

## Raincoast Field School @ home

### Fungi Week, Question and Answers:

**1) Is mold a fungus?**

AMY: A mold is indeed a fungus! Is it just one of the many types of fungus on this Earth. Molds can be so small that they are virtually invisible to the naked eye. But when multiple mold spores grow close together they become visible as they spread rapidly across a surface. More than 100,000 mold species have been identified by scientists and are usually categorized in 3 ways:

Allergenic- which means they will likely cause illness/ cause allergies

Pathogenic- can cause infection in those with compromised immune systems

Toxicogenic- means it is toxic to all who come in contact with it.

Mold growth begins when a single spore of fungus lands on an organic surface such as old bread, paper and even leather. As the mold absorbs moisture in the air, it swells in size to form a thin thread known as hyphae. The hyphae quickly spread and extend across the surface, assuming conditions are sufficient for growth. Mold grows best in dark, damp, conditions.

**2) What conditions are needed for fungus to grow- why do we see most growing in fall?**

TAYLOR: Fungus, just like the mold Amy explained love dark, cool, damp environments. That's why you see so much mushroom production in the fall and little in the summer. In summer time the conditions are too harsh- the sun dries out the environment and if a mushroom were to grow it quickly would wither. However, fungi as a kingdom are super adaptive and diverse, and although the fungus we have here on the coast like our wet, cool, dark forest floors, fungi can grow and thrive in a wide range of temperatures, light levels, and humidity. There are even fungi species growing in water.

**3) Is there fungi in the ocean**

AMY: YES! So we know now that terrestrial fungi play critical roles in nutrient cycling and food webs and can shape macro-organism communities as parasites and mutualists. But what about in the ocean? Do they help cycle nutrients too? Fungi have been found in nearly every marine habitat explored, from the surface of the ocean to kilometers below ocean sediments. Fungi are assumed to contribute to phytoplankton population cycles, so yes they also help mix nutrients in the ocean just like in the forest. Many fungi that are found in the sea are also found in terrestrial environments, indicating the remarkably effective adaptive capabilities within the fungal kingdom

**4) What exactly are heterotrophs?**

TAYLOR: A heterotroph is an organism that cannot produce its own food, instead taking nutrition from other sources of organic carbon, mainly plant or animal matter. In the food chain, heterotrophs are primary, secondary and tertiary consumers, but not producers.

Whereas autotrophs are organisms that can produce their own food from the substances available in their surroundings using light (photosynthesis) or chemical energy

**5) How many types of mushrooms grow in BC?**

AMY: Lots of British Columbia mushroom Identification and guide books. We definitely have a lot of differing species of fungus growing here. The probable number of mushroom species in BC is somewhere around 5,000+ possibly as high as 10,000. From this number however few are actually edible to us as humans. From what I could find through my research, there are around 50 or so mushroom species we can eat. The rest of the total counts are poisonous! How crazy is that. When you compare that to the number of plants a human can eat it seems unreal. Think of all the varieties of fruits and veggies we can munch, good thing we don't just have forests of mushrooms! We would be pretty hungry.

**6) What eats a mushroom? They seem to cycle a lot of nutrients and break down a lot, but are they a food source to anything?**

TAYLOR: well of course humans are a consumer of mushrooms. Lots of people in our local region here consider themselves skilled mushroom pickers when the season is in full swing. We definitely use them as a source of nutrients. However many other species eat mushrooms aswell. Tree squirrels, ground squirrels, chipmunks, deer, slugs, and insects like ants. Many different organisms have been observed gaining energy by consuming fungi. Depending on the species and other factors, slugs eat only fungi at specific stages of development. Actually a term-fungivores!

**7) Is there a mushroom called a Puf-mushroom**

AMY: That's almost the name of it! They are called Puffballs, how cute. They are a type of fungi that grow to look like giant white balls. Giant puffballs are saprotrophs, meaning they feed on dead organic matter. They're more likely found in meadows and grasslands than in the forest. They are always found growing on the ground rather than up in trees.

**8) Can a fungus live on a person**

TAYLOR: Yes! There are lots of fungus capable of growing on humans. We normally call these outbreaks fungal diseases. They can be mild like a fungal skin infection that can just look like a rash, but also can grow to be quite intense if not taken care of properly. Lots of the time people also get fungal nail infections- under finger nails and toes. In humans, fungal infections occur when an invading fungus takes over an area of the body and is too much for the immune system to handle. Like many microbes, there are helpful fungi and harmful. When harmful fungi invade the body, they can be difficult to kill, as they can survive in the environment and re-infect the person trying to get better. So fungus lives all over! In the air, soil, water, plants and even humans.

**9) How else do humans use fungi?**

Fungi and molds are also instrumental in making many foods: mushrooms are fungi, and fungi are responsible for beer, cheeses and even chocolate. In the case of chocolate, the fungi are used to ferment cacao beans to make them sweeter and more palatable to humans. Finally, molds and fungi are used to make modern medicines, most notably penicillin, which is made from mold.

**10) What is the right way to pronounce “Fungi”? Mark says it differently!**

Many people say this word differently! Some say “fun- guy” with a hard “G” and some say “fun-jigh” with a “J” sound. Some people also turn the “i” into an “ee” sound. The word Fungi comes from latin and many words with latin roots have different pronunciations in different languages. A good rule of thumb for scientific words is to pronounce it in a way that is understandable and that allows the listener to sound out the word and spell it correctly. So really, either pronunciation is good!