



## Activity 4.3

### GRADES

K-6

### TYPE OF ACTIVITY

mushroom hunt

### MATERIALS

See text body

### VOCABULARY

foray

mycorrhizas

symbiosis

decomposition

nutrient cycling

# Hurray for Foray

## OBJECTIVE

- To introduce students to mushroom hunting

## BACKGROUND INFORMATION

In many countries around the world, mushroom hunting is considered a national pastime. Some people hunt mushrooms for their edibility, others for their medicinal properties, and some for pure entertainment! A mushroom hunt, or **foray**, is a fantastic way to help kids connect with the natural world around them. The great thing about fungi is that they are literally everywhere! You don't need to arrange a complicated field trip to a forest to find mushrooms. There is a very good chance you can find them in your schoolyard or on your front lawn! A guided foray is a sure way to illustrate the ecological concepts already touched on in this guide: find a mushroom growing near a tree, and talk about **mycorrhizas**; discover some lichen on a rock and explain **symbiosis**; unearth some rotting leaves and converse about **decomposition** and **nutrient cycling**. There is a fantastical fungal world just waiting to be found!

## PART 1: PREP DAY

### MATERIALS

- an assortment of mushroom field guides and/or posters
- copies of pages 74 to 82 for each student
- a few types of mushrooms from the grocery store i.e., field mushrooms, shiitakes, wood ears, Chinese white fungus (Tremella), enoki, oyster mushrooms, chanterelles, morels
- rulers
- "Fungus Fred goes Foraying" by Maggie Hadley (optional).-- see Suggested Resources and Sources page 91

### TEACHER INSTRUCTIONS

1. Collect an assortment of mushroom field guides from a local library. If you can find posters of mushrooms (like the ones for sale at [www.fungiperfecti.com](http://www.fungiperfecti.com)), this would be very helpful too. It would be beneficial at this time to have students assemble their Field of Fungi mini field guide from page 73.
2. In preparation for the foray, bring some domestic mushrooms to look at together as a class. Use these specimens to point out physical characteristics that will be useful in identifying wild specimens.

3. Review the basic parts of the mushroom: cap, gills/spines/pores, scales, stem, ring, cup and mycelium. Depending on the mushrooms you were able to acquire, discuss the presence or absence of these features. Please note that it is extremely unlikely you will find domestic mushrooms with mycelia intact. Note however that the *entire* mushroom is made up of tightly packed hyphae.
4. Encourage students to take a closer look at the mushrooms. Use the following questions to guide your investigations:

**CAP**

- What colour is it?
- Is it smooth, sticky or scaly?
- What is underneath the cap: gills? pores? spines? or none of the above?

**STEM:**

- How long is it?
- How wide?
- Is it smooth or rough?
- What colour is it?
- Is it hollow inside?
- Does the mushroom have a cup on the bottom?

**IDENTIFICATION**

- What group is it from? You may wish to use the Key to The Fungal Treasure on page 26 to help answer this question.
  - What colour is the spore print?
  - Can you find a picture of it in a field guide?
  - What is it called?
  - Where was it growing (if a wild specimen)? In a woodland? grassland? near or under a plant? on wood? in soil? on manure?
5. Try to get a spore print from a fresh mushroom (see part 3 of this activity) to give students a chance to familiarize themselves with the technique.
  6. Take the time to discuss edibility of mushrooms. Let students know that even though the mushrooms they have examined today were edible, they must never ever eat any wild mushroom that has not been identified by an expert as being safe. Although only a few mushrooms are deadly, many will cause hallucinations, nausea, vomiting and diarrhea, and liver or kidney failure. It is never worth the risk of getting sick!
  7. Ask students if they know what old wives' tales are. Do they know any? Review some of the common tales about mushrooms and explain that they are false. Some examples are: deadly ones will darken silver; if it peels it is good to eat; if animals eat them, so can humans. There is NO SIMPLE TEST to assess the edibility of a mushroom.
  8. You could share (and explain!) a little riddle/joke from Terry Prachett with your students about poisonous mushrooms:
    1. All fungi are edible
    2. Some fungi are not edible more than once"
  9. As a class, you may wish to read the story book Fungus Fred goes Foraging by Maggie Hadley.

### **PART 2: THE HUNT**

#### **MATERIALS**

- wax paper or bags for collected mushrooms (never use plastic bags as they accelerate decomposition of the specimens)
- trowel or knife to dig mushrooms from the ground
- permanent markers
- plastic cups
- sandwich bags (for lichen collection)
- digital camera
- magnifying glass or hand lens for each group
- notepad
- pencils
- rulers
- copies of data cards from the field guide page 82

#### **TEACHER INSTRUCTIONS**

1. Assemble a foray kit ahead of time so you will be prepared when the weather is suitable (ideally that means a warm day just after a rain).
2. Ask your students where they think a good place to look for mushrooms will be. All answers will be right as mushrooms can grow virtually anywhere--including under concrete. Some good places to begin the hunt are in shady spots, wooded areas, decaying leaves, damp rotting wood, or dead trees. However, you can also find them on lawns and flower beds, sidewalks, parking strips, manure and sawdust piles, stumps, trees, shrubs; pasture, barnyard for meadow mushrooms and dung loving species; forest or woodlot areas...virtually anywhere!
3. Remind students never to put their hands in their mouth after handling wild mushrooms.
4. There is a good chance you will encounter puffballs, shaggy mane mushrooms (which have very varied diets), and little brown mushrooms.
5. You may have students hunt in pairs or small groups, or you may prefer to stay together as a class; do what works for your group to maximize the "hands-on" component.
6. When students spot a mushroom, have them sketch the basic structure on one of the "data sheets" from their field guide. Also have them measure the mushroom and take note of its habitat before collecting it. Was it from a grassy area? Were there trees nearby? Was it growing in woodchips? Explain that the habitat is like the mushroom's home address and this will help with identification later on.
7. When collecting mushrooms, dig up some of the surrounding soil rather than just breaking the stem, and collect only big, distinctive, colourful types. Digging up soil will help keep identifying features intact. Talk again about the difference between plants and fungi; picking a mushroom is like picking a fruit but pulling a plant or flower up by the roots will kill the whole plant. Use a shallow basket to collect, and wrap in waxed paper to separate and protect it or put the mushroom into a plastic cup. Take a few a mushrooms back to the classroom for spore printing, closer examination and identification.
8. While collecting mushrooms, have students note the habitat they are collecting from and label the specimen accordingly. It would be beneficial to photograph the mushrooms in their natural habitat as well. It can be tricky to remember habitat once back in the classroom.

9. You might look for **lichens** on boulders, grave stones, or on tree bark. Remind the students that lichens are easily harmed by pollution, so they may not be found in areas with high pollution. To collect a lichen, break off a SMALL piece of bark, and put it in a sandwich bag and label. You can view it under a hand lens.
10. Point out the ecology of the mushrooms you find. Are there mushrooms near decaying leaves? These mushrooms are **decomposing**! Are there mushrooms growing close to a tree? These could very likely be **mycorrhizal** mushrooms. Talk about mycorrhizas. Guide the students into explaining the relationship. Review the term **mycelium**; if you're observing a mushroom, this is just the tip of the mycelial iceberg! This is why fungi are called the "hidden kingdom".
11. Highlight some fungal trivia throughout the foray. For example:
  - puffball spores were used by First Nations people to stop bleeding
  - the Iceman Otze was found with bracket fungus on him
  - bracket fungi can be used to start fires or as an artist's canvas
  - fairy rings are a source of a great amount of folklore
  - shaggy mane mushrooms disperse their spores by "melting"
  - stinkhorns 'use' flies to distribute their spores
  - the mycelium of a honey mushroom is thought to be the largest organism on earth and it glows in the dark!
12. Remember, though these instructions may seem complicated, this foray is meant simply as an introduction to mushroom hunting and should remain fun at all times! Do not get caught up in details. Flow with the rhythm of the class and explore with the intention of fostering an interest in ecology and the natural world.

### PART 3: THE DEMYSTIFYING

#### MATERIALS

##### Identification

- assortment of field guides specific to the local area. A superb example of a field guide with lots of colour plates and a fun attitude is David Arora's [All That the Rain Promises and More](#).
- mini field guide from page 73
- a dissecting microscope (optional)
- pencil crayons

##### Spore Printing

- knife
- a black and a white piece of paper
- a glass
- pencils
- fixative spray

#### TEACHER INSTRUCTIONS

1. With a little luck you will return from your foray with a plethora of fungal friends! Now you and your students can begin solving the mystery of who's who.

## THE FUNGUS AMONG US

---

2. Refer students to their data cards and their specimens. Have the students “fill in any blanks” they did not fill in before. Now that you are back in the classroom, encourage them to colour their sketches to match the mushrooms.
3. To begin, have the students decide which group their mushrooms belong to. Guide them through the identifying features such as the reproductive structures under the cap (gills, pores or spines?).
4. Set a few mushrooms aside to be spore printed. Choose a few mature, undamaged, even-shaped caps with gills.
5. Get to know your mushrooms! Smell them, touch them, and talk about them. How are they similar or different to the store-bought varieties? What would be a good name for them if you were going to name them yourself and why?
6. Direct your students to the field guides. Once they have decided on the group they think the mushroom(s) belong to, have them try to find it in a field guide. Draw attention to the presence of both Latin and English names for each mushroom. Inform them that the Latin name is a universal code that is understood all around the world. This way mushroom hunters from Japan to Russia to Canada can all speak the same language when referring to a mushroom they’ve found. The Latin name is backwards from their own name in that their ‘family’s name’ is written first (*Genus*) and their individual name second (*species*).
7. Do not get stuck on the details of accurate identification. This is an exercise in familiarization with field guides, and not intended to be a class in taxonomy. Unless some very obvious species are found (like puffballs and shaggy manes), it is likely you will have a basket full of little brown mushrooms. Tell students that identifying these mushrooms can be tricky even for mushroom experts!
8. Explain that there is one technique that can be helpful in identifying plain looking mushrooms-- spore printing; like a fingerprint, a spore print can reveal the secret of a mushroom’s identity. Remind students that spores are similar to seeds with one major difference. What is it? Spores are a single cell and don’t ‘pack a lunch’; they need to land on a direct food source to germinate.
9. Lead the class through spore printing:

### Spore Printing

1. Cut the stem very close to the cap.
2. Place the cap gill-side down on a piece of paper that is black on one half and white on the other.
3. Now place a bowl or glass jar over the cap to protect it from disturbance.
4. Leave the cap for 2 hours or more.
5. Carefully remove the bowl and cap and take a look at the print left behind.
6. Spray with clear fixative to preserve the print.
7. What colour is the print? Did spores show up on the dark side or the light side or both?

### DISCUSSION

1. Try and get some feedback about the foray. Did students enjoy the mushroom hunt? What did they learn about where mushrooms like to grow?
2. What else would they like to learn about mushrooms? As a class you could compile a list of questions and direct them to a local mycological club. The contact information for organizations affiliated with NAMA are listed on the following page.

# Canadian Mycological Societies Contact List

Keep in mind that the co-coordinators for these programs are volunteering their own time. Please, give them time to respond to your inquiries.

---

## BRITISH COLUMBIA

### Vancouver Mycological Society

#101-1001 W Broadway Box 181  
Vancouver, BC V6H 4E4

[www.vanmyco.com](http://www.vanmyco.com)

The Vancouver Mycological Society is an amateur organization devoted to the study of mushrooms. Meetings are held on the first Tuesday of each month (except - December, January, July and August). Meetings are at the Van Dusen Botanical Gardens - Classroom, Oak and 37th Avenue, 7:30 p.m.. Call their mushroom hotline (604) 878-9978 for more information on VMS forays, field trips, meeting programs and events.

### South Vancouver Island Mycological Society

2552 Beaufort Rd.  
Sidney, BC, Canada V9L 2J9

[www.svims.ca](http://www.svims.ca)

SVIMS is a small society interested in all aspects of mycology and mushroom appreciation. Its members include professional mycologists, mushroom growers, mushroom pickers, cooks, photographers, and other enthusiasts. Meetings are held at 7:00 p.m. on the 1st Thursday of Feb.-June and Sept.-Nov., at the Pacific Forestry Centre, 506 Burnside Road West, Victoria, B.C.

SVIMS members produce a great newsletter which is available for viewing at their website.

### Fraser Valley Mushroom Club

c/o Othmar Kagi  
32522 Best Avenue  
Mission, British Columbia, V2V 2S6

[www.fvmushroomclub.ca](http://www.fvmushroomclub.ca)

EMail: [info \[at\] fvmushroomclub.ca](mailto:info@fvmushroomclub.ca)

Contact: Othmar Kagi

### Sunshine Coast Shroom

5027 Bear Bay Road  
Garden Bay, British Columbia V0N 1S1

[www.scsroom.org](http://www.scsroom.org)

EMail: [info \[at\] scsroom.org](mailto:info@scsroom.org)

Contact: Ann Harmer,  
Shroomworks [at] [bluffhollow.ca](http://bluffhollow.ca)

---

## ALBERTA

### Alberta Mycological Society

#1921-10405 Jasper Avenue  
Edmonton, AB T5J 3S2

[www.wildmushrooms.ws](http://www.wildmushrooms.ws)

## THE FUNGUS AMONG US

---

The AMS meets on the the 4th Wednesday of the month at 7:00 pm at the Riverbend Library located at the strip mall at Rabbit Hill Road and Terwillegar Drive. Members will receive 4 newsletters during the year with interesting articles, foray information and maps. There is also the opportunity to exchange yarns and ideas with other members with similar interests.

### **ONTARIO**

#### **Mycological Society of Toronto**

2106-812 Birnhamthorpe Rd.  
Toronto, ON M9C 4W1

[www.myctor.org](http://www.myctor.org)

Contact: Michael Warnock

This is mostly a group of amateurs supported by a number of active or retired professional mycologists eager to collect, study and identify fungi, particularly the larger mushrooms. The Society encourages activities that explore the ecological role of fungi, and support the conservation of wild mushrooms. They organize five informative meetings a year for their members. These are held at the Civic Garden Centre in Toronto. Guest speakers are invited to give presentations on various topics associated with the field of mycology. The annual Cain Foray usually takes place on the third weekend of September in the Haliburton area. After the fungi are gathered and identified, they are displayed at the "Fungi Fair" held at the Civic Garden Centre (Lawrence and Leslie) on the Monday following that weekend.

---

### **QUEBEC**

#### **Cercle des Mycologues de Montréal**

4101 Rue Sherbrooke Est  
Montréal, QC H1X 2B2  
[www.mycomontreal.qc.ca](http://www.mycomontreal.qc.ca)

The CMM is based in Montréal, QC. The members are French-speaking, or bilingual, French-English. All the literature is in French.

### **NORTH AMERICA**

North American Mycological Association  
Rebecca Rader, Executive Secretary  
PO Box 64  
Christiansburg, VA 24068-0064

[www.namyco.org](http://www.namyco.org)

Contact: Sandy Sheine, Education Committee

Email: [rebeccahrader@hotmail.com](mailto:rebeccahrader@hotmail.com)

NAMA, the North American Mycological Association, is a non-profit organization of amateur and professional mycologists with more than 60 affiliated local mycological clubs throughout North America. NAMA's mission is "to promote, pursue, and advance the science of mycology."