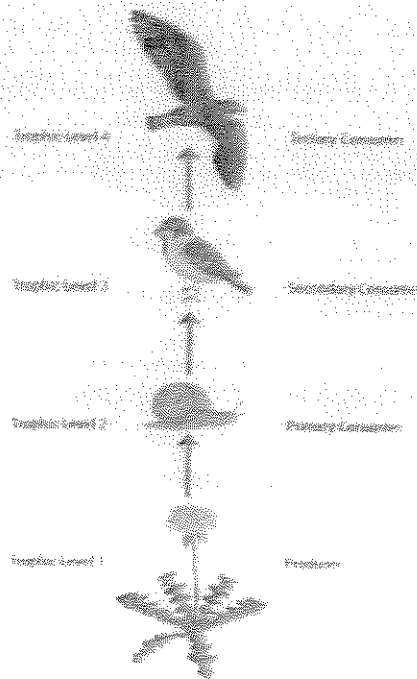
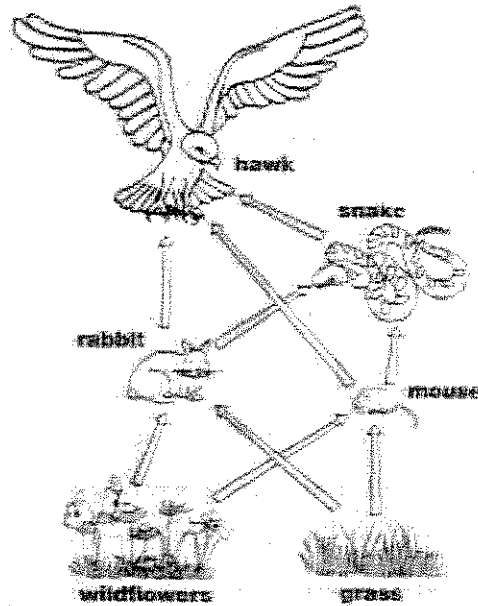


Biology
Ecology
2012 - 2013
#4

- I. Energy Cycle = the flow of energy through an ecosystem
- A. Food chain = diagram that shows the flow of energy from one organism to another
1. producers = able to make their own food from the Sun
 - plants, photosynthetic bacteria
 2. consumers = must eat other organisms in order to get energy
 - primary = eat producers
 - secondary = eat consumers
 - tertiary = eat secondary consumers
 3. detritivores / decomposers = eat dead, decaying matter
 - bacteria, fungi, mold

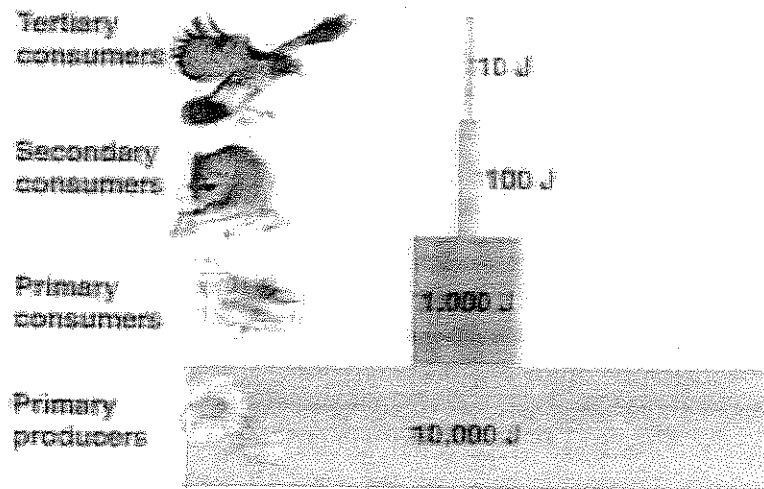


B. Food web = diagram that shows the interaction of multiple food webs



C. Energy pyramid = diagram that shows the amount of energy at different **trophic levels** (energy levels)

1. only 10% of energy is passed to the next trophic level



1,000,000 J of sunlight

II. Biochemical cycles = flow of biological compounds through the ecosystem

A. Water Cycle

1. Evaporation = water turns from a liquid to a gas
2. Transpiration = release of water vapor from plants
3. Condensation = formation of water droplets from vapor in the air
4. Precipitation = droplets of water fall to the Earth

B. Carbon Cycle

1. Carbon dioxide (CO_2) is absorbed by plants during photosynthesis
 - Some CO_2 dissolves into the ocean water and is used by shellfish to make shells (CaCO_3)
 - Plants and oceans act as carbon dioxide "reservoirs" or "sinks"
2. Plants and animals (after they have eaten plants) return some CO_2 into the air during respiration and during decomposition when they die
3. Some plants and animals die and form fossil fuels (do not decompose)
4. Burning fossil fuels releases CO_2 into the air (combustion)

C. Nitrogen Cycle

1. Nitrogen fixation = atmospheric nitrogen (N_2) \rightarrow ammonia (NH_3)
 - N_2 cannot be used by plants
 - Process takes place in the roots of plants (legumes) by bacteria
2. Nitrification = $\text{NH}_3 \rightarrow \text{NO}_3$ (nitrates)
3. Assimilation = plants use some of the nitrates
4. Dentrification = left over NO_3 is converted into N_2 by bacteria in the soil

website: www.etap.org/demo/biology_files/lesson6/instruction4tutor.html