



**Social Policy Ecology Research Institute
Farmer Field School**



Mushrooms_Introduction_handout 2011_compressed

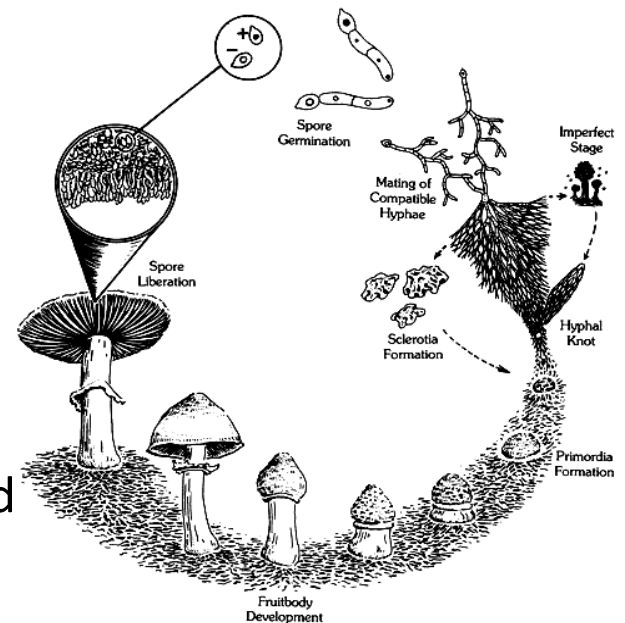
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Introduction to Mushrooms

Learn and Live with fun - gi

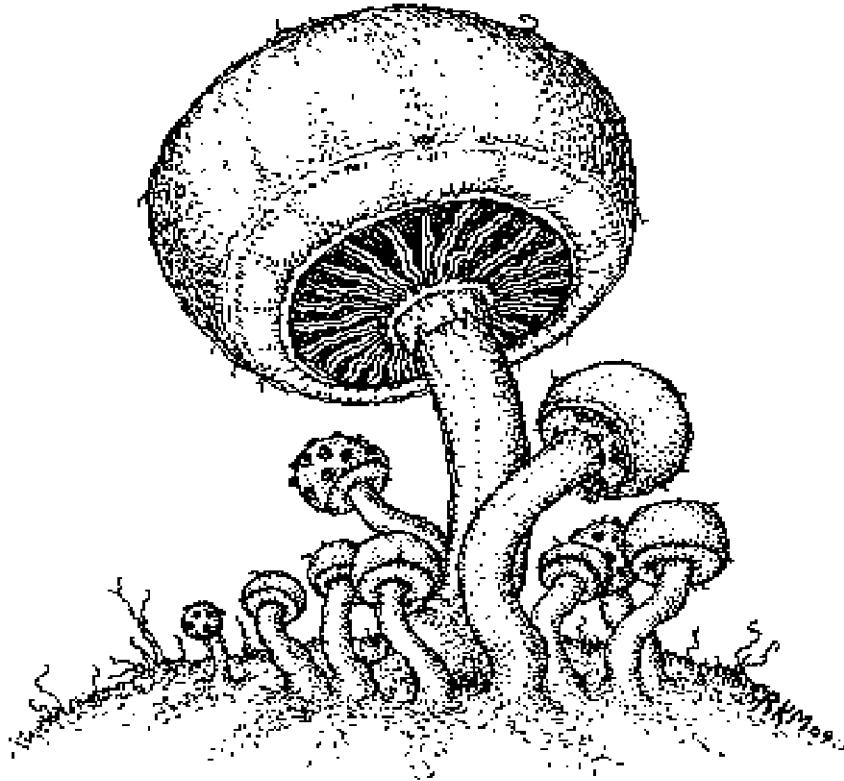
- Background Information
- Local Knowledge and Observations
- Mycelium, Life Cycle, Fungi and soil, Fungi and Trees.





Mushrooms

Local Knowledge and Observation



- What are mushrooms?
- What do mushrooms eat?
- What kinds of mushrooms do you find in the forest around the village?
- Do wild mushrooms grow if there is no forest?
- Do people grow mushrooms in your village?

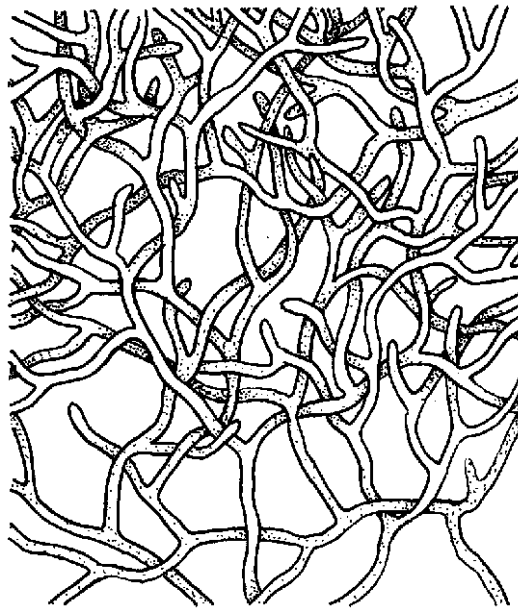
Do you have local knowledge about mushrooms?
Have you made interesting mushroom observations?



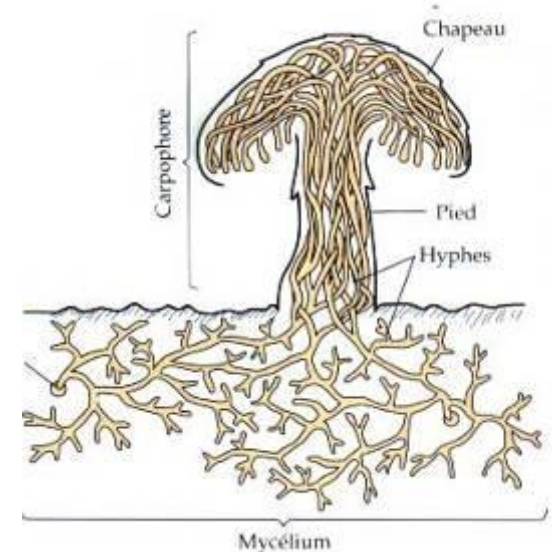
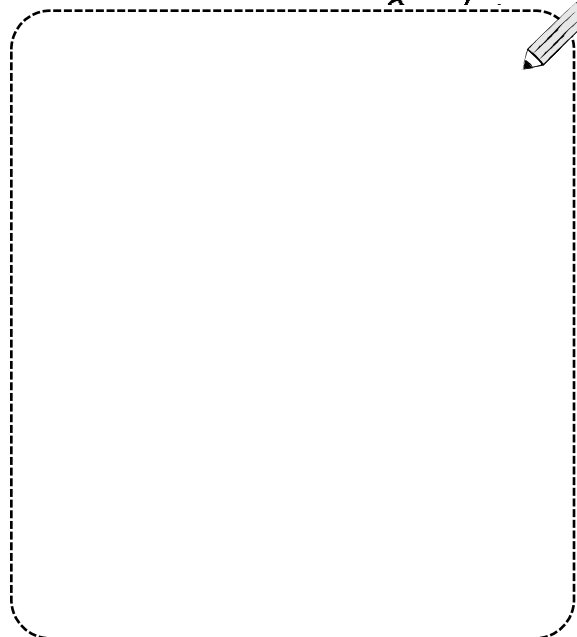


What are mushrooms?

- Mushrooms are the fruit of the mycelium body, a type of fungus.
- Fungi can be found everywhere; air, soil, water decaying matter and life.
- Fungi are not plants, they cannot make their own food, they live by eating organic matter.
- Some fungi live by eating the sugars from dead and decaying material, wood, leaves etc.
- Other fungi live on other living organisms, some are beneficial others are harmful and cause diseases in crops and animals.
- There are many types of fungi, including mould, yeast and mushrooms.



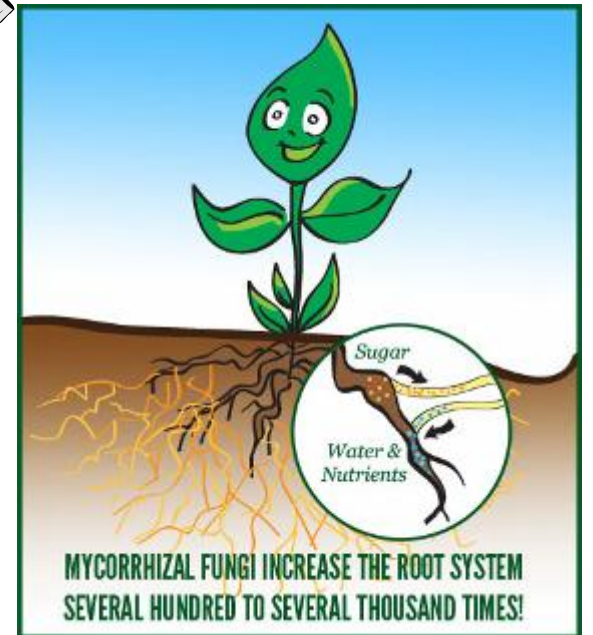
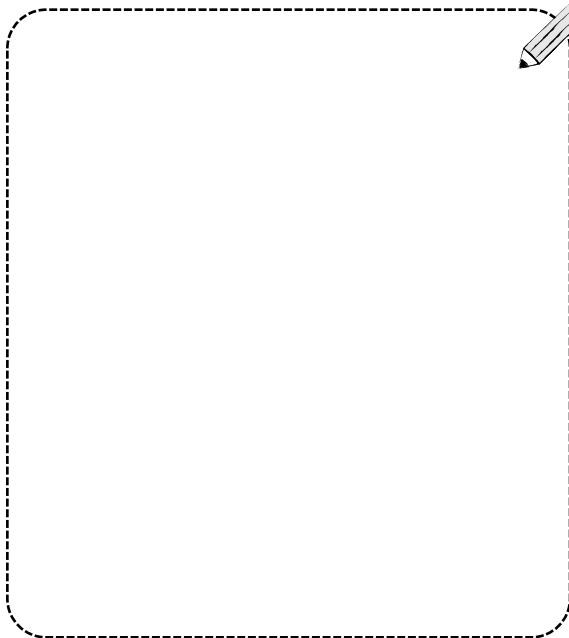
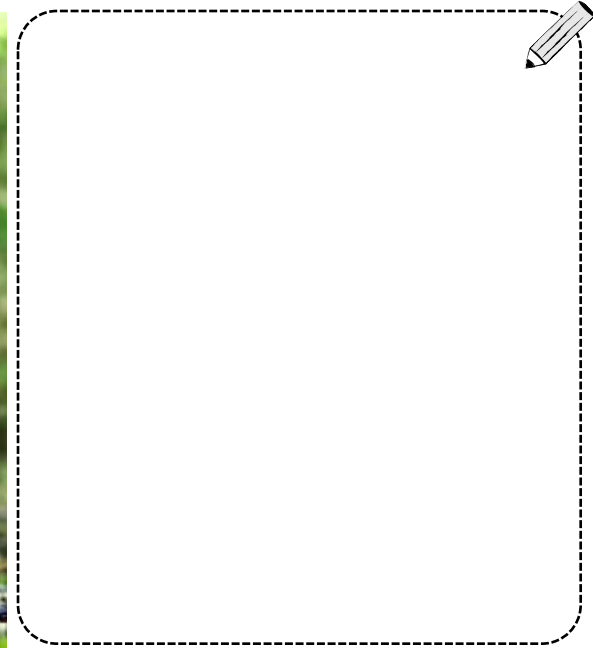
How do I understand Mushrooms?





Mushroom Facts

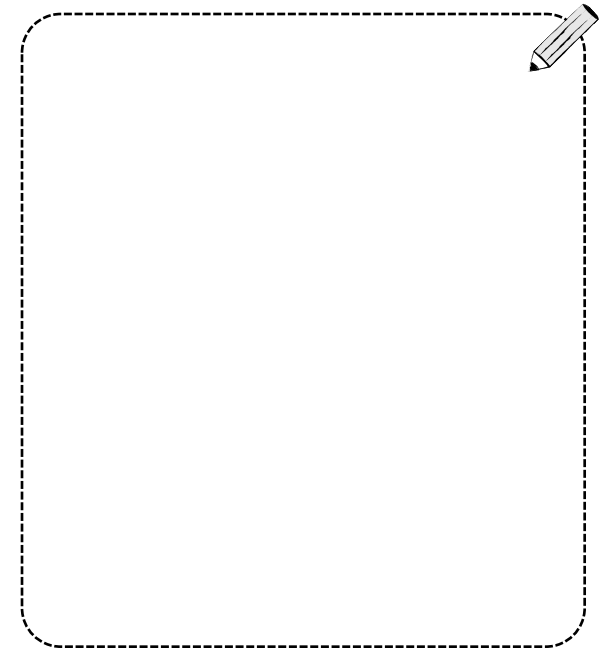
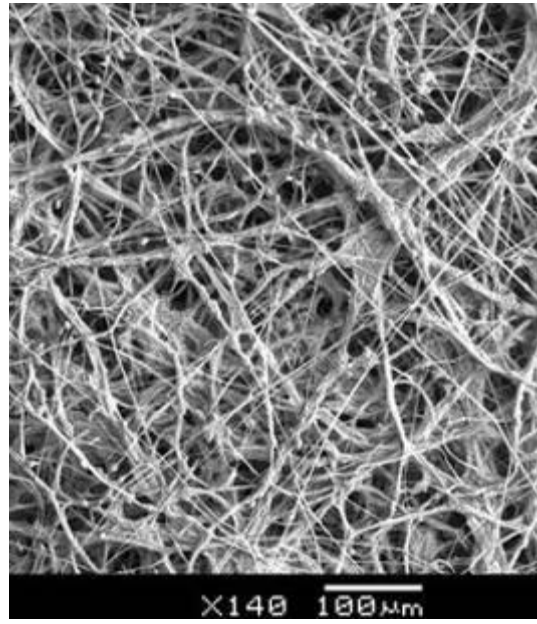
- Antibiotics come from a special type of fungi, and saves millions of human lives.
- World mushroom production in 2008 was about 3.5 million tons.
- Mushrooms contain a lot of minerals, vitamins and protein.
- Yeast is used to produce alcohol and is a type of fungi.
- Some mushrooms are extremely poisonous and can kill.
- Mushrooms can connect to Plants.





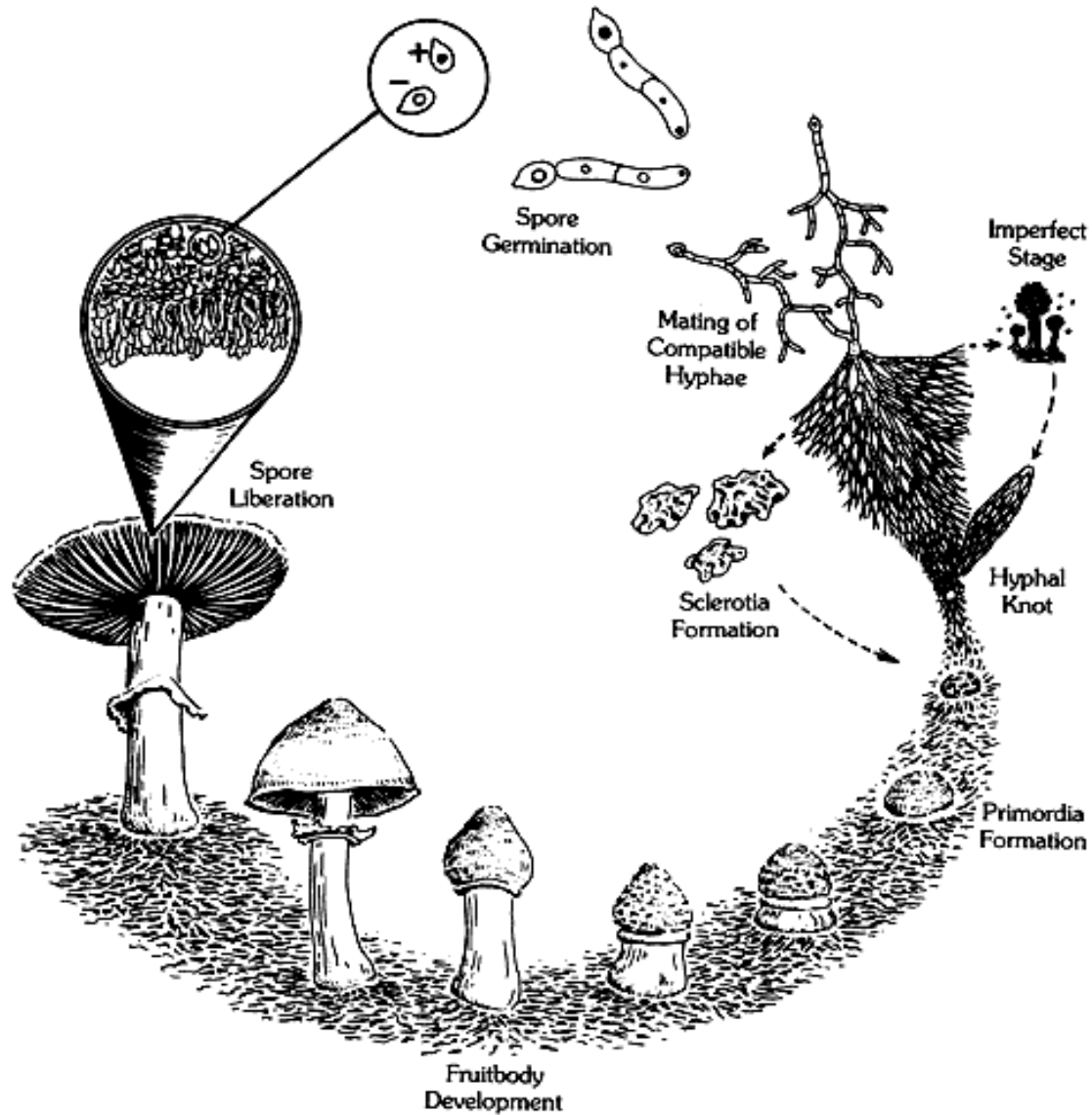
Mycelium

- Mycelium is made up of thin branching tubes.
- These tubes form a netting pattern
- The cell walls of Fungi are made of a similar material that insects use to make their shells.
- Fungi do not have stomachs they must break materials down with acid and enzymes outside of their bodies.
- Fungi breath in O₂ and breath out CO₂, like humans.





Life Cycle



What are the different stages of the life cycle?





Fungi and soil

- Fungi is the dominate life form in forest soil up to 90% of the biomass.
- Fungi can help to improve the soil, by creating aeration and structure.
- Fungi creates tubes in the soil.
- Dead fungi build organic matter.
- By mulching with woody stems we encourage fungi.
- Fungi help make compost.
- Most trees and perennial plants prefer a soil rich in fungi, like in a forest.
- Fungi dceates a net to help stop erosion.
- Break down rocks to release nutrients for plants.
- 100 meters of fungi in one teapoon of soil.



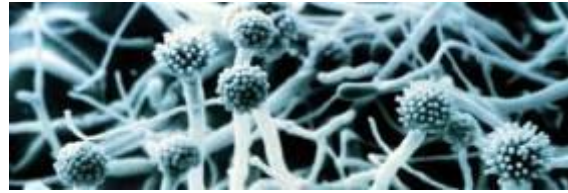
How can you design to help fungi in the soil?





Fungi and Trees

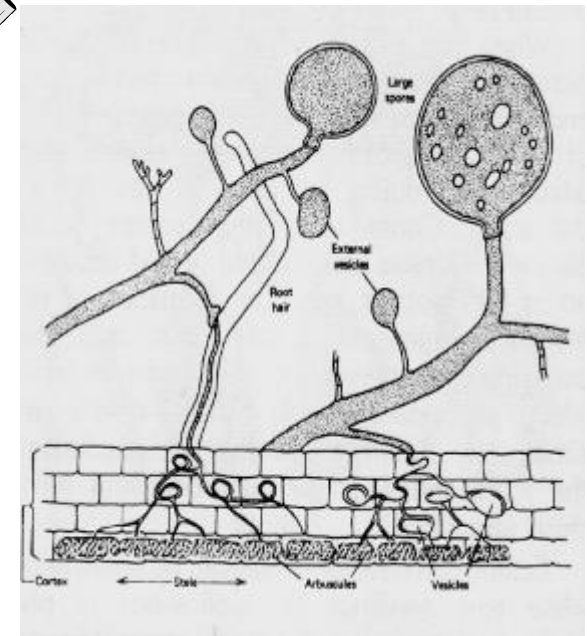
- Mycorrhizae are fungi that live on the roots of plants.
- Plants give the fungi sugars produced in the leaves and fungi give the tree water and nutrients.
- Fungi increase the effective number (surface area) of roots on the plant.
- Hundreds of thousands of kilometers of mycorrhizae can live with a single tree in a forest.
- Fungi can also help trees exchange nutrients with other trees (fungi internet).
- Most plants form relationships with fungi.



What are the most important things you need to share with others?

e.g. photos, objectives, materials used , etc

What principles are involved?



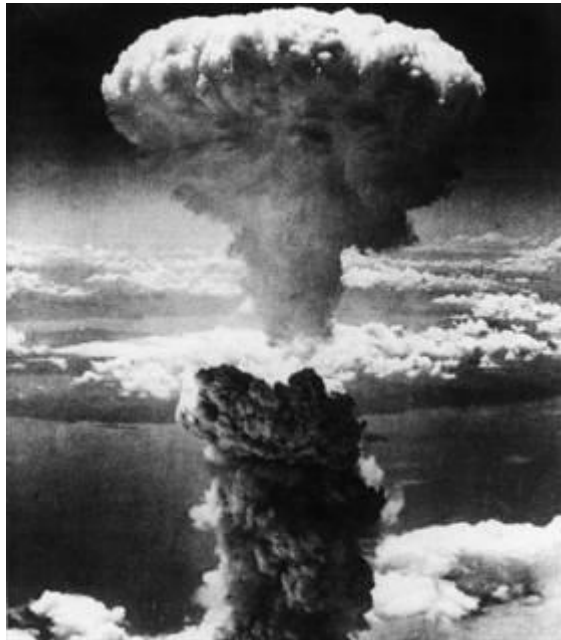


Pattern

- Where can we find other Mushroom / Fungi Patterns in Nature.



What do these patterns look like?



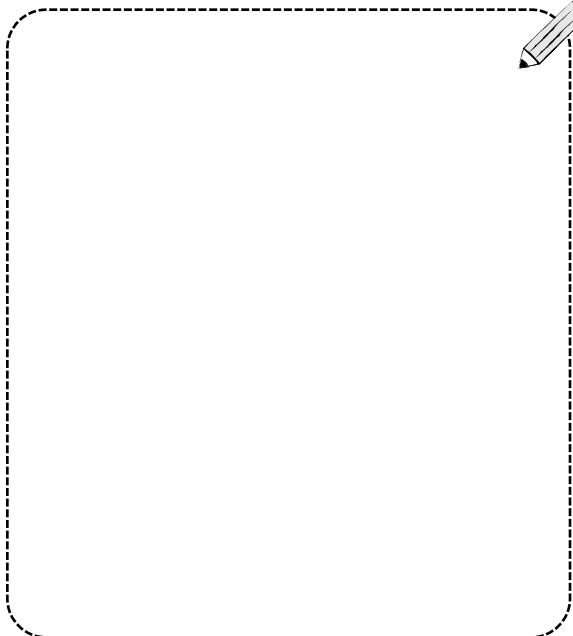
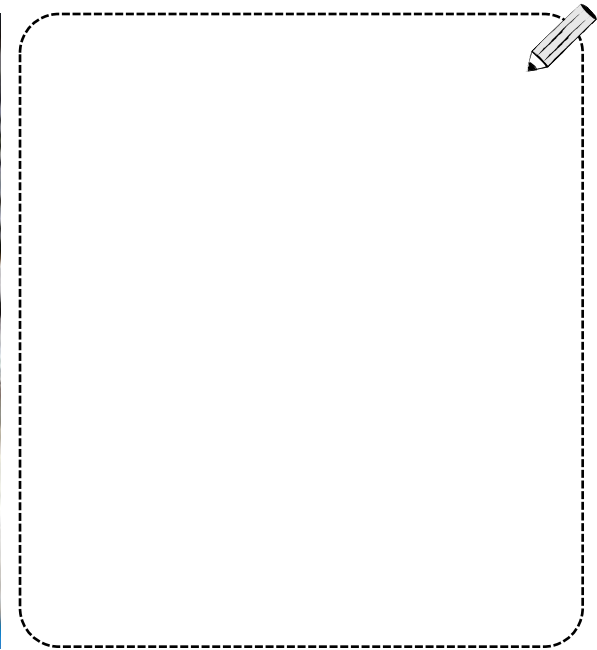
How can pattern help us?





Growing Mushrooms

- A local teacher will come to HEPA tomorrow.
- What are your expectations?
- What questions have you prepared?





Other uses for fungi

What are other uses of Fungi?



