



## Energy Flow

### 1. Energy Flow in an Ecosystem

Energy flows through an ecosystem from producers to consumers. Producers (autotrophs) capture energy from the sun through photosynthesis. This energy is then passed to primary consumers (herbivores) when they eat the producers. Secondary consumers (carnivores) eat the primary consumers, and tertiary consumers (top predators) eat the secondary consumers.

Energy is lost at each stage of the food chain. Only about 1% of the energy from the sun is captured by producers, and only about 10% of the energy from one level is passed to the next level. This is why there are always fewer top predators than there are primary consumers in an ecosystem.

The flow of energy in an ecosystem is unidirectional. Energy enters the system from the sun and flows through the food chain. It is eventually lost as heat to the environment. Matter, on the other hand, is recycled within the ecosystem. Producers take up carbon dioxide from the atmosphere and release oxygen. Consumers take up oxygen and release carbon dioxide. Decomposers break down dead organic matter and release nutrients back into the soil, which are then taken up by producers.

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