FULL GUIDE (start at step 10 if you have pre mixed and sterilized jars)

Step 1:

Prepare the tops of the culture jars so that they can be in place, on the jars when inoculating the jars with the spore syringe. Part of the reason this system works so well in the non-sterile kitchen environment is the fact that the sterilized substrate is never exposed to air born contaminates. Get a small nail and use a hammer to poke 4 holes in the lid of each canning jar. Or you can use a small drill bit and drill See the following figure,

Step 2: Mixing your Vermiculite, Brown Rice flour and Water

For 6 Jars 750ml Vermiculite 220ml Water 300ml Brown Rice flour
For 12 jars Double the Above amounts
(For Wood loving species replace the Vermiculite with Sawdust - this way you can grow Shiitake mushrooms etc)
Mix you water and Verm First once well mixed add the BRF and mix well see (pics below)
The mixture should look on the dry side but when you squeeze it, it will clump together and break up again easily

Step 3:

Put the mixture in the jars upto the bottom of the thread of the jar (1st pic)

Then lightly tap on bench and put a bit more in the jar so its about 1cm from full or upto the bottom of the thread wipe with a clean DRY cloth around the rim so nothing is on the glass in the gap and no wetness (pic2)

Step 5:

fill the top 1/2 inch (1cm) of the each culture jar with DRY vermiculite. This layer is pure, simple, dry vermiculite. Nothing else. Fill the jar level with the glass edge. (see pic below) This layer is a break through pioneered by Psylocybe Fanaticus. What this layer does is insulate the sterilized substrate from any air borne contamination. This layer gets sterilized with the substrate later and air borne molds and bacteria can not (usually) get through it to contaminate the substrate. At the same time, it allows some gas exchange to occur. The fungus needs oxygen and gasses can filter through the vermiculite.

Step 6:
Now, place the jar lids on the jars, Screw the lid down tight. Note that you need to have the four holes poked in the lid in Step 1. Otherwise you can have real problems when u heat the jars up.

Step 7:
Next, place a piece of tin foil over the top of each jar and crumple it around the sides of the jar (pic 2). This is to keep water drops from going in the four holes in the lid while the jar is being sterilized. If you poked your holes in the lid such that the sharp edges are pointing up, be careful not to rip or puncture the tin foil. If you need to, you can add a second or even a third piece of tin foil to make sure water will not drip into the holes in the lid.


Step 8:
Now the culture jars need to be sterilized. Place the jars in a Pressure cooker, place some water in the pressure cooker And a spacer on the bottom anything will do metal tray or even a dish cloth its just to disperse the heat evenly,
Note: you don't want the water higher than ¼ up the jar when all are loaded in the bottom,
Start on medium flame until the steam starts flowing out at a fair rate, might take about 15 to 20min, once this starts to happen turn it down to a low flame so the steam is steadily flowing out constantly, once the steam starts coming out leave the jars in for a hour
if you don't have a pressure cooker you can steam them for 90min to 120min in a big pot with a lid make sure there is constant steam being made to sterilize them (constant light boil) you will have to make sure you don't boil the water dry this way. You can also use a vegetable steamer etc

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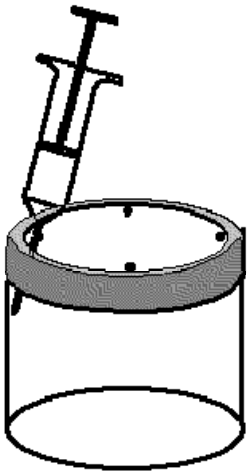
Step 9:
Let the jars cool slowly. Leave them in the pressure cooker until they have cooled completely. The jars need to be at room temperature in order to inoculate. The spores will be killed if the jars are not cool enough when they are inoculated. It will take several hours to cool sufficiently. You may hear sounds as the jars cool. This is normal.

Step 10:
Inoculation of the culture jars. Assuming you have a viable, sterile spore syringe, **(See making a spore syringe page)** you are now in a position to inoculate the cultures and start the first phase of the growing cycle. The needle of the spore syringe must be sterile. If your fingers or anything other than the lid or contents of the culture jars comes in contact with it, assume it is no longer sterile. If there is any doubt about its condition, use a cigarette lighter to heat the entire needle. Heat it until it glows red. Let it cool for at least 30 seconds,

Shake the syringe. Make sure the spores are mixed well within the syringe. This can be accomplished more easily if you pull the plunger back on the syringe to get a little air into the syringe.

Remove the tin foil from each culture jar as you prepare to inoculate it. Insert the needle of the syringe as far as it will go into a hole in the lid of the culture jar and get the needle to press against the glass. Examine the next figure for a simple diagram of how things should look. Inject 1/4 cc of solution at a site under each hole in the lid.

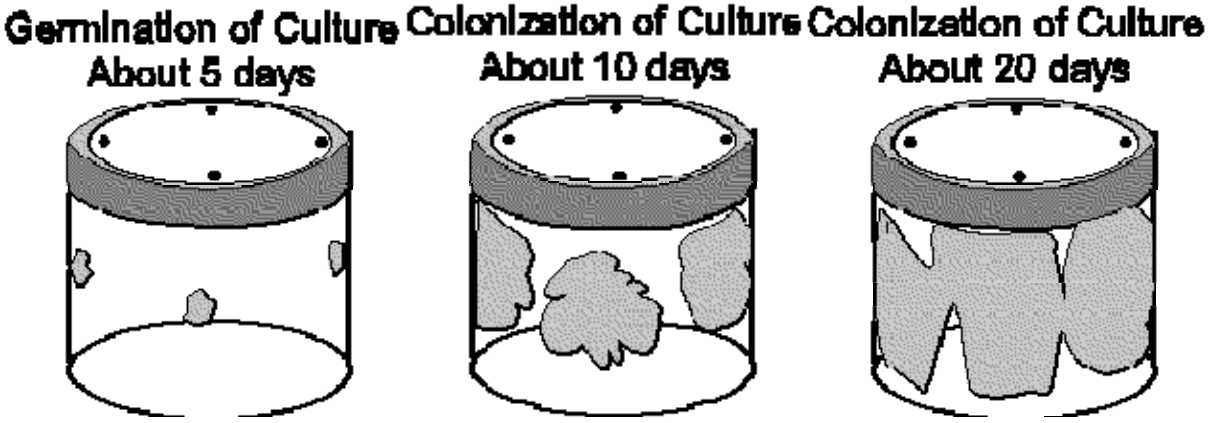
A total of 1 cc of solution for each jar.



Innoculation of Substrate

DON’T FORGET TO REPLACE THE FOIL ON THE JAR AFTER YOU HAVE INNOCULATED IT

Step 11:
This is the easy part. Put the culture jars in your grow chamber in the Dark **(see setting up grow chamber)** set at about 82 to 86 deg F. The fungus will first appear as little splotches of white fuzzy stuff at the inoculation sites.



As the time goes by, the fungus will spread throughout the jar. Eventually, the entire surface of the glass will be covered with fungus. Typically, the bottom of the jar is the last area to be colonized. Be on the look out for any contamination.

Any odd colors that might appear are contamination and the jar must be thrown out. Do not take any chances. If you think the jar might be contaminated, throw it out!. Some molds and bacteria produce toxins that can kill you. Just because a mushroom is growing on the opposite side of the cake from the contamination does not mean you are safe. The mycelium network carries nutrients and moisture to the mushrooms from far away and can easily pick up the toxins and bring them to the mushroom. The fact that you are using this guide means you are not an experienced mycologist. You do not know which molds and bacteria are deadly. Do not take a chance

The one exception to the previous statements is the mycelium will some times change from a bright white to a very pale yellow if it has water droplets touching it on the side of the glass. It is very unusual for any area that is colonized by the mushroom fungus to become infected while in the jar. The uncolonized areas of the substrate are usually significantly more prone to infection.

The above pictures show a typical germination and colonization cycle. If your spores are old, or the temperature is not optimum, or you did not mix the substrate very accurately you can easily add a week to the above time frames.

The cake must stay in the jar until the entire surface area is covered with mycelium. As the substrate gets more colonized, the growth slows down. This is a result of CO2 building up and less oxygen being available for the fungus to consume

The cakes can not be taken out of the jars while there is still uncolonized substrate (make sure you check the bottom is fully colonized also)

A fully colonized jar

Step 12:
Once a rice cake is fully colonized, it can be taken out of the culture jar. At this point, there are no areas on the substrate that can easily be infected by competitor molds and bacteria. Once the mycelium is established, it can usually prevent other organisms from gaining a foot hold and destroying the rice cake. Unscrew and remove the lid from the canning jars. Scrape all the loose vermiculite on the top of the substrate into the garbage. Take care not to gouge into the substrate material as this can leave areas open to infection. You do not need to get all the vermiculite off of the cake. In fact, the only reason to remove any of it is to keep the terrarium neat and orderly. Turn the jar up side down and slam it onto a table top. The rice cake should slide out of the jar. The rice cakes will typically shrink a little during the colonization phase of the process and will come out of the jars easily with a little tapping on a table top.

Step 13:
Dunking the cakes get a big container and put some water in it and sit the cakes in it and put lid on and put in the fridge for 24 hours, after 12 hours turn upside down so all the cakes get a good soak, make sure your container is fully air tight, another way is to use ziplock bags. Or place a plate or something onto of the cakes to hold them under water.

Step 14:
Now its time to put the cakes into your birthing chamber, **see setting up birthing chamber page**,

The following is just some info to help you with the birthing stage
Once you place a fully colonized rice cake in the terrarium it just needs several things to grow mushrooms. It needs high humidity, temperatures below 85 degrees F. and a little light. Once the mycelium network has gained access to enough nutrients the cake can initiate mushrooms if conditions are right. The initiation of mushrooms requires some light and temperatures in the mid to upper 70's F. The mushrooms can grow at higher temperatures, and in fact grow faster at higher temperatures. But the fact remains that the temperature range is fairly narrow to start new mushrooms. Normally, it takes about a week for pin heads to form if the rice cake was removed from the culture jar as soon as it was 100% colonized. It can happen after just a couple days if the mycelium network is well established, or it can take several weeks if things aren't just perfect for the cake.
If you keep the terrarium's temperature in the mid to upper 70's F. you will be constantly initiating new mushrooms (pin heads) while providing a good environment for the growing mushrooms to mature.

The rice cakes need a small amount of light to initiate pin heads. Mushrooms are not plants and do not need light to grow. However they need a little bit of light to tell the mushrooms when to grow, **not direct sunlight**

The rice cakes will have a very bright white appearance when they are first placed in the terrarium. Soon, they will be coated with a thin layer of fluffy mycelium. If the cakes refuse to fruit but continue to form more and more fluffy mycelium this is an indication that the humidity is too high and needs to be adjusted downward, you should open the vents a bit more on your birth box.

When pin heads form, they will look like a short section of a common pin. Hence, the name. The end of these pin heads will soon grow dark brown. This is the cap beginning to form. When the rice cakes are fresh, the small mushrooms will start adding bulk rather than grow longer. They will form balls the size of a marble. Then, they will start to thin out and grow long, adding bulk the whole time.

If the mushrooms have mycelium growing on the caps, it is an indication that your humidity is too low in the terrarium. In this case, you have just enough humidity to allow the cakes to fruit, so you need to spray more often to keep the birth box more humid.

After every flush of mushrooms you should repeat step 13 and dunk the cakes, after 3 or 4 flushes the cake will produce no more mushrooms,

If you have any trouble there are lots of how to video's on www.youtube.com just look up how to grow mushrooms and there are many detailed videos on every step and different methods of how to grow mushrooms and sometimes seeing makes it a lot easier

How to Make a Spore Syringe

Sterility is key. If your spore print is contaminated or you introduce contamination into the spore syringe, you will have difficulty later in the process. Ideally, there should be no fans blowing or drafts of air. You should clean the area where you will be working carefully and make sure that everything is tidy.

Materials needed:

- spore print
- 10 cc. syringe with long needle
- shot glass
- regular glass
- coffee mug
- cigarette lighter
- X-Acto knife or sharp steak knife
- microwave oven

Several things need to be accomplished. First, we need to sterilize a shot glass to easily mix the spore solution and we need to sterilize a syringe to hold the solution. We also need some sterile water in which to suspend the spores. The following procedure will accomplish all of this.

Fill a coffee mug with water and place a shot glass inside the coffee mug. Make sure the shot glass is completely submerged. Place the coffee mug in the microwave oven and get the water to a full boil for 10 minutes. It does not need to be a violent boil. Adjust the heat level of the microwave oven to keep too much water from being lost if necessary.

Remove the shot glass and empty the excess water out of the shot glass. Place another glass over the shot glass. This will keep air born contaminates from settling in the shot glass while you wait for the shot glass and water in the spore syringe to cool.

Fill the syringe with hot water from the mug. Eject the hot water and repeat several times. This will insure the inside of the syringe and the needle are clean and sterile. This is especially important if you are using a syringe from a previous crop. When the needle is inserted into the substrate, it is possible to get nutrients up inside the needle and for contamination to grow. The last time you fill the syringe with hot water, do not purge it. Let it sit in the syringe until it is cool. This is useful for two reasons. First, the continued heat from the water can still work to eliminate any remaining contaminates. Secondly, once the water is cool it can be used as the sterile water needed to fill the syringe. Make certain that nothing touches the needle of the syringe.

The mushroom spores will be killed if they come in contact with anything too hot. You need to wait until the shot glass and spore syringe are at room temperature. When it is safe to proceed, use the cigarette lighter to flame sterilize the X-Acto knife and the needle of the syringe. Let the blade of the knife cool, but make sure it does not touch anything. When it is cool, carefully open the spore print and scrape a fleck of spores into the shot glass. A fleck 1/4 inch by 1/4 inch is more than sufficient for a 10 cc. spore syringe. Use the needle of the syringe to stir the spores into a few drops of water. Usually, there will be a few drops left over in the shot glass from when you emptied it. Otherwise, you can get the drops from the syringe. Stir the fleck of spores until they are well broken up and 'dissolved' into the water. Purge the water out of the syringe into the shot glass. Pull the water back into the syringe, being sure to suck the spores in also. Do this once or twice more to make sure the spores are well mixed in the spore syringe. Often, it takes several tries to get the spores fully broken apart and well mixed.

If the spores in the print have been dried and are not fresh, it is best to wait six hours to use the spore syringe. The spores need to rehydrate. If your in a hurry, the spores can still rehydrate in the culture jars.

SETTING UP YOUR GROW CHAMBER

Fill one tub with some water so heater is under water.

Set water Heater to 82F

Place 2nd tub in tub with water

It should float about 1cm off the other tub when not loaded as below, if not add a bit more water

Once all this is done you can switch it on,

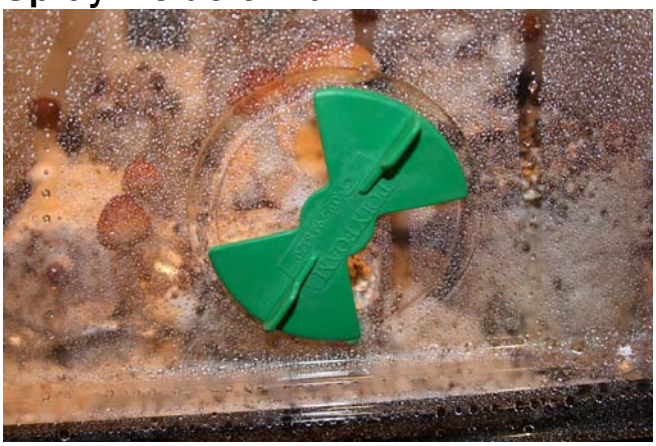
Fold a towel once and place over the top

This is where you keep your jars in the First Growing stage (in the Jars)

SETTING UP YOUR BIRTHING CHAMBER

Mix your 4 liter bag of Perlite and 2 liters of water in a bucket and make sure all the Perlite is moist if not add more water. (Pic 1) Put the 2 black trays together and Spread the Perlite out evenly in the tray (Pic 2)

Also give a good spray with the spray bottle and
Spray inside of lid



Keep side vents open a ¼ to halfway, and top vent Shut fully
Or for Lions mane all vents fully open
Make sure there is always water on the inside of lid which means it is humid enough for the mushrooms, if not spray with spray bottle Also give a light spray once a day to keep the humidity high (DON'T SPRAY CAKES DIRECTLY), sit in a room not in direct sunlight on top of your grow chamber.

Another thing is you could place in a cupboard with a light in it on a timer to come on for a few hours a day (note don't have light to close to birth box) you should also get a temp gauge if you do this so you can adjust the light times and distance of light so the birth box doesn't get to hot,
Or you can use an energy saver globe which does not give off heat
The mushrooms need at least 4 hours of light (4 to 8 hours is fine)

When you put the Mushroom cakes in the birth box sit them on a piece of foil so its not directly on the Perlite. (if you have 12 cakes and 1 Birth Box put in stacks of 2 cakes)