



# Fungus Among Us Post-visit

## Classroom Activities

### Brief Synopsis

*Walking through the woods it is very easy to spot fungi. But what about at home? Believe it or not, fungi plays an important role in shaping our lives. This activity will allow students to seek out and identify when and where they encounter fungi on a daily basis at home. As an extension, new found knowledge and insights can be shared by making posters, letters, and/or short stories.*

**Ages:** Designed for 5th–8th grade

**Time Considerations:** 20 minutes in class for introduction, 30+ minutes at home, and 20-30 minutes in class for conclusion.

#### Materials:

- A variety of fungus related items to display (Optional Introduction Activity)
- Worksheets (Photocopies)
- Pencils
- Products with labels intact (At Home)
- Supplies for making posters (Optional)
- Paper for writing letters or short stories (Optional)
- Yeast, sugar, warm water (Extension Option)
- Bread dough (Extension Option)

**Vocabulary:** Biosynthesis, Citric Acid, Fermentation, Culture, Xylitol, Riboflavin, Yeast

#### Outcomes:

1. Students will realize the importance of fungus in their everyday lives.
2. Students will understand that fermentation can occur naturally or by human actions.
3. Students will share their knowledge about the prevalence and importance of fungus with others.

#### Minnesota Academic Standards:

**Science:** 4.IV.B.1, 5.IV.F.1-3, 5.III.A.2, 7.IV.B.5, 7.IV.F.3&5

#### Math:

**Language Arts:** 4.I.A.1, 4.I.B.1, 4.II.A.1, 5.I.A.1, 5.I.B.1, 5.II.A.1, 6.I.A.1, 6.I.B.1, 6.II.A.1, 7.I.A.1, 7.I.B.1, 7.II.A.1

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### Background:

While at Eagle Bluff, students learned of the diversity and importance of fungi in an ecosystem. They spent time investigating the role of fungi in the forest and searched to find as many species as possible. The idea that fungi contribute to making everyday items was addressed at the end of class with the “Tribute to Fungus.” Pizza is just the tip of the iceberg when it comes to the role fungi plays in our lives. This activity will give students a better understanding of how fungi is an integral part of their lives!

### Activity: Fungus Finding on the Home Front

Fungi impacts life not only in the forest. From the contents of the refrigerator at home to the soap at the Laundromat, fungi plays an enormous role in our lives. Some types of fungus can be directly consumed (i.e. mushrooms), others help give cheese distinct flavor and color (i.e. blue cheese), while some fungi are used very early on in the biosynthesis of products that appear everywhere in our lives (i.e. citric acid). It really is incredible how dependent we are upon fungi!

### Procedure:

1. Recap with your students the importance of fungi in an ecosystem. While the recycling of nutrients is the most important role of fungi, it also impacts our lives at home. Ask your students, “How many things at home are made possible by fungi?” After the students have discussed their ideas, introduce the concept of biosynthesis (using science to make things that naturally occur in the environment). Citric Acid is a compound found in lemons, limes, oranges, and other citrus fruits. This compound can be made in a laboratory by the fermentation\* of sugar or molasses by the fungus *Aspergillus niger*. (\*See ‘Extension’ section for a small activity on fermentation.) A variety of other compounds are produced in a similar manner and can be found in everyday items.
2. In order to gain a better understanding of how prevalent fungi is in their lives, students will conduct a “Fungus Finding” expedition at home. Students will read the ingredient labels to see if fungi has been involved at any stage in the making of the product. The provided worksheet indicates what to look for and places in the house to be certain to search!



Areas students will be asked to search include:

**Kitchen      Bathroom      Cleaning Closet**

Ingredients students will be looking for include actual fungi and biosynthesized compounds:

- **Citric Acid:** found in everything from food to cleaning products.
- **“Cultures”:** a generic term for active fungi used to make certain cheeses, yogurt, and other edibles.
- **Xylitol:** an artificial sweetener in foods and dental products.
- **Riboflavin:** a vitamin (B<sub>2</sub>) used to fortify foods.
- **Yeast:** an active fungus used in baking and fermenting beverages, including root beer and sodas.

There is also room on the sheet for students to write additional types of fungus they find elsewhere in the house!

3. Back in the classroom, have students share what they found and discuss their thoughts on the importance of fungi in their lives. There are a variety of ways to take this beyond the level of classroom discussion:

- Create “Brought to You by Fungi” posters to be displayed. Students can use newspaper advertisements, magazines, or their own drawings to create a collage featuring products made possible by fungi.
- Write a “Thank You” letter to fungi.
- Write a creative story about what life would be like without fungi.
- Research the history of a specific fungus, i.e. Penicillin or Baker’s Yeast, and how it has impacted our lives.

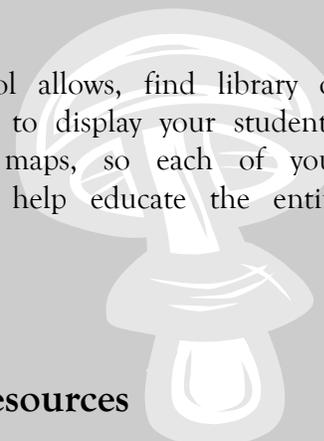
### Extension:

Fermentation is a naturally occurring process that is defined as the conversion of carbohydrates (sugar and starch) into alcohol or acid using yeast in anaerobic conditions. Fermented foods include: alcohol, wine, vinegar, olives, yogurt, bread, cheese, soy sauce, sauerkraut, chocolate, vanilla, tabasco, salami, and fish sauce, to name a few! To help your students understand fermentation you can do any of the following:

- Watch the generation of carbon dioxide when active dry yeast is in the presence of sugar and warm water. You can expand on this by using white, brown, or artificial sugars and comparing the amount of bubbles produced. Another option would be to put the yeast, sugar, and warm water into a narrow necked container and cover the top with a balloon.
- Make bread and watch it rise (due to the production of carbon dioxide when yeast is working).

### Teacher Tips

- This project can be as simple or involved as you would like it to be. Feel free to adapt it to your needs!
- A fun, interactive way of introducing the post-activity would be to set various fungus related items on display and have the students guess what they all have in common.
- If you feel your students need more direction in their scavenger hunt, you can specify additional places to search. If you would like to lessen the work, divide the students and have them only search one area at home.
- If your school allows, find library or hallway space to display your students’ reports and maps, so each of your students can help educate the entire school.



### Additional Resources

<http://www.fungi4schools.org>

A website created by the British Mycological Society that focuses on how to teach about fungus in the classroom. Includes information and activities.

<http://www.namyc.org/education/index.html>

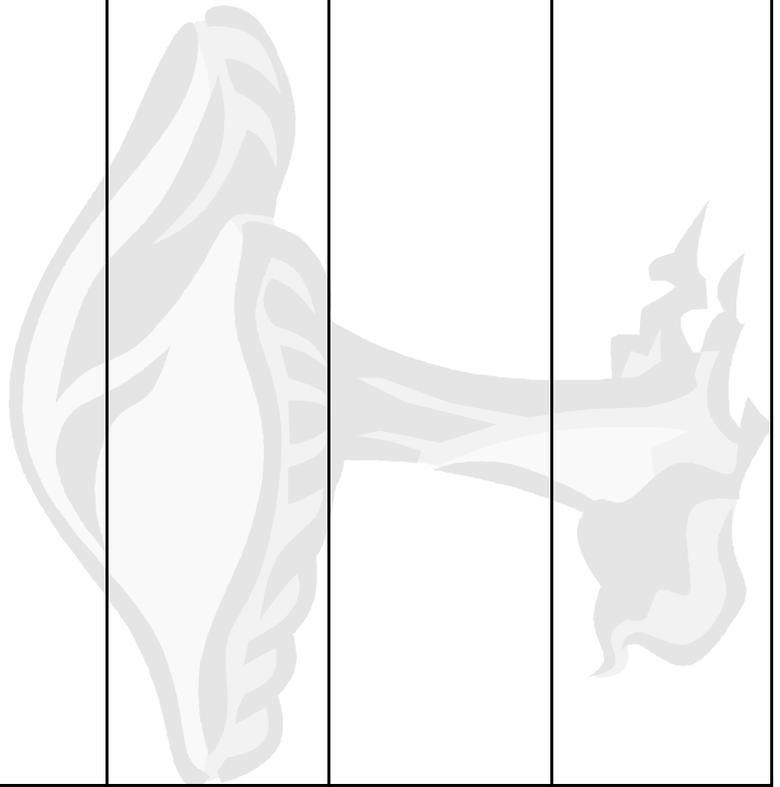
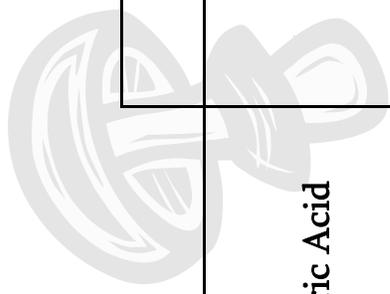
This website, created by the North American Mycological Association, provides classroom activities and links to other education websites.

<http://www.mushroom-uk.com/education/index.htm>

Resources helpful for classroom instruction can be found on this website, created by the Mushroom Bureau of the UNK. There is an informative slide show on the cultivation of edible mushrooms for consumers.

# Fungus Finding on the Home Front!

	Kitchen	Bathroom
Citric Acid		
“Cultures”		
Riboflavin		
Xylitol		
Yeast		
Other Types		



# Fungus Finding on the Home Front!

	Cleaning Closet	Elsewhere
Citric Acid		
“Cultures”		
Riboflavin		
Xylitol		
Yeast		
Other Types		

