



## Challenger's Morning Science Segment:

April 25, 2016

**Topic:** Recycling CD Cases to Sprout Seeds

**Build:** CD Greenhouse

### Credit:

<http://www.mdsci.org/wp-content/uploads/2014/04/CD-Greenhouse.pdf>

### Materials Needed:

CD case / Soil / Seeds or Beans / Clear Tape / Water (Optional: Bowl / Eye dropper /Permanent Marker)

### Build a CD Case Greenhouse–

This project is a fun way to turn an old CD case into a science experiment.

1. Open the CD case and remove the plastic tray that normally holds the CD.
2. Place a large handful of potting soil into a small bowl. Mix the soil with water until it is wet, but not muddy.
3. Fill the empty case halfway with the wet potting soil, leaving the half closest to the case's hinge empty. This empty space will leave room for your plant to grow!
4. Plant your seeds. If you are using tiny seeds like grass or radish seeds, sprinkle them near the top edge of the potting soil. If you are using a bean, place it in the middle of the soil with the concave side facing away from the hinge of the CD case so that it looks like a frown instead of a smile.
5. Water the seeds or bean using an eyedropper.
6. Close the case and stand it upright so that the hinge is at the top.
7. Tape up any gaps in the sides and bottom of the CD case, but leave the gap in the hinge open.
8. Place the CD case in a sunny window. Use an eyedropper to add more water each day through the gap in the hinge of the case.
9. Observe your seeds every day. Once they start growing, mark each day's root and plant growth on the CD case with a marker. Depending on the seed (or bean), it may take up to 10 days to germinate.

## The science & math:

*All plants need water, carbon dioxide, sunlight, and nutrients in order to grow from a seed into a plant. With your modifications, the CD case becomes the perfect habitat for the seeds to germinate and grow.*

*If you watch your plant each day, you may notice different parts of the plant growing. The plant first germinates by splitting its seed case and growing out of the top. Roots grow down through the dirt to help anchor the plant in place and absorb nutrients and water from the soil. The stem of the plant carries these nutrients and water up into the leaves, helping the plant grow. Plants have to make their own food through photosynthesis. This process requires the green, pigmented chlorophyll in the leaves to convert the carbon dioxide in the air and energy from the sun into sugar and oxygen. The plant uses the sugars as food, and we use the oxygen to breathe!*

## This activity ties into the Challenger Learning Center of Maine:

### We have started growing some very special tomato seeds!

Challenger is currently growing tomato seeds that went to space with Astronaut Scott Kelly! Watching these seeds germinate and grow makes us mindful of life that support the requirements for space missions - food, water, oxygen and the need to consume carbon dioxide exhaled by astronauts. Traveling to and from Mars could take more than two years, therefore it is vital to know how to grow food while astronauts make the journey to the Red Planet, spend time on Mars and make the return journey back to Earth.

Tomatoes are practical and valuable plants for space applications. They provide wholesome nourishment, as well as purified water through evaporation from their leaves.

To learn more about the special tomato seeds that Challenger planted, visit: <http://tomatosphere.org>

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**RECYCLING:** Today's science project "stems" from the idea that as people go more digital and dispose of old cd players and computers, they may no longer need their CD cases.

Twice a year Challenger Center provides the community with an opportunity to safely dispose of electronic waste (April and September).

**Electronic Waste Recycling: SATURDAY, APRIL 30<sup>th</sup> from 9:00 AM - 1:00 PM at 30 VENTURE WAY, BANGOR.** OPEN TO RESIDENTS and BUSINESSES FROM ANY COMMUNITY.

Because this is an important fundraiser, we ask attendees to offer cash gifts to help fulfill Challenger's mission to inspire Maine students in math and science learning. *Challenger does not benefit from the recycled materials.*

**Suggested cash donations: \$10 / first item, \$5 each additional. Each gift of \$25 or more will receive a special "thank you" gift.**

FMI- [www.astronaut.org](http://www.astronaut.org)