

Puzzle Build Tray Print & Assembly Guide

A 27 × 19-1/4 in tray you build a jigsaw inside, so the puzzle can leave the table in one piece.

Six Panels

No Supports

260 mm Bed

Built by MakerX Designs · Virginia Beach, VA · makerxdesigns.com · © 2026

A 1000-piece jigsaw owns a table for a week. This is a tray you build the puzzle inside, so the table goes back to being a table and the half-finished puzzle moves to a shelf in one piece.

No printer has a 27 inch bed, so the tray prints as six flat panels, three wide and two tall, that join on dovetail tabs across every seam. Glued, they make one rigid floor with a rim all the way around it — a nudged piece stops at the edge instead of going on the carpet.

Check two things before you print anything: that your puzzle fits the pocket (page 2) and that your printer has a 260 × 260 mm bed (page 3).



Six panels, glued into one tray. The seams are the thin lines with the dovetail steps.

In the download

File	What it is
makerx-puzzle-build-tray.3mf	Start here. Six plates, one panel each, named Top Left, Top Center, Top Right, Bottom Left, Bottom Center and Bottom Right, with the tested profile.
makerx-puzzle-build-tray-top-left.stl and the other five	Each panel on its own, for your own slicer. Six distinct parts — not one panel printed six times.

1 • Will your puzzle fit?

The pocket takes a finished puzzle up to **27 × 19-1/4 in.** “1000 pieces” is a piece count, not a size, and the sizes are not close to each other — **measure the size printed on your box** before you print anything.

Puzzle	Finished size	Fits?
Tested: Pinkey Puzzles “Spanish Ceiling”, 1000 pc	19 × 26-3/4 in	Yes — about 1/4 in to spare each way
Buffalo, Cobble Hill, White Mountain 1000s (usually)	19-1/4 × 26-5/8 in	Flush on the short side at best
Ravensburger, Ceaco 1000s (usually)	20 × 27 in	No
Ravensburger, European sizing	50 × 70 cm	No

The tray itself

Pocket (inside)	27 × 19-1/4 in 685.8 × 489.0 mm
Outside	27.36 × 19.61 in 694.9 × 498.1 mm
Height	5/8 in (15.9 mm)
Rim above the floor	1/4 in (6.35 mm)
Rim wall	4.6 mm

The 27 × 19-1/4 is the usable area inside the rim, not an outside size you have to subtract from.



The tested puzzle, finished in the tray. 19 × 26-3/4 in with room to spare.

2 • Check your bed

Each panel needs a 260 × 260 mm bed

The side panels are **243.4 × 254.0 mm** flat, and with their brim ears the plate reaches **250.1 × 259.6 mm**. That leaves under half a millimeter on a 260 mm bed. A 220, 235 or 256 mm bed will not take one as sliced.

3 • Slice and print

- 1 Open `makerx-puzzle-build-tray.3mf`. It carries six plates, one panel on each.
- 2 When it asks whether to load the project's print settings, **say yes**.
- 3 Leave the panels where they are — they print flat, floor down, with no supports.
- 4 Print one plate at a time. Each takes about 7½ hours.
- 5 As each panel comes off, write its name on the underside. The six are all different.

The profile in the 3MF	
Layer height	0.12 mm (first 0.20)
Walls	4 loops
Top / bottom	5 / 3 layers
Infill	15 % gyroid
Supports	None
Brim	Ears, 5 mm
Filament	PLA
Nozzle / bed	220 °C / 60 °C
Printer	Crealty Hi, 0.4 mm nozzle

Plate	Time	PLA
Top Left	7 h 53 m	211.82 g
Top Center	7 h 34 m	201.13 g
Top Right	7 h 55 m	211.79 g
Bottom Left	7 h 37 m	205.30 g
Bottom Center	7 h 21 m	194.86 g
Bottom Right	7 h 39 m	205.30 g
All six	45 h 59 m	1230.20 g

Trust the number, not the name

The profile inside the 3MF is still named "PLA 0.20mm". The layer height actually set is 0.12 mm.

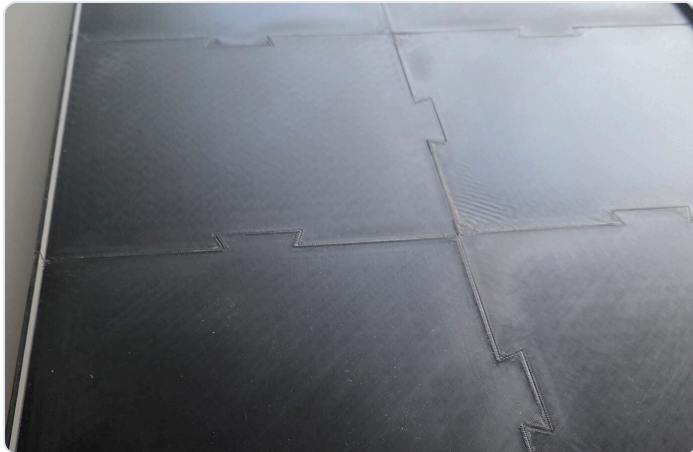
★ Buy the filament first

All six panels take **1.23 kg** of PLA — more than one 1 kg spool. They glue into one floor you look at for hours, so print every panel from the same brand and color.

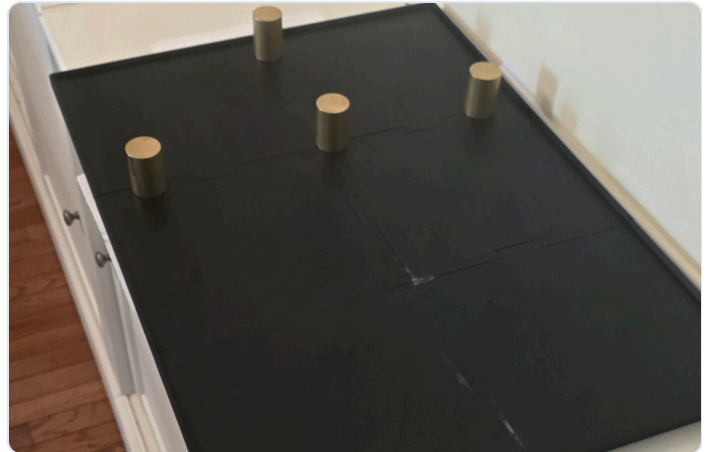
4 • Glue it together

The panels are glued permanently into one tray. Use a glue that bonds PLA, such as CA (super glue).

- 1 Snap the brim ears off every panel and clean any strings off the tabs, so each seam can close all the way.
- 2 **Dry-fit all six on a flat table first, with no glue.** The rim runs around the outside, so the four corner panels have rim on two edges and the two center panels on one. Top Left, Top Center and Top Right make one row; the Bottom three make the other.
- 3 Check that every seam closes tight and the floor sits flat before any glue goes on.
- 4 Glue one seam at a time: glue on the tab and the seam faces, then press the two panels together on the flat table. Wipe any squeeze-out off the floor before it sets — that is the surface you build on.
- 5 Weight the panels flat while the glue sets, and let it cure fully before you pick the tray up.



The dovetail tabs lock the panels sideways. The glue is what holds them when you lift.



Glue-up: weights hold the panels flat on a flat surface while the glue sets.

5 • Use it

- Build the puzzle straight in the tray, edges first against the rim.
- When you need the table back, lift the tray **level, with both hands**, and move it to a shelf or under a bed. A loose puzzle slides if the tray tips.
- Keep it flat in storage. It is a floor, not a lid — do not stack weight on top of an unfinished puzzle.



For scale. Just under 28 × 20 in outside — it wants a real table.

Where precision meets the printer

Thanks for printing this one. If your table is a table again, that is exactly what it was designed to do.

For years my design world existed entirely behind a screen. As a mechanical engineer I spent countless hours building complex CAD models, but there was always a missing link — the ability to hold an idea in my hands. That changed in January 2026, when I went headfirst into 3D printing. The moment that first layer stuck to the bed, the gap between concept and reality vanished.

Coming from a background where precision is everything, tolerances aren't suggestions to me — they are a religion. I didn't want to print trinkets; I wanted to apply industrial engineering discipline to desktop manufacturing. Every wall count, every layer height and every infill percentage in this guide is a deliberate decision backed by testing. If a part can't handle the environment it was built for, it goes back to the drawing board.

Three principles behind every print

01**Functional Engineering**

High-utility, real-world solutions rather than purely decorative models. If it doesn't solve a practical problem, it doesn't leave the workstation.

02**Rigorous Tolerances**

Designed in professional CAD with mechanical intent — press-fits that click and assemblies that work straight off the build plate. No sanding, no filing, no guesswork.

03**Bridging the Gap**

Industrial structural integrity at maker speed. Proving a desktop printer can produce parts worthy of real engineering applications is what drives every release.

The workshop

Mechanical engineering degree · SolidWorks precision modeling · two Creality Hi printers · Virginia Beach, Virginia · every design free to download.

A note on sharing

I'm thrilled when people use and share these designs. I just ask that you respect the license shown on the model listing and give the required credit, so I can keep contributing to the collective workshop.

IF THIS ONE EARNED ITS SPOT

A **Like** or a **Favorite** on the model page takes a second and genuinely helps. A **Boost** helps more than either — it is what puts a design in front of makers who would never otherwise come across it. And if you **Follow** me, new models and updates land in your feed as they are released. However you choose to support it, thank you — it is what keeps everything here free to download.

Puzzle sizes are all over the place. Post a make with a photo and the brand and size of the puzzle in it — every size that is confirmed to fit helps the next person decide.

Happy puzzling. — MakerX Designs · makerxdesigns.com · © 2026