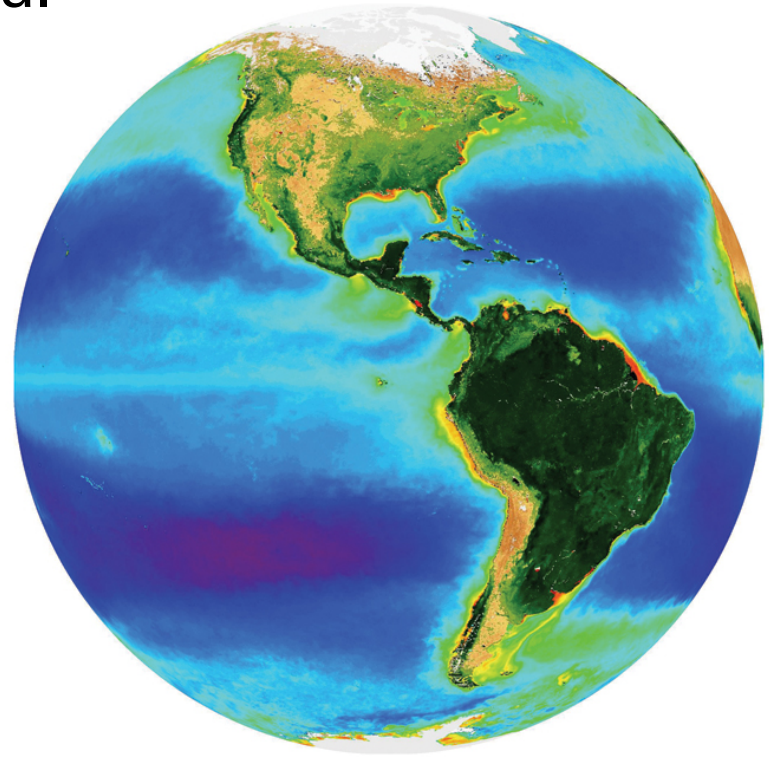
13.3 Energy in Ecosystems

KEY CONCEPT

Life in an ecosystem requires a source of energy.

13.3 Energy in Ecosystems

- **Producers provide energy for other organisms in an ecosystem.**
  - Producers get their energy from non-living resources.
  - Producers are also called autotrophs because they make their own food.

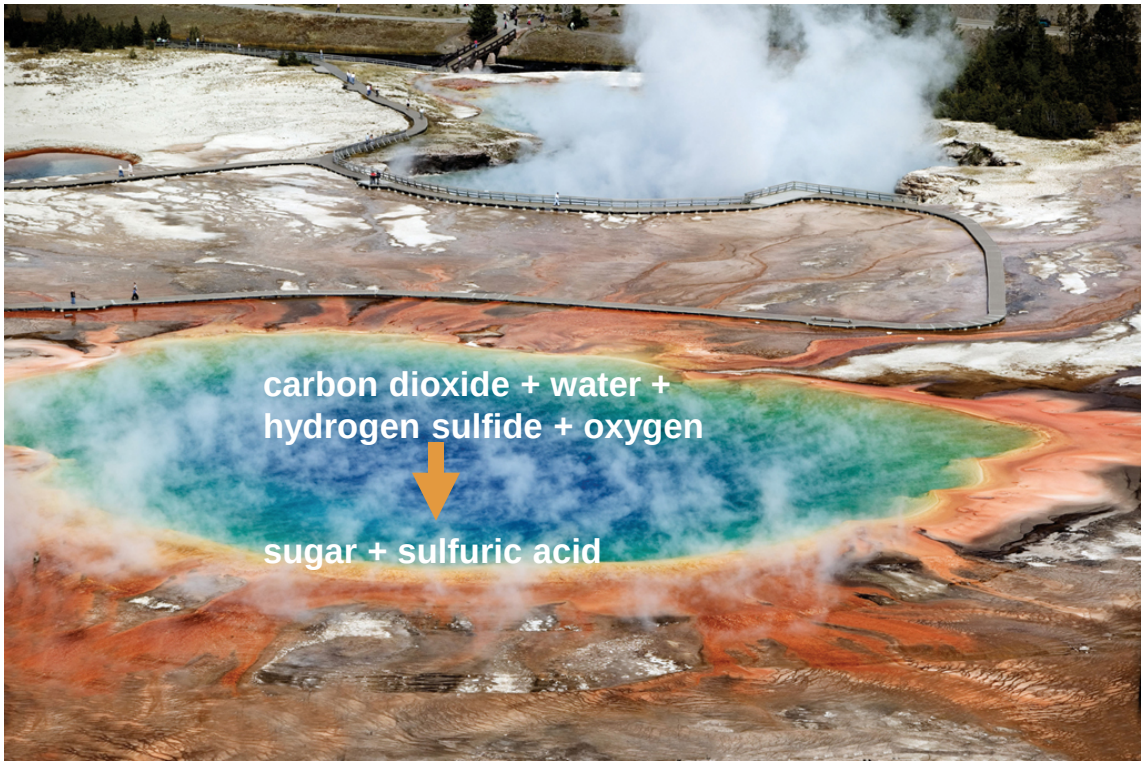


13.3 Energy in Ecosystems

- **Producers provide energy for other organisms in an ecosystem.**
  - Consumers are organisms that get their energy by eating other living or once-living resources.
  - Consumers are also called heterotrophs because they feed off of different things.

13.3 Energy in Ecosystems

- **Almost all producers obtain energy from sunlight.**
  - Photosynthesis in most producers uses sunlight as an energy source.
  - Chemosynthesis in prokaryote producers uses chemicals as an energy source.



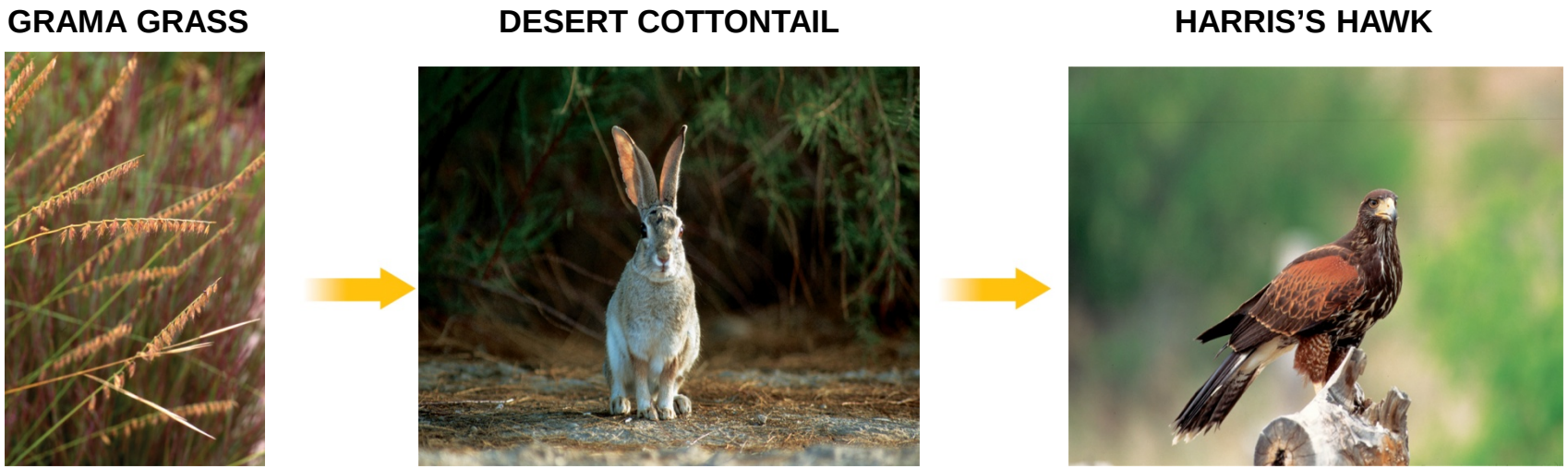
13.4 Food Chains And Food Webs

KEY CONCEPT

Food chains and food webs model the flow of energy in an ecosystem.

13.4 Food Chains And Food Webs

- **A food chain is a model that shows a sequence of feeding relationships.**
  - A food chain links species by their feeding relationships.
  - A food chain follows the connection between one producer and a single chain of consumers within an ecosystem.



13.4 Food Chains And Food Webs

- Consumers are not all alike.
  - Herbivores eat only plants.
  - Carnivores eat only animals.
  - Omnivores eat both plants and animals.
  - Detritivores eat dead organic matter.
  - Decomposers are detritivores that break down organic matter into simpler compounds.

carnivore

decomposer

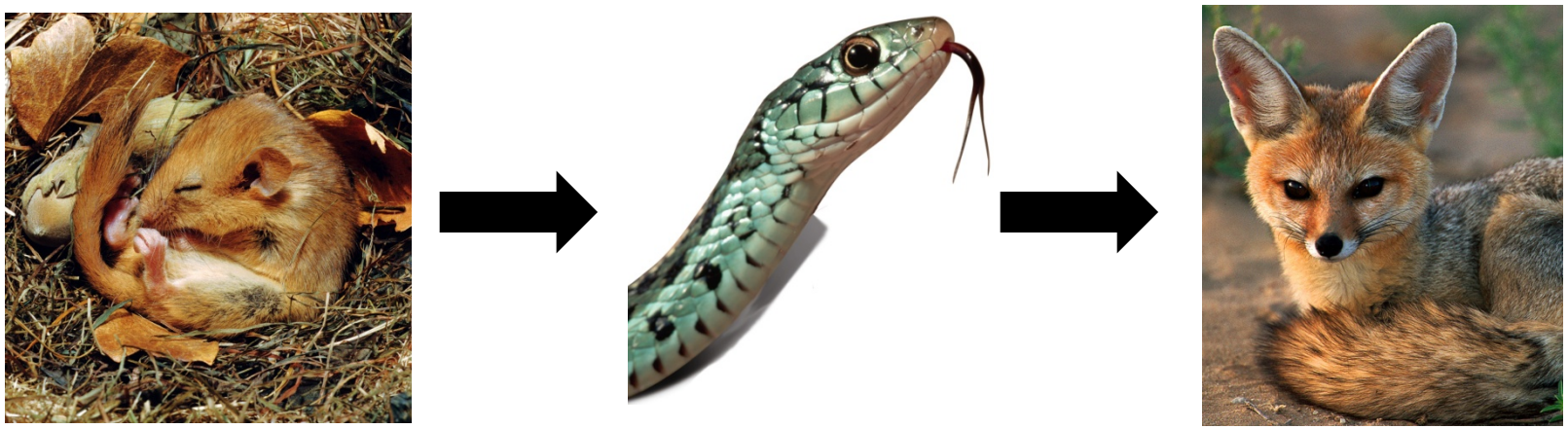
13.4 Food Chains And Food Webs

- Specialists are consumers that primarily eat one specific organism or a very small number of organisms.

- Generalists are consumers that have a varying diet.

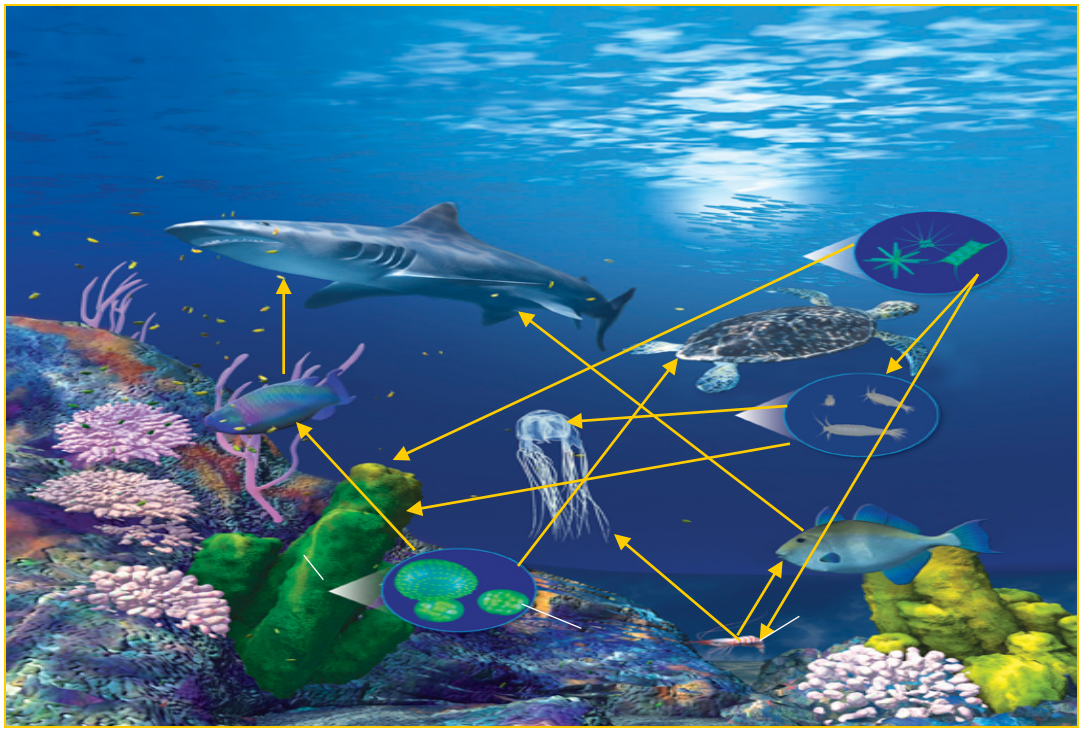
13.4 Food Chains And Food Webs

- Trophic levels are the nourishment levels in a food chain.
  - Primary consumers are herbivores that eat producers.
  - Secondary consumers are carnivores that eat herbivores.
  - Tertiary consumers are carnivores that eat secondary consumers.
  - Omnivores, such as humans that eat both plants and animals, may be listed at different trophic levels in different food chains.



13.4 Food Chains And Food Webs

- **A food web shows a complex network of feeding relationships.**
  - An organism may have multiple feeding relationships in an ecosystem.
  - A food web emphasizes complicated feeding relationships and energy flow in an ecosystem.



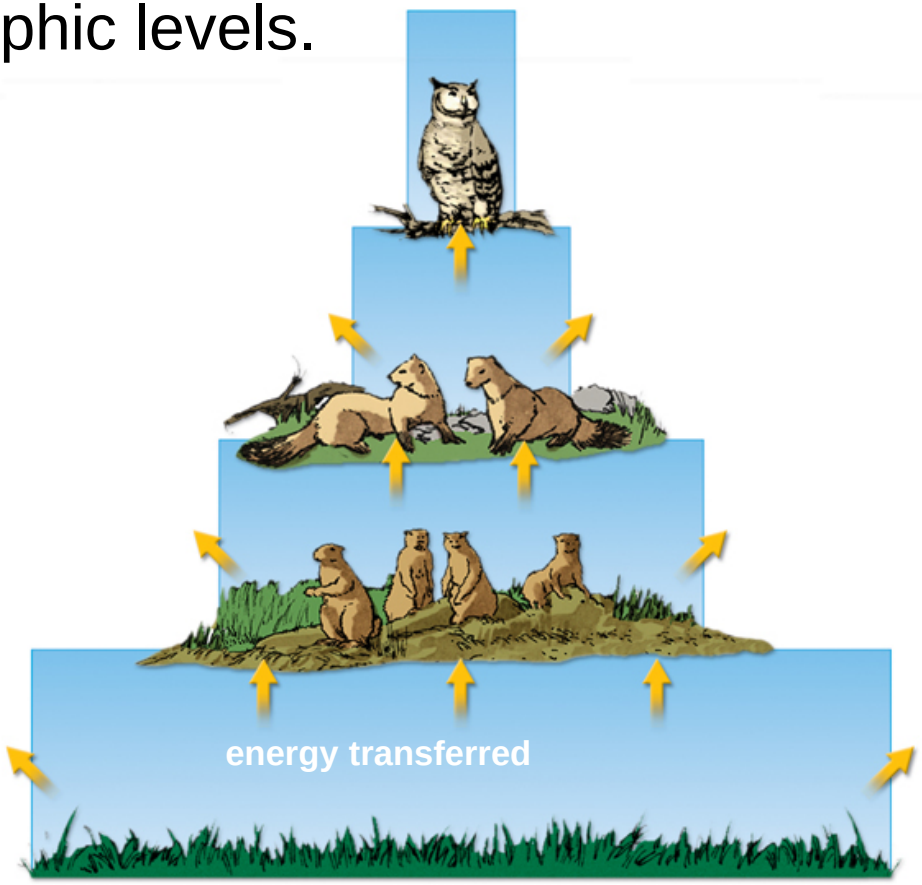
13.3 Energy in Ecosystems

KEY CONCEPT

Pyramids model the distribution of energy and matter in an ecosystem.

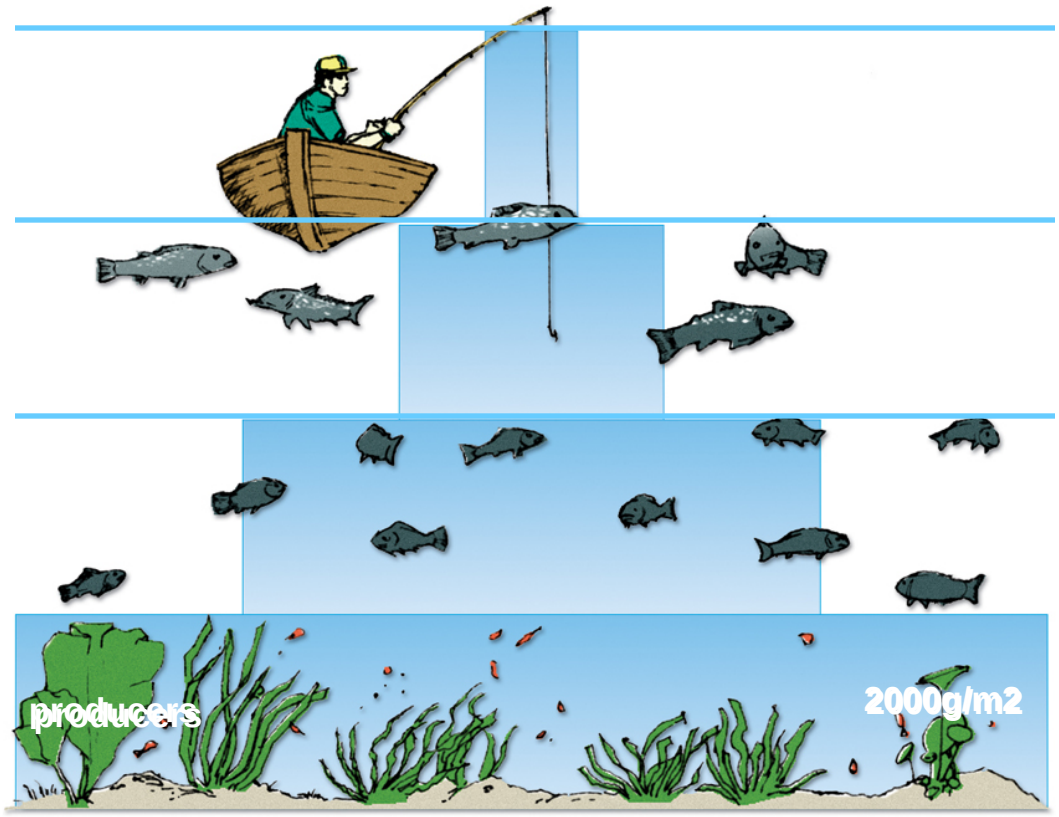
13.3 Energy in Ecosystems

- **An energy pyramid shows the distribution of energy among trophic levels.**
  - Energy pyramids compare energy used by producers and other organisms on trophic levels.



13.3 Energy in Ecosystems

- **Other pyramid models illustrate an ecosystem's biomass and distribution of organisms.**
  - Biomass is a measure of the total dry mass of organisms in a given area.



13.3 Energy in Ecosystems

- A pyramid of numbers shows the numbers of individual organisms at each trophic level in an ecosystem.