Energy Transfer Through an Ecosystem

Two nice, easy pages — and some stuff might already be familiar. Just be careful when you're learning all the definitions, because some of the words mean very similar things.

There are nine main definitions you need to know

TERM	MEANING
Ecosystem	An ecosystem supports life. Nutrients are recycled and energy flows through an ecosystem (for example, a pond, a lawn, a forest). An ecosystem includes both the living and the nonliving things.
Habitat	A place where an organism lives. For example, an owl's habitat is a forest.
Community	All the organisms living in a particular ecosystem. For example, a woodland community would include all the animals, plants, etc., that live there.
Population	A group of organisms of the same species living in the same place at the same time. For example, a population of bears living in a forest, or a population of sow bugs living under a log.
Niche	The role played by an organism in a community (like its behavior, what it eats, and what eats it). Each species has its own unique niche.
Producer	Producers make their own food using an external energy source. For example, light from the Sun. Plants are producers. Organisms that make their own food are also called autotrophs.
Consumer	Consumers eat other organisms for food and energy. Cows eat a producer (grass) so they're primary consumers. Humans then eat cows so they're secondary consumers.
Food chain	A sequence representing the way energy flows from one organism to another.
Food web	A diagram showing all the feeding relationships between the organisms of a community. It's made up of many interconnected food chains.

Everyone likes a good list of terms to learn...

What you need to do is learn that list of nine definitions. Some are fairly obvious, like producer, but some are more tricky, like the difference between a population and a community. Don't try to understand the reasons behind the terms, it's a waste of energy. Just learn 'em.

Energy Transfer Through an Ecosystem

Energy flows through food chains

1) Each organism in a food chain is at a different level — it can be a producer, a primary consumer, a secondary consumer, a tertiary consumer, etc.
2) Food chains start with a producer that gets its energy from the Sun.

Example of a food chain:


ALGAE (producer)

HERBIVOROUS WATER BEETLE (primary consumer)

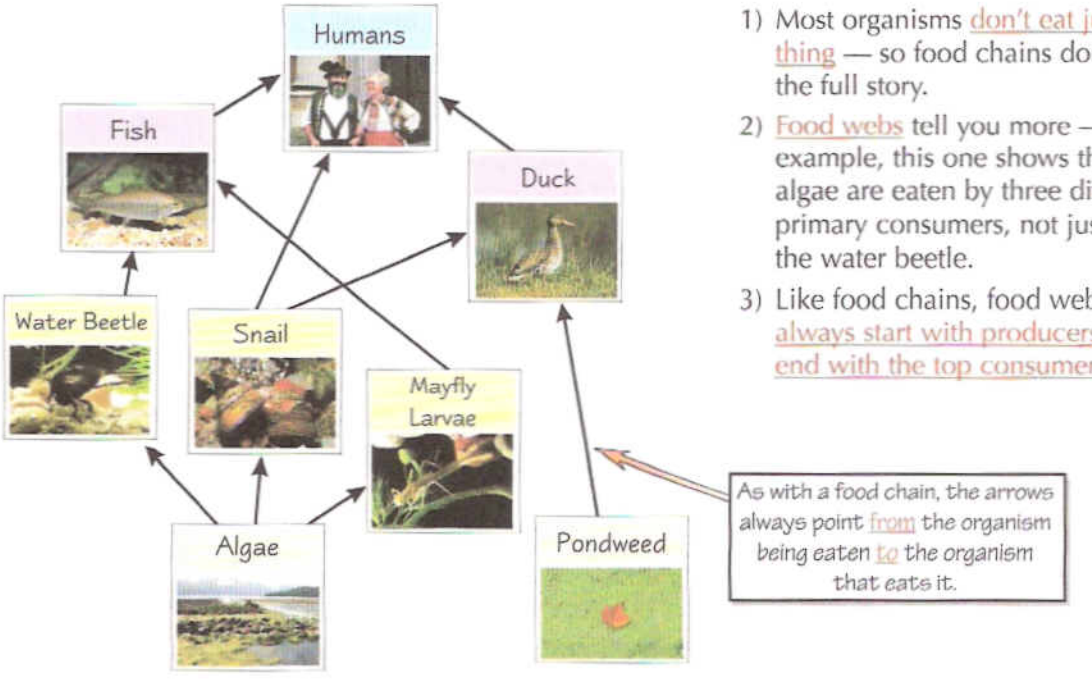
FISH (secondary consumer)

MAN (tertiary consumer)

Transfer of energy in a food chain isn't very efficient. Only about 10% of the energy stored in the organisms at one stage passes to the organisms in the next stage. The energy is lost in a few different ways:

1) Some is lost as heat from the organisms.
2) Some is lost in their waste.
3) Energy is used by organisms during respiration, to let them move, grow, reproduce, etc.
4) Animals don't usually eat all of the food available in the organism they feed on, and can't digest everything they do eat.

Food webs are made up of many interconnected food chains



1) Most organisms don't eat just one thing — so food chains don't tell the full story.
2) Food webs tell you more — for example, this one shows that algae are eaten by three different primary consumers, not just by the water beetle.
3) Like food chains, food webs always start with producers and end with the top consumers.