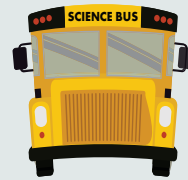


Space Hands



VIRTUAL
Field Trip 
to the California Science Center

Focus

Question:

How do you
choose the
best materials
for a design?

Buzzword:

Properties



THE SITUATION

You are in charge of designing a new glove for an astronaut. Astronauts wear gloves when they work in space. Their gloves must be strong to keep them safe, flexible so they can pick up tools, and waterproof to protect them from moisture.

How can you choose the best material for an astronaut's glove?

HYPOTHESIS

Write or draw materials you predict will make the best astronaut glove.

EXPERIMENT

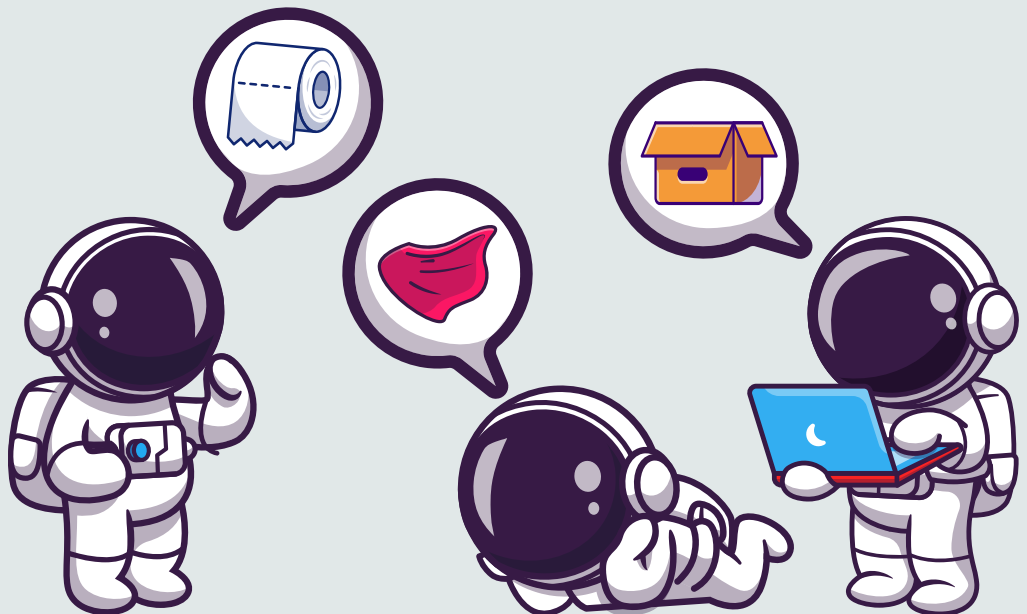
Materials:

- Rubber band
- Pennies
- Empty cup
- Cup of water
- Spoon
- Plate

Ask an adult to help you find three or more materials like these that are okay to test.

- Cardboard
- Cloth
- Plastic wrap
- Tinfoil
- Paper

1. Follow the instructions on page 3 to decide which materials are best for your astronaut gloves. Look for materials that are: strong, flexible, and water resistant.
2. Try all three tests on each material:
 - Strength test
 - Flexibility test
 - Water resistance test
3. Record the result of each test on your data table on page 4.
4. After you test, look at your chart. Which materials pass the test? How can you use one or more of these materials to make an astronaut glove?



STRENGTH TEST



1. Place your material over a cup.
2. Use the rubber band to hold it in place (if necessary).
3. Place 10 pennies in the center of your material.
4. If it holds without breaking, draw a ✓ on your data table.
5. If the material rips or falls, place an ✗ on the table.

FLEXIBILITY TEST



1. Bend the material in all directions.
2. If it does not break, place a ✓ on your table.
3. If it snaps, rips, or breaks, place an ✗ on your data table.

WATER RESISTANCE TEST



1. Place your material on a towel or plate.
2. Drip one spoonful of water onto the material then shake it off.
3. If the material stays dry or mostly dry, place a ✓ on your table.
4. If it stays wet and soggy, place an ✗ on your data table.

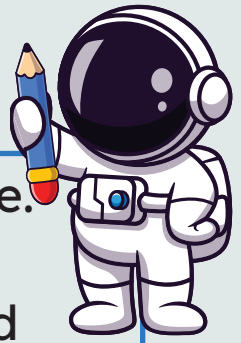


Materials Test Data Table



Material	Strength Test	Flexibility Test	Water Resistance Test
<i>Example: Toilet Paper</i>	✗	✓	✗

WHAT'S GOING ON?



Draw your glove design on this page. Label the materials you will use. Be ready to describe each material and explain why you chose it for your design.

Tip: You can trace your hand on the page to help you draw your design!

A large, empty rectangular box with a blue border, intended for drawing a glove design and labeling materials.