FUN WITH FUNGI IN THE CLASSROOM

Indiana Academic Standards for Curricula

Elementary Curricula

Incorporating fungi into your classroom is not difficult, and you may find that using fungi as a theme or as a research subject is both a novel and fascinating process. Listed below are some of the Indiana Academic Standards that can be met with the use of some creative thinking about fungi. Be sure to visit the **Web Resources** also listed below. We invite you to open the world of fungi to your students.

Grade 1

Standard 4: The Living Environment

1.4.2 Observe and describe that there can be differences, such as size or markings, among the individuals within one kind of plant or animal group.

Grade 2

Standard 4: The Living Environment

2.4.1 Observe and identify different external features of plants and animals and describe how these features help them to live in different environments.

2.4.5 Recognize and explain that materials in nature, such as grass, twigs, sticks, and leaves can be recycled and used again, sometimes in different forms.

Grade 3

Standard 4: The Living Environment

3.4.1 Demonstrate that a great variety of living things can be sorted into groups in many ways using various features, such as how they look, where they live, and how they act, to decide which things belong to which group.

3.4.2 Explain that features used for grouping depend on the purpose of the grouping.

Grade 4

Standard 4: The Living Environment

4.4.1 Investigate, such as by using microscopes, to see that living things are made mostly of cells.

4.4.4 Observe and describe that some source of energy is needed for all organisms to stay alive and grow.

4.4.5 Explain how in all environments, organisms are growing, dying, and decaying, and new organisms are being produced by the old ones.

Grade 5

Standard 4: The Living Environment

5.4.2 Observe and describe that some living things consist of a single cell that needs food, water, air, a way to dispose of waste, and an environment in which to live.

5.4.5 Explain how changes in an organism's habitat are sometimes beneficial and sometimes harmful.

Middle School/Junior High Curricula

Grade 6

Standard 4: The Living Environment

6.4.2 Give examples of organisms that cannot be neatly classified as either plants or animals, such, as fungi and bacteria.

6.4.5 Investigate and explain that all living things are composed of cells whose details are usually visible only through a microscope.

6.4.9 Recognize and explain that two types of organisms may interact in a competitive or cooperative relationship, such as producer/consumer, predator/prey, or parasite/host.

Grade 7

Standard 4: The Living Environment

7.4.1.1 Explain that similarities among organisms are found in external and internal anatomical features, including specific characteristics at the cellular level. Understand that these similarities are used to classify organisms since they may be used to infer the degree of relatedness among organisms.

7.4.6 Explain how food provides the fuel and the building material for all organisms.

7.4.7 Describe how organisms that eat plants break down the plant structures to produce the materials and energy that they need to survive, and in turn, how they are consumed by other organisms.

Grade 8

Standard 4: The Living Environment

8.4.2 Describe that in some organisms, such as yeast or bacteria, all genes come from a single parent, while in those that have sexes, typically half of the genes come from each parent.

8.4.5 Explain that energy can be transferred from one form to another in living things.

High School Curricula

Biology I

Standard 1: Principles of Biology

B.1.12 Compare and contrast the form and function of prokaryotic and eukaryotic cells.

B.1.15 Understand and explain that, in biological systems, structure and function must be considered together.

B.1.30 Understand and explain that molecular evidence substantiates the anatomical evidence for evolution and provides additional detail about the sequence in which various lines of descent branched off from one another.

B.1.37 Explain that the amount of life any environment can support is limited by the available energy, water, oxygen, and minerals, and by the ability of ecosystems to recycle the residue of dead organic materials. Recognize, therefore, that human activities and technology can change the flow and reduce the fertility of the land.

B.1.43 Understand that and describe how organisms are influenced by a particular combination of living and non-living components of the environment.

B.1.44 Describe the flow of matter, nutrients, and energy within ecosystems.

Environmental Science, Advanced
Standard 1: Principles of Environmental Science
Env.1.9 Diagram the cycling of carbon, nitrogen, phosphorus, and water.
Env.1.14 Recognize and explain that the amount of life any environment can support is limited by the available energy, water, oxygen, and minerals, and by the ability of ecosystems to recycle organic materials from the remains of dead organisms.

Web Resources
Below are a few websites that house information that will help instructors with ideas, and concepts concerning biology and fungi.

http://www.namyco.org/educ/k-12.htm
A website put forward by the North American Mushroom Association for educators in grades K-12. There are plenty of materials here and educators are encouraged to contribute their own.

http://botit.botany.wisc.edu/toms_fungi/
This website is put together by Tom Volk, a mycology and plant pathology professor at the University of Wisconsin in Madison. It is an eclectic site, but his enthusiasm for the subject clearly comes through. There is a lot of information on this site.

http://mycology.cornell.edu/fteach.html
Out of Cornell University this is another "leap off" site for those wishing to incorporate fungi in to their classrooms.

http://www.gourmetmushroomsinc.com/mushroomkit/
This is a commercial website for a mushroom growing company in California. Though they are primarily on the web to sell their gourmet mushrooms they also produce "kits" that you can fruit in the classroom and have developed curricula for the use of these kits.