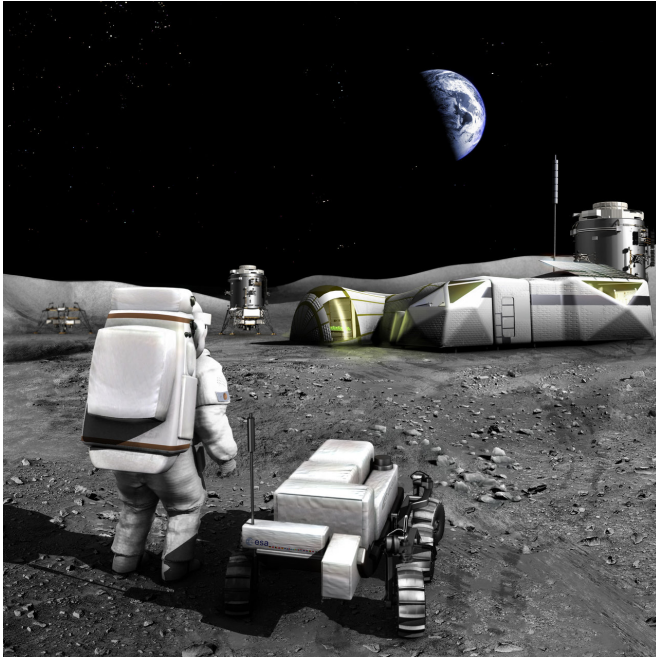


# What's your idea to 3-D print on the moon – to make it feel like home?

24 July 2018



Moon base. Credit: European Space Agency

A new ESA-led project is investigating the ways that 3-D printing could be used to create and run a habitat on the Moon. Everything from building materials to solar panels, equipment and tools to clothes, even nutrients and food ingredients can potentially be 3-D printed. But if you were headed to the Moon, what would you want to 3-D print, to turn a lunar base into a place that feels like home? Tell us your idea, to win a chance of actually getting it printed.

Global space agencies are focused on the concept of a lunar base as the next step in [human space exploration](#) – and 3-D [printing](#) represents a key technology for making it happen.

The aim would be to 'live off the land' as much as possible, by printing as many structures, items and spares out of lunar regolith as possible, or by using

and reusing materials brought for the mission, rather than continuously relying on the long, expensive supply line from Earth.

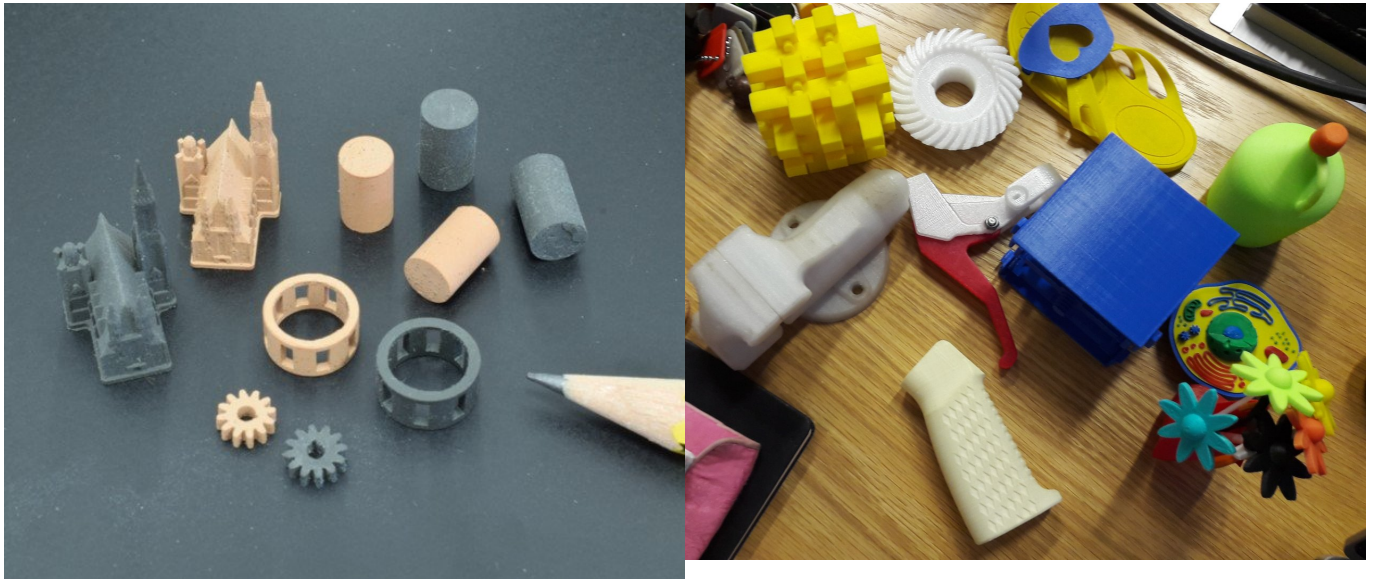
Maximised 3-D printing would also allow on-demand production of items and spares with routine recycling of materials available within the base, making lunar settlement much more self-sufficient and sustainable.

Back in 2013 an ESA project proved the concept in principle, by printing a 1.5 tonne building block out of simulated [lunar regolith](#) with a binding 'ink'. One follow-up effort used focused sunlight to sinter lunar bricks, while another demonstrated the possibility of using regolith as material for 'extrusion-deposition'. Currently under study is the idea of 3-D printing living tissues for medical purposes.

Our latest project looks at everything needed to undertake the construction, operations and maintenance of a [lunar base](#); how could the various types of 3-D printing meet those needs? Materials such as metals, plastic, concrete and organic substances are under study.

But to fully take account of the human factor, the project would also like to hear from you. What would be the one item you would like to have 3-D printed to keep with you in a lunar home from home? Email your ideas to [Lunar3Dprinting@esa.int](mailto:Lunar3Dprinting@esa.int), including a sketch and a short explanation.

The winners will have their chosen item printed for real—if technically possible – or else a 3-D printed space object based on consortium research. Six runners up will receive a 3-D printed space object.



3-D printed ceramic items produced from simulated lunar regolith by Lithoz in Austria, a member of the URBAN consortium investigating 3-D printing for a lunar base. The grey items are 'green' items that have not been sintered (baked) while the light brown items have been sintered. Credit: European Space Agency

Sample items 3-D printed in high-performance polymers, produced by a prototype printer designed to operate in weightless conditions, designed by a consortium led by German aerospace company OHB System AG with Portuguese 3-D printing specialist company BEEVeryCreative. Credit: European Space Agency

The opening date of the competition is 20 July 2018 and the closing date is 23 September 2018, which is open to all ages and nationalities. Two winners will be chosen, one in the under 18 category and one in the Adult category, by the consortium members and ESA engineers.

Provided by European Space Agency

Supported through ESA's Basic Activities, this 'Conceiving a Lunar Base Using 3-D Printing Technologies' project is being run by the URBAN consortium led by Germany's OHB System AG, with extreme environments specialist Comex in France, Austrian [space](#) design company Liquifer Systems Group and spacecraft structures manufacturer Sonaca Space in Germany.

APA citation: What's your idea to 3-D print on the moon – to make it feel like home? (2018, July 24)  
retrieved 17 November 2019 from <https://phys.org/news/2018-07-idea-d-moon-home.html>

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