

Growing Potatoes Like a Martian

Today we will start our second activity, growing potatoes from supplies found around your home, similar to what Matt Damon's character did in the movie *The Martian*. However, before we do that, let's revisit our sourdough.

Activity 1: The COVID-19 bakery, continued

If you had success with your started, congratulations! I need to restart mine. I was busy at the end of last week and left the lid off. It died. A more mature starter can weather those incidents better, but a baby starter is fragile.

However, for those who succeeded, it's time to start prepping it for eventual baking bread. This will take 7 days. So, every day in the next seven, you are going to throw out **half** your starter, then add a **1/4 cup flour** and **1/4 cup water**. Stir it together. Make sure to put the lid on loosely afterward! Do this every day for the next seven days.

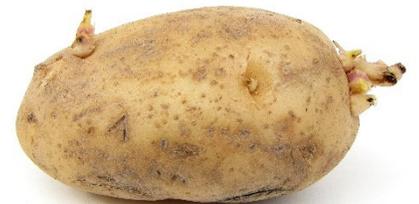
And now....

Activity 2: Living Like a Martian

In *The Martian*, Matt Damon's character realizes he is going to run out of food before being rescued so decides to plant his remaining potatoes rather than eat them. Martian soil has no organic matter in it, since there is no life on Mars, so he makes some up mixing the Martian soil with his own feces, or human manure. He is successful and gets a harvest.

We are going to replicate that, except for the feces, by trying to grow potatoes with only supplies you can find in your house. I am presuming everyone has a potato at home or can have some one leave you a potato.

First, let's find out what a potato is. What we call potatoes are the **tubers**, or underground stems, of the potato plant, *Solanum tuberosum*. It is naturally found in southern Peru and Bolivia where it's been cultivated for over 7000 years. In the second half of the 16th century it was brought to Spain and called *patata*, a Spanish version of its indigenous name *batata*. Potatoes have become a world staple food source. As of 2014, it was the fourth largest food crop, behind corn (maize), wheat and rice.



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Potatoes belong to the **nightshade** family which includes its close relatives tomatoes and eggplant, and more distant relatives peppers and even more distant are tobacco and deadly nightshade. All members of this family have poisonous parts, including the potato. In fact, the tuber is the only safe part of the plant to eat because of the low amount of toxins found there. And tubers exposed to light will turn green and start making toxins. That is why you store potatoes in the dark. You should also cut out any green sections you find in potatoes. I compost any potatoes that show green. Cooking at high heat, like baking, roasting and



From top left: a potato fruit; fresh tubers at the base of the stems; potato flowers, colors vary according to variety; potatoes grown in a bag for ease of harvesting.

Fruit By H. Zell - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=11113025>

TubersBy BASFPlantScience - originally posted to Flickr as Amflora-Feldzerstörung Juli 2010, CC BY 2.0, <https://commons.wikimedia.org/w/index.php?curid=11818198>

Flowers By Keith Weller, Source. - Own work, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=55338>

In bag By Jolly Janner - Own work, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=6700358>

frying, breaks down most of the poison. Cultivars (plant breeds) are tested for toxicity before they are sold to growers. Since the tubers are part of the parent plant, using pieces of the tuber guarantees the harvest will have the same toxicity of the parent plant. However, since seeds are the result of two different plants having sex, with some added random mutations, seeds from the plant, found in the fruit, should never be used except by potato researchers to ensure that plants we grow have a known safe toxicity level.

Growing Potatoes:

1. To start, you need a container, any container, even a plastic bag will do, like in the picture above right. Make holes in the bottom so water will drain. Line the bottom of the with gravel to prevent the soil being washed out with the water.
2. Next you need soil, or more simply, dirt. What plants grow in matters. However, what they need most is a space to grow. Plants make their own food from water and the carbon dioxide in air. We can easily provide them with that, so we just need soil good enough not to kill them. On your next outing, bring something that will allow you to scoop up some soil, perhaps you have gardens around you building. Or you are walking in the woods, by a riverbank or wherever. You need enough to fill your container about 4 inches deep. Moisten the soil thoroughly first, by adding water and working it through your dirt with your hands. Check the texture of your soil. Take a handful and squeeze it. It should stick together. If it doesn't it is too sandy and you need to add some mud-like dirt. If it sticks together, then tap it with your fingers. If it falls apart then you have good soil. If it continues to stick together, you need to "lighten" your soil. The easiest way to do tis is with some handfuls of **leaf litter**, dead leaves from last Fall.

Add it by the handful and mix it in. You need the soil loose enough so the roots will grow through but will pack enough to hold water.

3. Now it is time to prepare your potato. If you were traditionally gardening, you would use special **seed potatoes**, potatoes grown to be cut and planted. Eating potatoes that we are using, typically have been treated with a root inhibitor to slow the growth of roots from the potato's **eyes**, those indented spots where the roots grow from. We are going to cut up our potato into chunks so that each chunk has 2 – 3 eyes on it but enough flesh to feed the growing roots. A medium potato could be cut into 4 -5 chunks. Let the chunks sit in a cool, dry place overnight or for a day or two. It allows the surface of the chunk to callus over a bit reducing the chance of fungus growing on them when planted.
4. It's planting day and your potato chunks are callused a bit. Dig holes about 3 inches deep evenly spaced in your container. Place a chunk in each hole with the **eyes facing up**. Fill the holes with soil. Water to make sure everything is dampened down. Check this video to see what will be happening over the next few weeks, if all goes well.
https://www.youtube.com/watch?v=YbTFCh_XdYI
5. Now all you need to do is to maintain it. Don't over water. Potatoes are susceptible to rot caused by fungus which like wet. At first, you will want to keep your soil damp, not wet. After the plants start showing, which depends on many different conditions, cut back the watering so the soil dries out a bit between watering.

In a few months, you maybe having your own fresh potatoes.