

Early Childhood and Lower Elementary:
Mushroom Food Explorers

Connections to Standards:

Science K-LS1-1; 2-LS4-1

English Language Arts 1.RI.1, 2, 3

Upper Elementary: Mushroom Spore Prints

Connections to Standards:

Science 3-LS4-2, 3

Art AR.03.HC.03, 02

Lesson:

Mushrooms belong to the Fungi Kingdom which consists of more than 1.5 million different organisms. Among the mushrooms we commonly see at the grocery store there is a great variety of shape, size, smell, texture and taste. As an introduction to the diversity of mushrooms, bring in a number of different fresh mushrooms from the grocery store and/or dried mushrooms which can frequently be found in Asian markets. Lay the different specimens out for students to explore with guided observation. Depending on the students' ability level, have the class either work independently, in small groups or as a class to draw the shapes of the mushrooms, measure the different sizes of the stem and caps, notice smells and note textures. Most mushrooms must be cooked before consuming so if you're going to add a tasting to this lesson, be sure it is with cooked mushrooms.

If this lesson is happening in the fall, prime mushroom time, leading students on a mushroom walk can open their eyes to the different habitats fungi inhabit while reinforcing the specimen diversity of this kingdom. A good book to read to get ready for a mushroom outing is Simon Frazer's *The Mushroom Hunt* which talks about a family's mushroom walk while providing great mushroom facts, including the importance of being mindful of the danger of eating unknown mushrooms.

Resources:

Simon Frazer's *The Mushroom Hunt*
Good Photos of Wild Oregon Edible Mushrooms
http://www.oregonlive.com/entertainment/index.ssf/2014/10/can_you_identify_the_wild_edib.html

Lesson:

Students should have an understanding that plants spread and grow by seed, but how do mushrooms spread and grow? Mushrooms propagate via very small spores. In fact, the whole reason the mushroom springs forth from the ground in the first place is to act as the distributor of those spores. If compared to an apple, the actual mushroom we see is the fruit, while the spores the seeds. Explore these spores by creating spore prints following the directions on the resource page.

Resources:

Making a Spore Print

http://www.namyc.org/education/spore_prints.html

Difference between spores and seeds

<http://www.differencebetween.net/science/nature/difference-between-seeds-and-spores/>



Middle School: What's in a Name?

Connections to Standards:

English Language Arts 6.W.3, 4, 5; 6.WHST.3, 5, 6; 7.W.3, 4, 5; 7.WHST.3; 8.W.3, 4, 5; 8.WHST.3

Lesson:

Folk tales of magic and myth were often used to try to explain natural phenomenon or to impart a moral lesson. Mushrooms are frequently noted in fairy tales as it wasn't until relatively recently that their growth and habits were understood. It's no wonder they were considered mysterious since mushrooms quickly spring from the ground and can impart deadly poison, hallucinations, or delectable flavors depending on the variety. Explore some of the folklore surrounding mushrooms by brainstorming with students what they have seen or heard about mushrooms. Share the bits of folklore provided on the resource page or bring in books that highlight mushrooms. Once students have an idea about the range of ways mushrooms have appeared in lore, have them write their own creative stories to explain the fantastical names of one type of mushroom. A list of mushroom names to inspire the imagination is provided on the resource page.'

Resources:

Fungal Folklore and Beyond

http://www.namyco.org/images/fungus_files/4.1%20Fungal%20Folklore%20and%20Beyond.pdf

High School: Can Mushrooms Save the World?

Connections to Standards:

Social Sciences HS.16, 20, 57, 60, 61, 62, 63
Science HS-LS4-6; HS-ESS3-4

Lesson:

Mushrooms are part of the Fungi Kingdom and play an important role in forest ecology by helping to decompose material. For humans, mushrooms are well-known for both their great taste as well as the deadly poison of some, but do mushrooms provide humans with other benefits as well? Research has shown that different mushrooms can inhibit cancer cell growth, clean up oil spills and provide biodefense. Have students read all or part of the Discover Magazine article "How Mushrooms Can Save the World." Lead a discussion on current methods used to treat the different issues highlighted in this article (such as oil spills, bacterial infections, nuclear waste) or have students pick an issue from the article and write about how mushrooms may be better, worse or complementary to methods currently used to solve these issues.

Resources:

"How Mushrooms Can Save the World" by Discover Magazine (Teachers please preview to determine which sections are appropriate for your students)
<http://discovermagazine.com/2013/julyaug/13-mushrooms-clean-up-oil-spills-nuclear-meltdowns-and-human-health>

TED Talk by Paul Stamets "Can Mushrooms Save the Planet?"

<http://www.yesmagazine.org/planet/can-mushrooms-save-the-planet>

