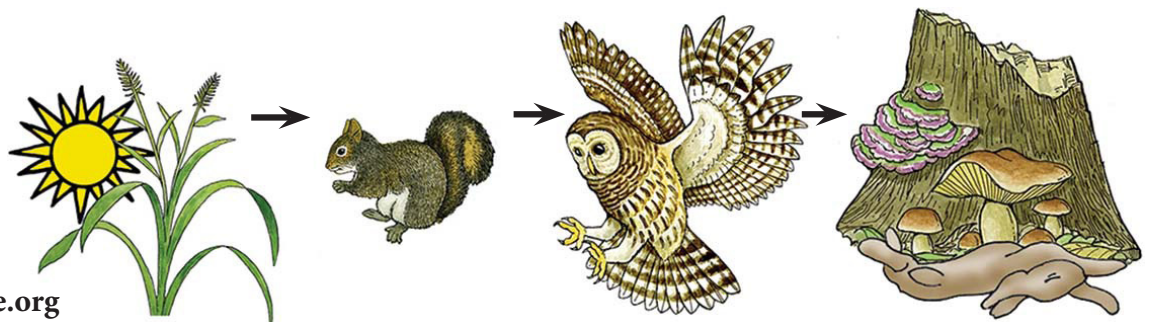


Cycles of Matter and Energy Transfer in Ecosystems

Energy flows through an **ecosystem** as animals eat plants or other animals forming overlapping **food webs**. All animals need to obtain **matter** for energy, growth and reproduction. Plants are at the bottom of a food pyramid, getting all their energy by changing sunlight into food through the process of **photosynthesis**. They get matter from CO_2 from the air and nitrogen and water from the soil. This is why, in a food web, plants are called the **producers** - as they produce the energy on which all living things depend. Animals consume plants and other animals, so are called **consumers** in a food web. The living things that eat and recycle dead animals and plants are called **decomposers**. These include insects, bacteria, mushrooms and other fungi. The decomposers are an important part of any ecosystem because they break down dead matter and **recycle it back into the soil**. Soil nutrients, in turn, help plants grow, supplying the matter they need to begin the cycle over and over again. The amount of matter on Earth stays the same and is cycled over and over again.

Organisms in an ecosystem form a **balance** between the plant producers, animal consumers, and decomposers to create a healthy, stable food webs. The **stability** in an ecosystem is important so that the needs of all the organisms can be met. Organisms that are not having their needs met in an ecosystem will not survive. When a new species enters an ecosystem (**e.g. invasive species**), it can upset the balanced food webs and some native species can be damaged or even driven to **extinction**.

As organisms live their lives and eventually die, their **organic matter** is cycled between the air, soil, plants, animals and microbes in their **environment**. This **cycling of matter** plays an important part in the stability of an ecosystem. As organisms interact with nonliving (abiotic) parts of the environment, such as air, water, and soil, this **inorganic matter** cycles through the ecosystem as well.



Cycles of Matter and Energy Transfer in Ecosystems - Food Webs

Energy flows through an **ecosystem** as animals eat plants or other animals forming overlapping **food webs**.



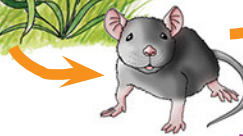
Plants absorb sunlight and, through the process of **photosynthesis**, convert it into the energy they need to grow (increasing their matter for consumption by animals).



Animals are **consumers**.

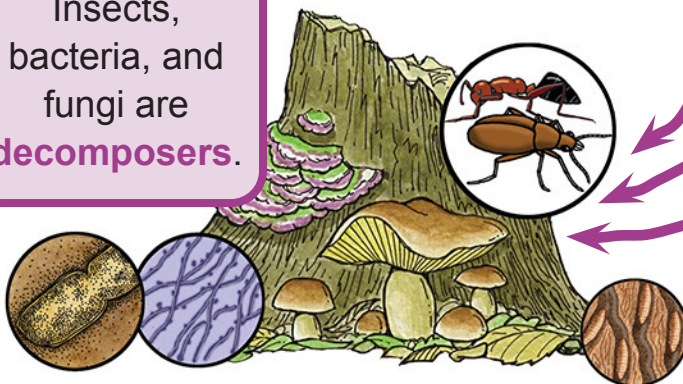


Plants are **producers**.



Animals consume plant matter and other animal matter – so are called **consumers** in a food web.

Insects, bacteria, and fungi are **decomposers**.



Living things eat and recycle dead animal and plant matter. They are the **decomposers** and include insects, bacteria, mushrooms and other fungi. Decomposers break down dead matter and **recycle it back into the soil**.

Organisms in an ecosystem form a **balance** between plant producers, animal consumers, and decomposers to create healthy, stable **food webs**.