

THE MUSHROOM PROJECT

What are mushrooms?

~ A mushroom is a fruit of a fungi (which is called mycelium), like an apple is the fruit of an apple tree

~ The fungi that it grows from is called hyphae, little fibers of fungus that grow in certain substances, and when those fibers are intertwined with each other, they are called mycelium

~ Mushrooms only have a lifespan of about a week, but the mycelium can live for a few years

~ There is an estimated amount of about one and a half million species of fungi in the world, but only a few have been identified

~ The types of mushrooms that grow may depend on the season, or the temperature of the medium that they grow on

~ Mushrooms can be classified whether or not they have teeth, gills, pores, or veins under their caps, how their caps are shaped, what substance they grow on, and other factors

~ Mushrooms reproduce by giving off spores from the undersides of their caps when they reach a certain maturity



Destroying Angel *Amanita virosa*

~ The *Amanita virosa* species of mushroom is also referred to as a "Destroying Angel"

~ If it were to be eaten, it could cause liver damage to a human or death.

~ They grow from late June to early November in North America

~ It is rarely found in the eastern part of the world

Purpose and Hypotheses

Purpose: To determine whether moisture and soil temperature have an affect on mushroom populations.

Hypothesis: If there is more rain, then there will be more species and a higher number of mushrooms. If the soil temperature is higher, then there will be more species and a higher number of mushrooms.

Procedure:

1. Find two area's of the Cathance Preserve, in Topsham, Maine with a lot coniferous/ softwood trees near the river and an area with a lot of hardwood trees.
2. Measure a 30 meter by 30 meter area and mark off the corners.
3. Put a flag along the path, so you can locate your area easily.
4. Stick a meat thermometer into the soil and record the ground temperature in degrees Celsius in a notebook.
5. Also record the air temperature in degrees Celsius with a thermometer.
6. Explore the area and try to find mushrooms.
7. Also record the amount of that type by using a range, for example, 0-5, or 30-40.
8. Note what they were growing on or near.
9. Record this data in the notebook.
10. Record observations that you hear, see, or smell in the notebook.
11. To get the rainfall of the whole 7 day week go to Maine Weather Underground for Topsham, Maine and record it in the notebook.

Spore Prints

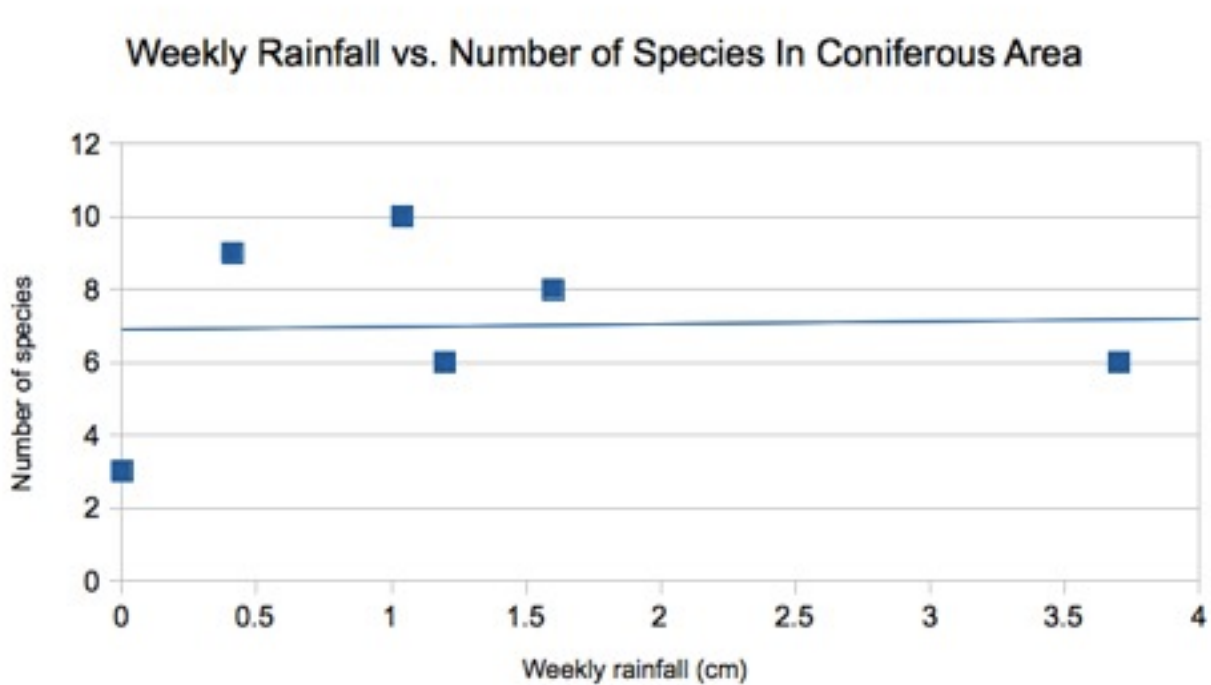
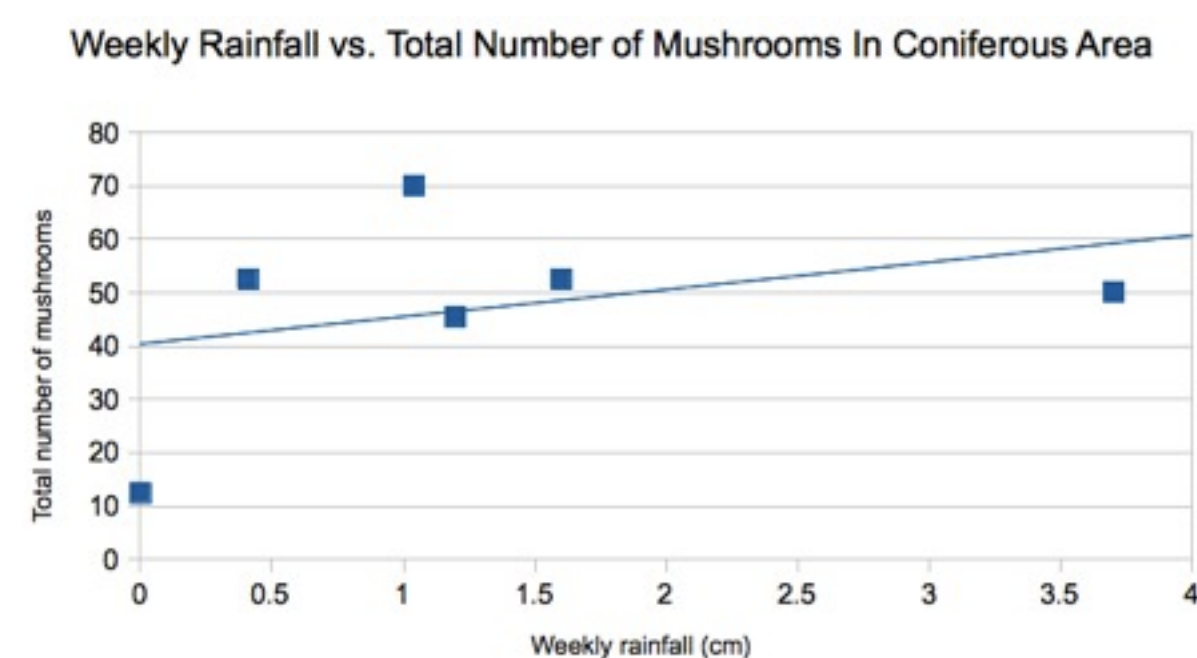
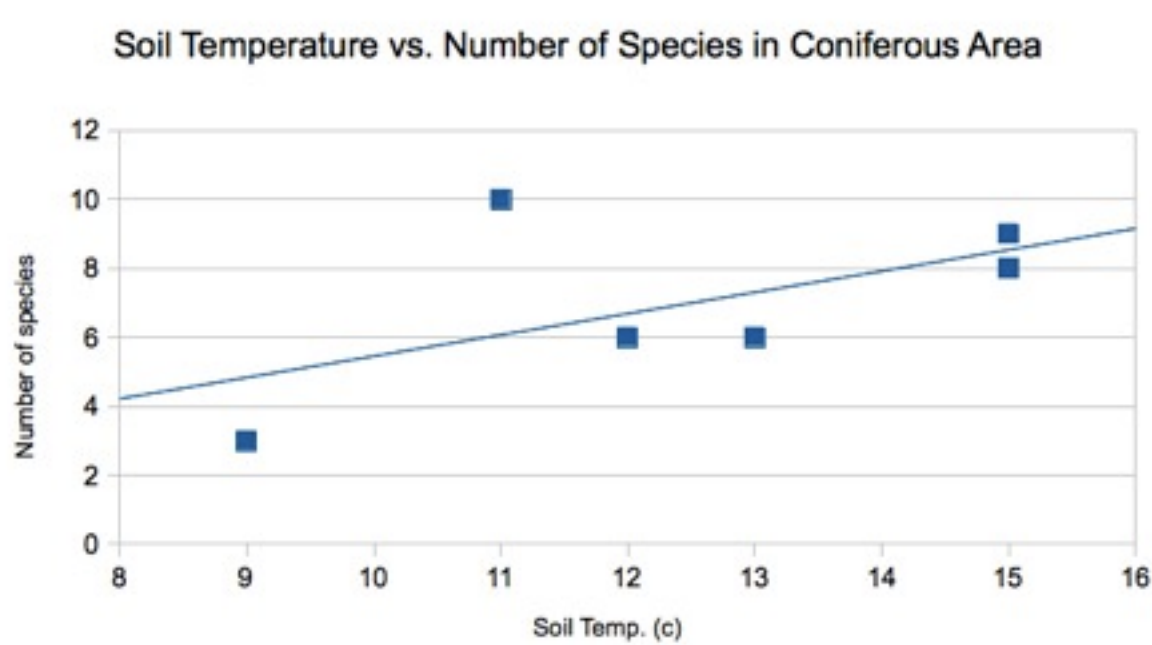
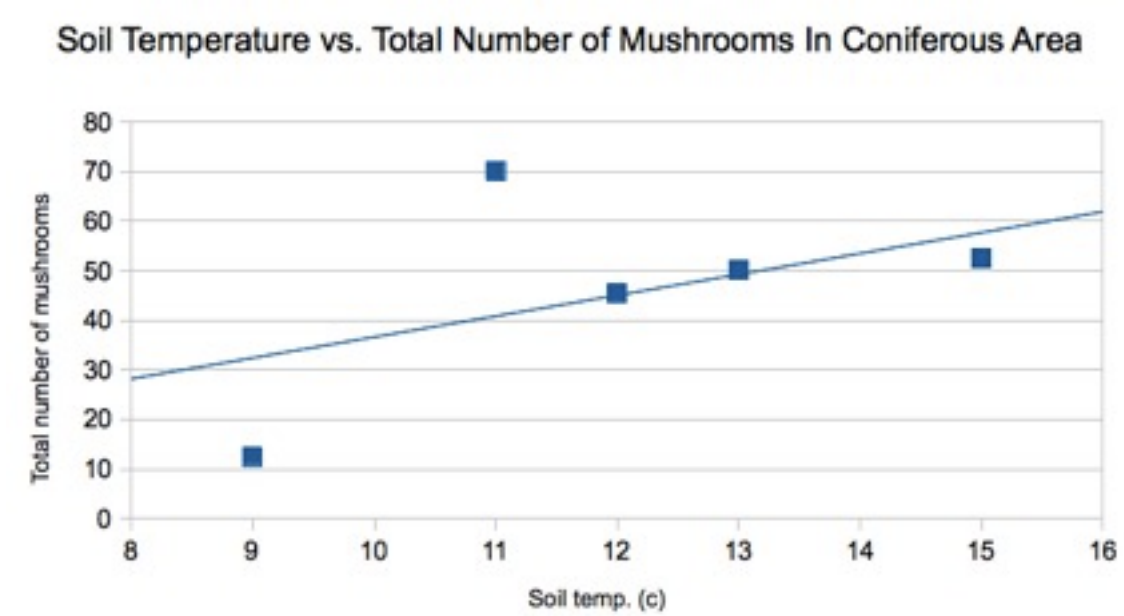
~ A "spore print" is the print of a mushroom's spores that can be captured quite easily on a piece of paper.

~ To get a spore print,

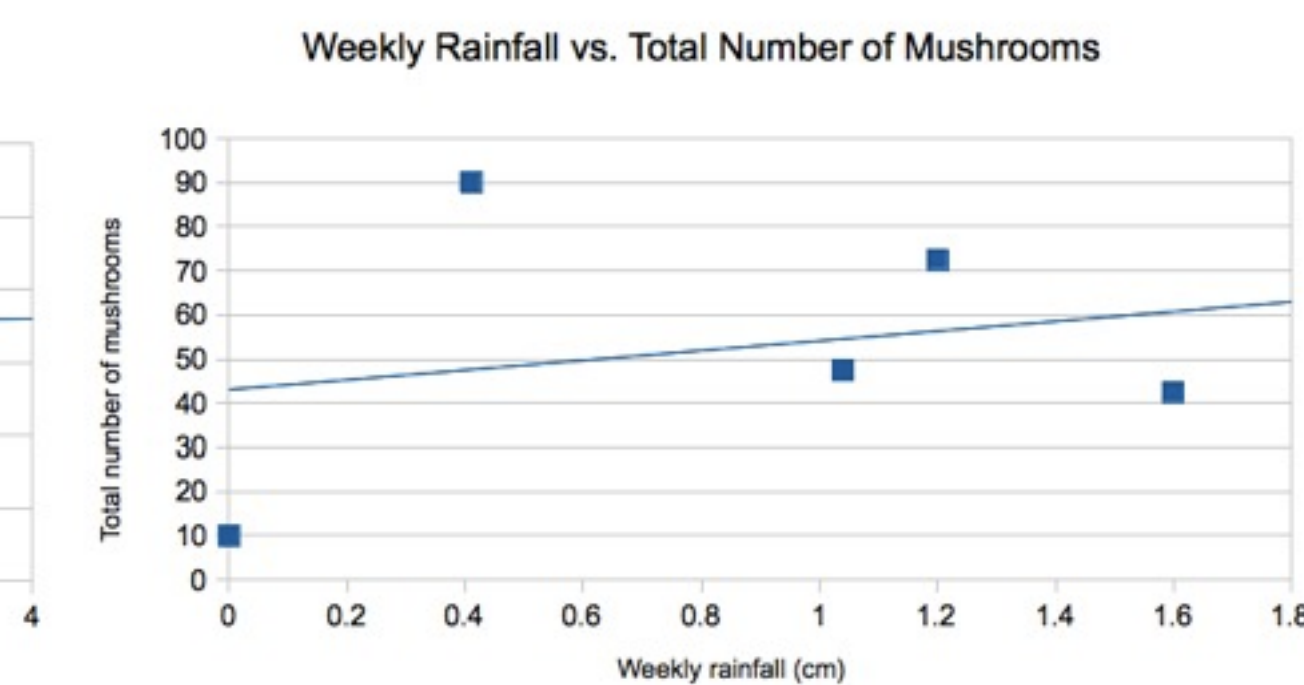
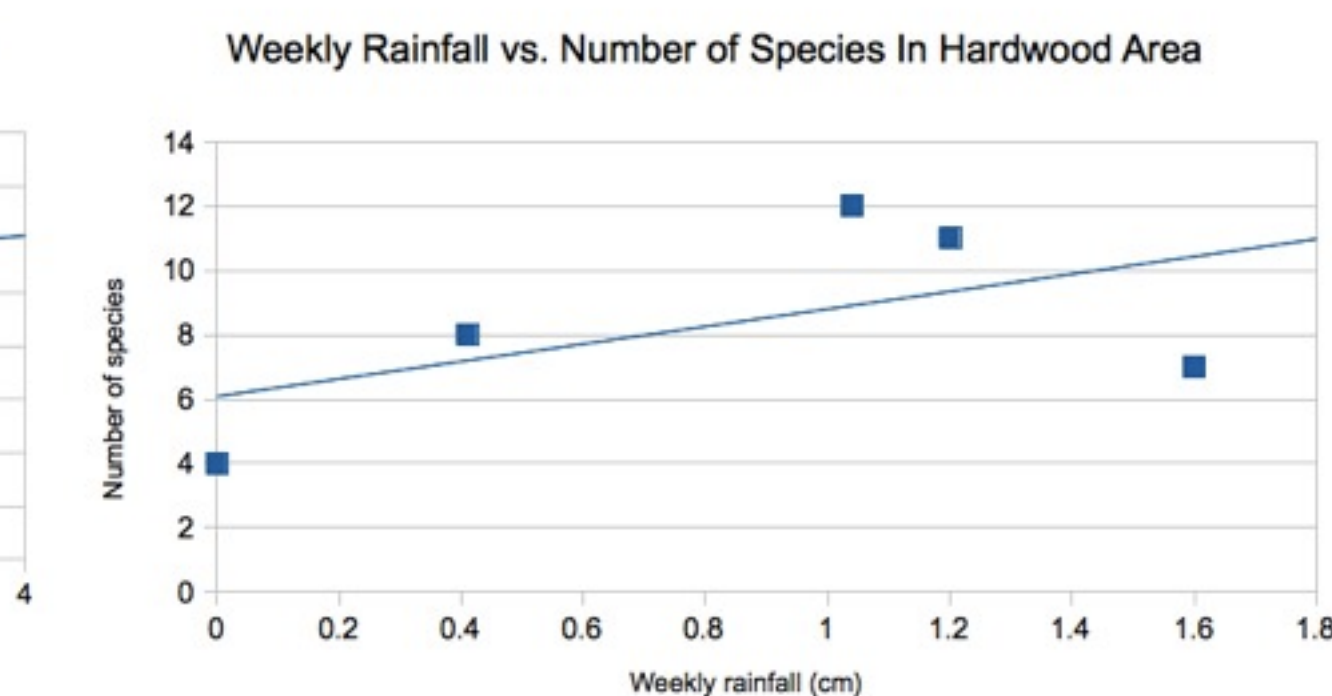
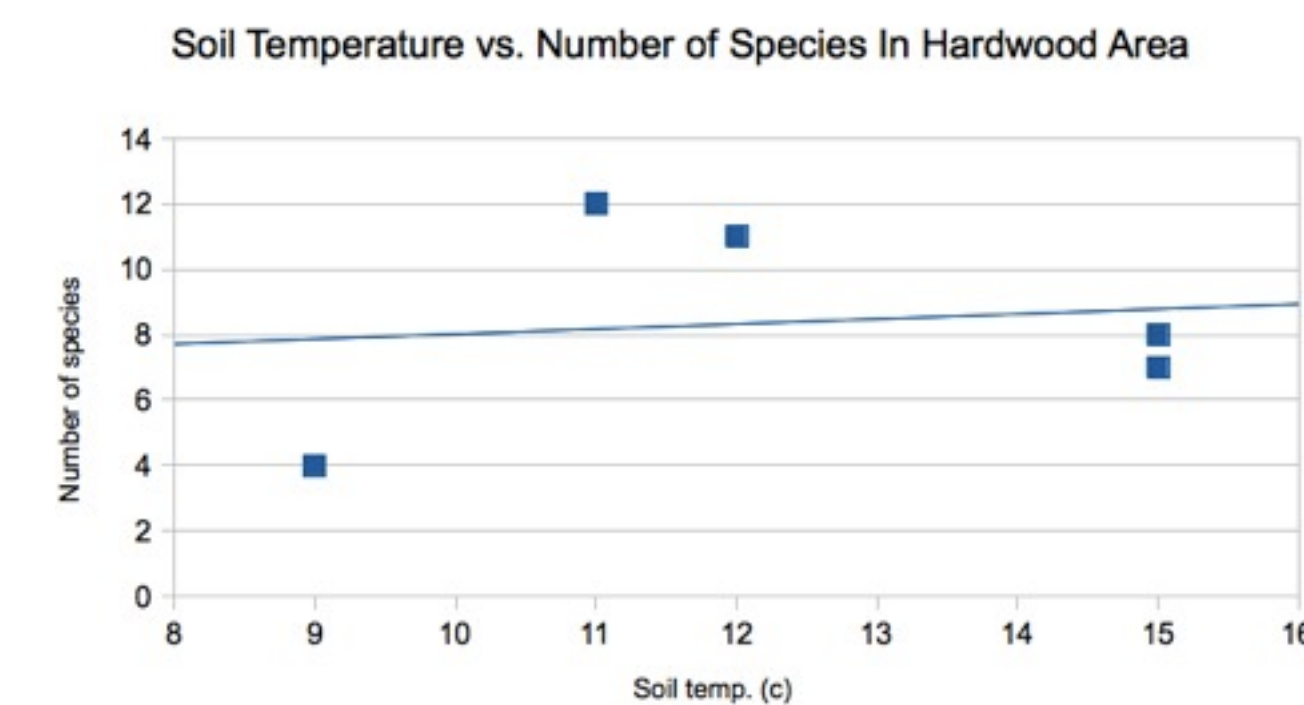
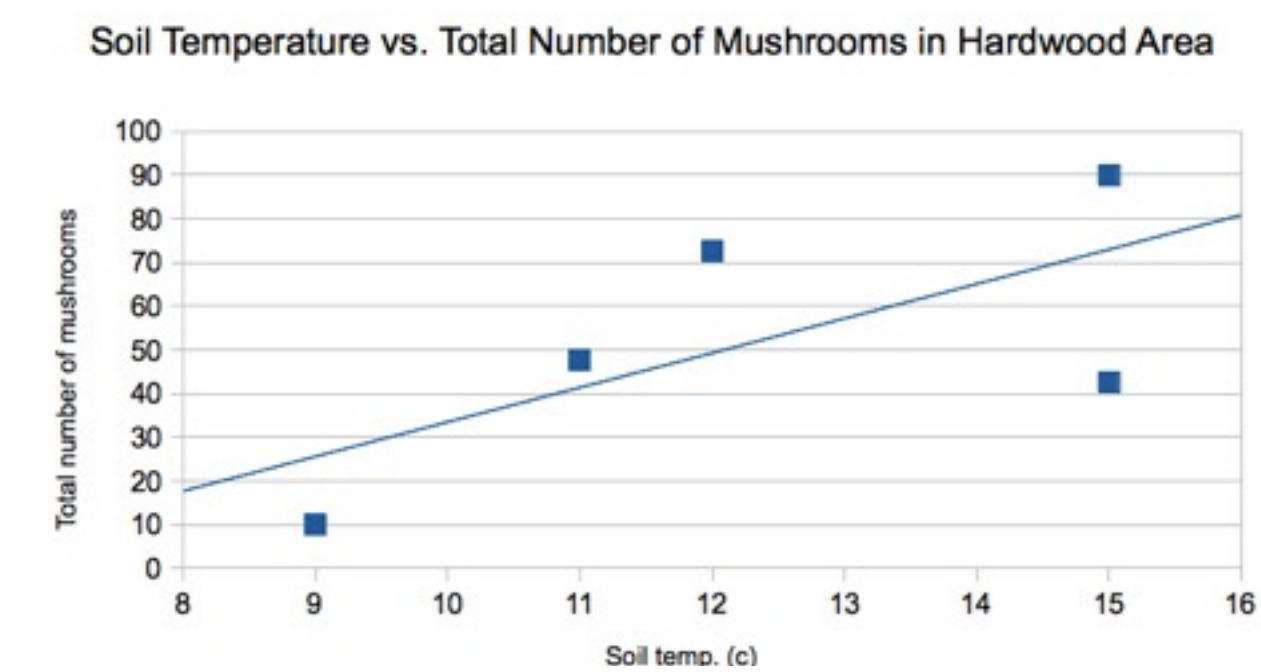
- 1) Cut off the mushroom's stem and put it's cap on a piece of paper.
- 2) Color half of the paper black, and leave the other half white. This way, you'll be able to see the spores if they're white.
- 3) Put a cup or a wet paper towel over the mushroom's cap and leave it there overnight.

~ If the conditions were correct, You will get a spore print. These can help you identify mushrooms.

Conifer Area Graphs



Hardwood Area Graphs



Conclusions

~ Hypothesis 1: If there is more rain, then there will be more species and a higher number of mushrooms.

~ Data from the hardwood area supported this hypothesis, while the data from the coniferous area did not.

~ In some parts this was supported, but for the most part it was incorrect.

~ Hypothesis 2: If the soil temperature is higher, then there will be more species and a larger population of mushrooms.

~ This hypothesis was supported by the data in both the coniferous and the hardwood areas.

~ This suggests that soil temperature has more of an affect on the mushroom population than the amount of rainfall.



Painted Bolete (*Suillus spraguei*)

~ *Suillus spraguei*, or a "Painted Bolete" is seen above with it's olive-brown spore print

~ On the underside of its cap, it has large yellow pores

~ It's edible

~ It is very common in North America wherever the eastern white pines grow

We would like to thank CREA for letting us do this project, and Cheryl St.Pierre for all the help she gave us in identifying the mushrooms.