



MAJESTIC VIEW  
NATURE CENTER

# Project Prompts

## Option 1: Water Cycle Terrarium

A terrarium that has a sealed lid and plenty of nutrients can last decades. Nutrients, water and energy cycle continuously in a terrarium, making it a perfect example of an mini-ecosystem. As a closed system, it shouldn't need additional water or food.

- In order for your terrarium to work, you need a sealable clear jar (sunlight must still be able to reach plants inside). You can have fun with the shape!
- Then layer rocks and sand to create a "riparian layer". This allows a space for water to collect and drain after it condenses in the inside of the jar. Experiment with thickness of rock and sand depending on your jar shape.
- Add a thin layer of charcoal, such as aquarium charcoal or natural coals (not briquettes) to help keep the filter the water cycle. This will help keep you soil and plants healthy.
- On top of that put fertile soil (like potting soil) before placing your producers (plants). Make sure to pick small plants that will do well in the amount of sunlight where you'll place your terrarium and with high humidity. Moss or Oak Leaf Creeping Fig are great examples.
- Then you want to make sure to introduce decomposer to help cycle nutrients. These can be in the form of tiny "spring tails" bugs or worms.
- Then add a little water to water your plants and moisten the soil. If you add the right amount, you'll only see condensation inside your terrarium in the mornings and evening after sealing it. If you see too much condensation, you can open, wipe out excess moisture and reseal.
- Finally decorate with twigs, rocks, shells or any decoration you desire. And add a little water to water your plants and moisten the soil. Then seal the terrarium and enjoy!



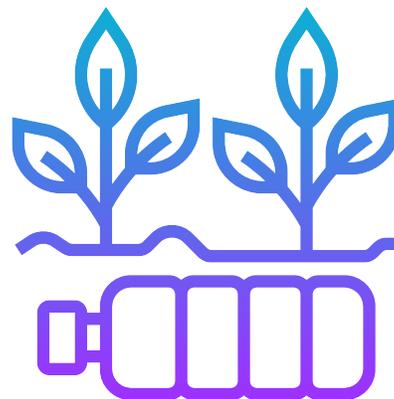
## Option 2: Make Milk Plastic

Petroleum based plastic can take hundreds of years to decompose. Bio-degradable plastic takes only weeks, which cycles through ecosystems quicker to give back nutrients and energy. Milk plastic is plastic made from the proteins in milk, and is even edible.

**Try this experiment to see how quickly your milk plastic decomposes, and what helps it decompose quicker.**

What you'll need:

- A stove top or microwave to warm the milk
- 1 cup Milk (we used 2%, lower fat content is better)
- Just a little less than 4 Tbsp White Vinegar or Lemon Juice
- Bowl
- Spoon
- Strainer (or can create your own using cheese cloth or similar)
- Paper towel



### Make the Milk Plastic

1. Heat milk until steaming.
2. Add vinegar or lemon juice and stir gently. This will curdle the milk, producing curds and whey.
3. Strain out the whey liquid until only curds remain. You can smooch the curds against the side of the strainer to help get out as much liquid as possible.
4. Then squeeze curds together into a paper towel to pat additional moisture out of the curds. You may need additional paper towels, until the curds have little to no moisture left.
5. The curds will now be slightly crumbly but malleable and moldable. If you want a less crumbly mixture, soak in vinegar for an additional hour. This soak is also when you can add additional colors or glow in the dark paint. Then repeat straining and drying process.
6. Now you can shape, mold, or imprint your milk plastic. Leave in molds for at least 24 hours, drying cure time is about 48 hours. You can also paint or spray with a varnish if you desire for any decorations you wish to keep for a long time.



### Now, how quick can you make it decompose?

Try different mixtures, depths, or sunlight to see what makes plastic decompose quicker. Compare with a petroleum based plastic item to see the difference.

Place both your milk plastic and a petroleum plastic in mud, in sand, or in bright sunlight. Which one last longer? What do you think is helping to decompose the plastic, or what might be missing?

[Other ways we could use milk plastic](#)



**Edible food packaging made from milk proteins (video)**

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