



# High Touch High Tech®

Science Experiences That Come To You™

## STEM Satellite©

### Supplies:

- STEM satellite supplies (see list below)
- Glue stick
- Roll of Tape
- Markers or crayons
- Scissors

### Instructions:

1. Using items from the STEM Satellite supplies listed below, your mission is to build your own satellite that includes the following 5 key elements: Container, Power Source, Scientific Instruments, Communication Device, and Orientation Finder.
2. The design of your satellite is completely up to you! Use your creativity and imagination to build your STEM Satellite!
  - a. Consider sorting your materials by which part of the satellite you think the item could be. For instance, what could make a good container? A good solar panel? Using this approach, you can start to construct your satellite one part at a time.
3. As you build your satellite, consider the specific mission/purpose for your satellite. Maybe it is going to take pictures and measure the atmosphere of Jupiter! Maybe it is going to orbit the moon or Mars!
4. When you have finished building your STEM Satellite, share a picture & its mission on our Facebook page! <https://www.facebook.com/HighTouchHighTechScienceMadeFun>

### The Science Behind It:

You are going to be a junior engineer and create a satellite for a very important NASA mission. What do you think a satellite is?

Technically, a **satellite** is a moon, planet, or machine that orbits a planet or star. So, the moon is considered a satellite because it orbits the earth.

MOSTLY though when we are talking about satellites, we are referring to the **artificial machines** that we have launched into orbit around the earth, moon, or another planet to collect data or communicate. The first satellite, Sputnik, was launched by Russia in 1957. Now, there are over 4,000 different satellites in orbit around Earth.

They are all different sizes and purposes, but most satellites have some parts in common:

1. **Container:** Something to hold all the instruments or circuitry essential for operation.
2. **Power Source:** Usually solar panels or batteries; something to give the satellite power.
3. **Scientific Instruments:** Maybe a camera or a robotic arm to collect data. This could also include temperature probes or tubes to collect gases and other chemicals.



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4. **Communication Device:** An antenna (a dish, pole, or rod) that helps the satellite communicate with scientists on Earth.
5. **Orientation Finder:** This helps the satellite know which way is up while it is floating in space by tracking the stars or sun.

*Satellite supply supplies can contain some or all of the following:*

- Paper plates
- Tinfoil
- Pipe cleaners
- Cardboard tubes
- Paper clips
- Rubber bands
- Craft sticks
- Plastic straws
- Construction paper
- Beads
- Souffle cups
- Plastic cups
- Toothpicks



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