



Fun with Fungi!

Want to hear a joke?

Why does the mushroom get invited to all of the parties?
Because he's a Fun-Guy! (get it?... fungi).

Anyways... mushrooms, like the kind you may eat on your pizza, or in salads, are a type of fungi. Fungi is the plural word for a fungus. So, what are fungi exactly? Fungi are unlike plants or animals, so they are in their own kingdom. Essentially fungi start as a single spore that finds the right environment and grows by absorbing nutrients, sometimes becoming a mushroom.



Fungi have been forming on our planet for billions of years. Fungi are **decomposers**, which means that they turn dead things (like dead plants and animals) into their food, and then return all of those nutrients back into the soil so that new plants and animals can grow.



Some edible varieties, including shiitake and oyster mushrooms. You can find these at your grocery store or farmer's market.

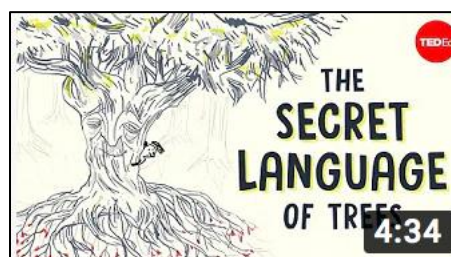
There are 100,000 known fungi species on the planet, and more are discovered every year! Scientists estimate there could be over 1.5 million different kinds of fungi on the planet. We humans have evolved to eat at least 200 types of mushrooms, for food or medicine.

Why are fungi important in a watershed?

Fungi are the key part of our food web! They are the ones responsible for breaking down dead plants and animals and returning those nutrients to the soil for new plants and animals to grow on. Our watershed ecosystem would not be able to grow and prosper without fungi. What's even more important is that fungi are not just seen on the surface, like mushrooms or lichen, but are underneath our feet... with every step we take! That's right, there are entire webs and lines millions and millions of feet long in the soil called mycorrhizal (my-ko-rye-zale) fungi. These fungi are responsible for helping move nutrients under the soil, and connecting with the roots of trees and plants to help them grow. It has even been proven that trees can communicate to each other underground through these mycorrhizal highways. Our ecosystems needs these fungi to flourish!



Need some more evidence? Watch this video from TedEd:



EXPERIMENT 1: Finding Fungi

Did you know that people go out in the woods every day looking for fungi? It can be hard to identify edible (ones you can eat it) versus poisonous or toxic fungi. For this reason, it's important to only eat a mushroom that you find, if you are with an expert who can help you know what it is! We are very lucky to live in the Pacific Northwest because there are mushrooms everywhere, thanks to how much moisture we have. Thank you rainy days! Let's get out and explore.

You will need:

- Observation Journal
- Pencil
- Magnifying Glass (optional)

Instructions:

The only instruction is to go take a walk in the woods, but keep your eyes on the ground! You will be amazed at the amount of fungal diversity (different kinds of mushrooms and lichens) that are in our forests. As you're walking, try and remember that each of these mushrooms has miles of mycorrhizae running underneath the surface, connecting the trees and feeding them nutrients. I even found a huge field of mushrooms this morning, while walking around my neighborhood!



See how many different species you can find, taking note in your journal of their size, shape and color. Do you notice that some are in the dirt, and others are on logs? A few months ago, I found this Lion's Mane mushroom in a tree hollow, only visible if you passed by the tree on the right side. Have fun exploring and send me pictures of some of the fungi you discovered!

For a complete guide to mushrooms of the Pacific Northwest, click [HERE](#). Remember, don't eat any mushrooms that you find, as many are toxic to humans!



EXPERIMENT 2: It's Alive!

Fungi are not only for eating as mushrooms, but they are molds that come in the form of penicillin (an important drug for fighting human infections, but not COVID-19), yeast (for making yummy bread) and the molds that make delicious cheeses! All of it is thanks to fungi! Let's test how alive yeast bacteria fungus is, by feeding it!

You will need:

- 1 clear bottle with a small opening (a water bottle or old vinegar bottle would work great)
- 1 cup of warm water
- 1 teaspoon of sugar
- 2 ¼ teaspoons of dry instant yeast, or 1 packet.
- 1 balloon
 - if you don't have a balloon, you will need a plastic bag and some tape.



Instructions:

1. Mix together the warm water (not too hot or it will kill the yeast) and the sugar until all of the sugar has dissolved into the water. The sugar is the food that the yeast will feed on.



2. Next add in the yeast and stir it in until it is dissolved and the water looks creamy.



3. Add this mixture into your bottle- mix gently by swirling the bottle.



4. Stretch out your balloon with your hands a few times and then secure the balloon onto the top of the bottle. If you don't have a balloon, then secure a small plastic bag onto the bottle top and tape around the seam of the bottle neck.



5. Place the bottle in a warm place for 20 minutes and observe. If everything went according to plan, your balloon should begin to swell up!



The Science Behind It! As the yeast eats the sugar, it produces carbon dioxide (CO_2) which then begins to fill the bottle and then the balloon. This release of carbon dioxide is how we get loaves of bread that rise and are filled with air bubbles. Thanks to these microscopic fungi, breakfast is served 😊

Digging Deeper:

An amazing scientist from the Pacific Northwest in Canada, Suzanne Simard, has a TED Talk where you can learn in detail how trees communicate. She does a great job at explaining how to conduct a scientific experiment to test your hypothesis.



CHALLENGE!

Grow a Fungus Garden! Click [HERE](#) to get instructions on how to grow a fungus garden with your kitchen scraps and observe the way that food decomposes. Remember to follow all of the instructions carefully!

Thanks for conducting science with me for this Home Explorer activity from Umpqua Watersheds Education Program.
Join me for new activities posted every week!

- Ms. Robyn

