

Guidelines to help identify mushrooms

Pick mushrooms carefully in order to preserve the characteristics that you will need to identify the fungus later.

Dig the mushroom out completely, making sure you extract the entire stem from the ground. Important mushroom characters are sometimes found at the base of the stem.

Collect samples of all ages. Different characters emerge as the mushroom grows.

Note where you found the mushroom and its habitat--or write down this information on a label. Was it under trees? If so, what kind? Was it growing from grass? Was it growing in a partial circle or fairy ring?

Roll up your specimen--with your label-- in a piece of wax paper and twist the ends as shown. This will protect it so you can study it in more detail later.



How to Identify Mushrooms

When you are finished with your mushroom hunt, gather together and unwrap the mushrooms that you've found. It is best to have an experienced collector on hand to help you identify them. But a careful beginner with a couple mushroom field guides can begin to identify mushrooms.

Examine your collections one at a time. There is no single rule that allows you to determine if a mushroom is edible. Similarly, it would be wrong to say that all white mushrooms are edible. Or all brown ones or all red ones. The only way to identify a wild mushroom is to know the characteristics of the mushroom that you are identifying. The best way to avoid making mistakes is to know not only the mushroom you want, but also mushrooms that look like your desired mushrooms. If you know your "lookalikes," you are less likely to misidentify mushrooms as a result of your failure to note a couple key characteristics.

Smell it.

Flowers are not the only things that smell in the garden. Mushrooms have amazing smells, which can help with identification. The corn silk smell of some *Inocybe* species takes some people back to their childhoods of eating fresh corn every day, all summer long. Do not miss one of the very distinct characteristics of a mushroom and find out where it can transport you.

Here are a few mushrooms that you can sniff from lawns and gardens.

Agaricus xanthodermus: creosote or medicinal

Agaricus augustus: anise or marzipan

Inocybe sp: corn silk or spermatic

Phallus impudicus: fetid, to put it mildly

Touch it.

Not all mushrooms are the same to touch. They are fuzzy, slimy, dry, smooth, spiny, hairy, scaly, waxy and more. It's important to note how the mushroom feels.

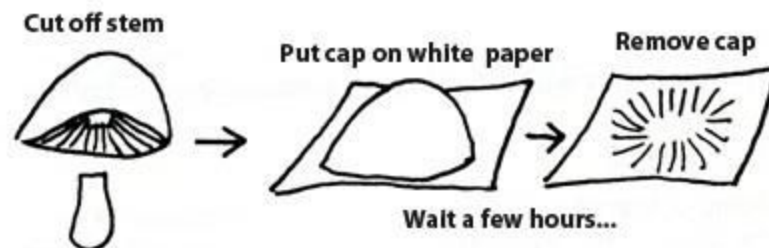
Taste it.

Once you've learned a bit about mushrooms, you can begin tasting them to help you identify them. For example, *Russula emetica* is intensely bitter. Take a small piece on the tip of your tongue, hold it there for a few seconds, and then spit it out. If you spit it out, it won't hurt you.

Make a Spore Print

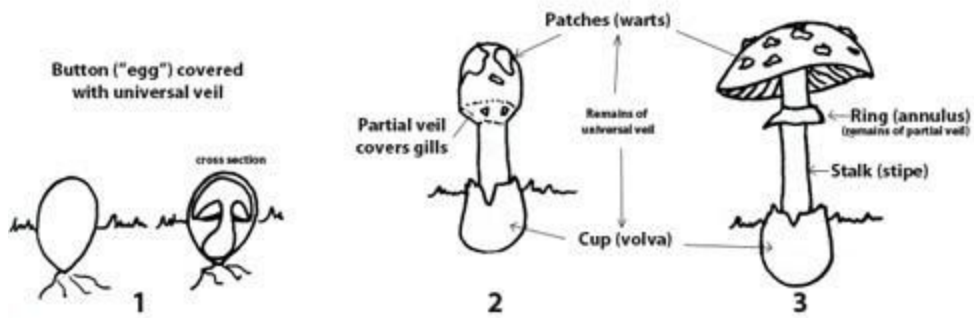
Mushroom spores come in all colors from white and black to pink and purple. Determining the color of a mushroom's spores can help you identify the fungus. Even though spores are microscopic, you can frequently figure out their color by making a "spore print." Most city mushrooms produce spores on gills, which are the blade-like structures on the underside of a mushroom's cap. To make a spore print, place the mature mushroom, gills facing down, on a white piece of paper. Cover it and leave it for a couple hours, and you may find a beautiful--and delicate--spore print.

Mushrooms that don't have gills produce spores in other structures. A puffball, which starts as a solid white mass, slowly dries out, finally puffing out dust-like spores when it is squeezed or disturbed. Some mushrooms produce spores in "pores," which appear under the cap instead of gills. Other mushrooms make spores on "teeth," spine-like structures under the cap.



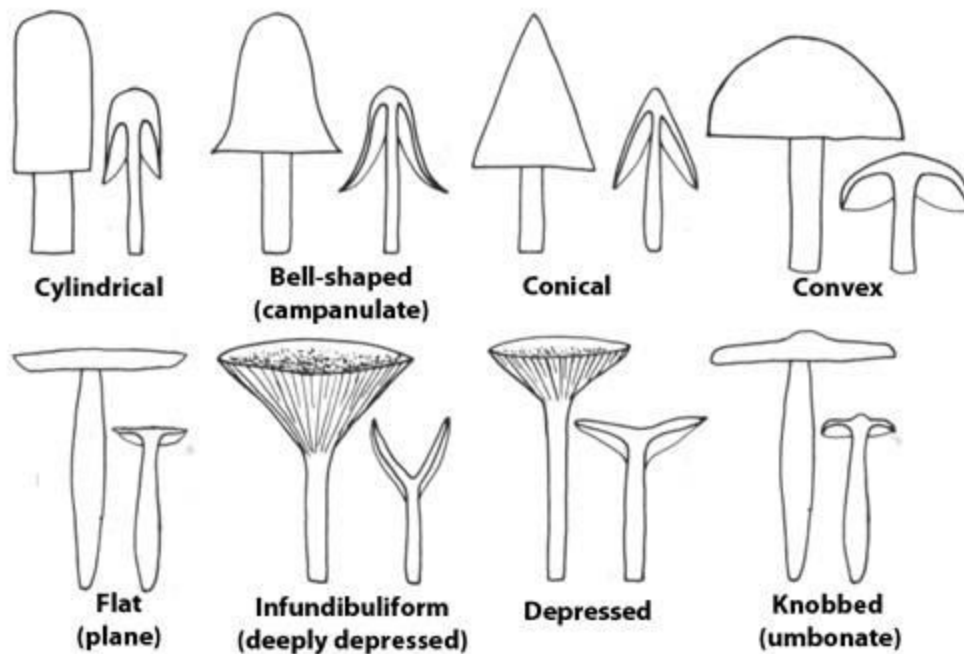
Look for a Cup, a Ring or Warts

In addition to producing spores of different colors, mushrooms grow other structures that provide clues to their identities. For example, the diagram below illustrates the development of mushrooms in the genus *Amanita*. It starts (in figure below) as an "egg" or "button," covered with a "universal veil." When it emerges from the button (in figure two), the remains of the universal veil leave the "cup" or "volva" at the base and the "patches" or "warts" on the top of the cap. At this stage, a "partial veil" connects the cap to the stem, covering the gills. When the cap expands from the stem (in figure 3), the gills become visible, and the remains of the partial veil form a "ring" on the stem. If a mushroom that you've found has these structures--and other information is consistent--you may conclude that you've found an *Amanita*. But you must be thorough because other gilled and non-gilled mushrooms may have these structures, such as a ring or cup, as well.



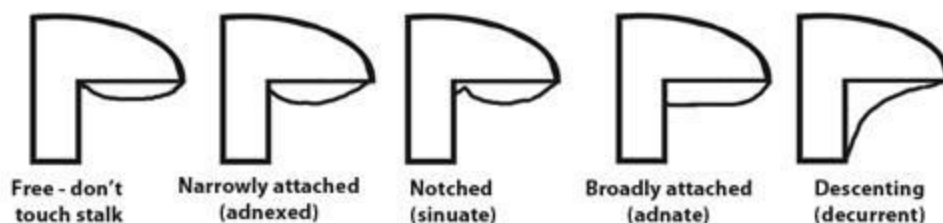
Look at the Shape of the Cap

Mushroom caps come in many different shapes. You should look carefully at the mushroom's cap during various stages of development. Some young mushroom caps may be conic or convex, later becoming plane or depressed. Also be on the lookout for slight variations in cap shape, such as a "knob" or "umbo" on top.



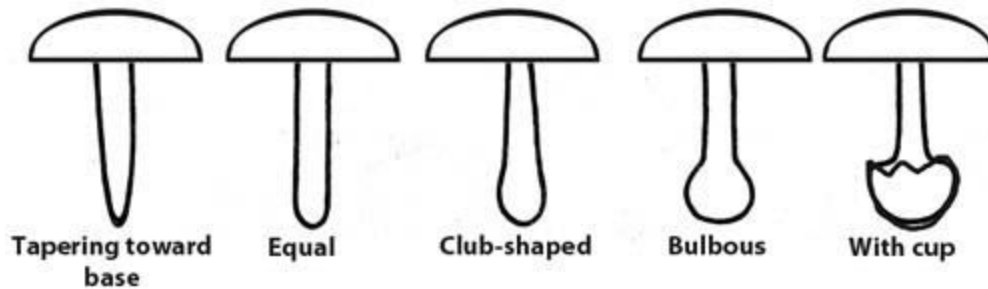
Look at How the Gills Attach to the Cap

A mushroom's gills--if it has gills--attach to the stem in several ways. Some gills are not attached to the stem at all. These are called "free" gills. Others are decurrent, running down the stem. It can sometimes be difficult to determine exactly how the gills attach to the stem without looking at specimens of varying ages.



Look at the Shape of the Stem

Mushroom stems are shaped in distinctive ways, from “bulbous to “equal.” Again, it’s best to look at a number of specimens



Look at How the Stem Emerges from the Cap

The stem of a mushroom attaches to the cap in a variety of ways. In some cases, of course, there is no stem at all--or no cap for that matter. In other cases, the stem comes from the center of the cap.

Look at the Colors and Markings

When you start to look at individual mushrooms in more detail, the amount of amazing stuff to see expands exponentially. And all of it can provide clues to the mushroom’s identity. For example, mushrooms can vary in color from all shades of brown to all shades of red. They can disintegrate into an inky mess. They can have striated or smooth caps. They can have scaly, dotted, or hairy stems. Even the ring on the stem can have distinctive--and beautiful--forms. The best mushroom identifiers hone their skills of observation, allowing them not only to classify mushrooms more accurately but to more deeply admire these unbelievable organisms.

Look Through a Microscope

This website aims to help you identify mushrooms in the field, under the swing set if necessary. In fact, many mushrooms can be identified adequately wherever you find them with the help of this field guide (and perhaps a couple other for cross-checking), particularly if specimens of varying maturities are available.

However, it is impossible to identify many mushrooms with certainty without checking microscopic characteristics. So, if you get serious about trying to put a complete name on all mushrooms you find, you’ll have to learn how to handle a microscope. If you do, you’ll find a new world of spore shapes (spiked, ribbed, lumpy, spherical, elliptical), reactions, and colors to observe. You’ll also have to buy another mushroom field guide because this one does not cover microscopic characters

How to Name Mushrooms

Most mushrooms have both a “common name” (e.g., chanterelle) and a Latin “scientific name” (e.g., *Cantharellus cibarius*). Unlike most amateur bird watchers or butterfly hunters, who converse about birds and butterflies using common names like Robin or Tiger Swallowtail, most amateur mushroom hunters refer to scientific names when talking

about mushrooms. This creates headaches for beginners, because they are forced not only to remember what a mushroom looks like but also how to pronounce its obscure name.

Don't give up on scientific names, even if it seems that—at first—learning them is an exercise in futility. The best way to learn about mushrooms is to seek out fellow mushroom hunters from your local mushroom club and discuss mushrooms with them. And if you are going to talk to them or other people who know about mushrooms, you need to know the scientific names. (Don't be afraid. Most mushroom hunters are nice, even though they use scientific names and even if they don't tell you where their favorite mushroom-collecting spots are located.)

