

Veggies in Space

Someday, astronauts may grow food efficiently in space and use plants to clean spaceship air. The current International Space Station mission is studying a weed in the cabbage and mustard family, to see if its roots grow more readily toward red or blue light. They are also studying how lack of gravity affects plants and how crop yields could be increased for missions that could last many months or even years. After astronauts return the space-grown plant samples from the experiment to Earth, scientists will examine the plants' genes to learn how the space environment has affected plant growth. Understanding how plants grow in space could lead to better agricultural production on Earth. In space, astronauts need to use more efficient agriculture techniques than those used on Earth. Hydroponics provides one approach. Even though hydroponics does not require soil and takes up less space than normal methods, plants grown hydroponically are often larger and healthier than plants grown normally. The following activity is one example of growing plants hydroponically.

In this activity, you and your child will grow plants in a way that is similar to how they are grown aboard the International Space Station.

What You Need:

- ❖ 6-8 seeds
- ❖ Zip lock baggy
- ❖ Permanent marker
- ❖ 2 different sized paper or Styrofoam cups
- ❖ ½ cup perlite or sponge (cut up)
- ❖ Water
- ❖ Spray bottle, water



What to Do:

- ❖ Ask your child if they think it is possible to grow plants without soil? What else do plants need? (Sunlight, food, water). Invite them to create a hydroponic garden – a garden without soil – similar to the way plants are being grown aboard the Space Station.
- ❖ Label a Zip lock baggy with your name and the date.
- ❖ Poke small holes in the bottom and lower sides of the smaller cup.
- ❖ Put about one inch of bottled water (or other good quality water) into the bottom of the larger cup.
- ❖ Add ½ cup perlite or sponge pieces to the smaller cup.
- ❖ Place six to eight seeds inside smaller paper cup on top of the perlite.

What to Do (Cont'd):

- ⌘ Place the smaller cup with seeds into the larger cup and gently push down into the water. Water will flow into holes in the small cup and dampen the perlite. The perlite should be moist at the top where the seeds are located; the seeds should not be standing in water.
- ⌘ Place the cups into the zip lock baggy.
- ⌘ Place the baggy in a warm, well-lit area (window sill).
- ⌘ Watch for plant growth. Add water as needed.

Parent Prompts:

Are there other substrates that might work for plant growth?
Invite your child to experiment!

What would your child like to see grown aboard the station?

Are there any vegetables that they do not want to have grown aboard the station?

