

MONTEREY BAY AQUARIUM

Nature's Garbage Collectors

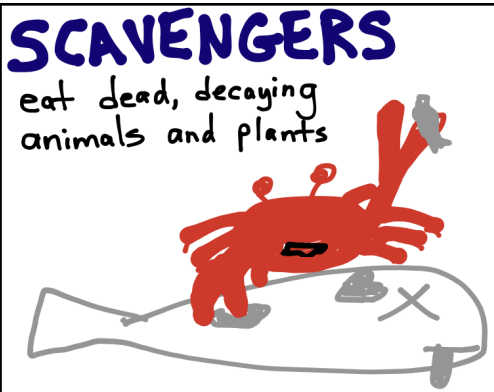
You've already learned about **producers**, **herbivores**, **carnivores** and **omnivores**. Take a moment to think or share with a partner: what's the difference between those types of organisms?

You know about carnivores, which are animals that eat other animals. An example is the sea otter. You've also learned about herbivores, which only eat plants. Green sea turtles are herbivores. And you're very familiar with omnivores, animals that eat both animals and plants. You are probably an omnivore! You might already know about producers, too, which make their food from the sun. Plants and algae are examples of producers.

Have you ever wondered what happens to all the waste that everything creates? As humans, when we eat, we create waste, like chicken bones and banana peels. Garbage collectors take this waste to landfills. And after our bodies have taken all the energy and vitamins we need from food, we **defecate** (poop) the leftovers that we can't use. Our sewerage systems take care of this waste.

But what happens in nature? Sea otters and sea turtles don't have landfills or toilets. Where does their waste go?

There are actually organisms in nature that take care of these leftovers and poop. How? Instead of eating fresh animals or plants, these organisms consume waste to get their nutrients. There are three types of these natural garbage collectors -- **scavengers**, **detritivores**, and **decomposers**. You've probably already met (and maybe even eaten) a few of them.

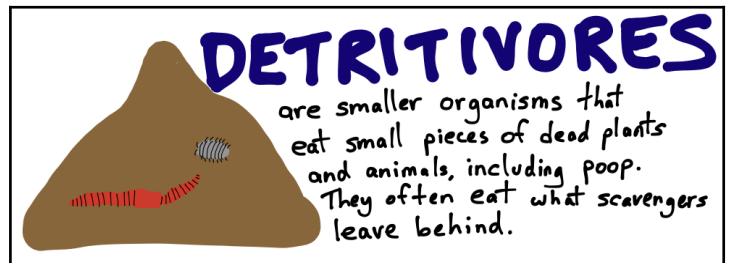


Scavengers

Scavengers are animals that eat dead, decaying animals and plants. Often, scavengers eat the leftovers after a carnivore has eaten most of an animal's body. Have you ever seen vultures eating pieces of a dead animal on the side of a road? Vultures are one example of scavengers. In the ocean, crabs often eat from the corpses of animals that died naturally. They also eat the leftover pieces after a predator has eaten part of an animal.

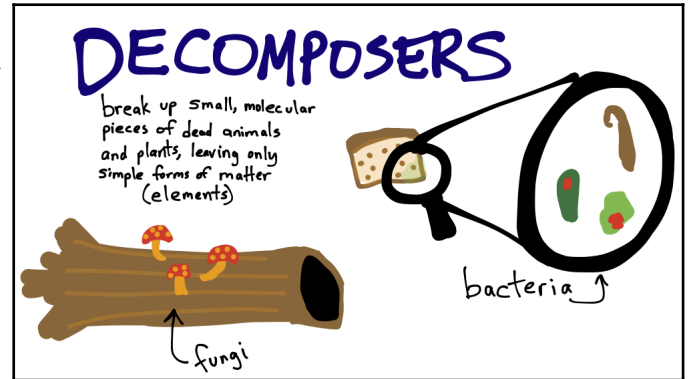
Detritivores

Similar to scavengers, **detritivores** eat what's left of dead animals and plants. However, detritivores are usually smaller organisms that eat smaller bits of leftovers. Often, detritivores will eat the pieces of dead organisms that scavengers leave behind. Detritivores will also eat the droppings (poop) of other animals, including the droppings of scavengers. Scientists use the word "detritus" to describe the things that detritivores consume. Detritus includes small bits of dead plants, bits of dead animals, and droppings. You have probably met a detritivore in your very own schoolyard -- an earthworm! In the ocean, sea cucumbers fill this role. Some people say the sea cucumber is like the vacuum cleaner of the ocean. This is because it sucks up all the leftover bits on the seafloor.



Decomposers

Scavengers eat big pieces of nature's leftovers. Detritivores eat smaller pieces. Nature also has **decomposers**. Decomposers break matter into even smaller, molecular pieces! You can't even see decomposers absorbing their food unless you use special equipment, such as a microscope. Instead of mouths, decomposers use chemicals to break down the cells of dead and decaying plants and animals. When decomposers are finished breaking up their food, only the basic elements are left -- those elements you see on the periodic table. The periodic table is nature's cupboard. Everything in the world is made from combinations of the elements on the periodic table. Decomposers absorb the elements that they can use, and they leave any leftover elements in the soil. So, decomposers put the elements they can't use back in the cupboard to be used again by living things. Plants use the elements left in the soil as nutrients to grow.



The most common decomposers are bacteria and fungi. Have you ever seen mold on a piece of bread? Mold is a type of decomposer. When you see it on bread, it's breaking apart that bread into tiny, microscopic bits. Have you ever eaten a mushroom? A mushroom is also a decomposer. It gets its nutrients by breaking apart dead plants and animals, as well as animal droppings. It may sound gross, but without these decomposers, nature's waste would pile up. It's just like our garbage would pile up without garbage collectors. Think about that the next time you bite into a delicious mushroom!

Challenge: Can you draw three illustrations showing how scavengers, detritivores and decomposers get their food? Your illustrations should show how these three types of consumers are different. Also, try to show what happens to the waste (leftovers and poop) that each of these organisms leave behind.

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