

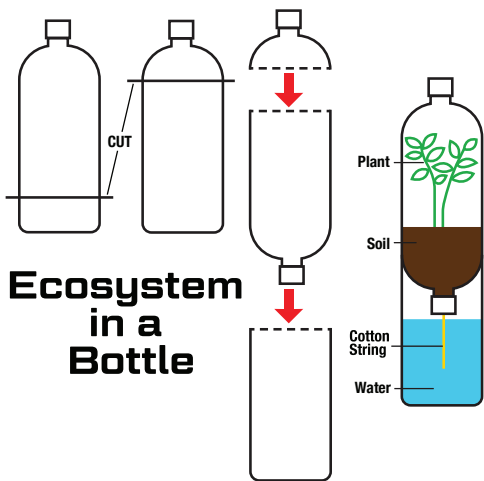
MARS BASE 1: ADAPT AND SURVIVE.

Mars Base 1 is Kennedy Space Center’s new hands-on adventure for next-generation space explorers. When you sign up for Mars Base 1, you’re part of a team managing the NASA Base Operations Center on Mars. You’ll face the challenges of the Martian environment, program robots to optimize solar energy, and grow plants in the Botany Lab to provide real data for NASA research.



Get ready for Mars Base 1 by working with a small group of classmates to create a prototype botany lab—in a bottle! Follow these instructions and the diagram below:

1. Fill the bottom part of your botany lab (the bottle without the lid) about halfway full of the water your teacher will give you.
2. Thread the string through a hole in the cap of the other bottle. Leave about 2 inches of string sticking out inside the bottle. The other 4 inches will dangle down into the water.
3. Turn the bottle with the string upside-down and fit it into the bottom part of your lab, as shown in the diagram, so that the string is in the water. Use tape to secure the two pieces together.
4. Fill the top part of your bottle lab with about 3 inches of potting soil.
5. Plant your plants in the soil.
6. Use tape to secure the bottle top you cut off to the top part of your lab.



Now answer these questions:

1. How long do you think the plants will survive? _____

Why? _____

2. Place your botany bottle lab in a sunny place. Observe your plants once a week and record your observations below:

Week 1 _____

Week 2 _____

Week 3 _____

Mars has extreme hot and cold temperatures. How do you think NASA scientists will protect their Botany Lab from those temperatures? Try your own experiment. Work as a team to design and create a way to protect your plants from cold, then place your botany bottle in a freezer for a few hours to see if your design worked. Next, design and create a way to protect your botany bottle from heat, and place it under a heat lamp for a few hours. Record your results on the back of this sheet.



Continue your adventure! Travel to Mars to live and work for the day at Kennedy Space Center’s Mars Base 1. Set in a landscape of the future, Rookie Astronaut teams have the unique opportunity to manage the Base Operations Center on Mars, grow and harvest plants in the Botany Lab, program robots to optimize solar energy, and adapt to the challenges of living in the Martian environment! For details, visit [KennedySpaceCenter.com/atx](https://www.kennedyspacecenter.com/atx)