

Space Seeds



Instructions For Germinating Space Seeds

Space Seeds science project



These Cherry Belle Radish seeds were flown to space on October 16, 2016 in the NanoRacks Black Box experiment module, launched aboard the Orbital ATK Cygnus cargo vehicle, OA-5 mission, to the International Space Station. These seeds orbited the Earth at an altitude of 240 miles, exposed to microgravity and cosmic radiation for the duration of the mission, and returned to Earth aboard the SpaceX 10 capsule on March 19, 2017.

Instructions:

- For the Petri dishes: Layer the bottom of a Petri dish with two strips of paper towel. Wet the paper towel with water and pour off the excess. Place a few seeds in the dish and place the top on so that it fits tight. Place the Petri dish where it will be exposed to sunlight, such as a window sill or countertop near a window.
- For the culture tubes: Fold thin strips of paper towel to insert snugly into a culture tube, covering half of the inside of the tube. Before inserting, place a few seeds in the middle of the paper towel strip, tapping down lightly so they stay in place. Gently slip the strip of paper towel into the culture tube. Fill gently with water and then pour off, allowing excess to drip out. Don't allow water to pool in the bottom of the tube. Fix the stopper firmly on the tube and place where it will be exposed to sunlight, such as a window sill or countertop near a window. Make sure to lay the tube on its side, with the exposed to the light above.
- Check the seeds each day for germination. You should see signs of germination within 2-5 days.
- Once the seeds have germinated sufficiently, remove the stopper on the culture tube or the top of the Petri dish and allow air to enter. Sprinkle additional water over the paper towel as necessary to keep it moist, though do not soak. Maintain access to sunlight.
- After the seeds have grown for a few days, you may carefully remove them for planting in a larger, open container in moist soil. Carefully plant the seeds by covering the roots in a shallow layer of soil... and keep them moist! Cared for properly, they will grow into large, healthy plants for long term study.
- Experiment with different variables in growing the seeds, and in comparing the growth of seeds flown to space with the control group. Do they germinate at the same or different times? Do they grow at the same or different rates? Are there noticeable differences in appearance as they grow? Does replanting to soil cause differences in growth or appearance? Check the cell structure using a microscope to determine differences.
- What happens if you repeat the experiment in complete darkness instead of sunlight? There are many variables you can introduce into the experiment – what can you think of yourself?