



# Explore! To the Moon and Beyond

## With NASA's LRO Mission



### Activity Shopping List

<p>For <u>As the Moon Turns Puppet Show</u></p> <p>For each child:</p> <ul style="list-style-type: none"> <li>___ Heavy paper plate</li> <li>___ Moon face on card stock (Activity Web Page)</li> <li>___ Moon "accessories" (hats, bandanna, jewelry, etc.) on card stock (Activity Web Page)</li> <li>___ Craft items such as glitter, pom-poms, google eyes, yarn, construction paper</li> <li>___ Crayons, colored pencils, paints, or colored markers</li> <li>___ Masking tape and scotch tape</li> <li>___ Glue</li> <li>___ Scissors</li> <li>___ Ruler or paint-stir stick</li> <li>___ Elastic strap for masks (optional)</li> </ul> <p>For the group:</p> <ul style="list-style-type: none"> <li>___ One Luna Puppet</li> <li>___ One Moona Lisa Puppet</li> <li>___ Story script</li> <li>___ Puppet stage (optional)</li> <li>___ Cue cards for the audience (optional)</li> </ul> <p>For the Facilitator:</p> <ul style="list-style-type: none"> <li>___ Module Background (Optional; Web Page)</li> </ul>	<p>For <u>The LRO Moon Tune</u></p> <p>For each child:</p> <ul style="list-style-type: none"> <li>___ One copy of "The LRO Moon Tune" (Activity Web Page)</li> </ul> <p>For the Facilitator:</p> <ul style="list-style-type: none"> <li>___ Module Background (Optional; Web Page)</li> </ul>
<p>For <u>Build an LRO (Edible Model)</u></p> <p>For the group:</p> <ul style="list-style-type: none"> <li>___ LRO images (Activity Web Page)</li> <li>___ Butcher paper</li> <li>___ Toothpicks</li> <li>___ Small containers of marshmallow crème</li> <li>___ Spoons</li> <li>___ Candy, cookies, and crackers of varying shapes and sizes, including: pinwheel cookies or cupcakes for the module, and graham crackers or sugar wafers for the solar panels, gumdrops, red hots, candy corn, peppermints, after dinner mints, licorice sticks, tootsie rolls, graham crackers, sugar wafers, Pirouette cookies, pretzels, oyster crackers, marshmallows, Chex mix or cereal, etc. (use your imagination!)</li> </ul> <p>For each child:</p> <ul style="list-style-type: none"> <li>___ Copy of the instrument descriptions</li> </ul> <p>For the Facilitator:</p> <ul style="list-style-type: none"> <li>___ Module Background (Optional; Web Page)</li> </ul>	<p>For <u>The Moon Pie Game</u></p> <p>For each group of 2 to 4 children:</p> <ul style="list-style-type: none"> <li>___ 1 pair of scissors</li> <li>___ Tape or glue</li> <li>___ One set of game sheets (Activity Web Page)</li> </ul> <p>For the Facilitator:</p> <ul style="list-style-type: none"> <li>___ One copy of the Puppet Show script or LRO Moon Tune song (Activity Web Page)</li> <li>___ One copy of Moon Pie Moon image (Activity Web Page)</li> <li>___ One copy of Facilitator Answer Key (Activity Web Page)</li> <li>___ Module Background (Optional; Web Page)</li> </ul>
<p>For <u>Build a Volcano</u></p> <p>For each group of 2 to 4 children:</p> <ul style="list-style-type: none"> <li>___ One sheet of poster board</li> <li>___ One sheet of poster paper to line the poster board</li> <li>___ Four cans of Play-Doh (different colors)</li> <li>___ Colored markers or pencils</li> <li>___ Five 4-, 6-, or 8-ounce paper cups</li> <li>___ Tape</li> <li>___ Ruler</li> </ul> <p>For the Facilitator:</p> <ul style="list-style-type: none"> <li>___ Module Background (Optional; Web Page)</li> </ul>	<p>For <u>Build an LRO (Non-Edible Model)</u></p> <p>For the group:</p> <ul style="list-style-type: none"> <li>___ LRO images (Activity Web Page)</li> <li>___ Butcher paper</li> <li>___ Tape</li> <li>___ Glue</li> <li>___ Aluminum foil</li> <li>___ Craft items including: Pint size milk container, coffee can, soup cans, or other objects for the spacecraft, and straws, pencil top erasers, beads of various sizes, wooden spoons, foil cupcake holders, screen, wooden miniatures, buttons, bottle caps, etc.</li> </ul> <p>For each child:</p> <ul style="list-style-type: none"> <li>___ Copy of the instrument descriptions</li> </ul> <p>For the Facilitator:</p> <ul style="list-style-type: none"> <li>___ Module Background (Optional; Web Page)</li> </ul>

For The Scoop on Moon Dirt

For the group:

- \_\_\_ Poster paper
- \_\_\_ Markers
- \_\_\_ Images of lunar footprints, lunar surface, Moon, Moon showing different mineral types (Activity Web Page)

*Part A. Examining Soils*

For each team of 3 to 4 children

- \_\_\_ Three paper plates
- \_\_\_ Local soil sample 1 (on plate labeled as Sample A)
- \_\_\_ Local soil sample 2 (on plate labeled as Sample B)
- \_\_\_ Lunar soil simulant (on plate labeled as Sample C) (Activity Web Page)
- \_\_\_ Magnifying glass (5 to 10x)
- \_\_\_ Magnet
- \_\_\_ Several toothpicks
- \_\_\_ Paper, writing instruments

*Part B. Making Regolith*

For each team of 3 to 4 children

- \_\_\_ One margarine container filled ½ way with sand and water, that is frozen
- \_\_\_ Access to a sink with flowing water (can be done with pitchers of water)
- \_\_\_ Two pieces of dry, brittle bread
- \_\_\_ ~2x2 inch piece of coarse sandpaper
- \_\_\_ One large cardboard box (~2' per side) with high sides
- \_\_\_ 10-15 graham crackers (enough to cover the bottom of the box with two layers)
- \_\_\_ Fist-sized rock or a pound box of baking soda, wrapped in aluminum foil

For the Facilitator:

- \_\_\_ Module Background (Optional; Web Page)

For Impacts

For each group of 2 to 4 children:

- \_\_\_ Pictures of craters on the Moon or Mars (or both)
- \_\_\_ Safety glasses
- \_\_\_ One large tub or box per group such as a dish pan, aluminum pan, or copy paper box
- \_\_\_ Fine white powder, such as sand or flour
- \_\_\_ Very fine, dry pudding, powdered drink mix, cocoa, or colored sand
- \_\_\_ Sieve or sifter to sprinkle the dark powder
- \_\_\_ Two same-sized balls of different weights (e.g., marbles, ball bearings, gum balls, wooden beads, moth balls, clay balls, grapes; try to have one light-, one medium-, and one heavy-weight ball). Groups can share.
- \_\_\_ Two same-weight balls of different sizes (e.g., ball bearings, rubber balls, super balls, golf balls, water-filled ping pong balls, jaw breakers, large gum balls; try to have one small, one medium, and one large ball). Groups can share.
- \_\_\_ Containers (e.g., cups or plastic bags) to hold a set of balls
- \_\_\_ Data chart
- \_\_\_ Small irregularly shaped rocks
- \_\_\_ Yardsticks or tape measures
- \_\_\_ Small rulers
- \_\_\_ 3 x 5 index card to smooth the surface of the powder
- \_\_\_ Toothpicks
- \_\_\_ Newspaper or drop cloths
- \_\_\_ Large sheets of paper to record children's ideas
- \_\_\_ Markers

For the Facilitator:

- \_\_\_ Module Background (Optional; Web Page)

For Mission Moon

For the group:

- \_\_\_ 10 sheets of poster board or 5 large sheets of butcher paper to cover a section of the wall
- \_\_\_ 1 copy of Site Information Sheets (Activity Web Page)
- \_\_\_ Tape or glue
- \_\_\_ Scissors
- \_\_\_ Poster paper for collecting ideas (or other writing space)
- \_\_\_ Markers

For each team of 3 to 4 children:

- \_\_\_ 1 Mission Information Packet on cardstock (Activity Web Page)
- \_\_\_ Colored dots in 3 different colors or colored markers or crayons

For the Facilitator:

- \_\_\_ Module Background (Optional; Web Page)

For Build a Space Colony

For the group:

- \_\_\_ Books about space colonies
- \_\_\_ Large sheets of paper or board to record children's ideas
- \_\_\_ White paper for children's drawings of colonies
- \_\_\_ Rulers
- \_\_\_ Colored pencils/markers
- \_\_\_ A large piece of gray cardboard to represent the lunar landscape (optional)
- \_\_\_ Tables for workspace
- \_\_\_ Butcher paper or drop cloth to cover the work tables
- \_\_\_ Craft supplies such as: Electronics from the interior of old TVs, VCRs, radios, tape decks computers, aluminum foil, different-sized Styrofoam blocks, meat-packing trays, Saran Wrap of all colors, old CDs, pipe cleaners, toothpicks, glue, duct tape, scissors, wire, wire cutters, Legos with wheels (for rovers), tinsel, ribbon, fabric, gauze, plastic screen of different sizes, beads, clay, almost anything!

For the Facilitator:

- \_\_\_ Module Background (Optional; Web Page)