Building Mars

A COMMUNITY-BUILT LEGOSCAPE · EAPS · FALL 2026

PHASE 1 TERRAIN

PHASE 2 GEOLOGY

Instruction Sheet - Phase 1

A scale model of the surface of Mars, made from close to 19,000 LEGO plates, built using NASA's MOLA elevation map[1] and the USGS geological map of Mars[2]. Anyone can add to it, for as long or as short a time as they like. Follow your sheet closely, and leave what other people have built as you found it unless you are sure you have found a mistake.

HOW IT WORKS

1

Find your Mapping Sheet
Take the Mapping Sheet for a baseplate that is still open. It covers a 16 by 16 patch of the board, and the letters and numbers along its edges match the ones printed on the Baseplate Template underneath.

2

Read a square
Every square carries a number, and in Phase 1 that number is how many plates tall the stack is. It corresponds to the elevation on Mars at that spot (see below).

3

Build upward
Take plates from the bins in order: DG, LG, W, then DG again, until the stack is as tall as the number. **The bands repeat all the way up (see the diagram below).**

4

What not to touch
A **black** square is space, not ground, so leave it empty. Do not confuse it with DG, which is a dark grey plate. And if a stack already matches its number, leave it as it is.

5

When a baseplate is finished
If there is nothing left to add, put a **Mission Accomplished** card on top of it and return the Mapping Sheet to the folder, so nobody hunts for work that is already done.

THE THREE BANDS

DG Dark Bluish Gray

LG Light Bluish Gray

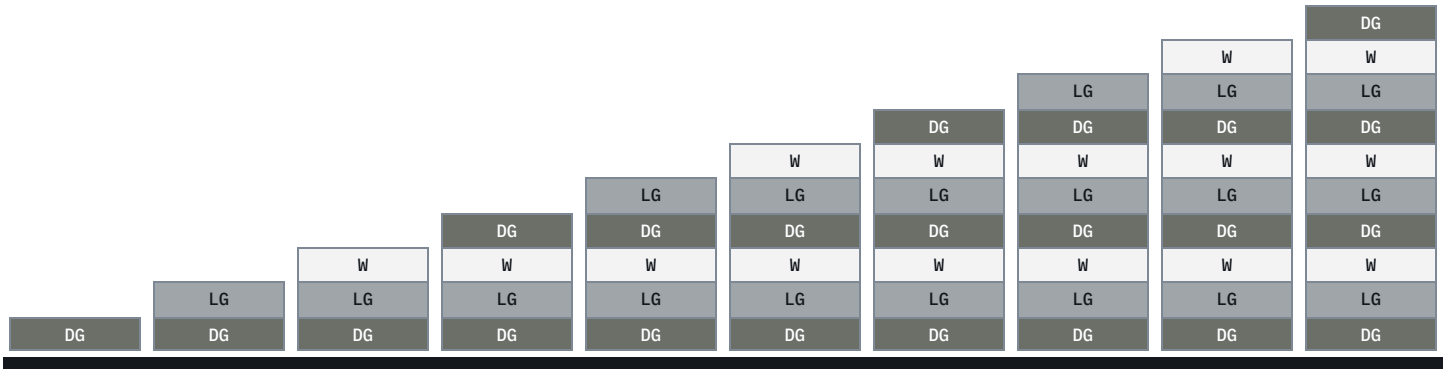
W White

PLATES TO ELEVATION

1	2	3	4	5	6	7	8	9	10
-8 km	-6 km	-4 km	-2 km	+0 km	+2 km	+4 km	+6 km	+8 km	+10 km

One plate is 2 km, and the bottom plate begins at −8 km, so five plates is the Martian datum, the equivalent of sea level.

BUILDING A STACK



The bands always repeat: DG, LG, W, then DG again, counting up from the board.

DATA SOURCES

[1] Smith, D. E. et al. (2001) Mars Orbiter Laser Altimeter: experiment summary after the first year of global mapping of Mars. *Journal of Geophysical Research* 106(E10), 23689–23722.

[2] Tanaka, K. L. et al. (2014) Geologic map of Mars. *U.S. Geological Survey Scientific Investigations Map* 3292.

QUESTIONS OR COMMENTS?

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