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## Life in a Compost

Composting is the breakdown of organic materials with the help of other organisms.

Organic material is anything made from carbon. All living things are made of carbon- and carbon-based compounds are easily broken down.

This is also referred to as decomposition. Decomposition is a natural cycle that all living things go through. For example, when a tree dies organisms move into the tree and start eating and breaking down the wood.

Eventually the wood turns into \_\_\_\_\_.



When we compost our food waste the same thing happens.

What are some benefits of composting our food waste?



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By composting our food waste, we reduce the amount of trash we put into the landfill. Once the material decomposes back into soil, we can then replace the nutrients in the soil that was taken out when growing our food. By replacing what we take out with our composted material we reduce the chance of needing to add these nutrients through fertilizers.

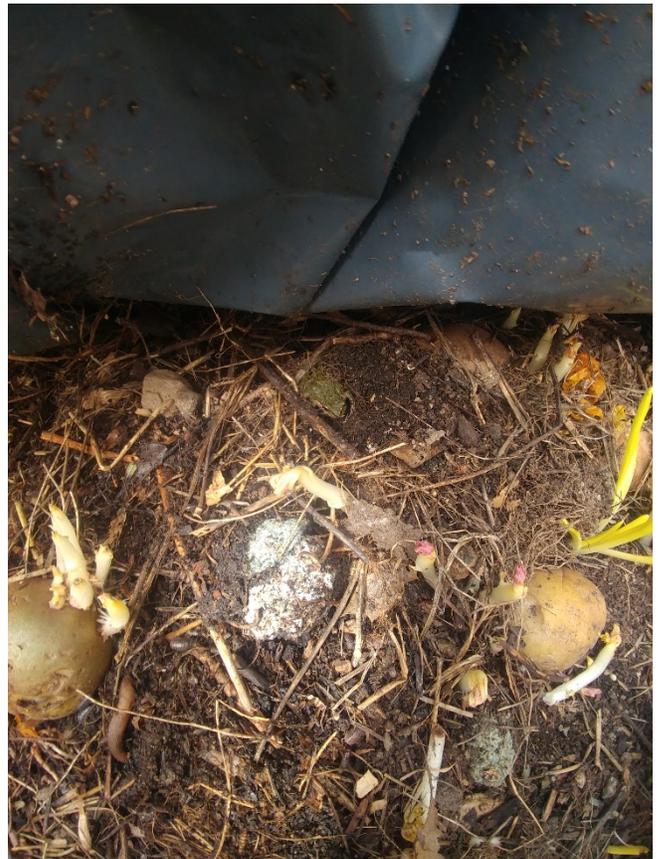
Decomposition is completed by a series of organisms. Can you list what some of those organisms might be or draw a picture of one?



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### Bacteria, Fungi, and Insects

What does a compost pile provide for these organisms?



A compost pile or a log is a **habitat** for these organisms. It provides them with **food, water, shelter, and space**.



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What organisms do you see in the photo?

Did you see the Pacific Chorus Frog? Why do you think this frog is living in the compost pile?

The compost pile being its own habitat also has its own **food chain**. A food chain is a map who eats who. For example, a fruit fly eats the waste in the compost pile and the frog eats the fruit fly. Using the example fill out the food chain below.



There are many organisms working on the pile that we cannot see called **microorganisms**. There are different types of microorganisms that interact with the compost pile they are defined by what temperature they thrive at and oxygen usage.

**Mesophilic Microorganisms** are organisms that thrive at temperatures between 68-113 degrees Fahrenheit.

**Thermophilic Microorganisms** thrive at high temperatures 106-252 degrees Fahrenheit.

**Aerobic Microorganisms** require oxygen to live.

**Anerobic Microorganisms** do not need oxygen to live.



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Fill in the blanks with the appropriate microorganism.

At the start of the compost pile the temperature is low allowing \_\_\_\_\_ microorganisms begin to work. As they break down material, they produce heat as a byproduct. This raises the temperature of the compost pile making it hospitable for \_\_\_\_\_ microorganisms. During this time oxygen levels begin to drop reducing the number of \_\_\_\_\_ microorganisms. With little oxygen \_\_\_\_\_ microorganisms flourish as they break down material, they cause the compost pile to stink because they release hydrogen sulfide. To increase the oxygen levels in the compost pile it will need to be turned causing a return of \_\_\_\_\_ microorganisms. During the final stage of the compost pile the thermophilic microorganisms use up available compounds cause a reduction in temperature. As the temperature drops \_\_\_\_\_ microorganisms move back in finish the compost pile.

This is just a drop of what happens in a compost pile. Setting up a compost is easy and fun. It can be done outside or indoors depending on what you have available and how much you want to compost. Talk with your parents about setting up and compost and why it is beneficial for the environment. Thank you for partaking in Sanctuary One Education.