Ecology Pyramids

1.
    a. Sunlight
    b. 3190000kcal per square meter per year
2.
3.
    a. .8%
    b. Photosynthesis
4. By eating the organisms in the previous level
5. 400o0 kcal
6.
7.
8. 90% of energy is lost as heat as it is transferred through trophic levels
9. .6%
10. .09%
11. Only a tiny fraction of the original energy remains. The biomass would have to increase substantially if this system were to support another trophic level beyond the hawk
12. Since little energy is available for a single hawk, there would not be enough energy in an ecosystem to support a large population of hawks
13. Any photosynthesizing organism such as other trees, flowers grasses and moss
14. Omnivores, carnivores, anything that eats herbivores
15. Both have the same organisms in the same trophic levels. Both have the same number of trophic levels. Pyramid A has 2 Oak trees in the first trophic level while pyramid B has 100, 000 oak leaves in the first trophic level. The shape is different
16. In pyramid B, the number of organisms decreases from one level to the next. In pyramid A , the first level has a small number of organisms and the remaining levels follow the same pattern as in pyramid A
17. The oak tree is the same, but the caterpillars eat only the oak tree leaves
18. The producers in Pyramid A are two oak trees, but the actual trophic source on these two producers is tens of thousands of leaves. Only the leaves are eaten by the caterpillars, so the number of leaves is much more relevant than the number of trees
19. 11,000 g/m
20. 40g/m
21. The biomass decreases steadily
22. No. the mass of the producers is smaller than the mass of primary consumers. After that level, the biomass of each trophic level decreases steadily
23. Photoplankton reproduce rapidly so they can sustain a large number of primary producers
24. Biomass varies drasticalley with different organisms, the important issue is not the number of organisms, but now much of that mass is used as food. Another important issue is the speed with which food sources grow and reproduce

Nutrient Cycles

Water Cycle

1. Water
2. Atmosphere, surface water, groundwater, and oceans
3. In the aquifer
4. Evaporation and transpiration
5. Surface runoff and groundwater flow
6. Precipitation
7. As water vapor condenses, pollutants could be brought down to contaminate rivers, streams, lakes and oceans