

- ***How do living things get energy from the sun?***
- ***What happens during photosynthesis?***

How do living things get energy from the sun?

P45 - Fig 1 An Energy Chain - write the **direct source of Energy** for each org.

Lion = meat from animals (zebra)

Zebra = grasses

Grasses = sun

- **The Sun as an Energy Source**

Photosynthesis = process when cell captures energy in sunlight
AND uses energy to make food.

- Most ALL living things obtain energy from sunlight captured during photosynthesis
- Directly = plants b/c make own food
- Indirectly = any org that eats plants, or eats animal orgs

- **Producers and Consumers**

Autotroph - makes its own food

- Known as a "Producer"
- Ex: plants

Heterotroph - obtain food from others

- Known as a "Consumer" (many levels of consumer)
- Orgs that eat plants or animals

Apply it! [1. sketch diagram that tracks how sun's energy gets to spiders.
2. Label each org as heterotroph or autotroph]

- ***What happens during photosynthesis?***

How do plants make their own food? 2 stages

Key idea: During photosynthesis, plants absorb E from sun & use E to convert CO₂ & water into sugars + oxygen.

Stage 1: Capturing the Sun's Energy

Chloroplasts - Organelle that captures sun's energy
- contain chlorophyll

Chlorophyll = green pigment in chloroplasts

- Absorbs lights from sun (ex: solar cell in calculator)
- Capture light energy

During Stage 1 in chloroplast... [occurs during daytime hours]

- Split water into hydrogen and oxygen [H₂O]
- Hydrogen - used in stage 2 (becomes part of glucose/ sugar)
- Oxygen = waste product of photosynthesis → released to atmosphere

Stage 2: Using Energy to make Food

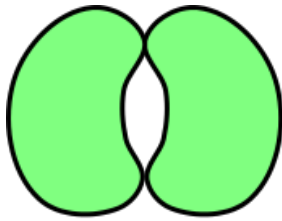
Plant cells produce sugars (glucose) via chemical reactions. [chem rxns]

- Use hydrogen (H) from splitting water
- Use carbon dioxide (from air)

CO₂ enters leaf through small pore on underside of leaf

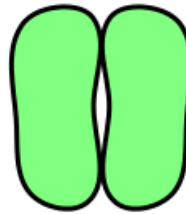
“Stomata” → small pore on underside of leaf”

Open stomata



2 swollen guard cells

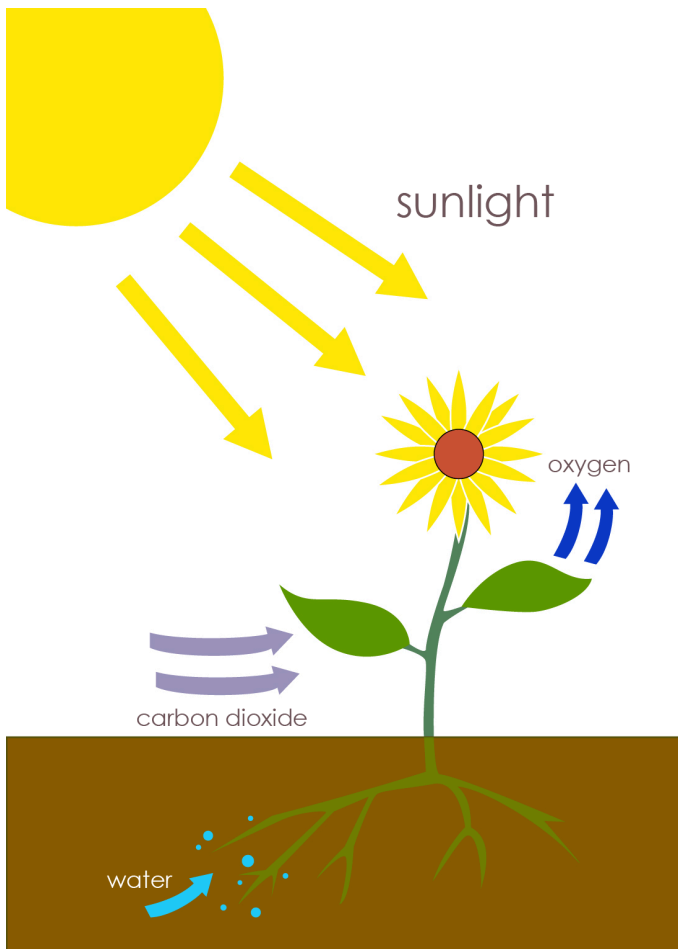
closed stomata



2 deflated guard cells

- Glucose sugar is produced thru chemical rxn in chloroplasts
- Oxygen is waste & released into atmosphere (via stomata)

Photosynthesis Review plants absorb E from sun & use E to convert CO₂ & water into sugars + oxygen.



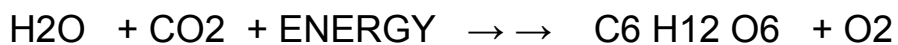
Photosynthesis Equation [to be reviewed in class / notes for Tues 5.12.20]

[stage 1]

[stage 2]

Water + carbon dioxide + energy from Sunlight → → (yields) sugar + oxygen
(glucose) (O₂ goes into atmosphere)

raw materials (reactants) → → output products



Photosynthesis is used by plants to produce glucose which is used to produce energy

