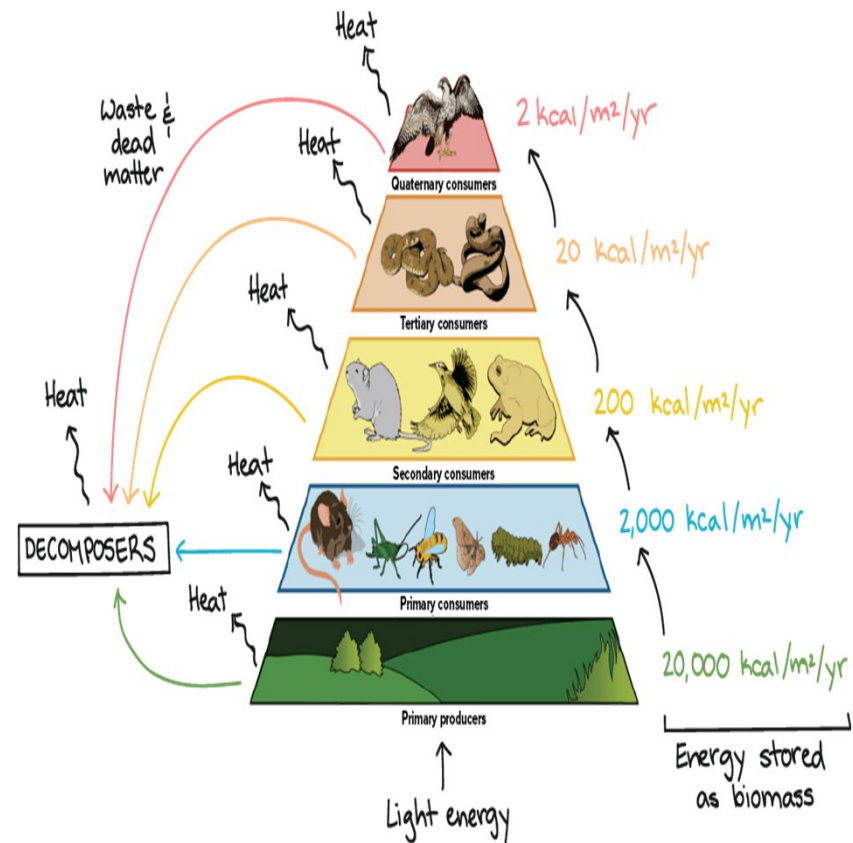
Section 8.1

# How Organisms Obtain Energy

- All cellular activities require energy
- Energy – the ability to do work
- Energy cannot be created or destroyed
  - CAN BE CONVERTED INTO DIFFERENT FORMS
  - Ex: stored energy in food is turned into chemical energy when you eat

# How Organisms Obtain Energy

- Energy cannot be converted with the loss of usable energy
  - Energy “lost” is converted into thermal (heat) energy
  - Ex: food chain or food pyramid

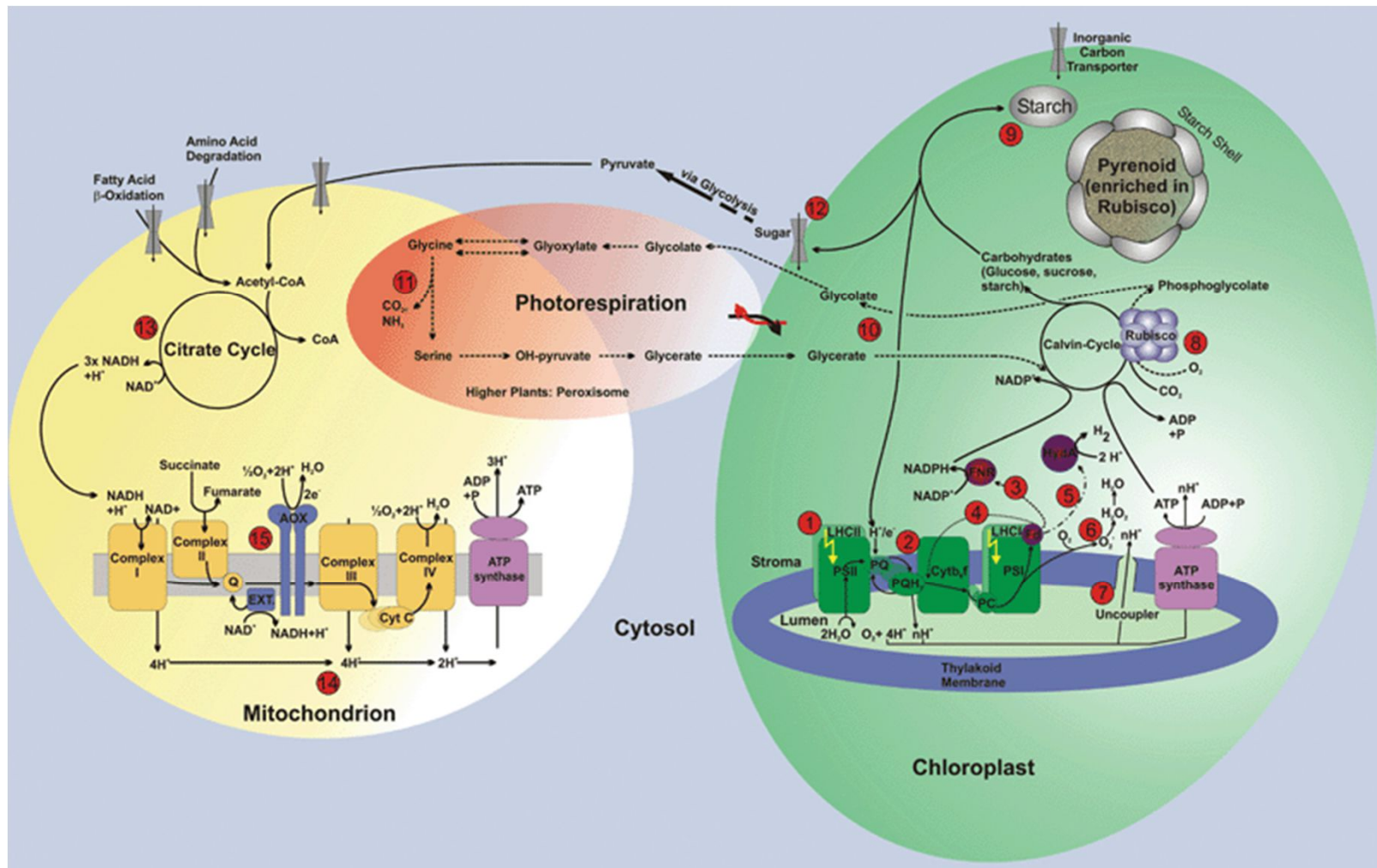


# How Organisms Obtain Energy

- All organisms need energy to live
- Autotrophs – make their own food
  - Can be from the sun, or other chemicals
  - Ex: plants
- Heterotrophs – need to ingest food to obtain energy
  - Ex: humans

# How Organisms Obtain Energy

- Metabolism – all the chemical reactions in a cell
- Metabolic pathway – one reaction creates a product that starts another reaction
  - Catabolic – release energy; break down molecules
    - Ex: cellular respiration
  - Anabolic – use energy; build molecules
    - Ex: photosynthesis



# How Organisms Obtain Energy

- Chemical energy is stored in molecules in living things
- This can be converted to other energy when needed
- ATP – adenosine triphosphate
  - **Most important biological molecule that provides energy**

# How Organisms Obtain Energy

- ATP is most abundant energy molecule
- Releases energy when bond between phosphate groups is broken

## An ATP Molecule

