

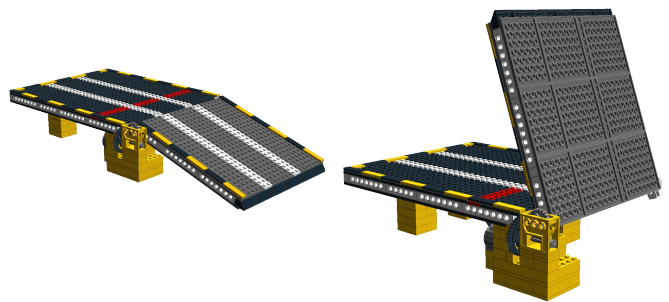


### Model Scouts Lunar Challenge Game MoonBots 2012 Landscape Setup

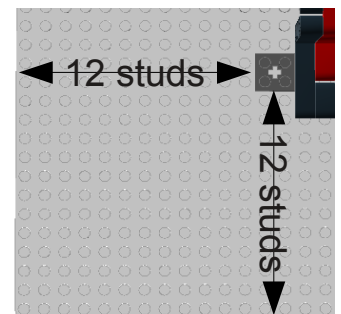
**Landscape surface:** The lunar landscape underboard is assembled on two 1m x 2m extruded styrofoam sheets laid side-by-side, for an underboard surface of 2m x 2m. Twenty-five LEGO 48x48 stud baseplates are then placed in a 5x5 grid on the styrofoam surface and connected using sixteen 4x4 plates.

**High Ridge:** The High Ridge is placed on top of the baseplates as illustrated in the scale drawing. The High Ridge is constructed from layers of 1" extruded styrofoam and carved/painted to look like a lunar ridge. The top of the High Ridge is generally flat and at least 10" (32cm) across. Ramps on the north and south sides of the High Ridge enable robots to ascend and descend the ridge.

**Starting Base:** The Starting Base is constructed from LEGO elements. It is a 2" platform attached to the lunar surface at the extreme southwest corner of the landscape. The base ramp begins in an upright position; the robot can send IR signals to motors attached to the ramp to cause the ramp to be raised or lowered.

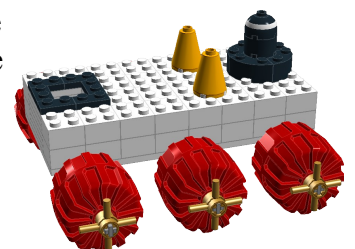


**Space Elevator:** The space elevator is attached to the lunar surface on the baseplate just north of the Starting Base. The brick attaching the southwest corner of the elevator to the lunar surface is placed 12 studs east of the west edge and 12 studs north of the south edge of the baseplate. The elevator begins the game in the "down" position.



**Small Crater:** The small crater is a painted and LEGO-decorated styrofoam arc placed at the southeast corner of the lunar surface. The ridge of the crater is approximately 1" tall.

**Rescue Rover:** The rover to be rescued is placed on its side on the north edge of the southeast baseplate. The underside of the rover is facing south, with the battery hole on the west edge of the rover.

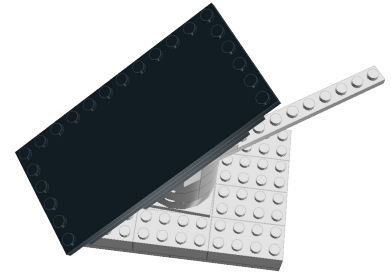


**Sun:** A low-wattage lamp is placed on the east border to simulate sunlight.

**Navigation Beacon:** A Hi-Technic Infrared Ball is placed on a small depression on the north edge of the High Ridge. At the beginning of the game, the IR ball is turned on to provide the lunar robot with an orientation mechanism.

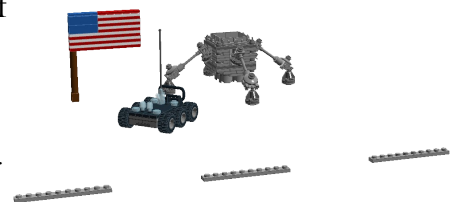


**Solar Panel:** The solar panel is attached to a LEGO plate permanently attached to the High Ridge. At the beginning of the game, the black solar panel should be facing southwest.

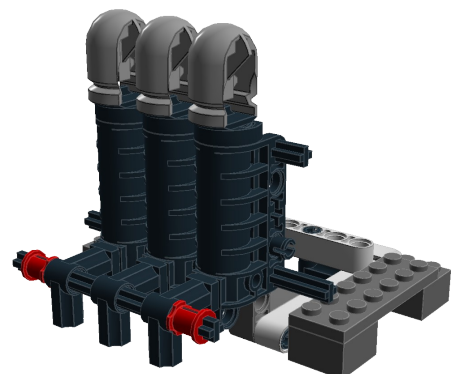


**Lava Tube:** The lava tube is a 3” hole cut vertically into the High Ridge at the west end of the ridge. The rim of the hole is surrounded with small LEGO plates (permanently attached to the ridge) to simulate rocks and uneven surface around the lava tube.

**Heritage Artifacts:** The Apollo landing site artifacts are placed on the northwest baseplate. The lander is four studs in from the north and west edges of the lunar surface. The flag pole is then 12 studs south of the lander, and the lunar roving vehicle is approximately 12 studs east of the flag. Small 1x10 plates mark the east edge of the heritage artifact area; these are placed north-to-south eight studs east of the westernmost baseplates (i.e., fifty-six studs east of the west boundary).

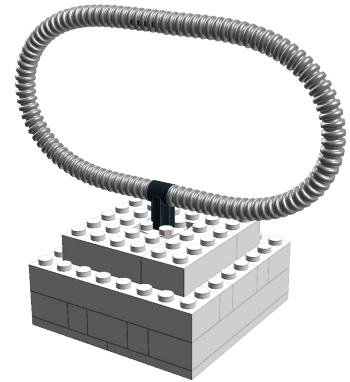


**Mine Explosion:** The exploding mine is placed at the center north of the landscape, four studs south of the north landscape border. Three LEGO arrows are inserted into the LEGO release housing/cannon at the start of the match. Streamers and/or or tethers may be attached to the arrows to make them more visible or prevent them from being launched too far.

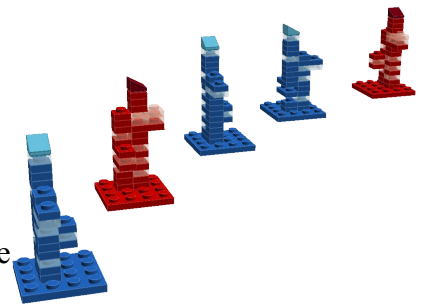


**Large Crater:** The large crater is a painted and LEGO-decorated styrofoam arc placed at the northeast corner of the lunar surface. The ridge of the crater is approximately 1” tall.

**Ice Core:** The ice sheet is attached to the lunar surface inside the large crater, eight studs from the north and east boundaries of the lunar surface. The ice core itself is lowered into the hole in the middle of the sheet, with the ring turned at a 45-degree angle to the sheet (i.e., the “hole” of the ring should be facing the center of the lunar surface).



**Titanium Rocks:** The titanium rock models are placed on top of 4x4 LEGO tile groups attached to the lunar surface (the tiles have no studs, thus the rock models are easily lifted from the lunar surface by the robot). One 4x4 tile group sits at the intersection of the four base plates just north of the ridge. Working west-to-east, the remaining tile groups are then (a) 10 studs east, 4 studs north, (b) 6 studs east, 2 studs north, (c) 4 studs east, 4 studs north, and (d) 4 studs east, 6 studs north. At the start of the game, the titanium rocks are then placed randomly on the tile groups.



**Team Flag and Rover Battery:** These mission models are available to the team to place anywhere in the landing area (southwest corner of the lunar surface), including on the robot or Starting Base. Teams are allowed to decorate the flag model with a team logo or other graphic (e.g., use stickers).

