

The Grow Box Experiment

100th Monkey Mushroom Farm



Mushrooms are grown around the world on a variety of substrates made from agricultural waste. Are paper products one of them?

In this experiment, you are going to investigate whether mushrooms will grow on cardboard. (Note: the mushrooms grown from this experiment are for learning purposes only, and not for eating).

Background:

Unlike plants, fungus does not produce its own food. Fungus must obtain its energy from external sources, such as dead logs, sticks and other materials. The medium (or material) that the mycelium (the root system of the fungus and the mushroom) grows and feeds on is called the substrate. Mushrooms can be grown on a variety of substrates that we call "agricultural waste", such as ground corn cobs, tea leaves, coffee and peanut shells.

This does not mean that the "waste" is bad or contaminated. Just the opposite is true. "Agricultural waste" refers to the part of the plant that is left over to decompose once the main part of the plant was used for something. For instance, once the peanuts are stripped from their shells, the leftover shells are agricultural waste; once the tea is extracted from the tea leaves, the leftover leaves are agricultural waste.

Mushrooms have been grown around the world for centuries on agricultural waste. In this experiment, you are going to see if your cardboard grow box is an agricultural waste product on which mushrooms can grow.

Materials Needed:

- 100th Monkey Mushroom Farm grow box, cut into 1-inch squares (You do not need to remove the large sticker on the side, as it is fully compostable)
- Spent mushroom kit
- One glass jar with lid, quart size or larger (A Mason jar, peanut butter, or spaghetti jars work well)
- One plastic container with lid (About twice as large as the block in your mushroom kit)
- Coffee grounds
- Non-chlorinated water (You can remove the chlorine from water in one of two ways: fill a bucket or pot with water and let it sit out, uncovered, for 24 hours allowing the chlorine to dissipate or by boiling the water for 10 minutes, making sure the water has cooled to room temperature before using. Do not use distilled water, which lacks minerals, or rainwater caught from a roof or gutters, which contains many contaminants. Well water works nicely)
- Humidity tent from previously used mushroom kit

Activity:

1. Take the spent sawdust block out of the grow box of your 100th Monkey Mushroom Farm mushroom kit.
2. Remove the sawdust block from the bag. Throw away the bag and grow box.
3. Crumple the sawdust block into flecks of sawdust.
4. Put the sawdust in a plastic container and secure (tightly close) the lid.
5. Pour in 1 cup of non-chlorinated lukewarm water into the container and shake it.
6. Put ¼-inch layer of sawdust in the bottom of glass jar.
7. Cover the sawdust layer with a layer of cardboard from your grow box.
8. Put down another ¼-inch layer of sawdust.
9. Continue layering the grow box cardboard and sawdust until the mixture is 2 inches from the top of the jar.
10. Either set the lid on the jar offset by ⅛-inch or drill a hole in the lid ⅛-inch in diameter.
11. Put the jar in a dark place, such as cupboard, cabinet, closet, for approximately 2-3 weeks.

12. After 2 weeks, begin to check the jar daily. Do you see any mycelium (the white and stringy root of the mushroom)? Do you see any primordial (baby mushrooms)? If so then the mushrooms do grow on your grow box!
13. If you see small mushrooms growing, take the jar out of the dark and put it on the counter, but not in direct sunlight. Place the humidity tent over it in the same manner over the jar. Follow the same method you did with your previous kit and mist the inside of the humidity tent several times a day, making sure that you always see condensation on the inside of the tent.
14. In 3-5 days, do you see any mushrooms? What can you conclude?

The Scientific Method:

This is a great opportunity for you to practice the steps of the scientific method. Grab a notebook or staple together some lined sheets of paper and label it "Grow Box Experiment."

- First, ask a question about the experiment, such as "Will the mushrooms grow on cardboard?" Write your question in your notebook.
- Next, do some background research. The background section will provide you with some fantastic information.
- Form a hypothesis (what you think is going to happen).
- Conduct the experiment and take notes on what you see throughout the process. A key part of this process is observation, and one of the best ways to record observations is through drawings. You might draw a picture of what you see each day along with a written description.
- At the end of the experiment, look at your data. Can you draw any conclusions from your data?

Are these mushrooms edible?

These are the same mushrooms that you just grew in your mushroom kit, so this species of mushroom is edible. However, we do not recommend that you eat these, as your grow-box substrate could have possibly been contaminated by other molds. The mushrooms grown from this experiment are for learning purposes and not to eat.

You may wonder how 100th Monkey Mushroom Farm keeps our kits from being contaminated. First, we sterilize our substrate in

pressure cookers to kill off any other living organisms in the substrate. Then, once we introduce the spawn to the substrate, we incubate (let the mycelium grow on) the substrate in a sterile building. Once the mycelium colonizes (grows throughout) the substrate, it has its own immune system and can fight off competition.