

## Build a Lunar Base

The Moon is very different from Earth. It has no atmosphere to breathe and temperatures that range from a *very hot* 130°C (265°F) during the day to a *very cold* 110°C below zero (–170°F) at night. The Moon spins slowly on its axis, so a day is about 14 Earth days long – and the night is about 14 Earth days long. The lack of atmosphere and magnetic field means that radiation dangerous to humans can reach the surface. There is no water, although there may be water ice trapped in the deep craters at the Moon's poles.

So, if humans are to live on the Moon they are going to need a place to work, rest, live, and have fun that protects them from the extreme heat and cold - and dangerous radiation - of the environment. They will need air to breathe. They will need power, light, food, and water. They will need medical facilities and ways to exercise to keep their muscles and bones strong. They will need transportation and equipment able to operate in these conditions. They will need to be able to communicate with Earth, other colonies, and transport shuttles. And they will need all of the equipment to maintain the station and conduct experiments.

In this activity, you and your child will build a habitable lunar base using craft items.

### What You Need:

- 11x17" poster board
- Ruler
- Color pencils or crayons
- Craft items, including:
  - Aluminum foil
  - Styrofoam blocks
  - Meat trays
  - Plastic, Styrofoam, and paper cups of different sizes
  - Pom-poms
  - Small milk cartons
  - Foil cupcake holders
  - Buttons
  - Rivets
  - Color saran wrap
  - Old CDs
  - Screen, mesh fabric
  - Felt
  - Pipe cleaners
  - Toothpicks
  - Glue
  - Tape
  - Scissors
  - Wire
  - Egg cartons
  - LEGO's with wheels

### What to Do:

- Ask your child what a future Moon base might look like?
- Ask them what types of things would be necessary to make the Moon habitable – what do they need and use in their lives? (air, water, food,

restrooms, electricity. Discuss these needs and invite them to create a habitable base that has everything to meet the needs of future astronauts.

- Other factors to consider might be rocket launch and landing pads, transportation on the surface, lab equipment, ways to call home, places to relax and ways to exercise....
- Based on your discussion about the needs of future lunar explorers, invite your child to build a base using the items available. Have them identify the different components as they are building the base.

### Parent Prompts:

What would a lunar base require to be habitable?

What are some of the challenges that people may encounter while living on a lunar base?

If you were living in a space colony, what would you miss most about Earth?