

Puzzle Sorting Tray Print & Use Guide

A 9.5-inch square of sorting room — and a lid, so the pile survives being moved.

[Tray + Lid](#)[Stacks & Nests](#)[Pre-Configured 3MF](#)

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

It started with a 200-piece puzzle spread across a table with nowhere to put the edge pieces. Dollar-store trays tipped, held nothing and stacked badly. This one is big enough to sort into, nests with its neighbors, and closes with a lid when dinner arrives.

In the download

File	What it is
<code>makerx-puzzle-tray.3mf</code>	Start here. Two plates — plate 1 the tray, plate 2 the lid — with the tested profile and tree supports already set up.
<code>makerx-puzzle-tray.stl</code>	The tray on its own, for your own slicer.
<code>makerx-puzzle-tray-lid.stl</code>	The matching lid. Same footprint, same nesting.

1 • Check it fits your printer

This is a big flat part — that is the whole point of it, and it is also the one thing that can stop you before you start.

Tray and lid alike	
Overall size	240 × 240 × 16.5 mm · 9.5 in square
Bed needed	at least 250 × 250 mm once the brim is counted
Both plates	313 g PLA · 105 m · 13 h 37 m

One part per plate, and it fills it

At 240 mm square the tray takes up nearly all of a 260 mm bed, so there is no doubling up. Print the tray, print the lid, and plan on most of a day for the pair.

2 • Slice it

- 1 Open `makerx-puzzle-tray.3mf` in Creality Print, or any slicer that imports 3MF project files.
- 2 When it asks whether to load the project's print settings, **say yes** — that is the whole point of the 3MF, and it brings the support setup with it.
- 3 Slice **plate 1** for the tray and **plate 2** for the lid. They are separate prints; there is no way to fit both on one bed.

★ A fine layer height, on purpose

0.12 mm looks slow for a part this size, and it is — but the tray is mostly a broad flat floor, and a fine layer is what keeps that floor smooth enough that pieces slide instead of catching. It is the single setting most worth leaving alone.

3 • The profile baked into the 3MF

Using your own profile instead? Match these — all sliced and print-tested on a Creality Hi with a 0.4 mm nozzle.

Quality	
Layer height	0.12 mm
Nozzle	0.4 mm
Walls	2 loops
Top / bottom	5 / 3 layers
Infill	9 % gyroid

Supports & adhesion	
Supports	Tree, auto
Threshold	30 °
Brim	Auto, 5 mm

Material & plate	
Filament	PLA
Nozzle temp	220 °C
Bed temp	60 °C
Plate	Epoxy resin

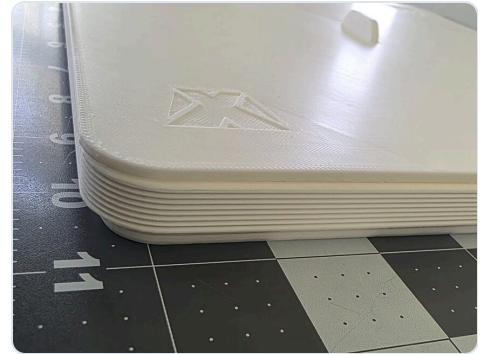
Per plate	
1 • Tray	6 h 42 m · 155.81 g
2 • Lid	6 h 55 m · 157.26 g
Together	13 h 37 m · 313 g

4 • Before you hit print

- ☐ Bed genuinely level and clean. A 240 mm footprint finds every low corner you have.
- ☐ Brim present — a broad thin part is exactly what lifts at the corners.
- ☐ Tree supports confirmed **on**.
- ☐ At least 170 g on the spool before you start either plate. Running out at hour six of seven is a bad afternoon.

5 • Off the plate

- 1 Let the plate cool completely before you lift. A warm 240 mm panel will take a bow if you flex it while it is soft, and a bowed tray will not nest.
- 2 Flex the plate and lift the part off, then peel the brim away from one corner.
- 3 Twist off the tree supports and run a fingernail around the inside base radius where they were anchored.
- 4 Set it on a flat surface and check it sits without rocking. If a corner is proud, a few minutes under a stack of books while it finishes cooling usually settles it.



Nested. Each tray drops into the one below, so a set stores in barely more space than one.

6 • Sort with it

- **One category per tray.** Edges in the first, then a tray per color block or per region of the picture. That is the whole method — the trays just make it possible.
- **Pieces face up, in one layer.** The floor is deliberately broad and smooth so a single layer of pieces stays readable at a glance.
- **Stack to pause.** Trays nest loaded, so an unfinished sort can go on a shelf and come back exactly as you left it.
- **Lid the one you are carrying.** Drop the lid on the top tray and the whole stack becomes a closed box — that is the difference between pausing and starting over.



One tray per category. Edges in one, each color block in another.

7 • Making it yours

- **Print a set.** Three or four trays and one lid is the practical kit for a 1000-piece puzzle. The lid only needs printing once.
- **Resizing.** Scale **X and Y together** if your bed is smaller and leave Z alone, so the walls stay tall enough to hold pieces in.
- **Color.** Light filament makes dark puzzle pieces easiest to pick out; the MakerX mark on the lid takes a paint pen nicely.

Where precision meets the printer

Thanks for printing this one. If it earned a permanent spot on your puzzle table, 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.

Working a bigger puzzle, or a smaller bed? Tell me the size you need in a comment on the model. That is where the next version starts.

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