Printables by JOSEF PRUSA

Martin's Puzzle Rocket

McNumber

VIEW IN BROWSER

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Summary

It's a toy! It's a puzzle! It's a rocket! Fun for the whole family!

Toys & Games > Puzzles & Brain-teasers

Tags: 3dpuzzle challenging easytoprint puzzle rocket

Some months ago, my brother and his wife had their third baby. Obviously, as the coolest uncle ever, I had to give a spectacular gift to the little guy. So, I thought hard. Both parents are science fiction nerds. My initial idea was a mobile with space ships. But which universe should I take? Star Trek? Star Wars? Elite Dangerous? How could I know what sci-fi universe the baby will be a fan of? After all, he couldn’t talk yet.

Then I remembered, that the parents were also big puzzle fans. And that was the moment I got the inspiration for the puzzle rocket.

I designed all the parts in FreeCAD. Detail work (the rivets and the exhaust plume) was done in Blender. All in all, I needed three prototypes and around a month of tweaking to get everything right. The rocket consists of 24 different parts and I am told, it is quite challenging to put everything together without the manual. But fear not! A detailed assembly manual is provided.

For detailed printing and assembly instructions please refer to the provided manual (bottom of download page).

Update 08.01.2023

Adam made some improvements to the fins and the nozzle core, which sometimes can be hard to print. Check it out:

https://www.printables.com/model/357311-upgrade-for-martins-puzzle-rocket

Which parts to print

You will need to print the following parts:

- One of each:
  - part01.stl to part_14.stl
  - tip.stl
  - nozzle_core.stl
  - lower_ring.stl
  - upper_ring.stl
- Two of each:
  - window_inside.stl
  - window_outside.stl
- Three times:
  - fin.stl

You can also print a variation with loops prepared for hanging the rocket to the ceiling. In that case print the following:

- Everything of the above except lower_ring.stl and upper_ring.stl
- Instead print: lower_ring_loop.stl, upper_ring_loop.stl
- Optionally print exhaust_plume.stl

Printing

- Print with PETG or PLA, your preferred settings, 0.2 mm layer height
- All parts are already aligned correctly, there should be no need to rotate something
- Two parts need special attention:
  - Print **nozzle_core.stl** at **100%** infill to make it sturdier. Experience with my little nephews has shown that this is the part that might break first.
  - Print the fins (**fin.stl**) with a **brim**, since they are attached to the print bed with a small surface only. After printing cut off the brim with a sharp knife. Also print the fins aligned with the Y-axis (edge of the fin points to the front) and in a straight line (one after the other). That way the fans will have a better effect, which is crucial for these small parts (Thanks to Awong1214 and berzerker99 for these tips!)

- A nice effect is achieved if you print the parts in different colors. If you want to achieve a really colorful look, do not print parts with adjacent numbers with the same color. Instead choose the parts at random. But this is absolutely up to you!
- Overall printing time should be around 8-9 hours.

Model files

part_01.stl

part_11.stl

nozzle_core.stl

window_outside.stl

fin.stl

part_14.stl

upper_ring_loop.stl

part_03.stl

part_08.stl

window_inside.stl

part_10.stl

lower_ring.stl

part_06.stl

lower_ring_loop.stl

part_12.stl

part_02.stl

exhaust_plume.stl

part_07.stl

part_04.stl

part_05.stl

tip.stl

part_09.stl

part_13.stl

upper_ring.stl

Other files

assembly_manual.pdf

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