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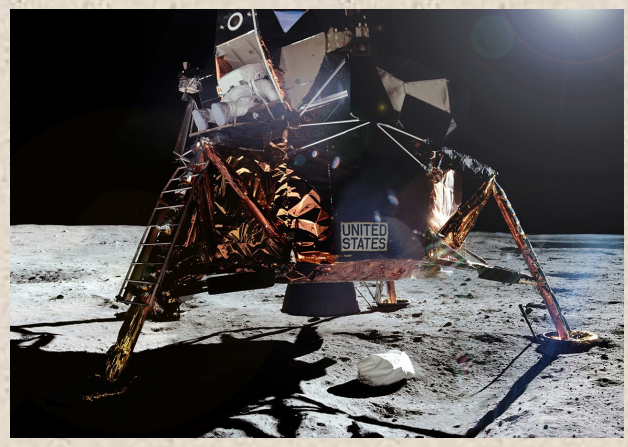
STEM Challenge: Space Lander

A spacecraft flies fast (as fast as 18,000 miles per hour) and must slow down so it can land safely on the surface. And it needs to land gently to protect what's inside. Apollo 11 safely landed astronauts on the Moon!



This time we're challenging you to design and build a lander to transport two "aliens" to the surface of a planet.

First, sit down with some paper and a pencil and think about what you'd like your lander to look like. Think about how to build something that can absorb the shock of a landing. Also think about how to balance it to keep it from tipping over as it lands.

Next, take the materials listed on the next page and build your design. Follow the steps and remember, the marshmallows must stay in the cup when the lander touches down. The cup must stay open—no lids!

Test your design by dropping it from a height of one foot. Did the "aliens" stay safe in the lander? Keep trying until you safely land the "aliens" on Earth.

We'd love to see the lander you've designed and hear how it worked! Take a photo and send it to us at eplyouthservices@gmail.com!

What you can use: (per lander)

3 index cards or stiff paper 3” x 5”
10 mini marshmallows
3 rubber bands
8 plastic straws
1 piece of stiff paper or cardboard about 4” x 5”
1 small paper or plastic cup
2 regular marshmallows (your “aliens”)
Scissors
Tape

Step 1: design a shock absorbing system
Think about springs and cushions.

Step 2: put your spacecraft together
Attach the shock absorbing system to the cardboard platform.

Step 3: add a cabin for the “aliens”
Tape the cup to the platform. Put the two large marshmallow “aliens” inside the cup.

Test your lander by dropping it from a height of one foot. Did it land the “aliens” safely without tipping or bouncing them out of the cup?

If it did, great job!

If it didn’t, think about your design. What can you change that might make it land safely the next time you test it? Keep trying until the aliens have safely landed on Earth.