

Pass the Energy Please
(Student Handout)

Purpose: To trace the flow of energy through the energy pyramid, food chain, and food web

Background:
The sun is the ultimate source of energy for any ecosystem. Producers capture some of the light energy from the sun and transfer it into chemical energy as organic molecules (food). Energy is transferred through the ecosystem along trophic (feeding) levels. Each time energy is transferred, some is lost making less available at the next feeding level. Organisms use much of their energy to carry out life functions. This energy is converted to heat and lost so that only 10% of the energy is passed to the next level when one organism consumes another. A food chain is a simple sequence in which energy is transferred from one organism to another in an ecosystem. Ecosystems, however, are more complex and contain many more species. The food web is a more accurate illustration of energy transfer. Because of the energy lost, there are fewer organisms in each feeding level within the ecosystem.

Materials/Equipment:
Picture of energy pyramid, food chain, and food web

Safety Considerations: Always follow lab safety procedures.

- Procedure:**
1. Examine sample food chain and food web.
 2. Identify the trophic (feeding) levels by filling in the names of organisms in the blank energy pyramid, choosing any food chain from the food web. Be sure to start with the algae (water plants) as the producers at the lowest trophic level.
 3. Determine the actual amount of energy transferred to the final consumer. Remember that the energy efficiency is about 10% from one trophic level to the next. Begin with the algae's trapping 1000 calories in organic molecules at the base of the food pyramid and figure the number of calories that would be available to each consumer. Remember: not all food chains will have organisms at all five trophic levels.

Data Table:

