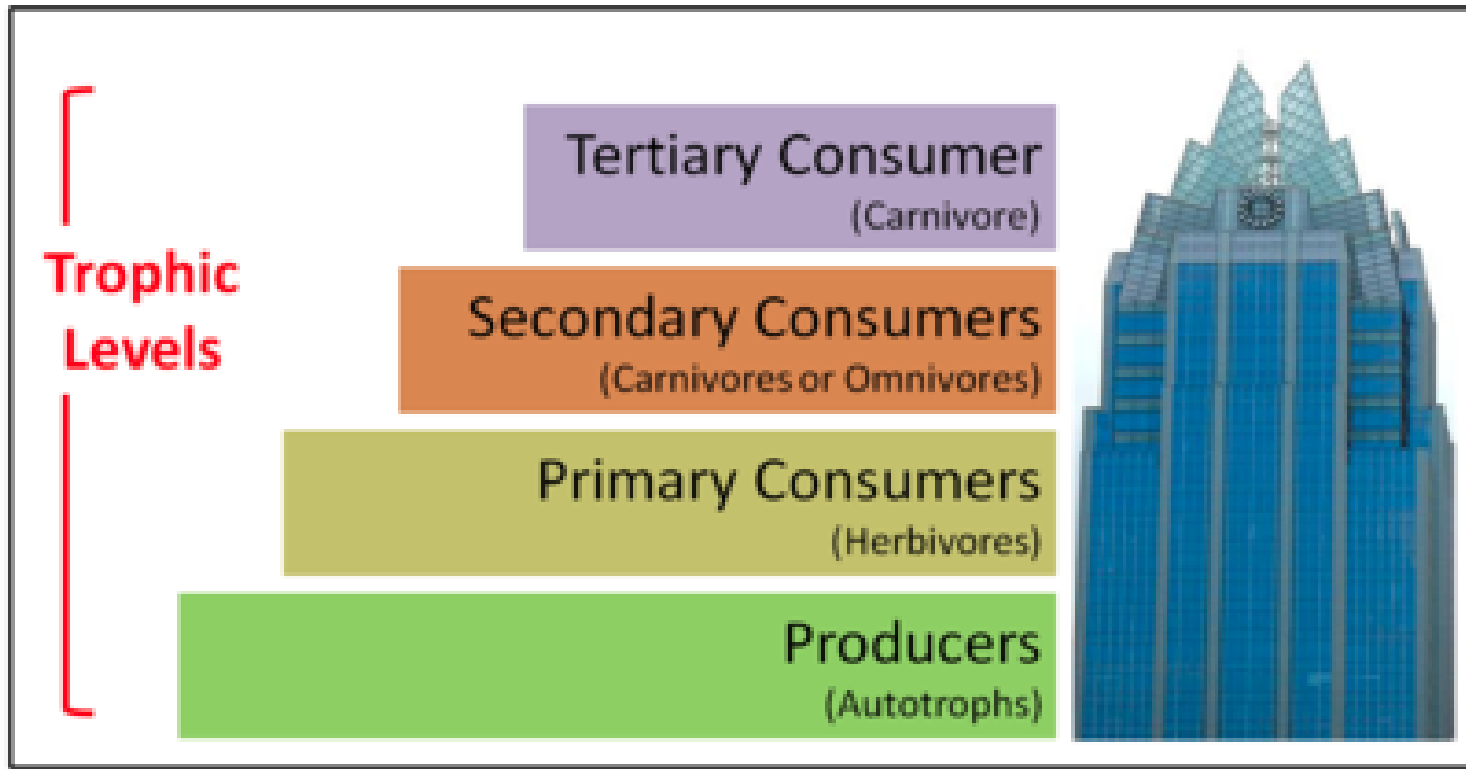


ECOSYSTEMS - *ENERGY TRANSFER*

Part II - Unit 8

TROPHIC LEVELS

- ◉ **Hierarchical feeding** relationship with **10%** energy **transfer** between levels
 - Represented as food **chain** or trophic **pyramid**



TROPHIC LEVELS

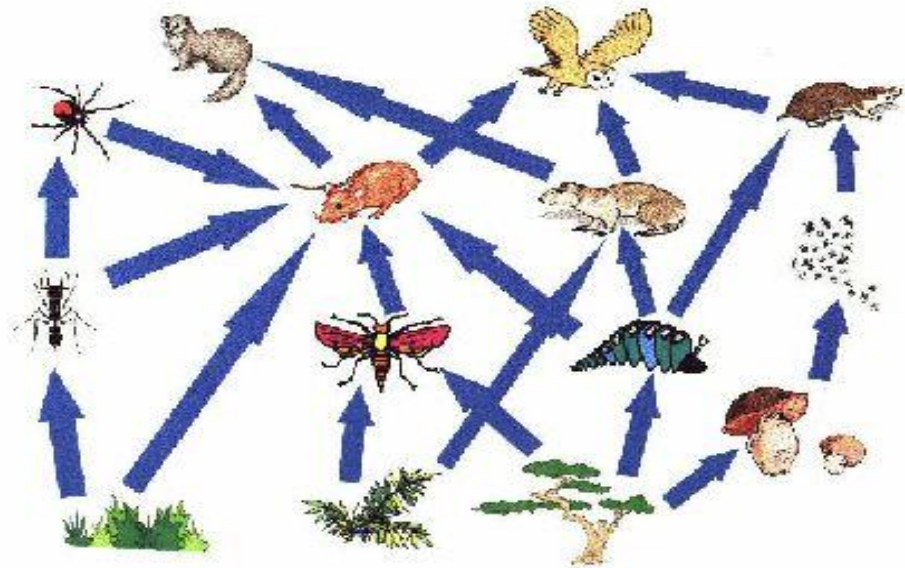
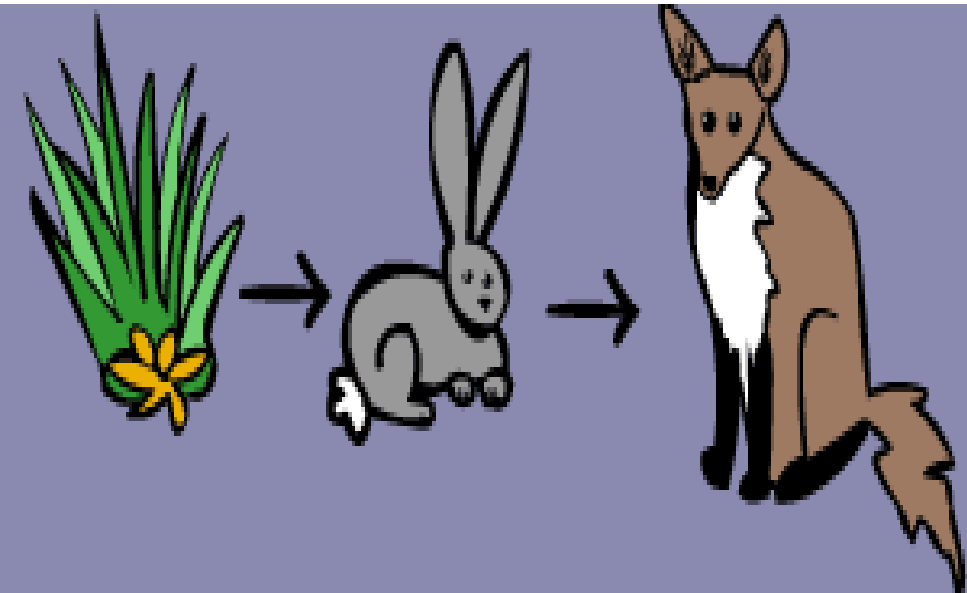
- ◉ Loss of **energy** between trophic levels = limited # of trophic levels available



Progressive Loss of Energy in Food Chain

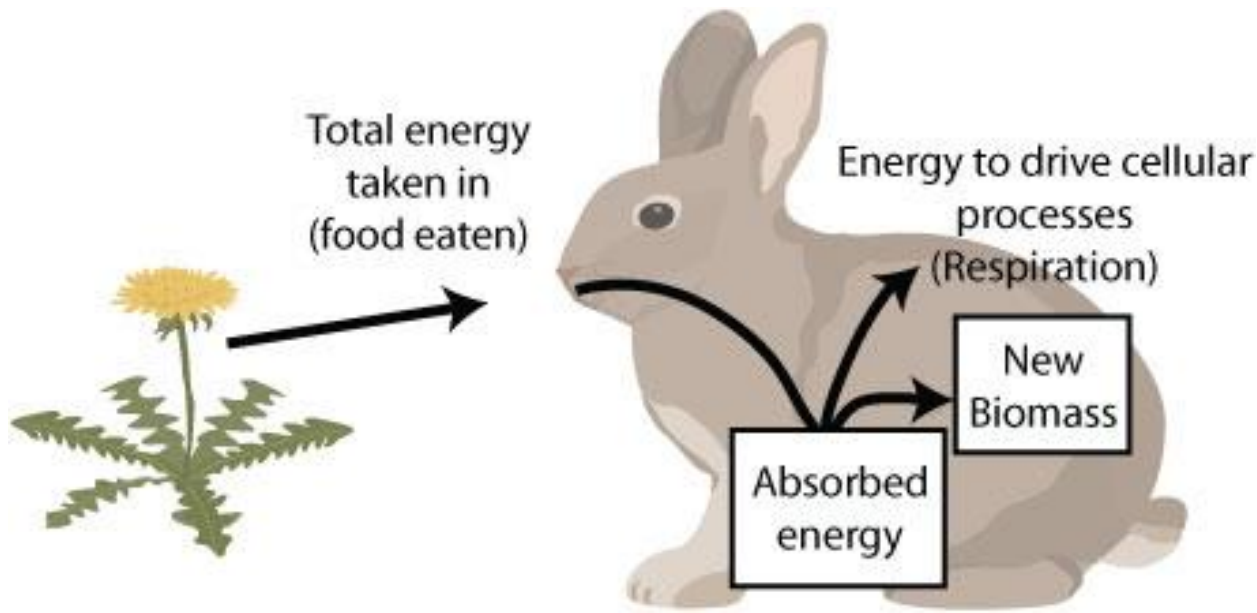
FOOD CHAINS & WEBS

- ◉ Food Chain: **Linear** series of **transferred** food energy **between** one organism to next
- ◉ Food Web: Includes ALL food **chains** (link)
 - More **diverse** web = more **stable** web



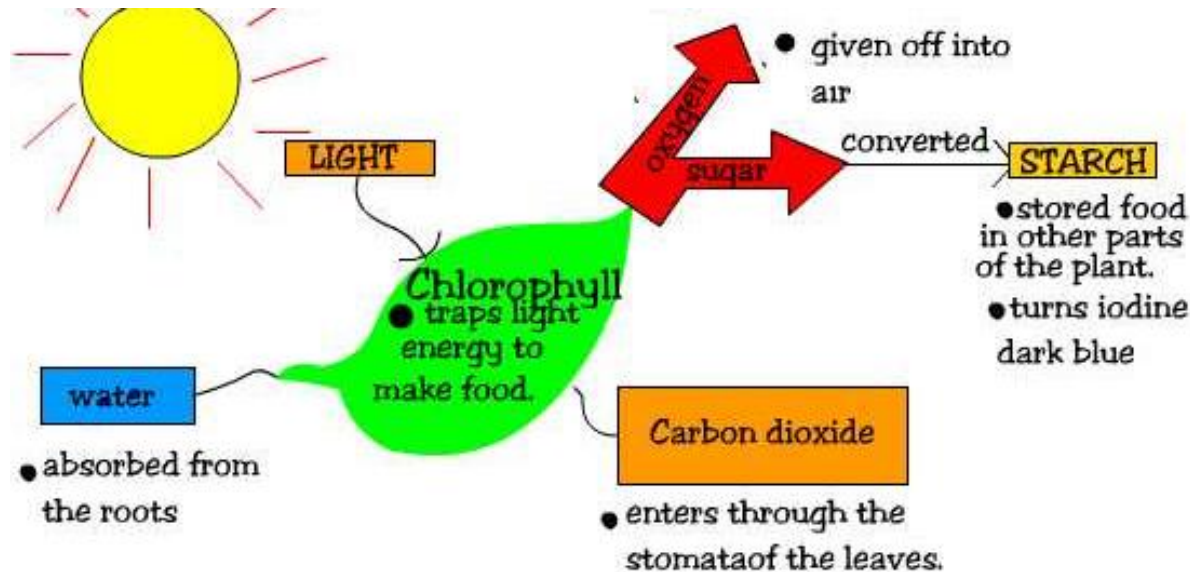
PRODUCERS

- Plants that make its own **food** (*autotrophs*) with **energy** from Sun (*photosynthesis*) or with chemicals (*chemosynthesis*)
- Occupies FIRST (*lowest*) trophic level



PRODUCERS - PLANTS

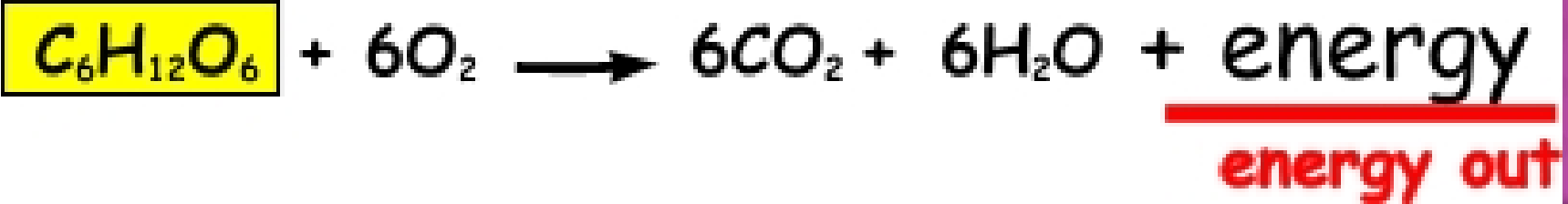
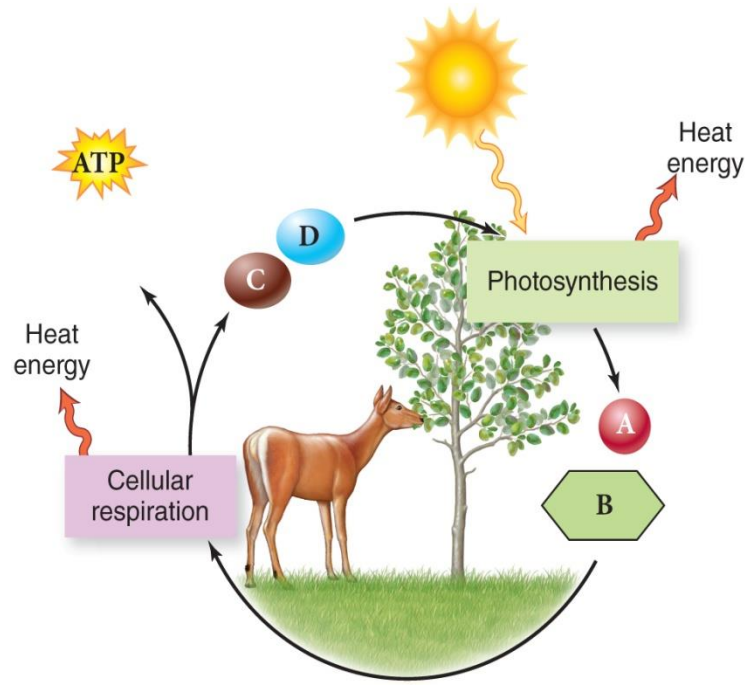
❖ Photosynthesis converts **sunlight** energy into **chemical (sugar)** energy



ANIMALS & HUMANS

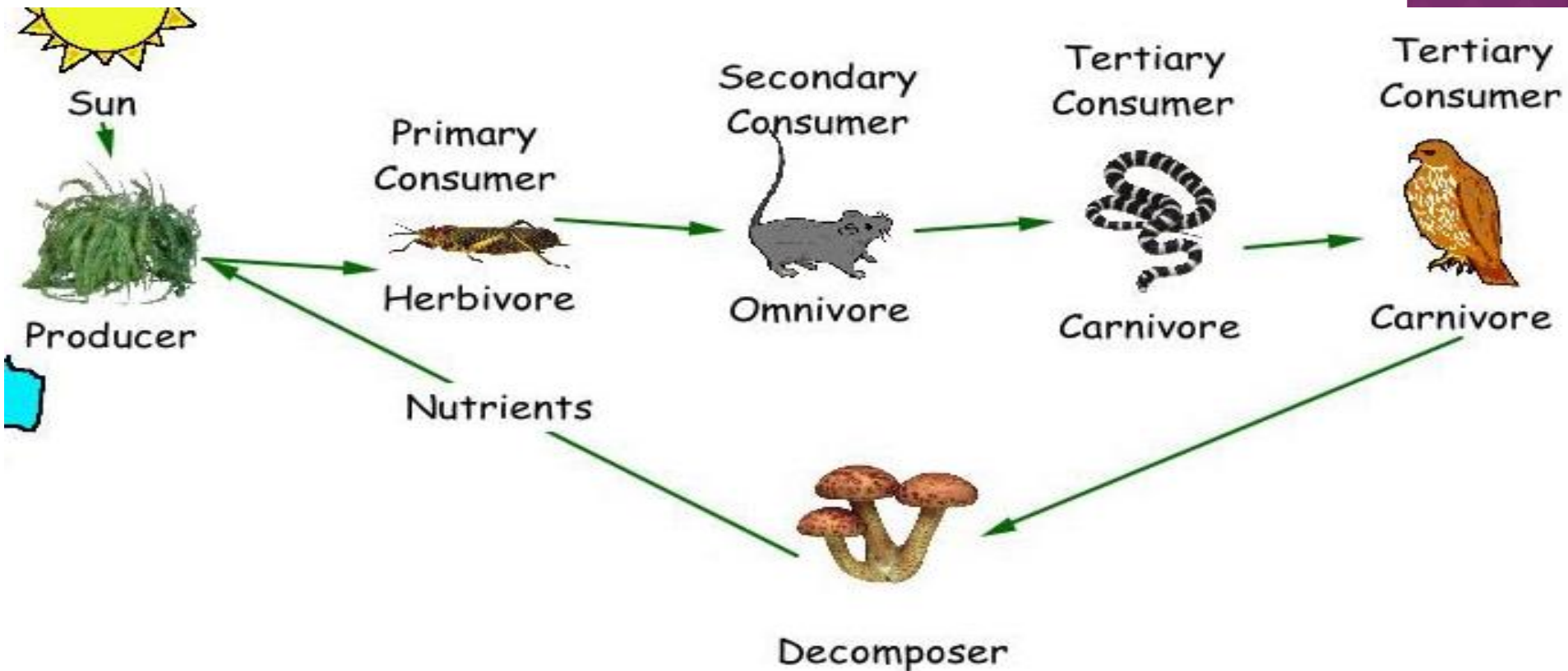
❖ Aerobic (cellular) Respiration

breaks down food molecules creating *stored* energy



CONSUMERS

- Eats **other** organisms from **lower** trophic levels
 - **Herbivores, Carnivores, Omnivores**
 - **Primary, Secondary, Tertiary, Quaternary**

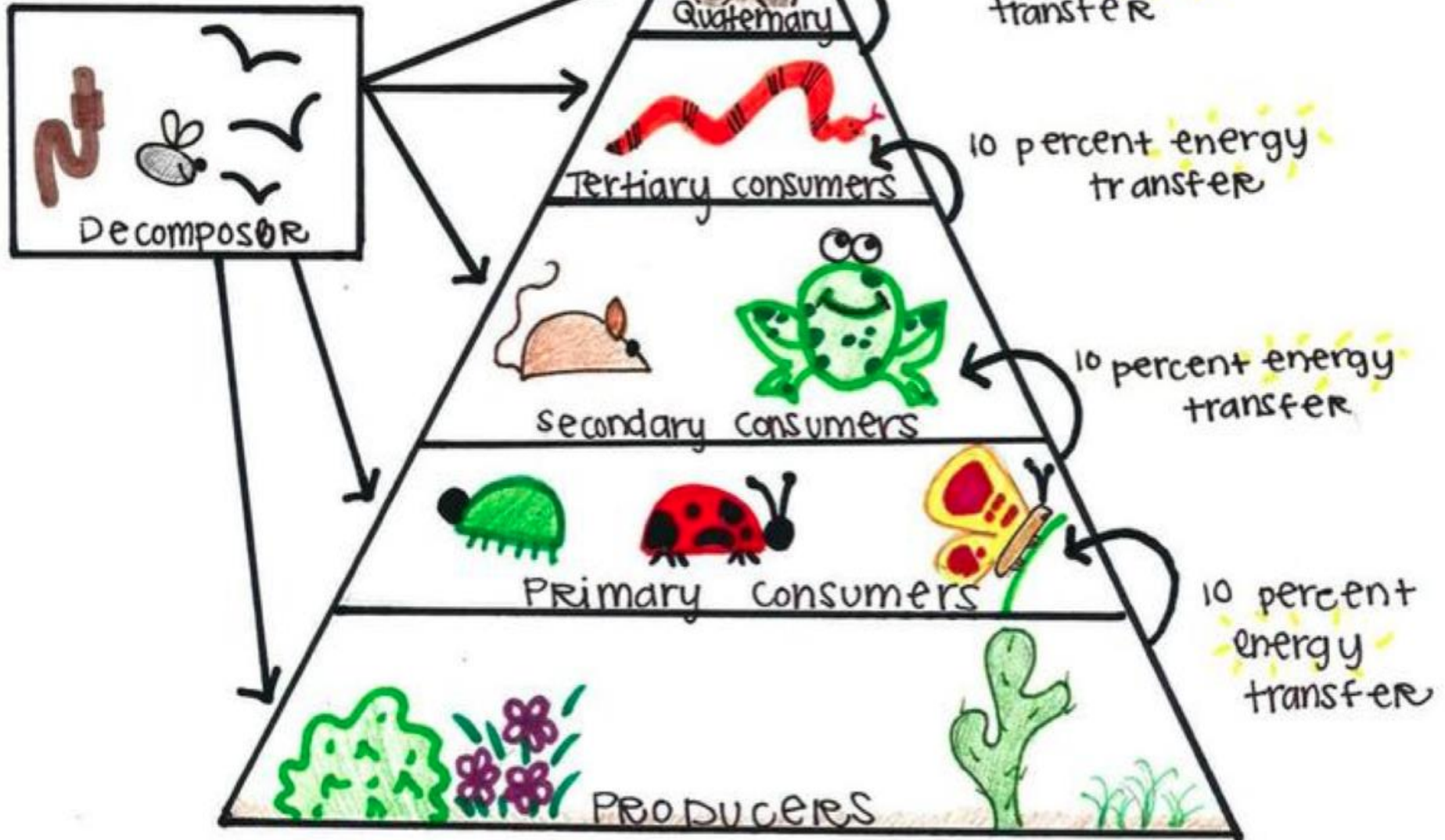


DECOMPOSERS

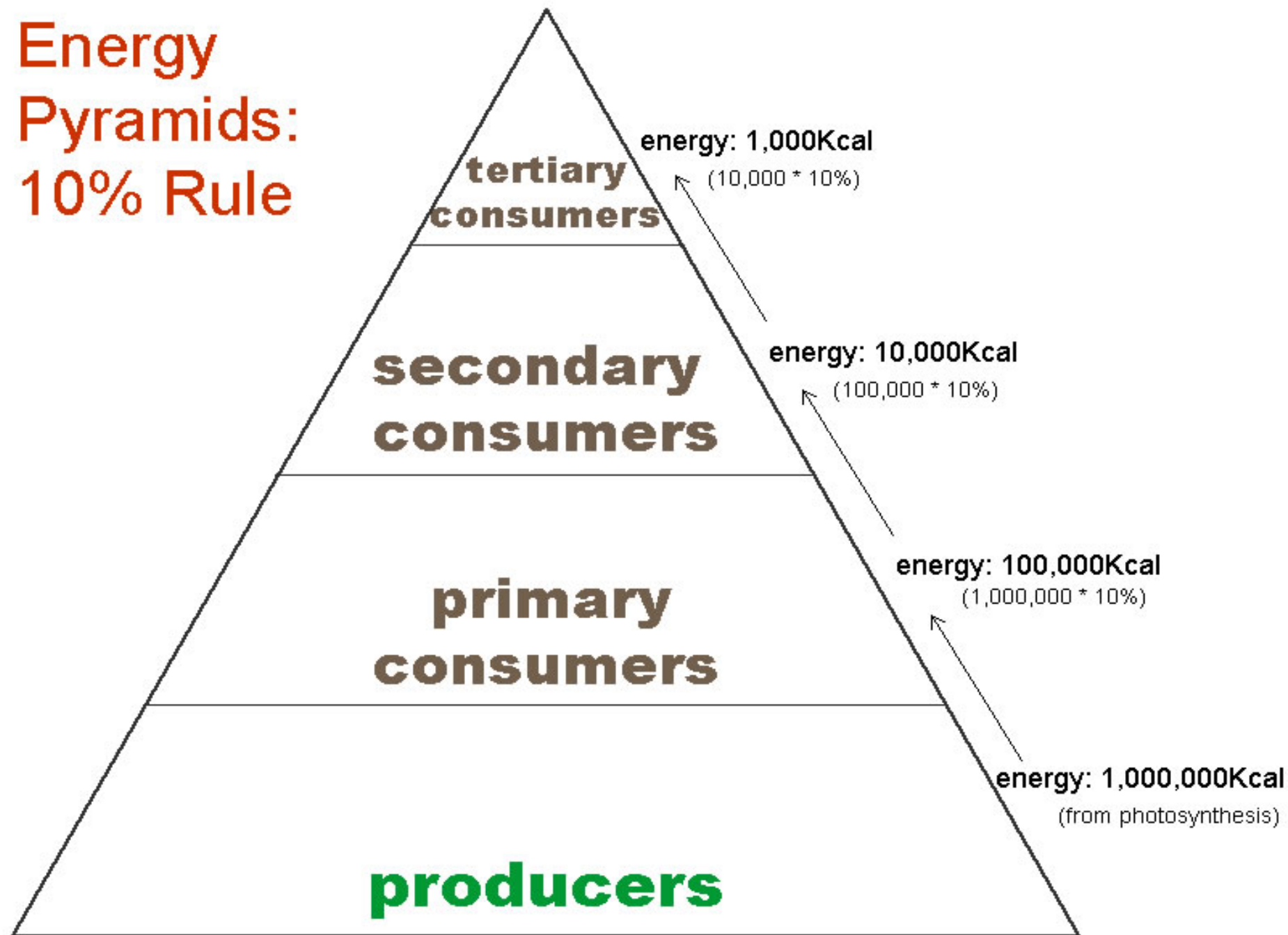
- Breaks down *dead* organic matter
 - *Converts* back into *nutrients*



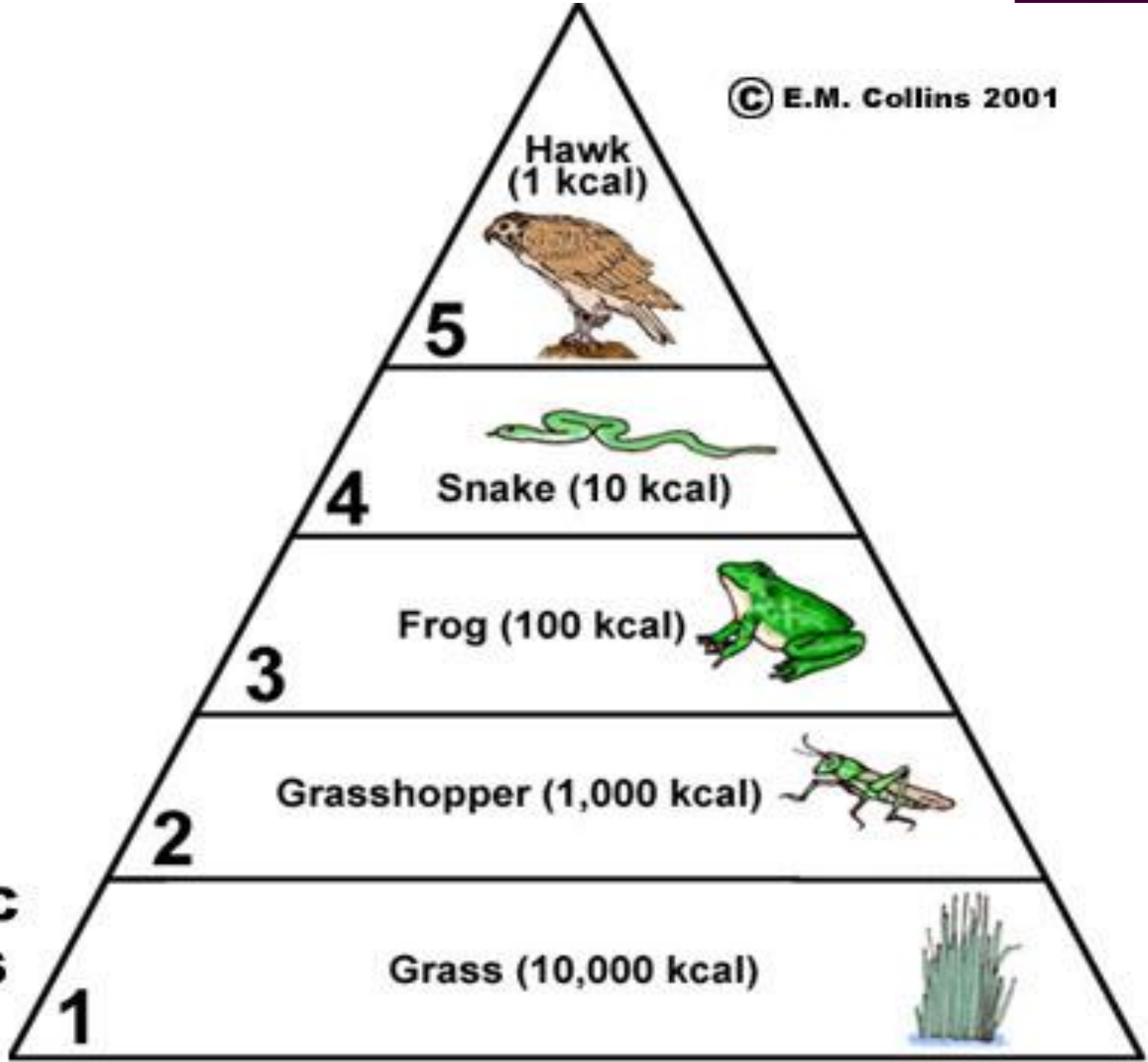
Trophic Pyramid



Energy Pyramids: 10% Rule



Trophic Levels



Tertiary consumers



10 J

Secondary consumers



100 J

Primary consumers



1,000 J

Primary producers



10,000 J

1,000,000 J of sunlight

