SpinSum Battle Dumplings

by Prime Tower Designs

Build Guide

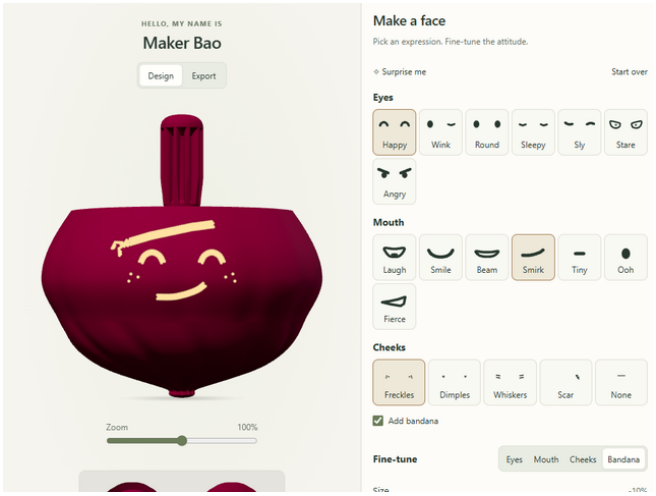


Fighters, prepare to dumple!

All you need to get started is a single dumpling. Spin it by hand and shine a flashlight inside to reveal its face. Ready for more? Add LEDs, a launcher, and much more!



Watch the SpinSum overview video to see how the pieces fit together and how the fighters look in play.



Design your own fighter for free in Character Kitchen.

Free on MakerWorld

The collection of free models includes fighters Pow Bao and Pounce Bao, along with the Battle Pack that includes an arena, a chopstick launcher & chopstick rest, steamer baskets with score lids, and a serving tray for any fighter.

Premium Bundle

The Premium Bundle includes all of that plus the Signature Pack, which adds Mew Bao and Wag Bao, a deluxe arena with lights around the rim, stackable steamer baskets, and the Thousand-Year Egg trophy with its display stand.

Choose the **3MF download** for prepared print plates or the **STL download** to set up the parts yourself.

Contents

Find Your Component

COMPONENT	PRINT & ASSEMBLE	STL REFERENCE
Dumpling Fighter	3	18
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Chopsticks & Rest	7	19
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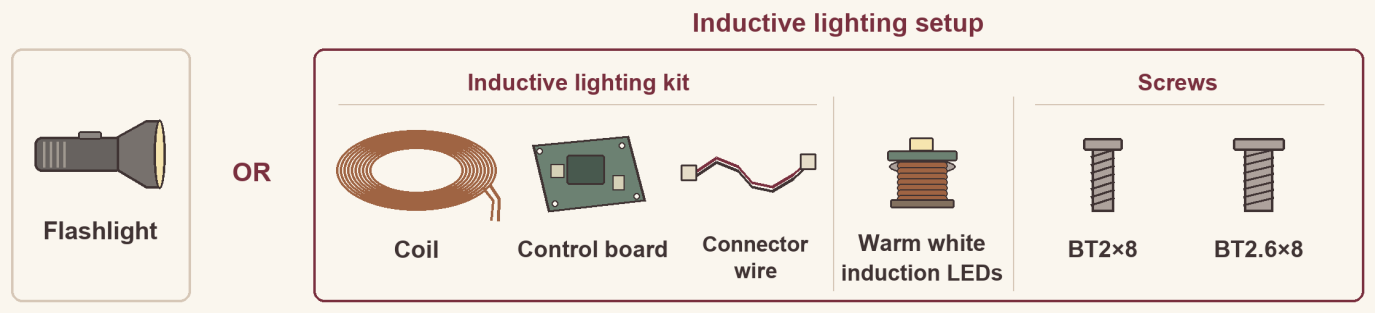
Optional Hardware

An ordinary flashlight is all you need. For inductive lighting, find the Bill of Materials to choose hardware for your build. Purchases through those links help support Prime Tower Designs (Mike).



The coil, control board and connector wire fit inside the arena.

Warm white induction LEDs fit into the pieces you want to light: ten (10) per fighter, ten (10) for the Thousand-Year Egg trophy and twelve (12) for the Deluxe Arena Plate rim. The inductive lighting kit includes two (2) of these LEDs. An additional pack of ten (10) LEDs gives you all twelve (12) for the rim.

Four (4) BT2×8 screws secure the control board. Use seven (7) BT2.6×8 screws for the regular Arena Plate or eleven (11) for the Deluxe Arena Plate.

Using a 3MF?

All SpinSum 3MFs are ready to slice in Bambu Studio, with print settings and color assignments already configured. Find your component below for its parts, suggested filaments and assembly steps.

Using raw STLs?

Choose your parts and filaments below, then go to the Manual STL Reference (p. 18) for your component. If you use another slicer, try the 3MF first. Some slicers can translate its settings and colors on import.

Dumpling Fighter

Print

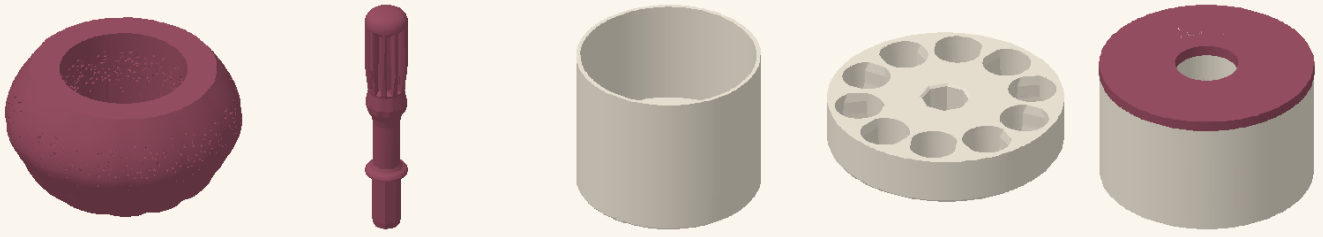
For each fighter, print one body and one stem. Choose the remaining parts for the way you want to light it.

Lighting	Also print
Flashlight	One flashlight diffuser.
Induction LEDs	One LED tray and one LED diffuser bearing your fighter's name.

Suggested filaments. Choose a medium-to-dark PLA for the fighter body to maximize contrast when lit. Use the same color for the stem and the lower portion of the named LED diffuser. Exceptionally opaque filaments may prevent the fighter's name from showing through the LED diffuser. Use basic white PLA (not matte) for the functional part of the diffuser.

Manual STL settings (p. 18)

Both versions | **Flashlight** | **Induction LEDs**



Body | **Stem** | **Diffuser** | **LED tray** | **Named diffuser**

Print one of each part shown for your lighting option, plus the shared body and stem.

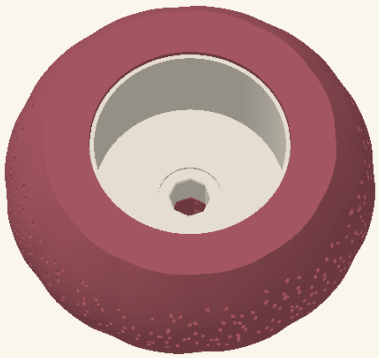
Dumpling Fighter

Assemble

After removing the supports, check the stem slot at the bottom of the body cavity. A small piece of support material can stay lodged there. Use tweezers to lift it out before fitting the parts.

Flashlight Version

1. Insert the flashlight diffuser **flat side down**, toward the bottom of the cavity.
2. Push the stem firmly into its slot until fully seated. If it doesn't line up, rotate it until it does, then press. The stem should hold by friction. If it's loose, you can glue it in.



Step 1

Fit the diffuser

Flat side down



Step 2

Seat the stem

Press firmly

Ready to spin? See Spin and Launch (p. 14) and Viewing With a Flashlight (p. 15).

Dumpling Fighter

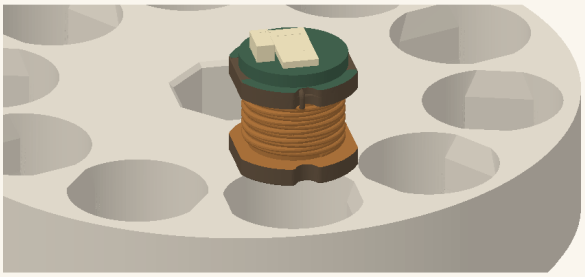
Assemble (continued)

Induction LED Version

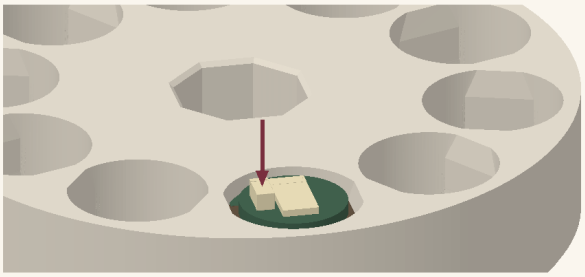
1. Fit the LEDs into the tray while it's outside the body. Some click in easily. If tight, use a capped pen to press firmly on the top of the LED. Keep pressure off the thin coil wires, which can break easily, but the top of the LED is quite strong. If an LED is loose, glue it into the tray before assembly. If it later falls out, reseating may be difficult because the fighter can be challenging to disassemble, depending on how tightly the pieces fit together.

Step 1

Load all 10 LEDs into the tray

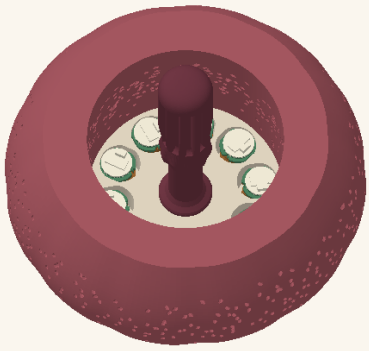


Align
Flat end first; LED face up.



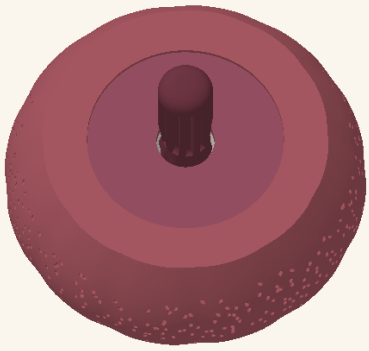
Press into place
Press on the raised LED face.

2. Insert the loaded tray into the body, then fit the stem. Rotate it to align with the slot and press firmly until fully seated. As with the flashlight version, you can glue a loose stem in place.
3. Lower the named LED diffuser over the stem **flat side up**.



Step 2

Fit the tray and stem
Seat the stem fully



Step 3

Lower the diffuser
Flat side up

Steamer Basket & Score Lid (Battle Pack) and/or Stackable Steamer (Signature Pack)

Print

For a single basket, print the standard steamer from the Battle Pack. For a two-basket stack, print the standard steamer for the bottom and the stackable steamer from the Signature Pack for the top. Additional stackable steamers can be printed for even taller stacks. The same score lid fits either basket type.

Suggested filaments. Try a light tan matte PLA.

Manual STL settings (p. 19)



Assemble

Grip the support material with pliers and pull it out. Any strands left behind are on the inside, where they're usually out of sight, so you can leave them in place.

Chopsticks & Rest (Battle Pack)

Print

For the launcher, print each chopstick and two halves of the chopstick rest.

Suggested filaments. Try black PLA+ for the chopsticks. Regular PLA works, but these pieces are prone to wear. Try red sparkle PLA for the chopstick rest.

Manual STL settings (p. 19)

Assemble

Use pliers to pull the supports out of the spin hole. Then place each half of the chopstick rest on a protective surface and use a screwdriver to push the internal supports out. Press straight down, applying firm, steady pressure as needed.

Fit the two halves together. They may be tight the first few times you pull them apart, but they should separate more easily with use.



The chopsticks sit on the assembled chopstick rest. The halves are shown apart here so you can see how they fit together.

Arena Plate (Battle Pack) or Deluxe Arena Plate (Signature Pack)

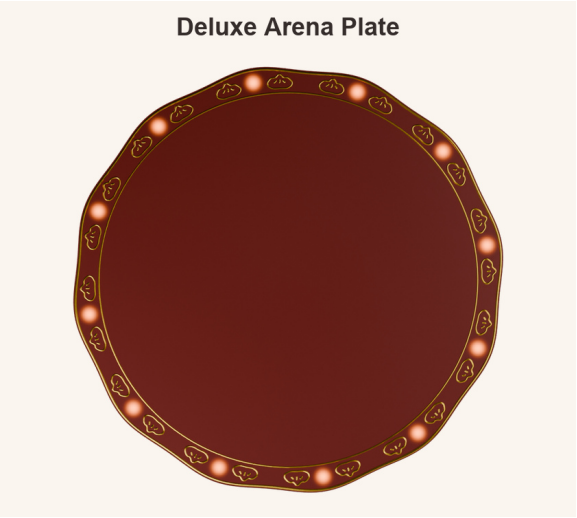
Print

Print either the regular Arena Plate or the Deluxe Arena Plate. The regular Arena Plate may be upgraded to use inductive lighting. The Deluxe Arena Plate requires inductive lighting.

If using inductive lighting, also print one plate foot and one plate foot insert for the coil. For the Deluxe Arena Plate, also print one Deluxe Plate LED Retainer.

Suggested filaments. Try red sparkle PLA, and gold silk PLA for accents.

Manual STL settings (p. 20)

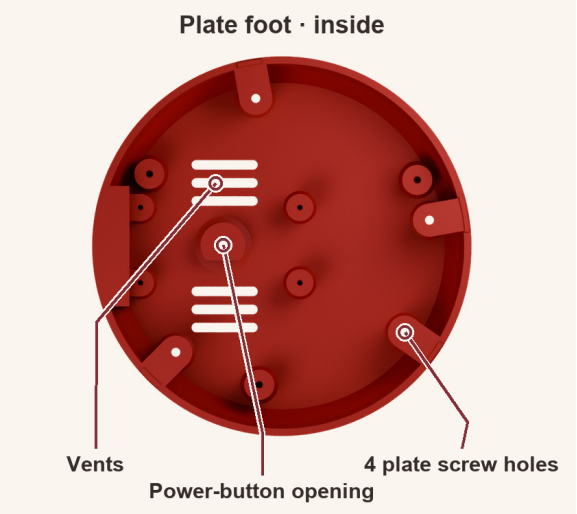


Assemble

If you're using the regular Arena Plate without inductive lighting, it's ready for play straight off the print bed.

If you printed the inductive lighting plate components, remove the supports from the plate foot. Check especially across the vents, bottom screw holes, and power-button slot.

The second half of the overview video shows the arena being assembled step by step. For more detail, follow the written instructions on the next pages.

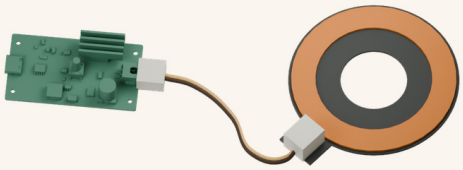


Arena Plate

Assemble (continued)

Fit the plate foot for inductive lighting

Step 1
Connect and route the wire

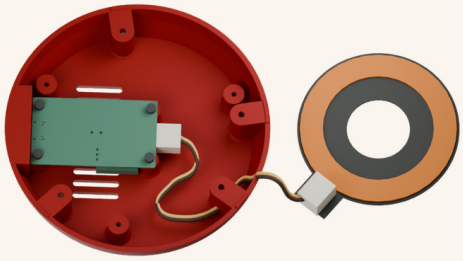


Plug the wire into the board
and the coil before mounting them.

Step 1

Plug the connector wire into **both the coil and the control board** while you can still reach them. Route the wire around the inside edge of the foot, clear of the screw holes and the space beneath the insert.

Step 2
Mount the board

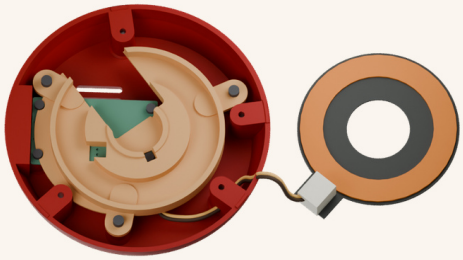


Component side down. Route the wire
around the foot and seat four screws.

Step 2

Seat the control board component-side down on its four mounts, with the button lined up with its slot. Fasten the board with **four BT2×8 screws**, turning each just until seated. Overtightening can strip the printed plastic.

Step 3
Secure the insert



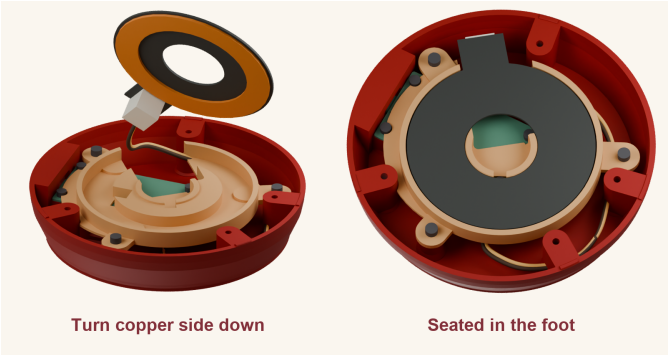
Keep the wire clear beneath the insert.
Seat the three insert screws.

Step 3

Fit the plate foot insert over the board and secure it with **three BT2.6×8 screws**. Stop as soon as each screw is seated.

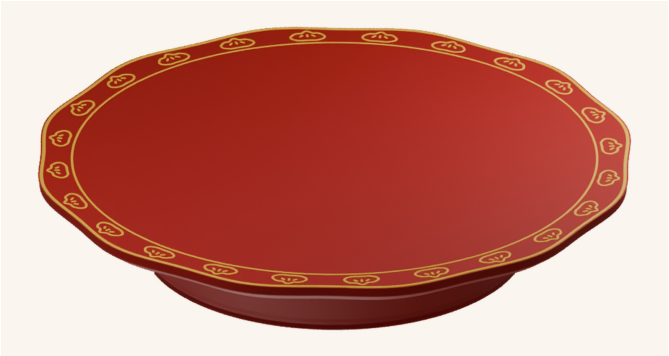
Arena Plate

Assemble (continued)



Step 4

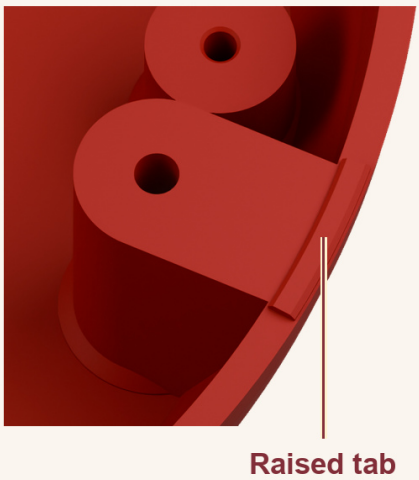
Lower the coil into the insert **shiny copper side down, smooth black side up**. Align the coil connector and solder joint with the opening in the insert so the coil sits flat.



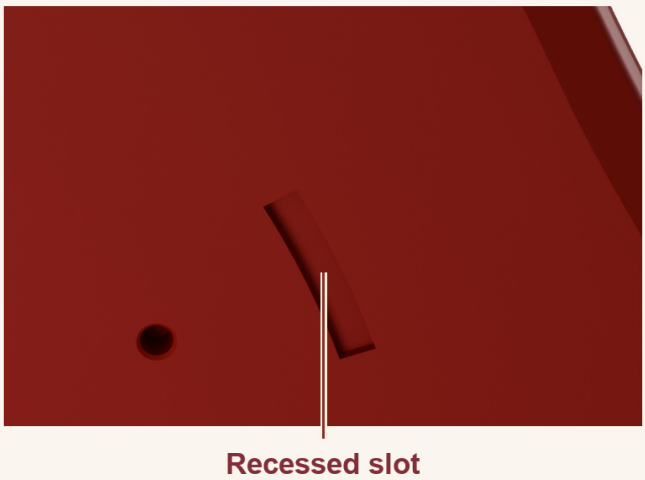
Step 5

Check that the coil sits flat and the wire is clear. Match the foot's widest tab to the widest slot on the underside of the plate. Once the tabs are seated, secure the foot to the plate with **four BT2.6×8 screws**. **Stop turning each screw as soon as it's fully seated.** An extra turn can strip its hold in the plastic.

Plate foot · widest tab



Arena Plate underside · widest slot

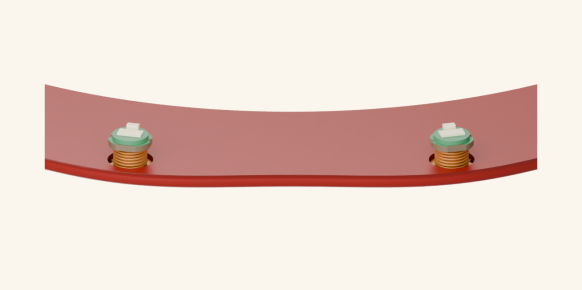


The regular Arena Plate is ready. For the Deluxe Arena Plate, continue with rim lighting.

Deluxe Arena Plate

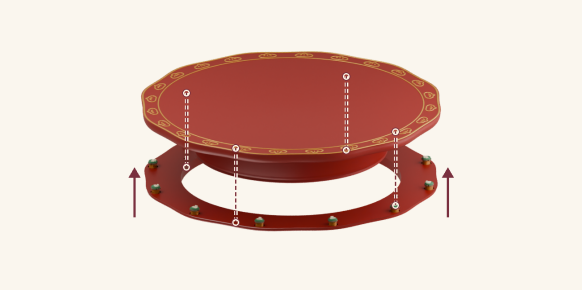
Assemble (continued)

Deluxe Rim Lighting



Step 6

Fit the twelve (12) LEDs into the retainer ring. The openings appear nearly round, but LED orientation matters. Install them horizontally, tangent to the plate's rim, and press until fully seated. They only need to remain seated long enough to last through assembly. A loose fit is okay; take care not to knock them out of their slots while aligning the plate.



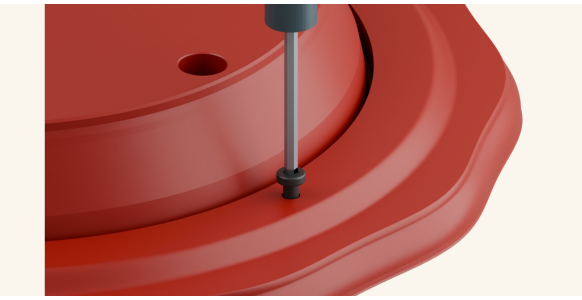
Step 7

With the foot already attached, position the plate above the loaded ring. Align the four (4) screw holes and the LEDs with the plate's slots. Lift the ring evenly and press it against the plate. If all LEDs are securely seated or glued in, it may be easier to flip the ring over and align it that way.



Step 8

Hold the plate and ring firmly together. Flip the complete assembly so the screw holes face up.



Step 9

Secure the ring with four (4) BT2.6×8 screws. Stop turning each screw as soon as it's fully seated. Overtightening can strip the printed plastic.

Ready to get your fighter fired up? See Viewing With Induction LEDs (p. 16).

Serving Tray (Battle Pack)

Print

Print one tray to store or display the arena plate, steamer baskets and chopsticks together.

The tray's corners can lift during printing. Try a high-adhesion build plate to help keep them flat.

Suggested filaments. Try matte black PLA.

Manual STL settings (p. 21)

Assemble

Remove any print supports. If you’re using inductive lighting, run the USB cord through the slot at the back of the tray.



The fighters are stored in the covered steamers, with the chopsticks across the arena plate.

Thousand-Year Egg Trophy (Signature Pack)

Print

Print the Egg's body, stem, cap and display stand. Choose your lighting as you would for a Dumpling Fighter (p. 3):

- **Flashlight:** Add the Egg's flashlight diffuser.
- **Induction LEDs:** Add the Egg's LED diffuser and the same LED tray used by the fighters.

Suggested filaments. Try a medium-to-dark jade PLA for the Egg to give the dragon strong contrast. Exceptionally opaque filaments may prevent the wave pattern from showing through the Egg's LED diffuser. For a more spiritual glow, try a lighter translucent jade. The whole Egg will glow, and the dragon will be faintly visible as it spins.

Manual STL settings (p. 21)

Assemble

Remove the supports from the Egg's body and cap. Use pliers to carefully remove the supports from the cap. Check the stem slot at the bottom of the body cavity and the cap's hole, and use tweezers to remove any support material lodged in either.

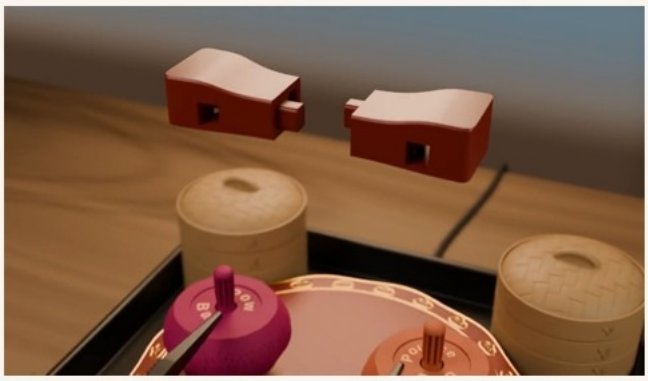
Follow the Dumpling Fighter assembly steps (p. 4) for your lighting option, using the Egg's stem and diffuser. For display, fit the cap and place the Egg on its stand.



Spin and Launch

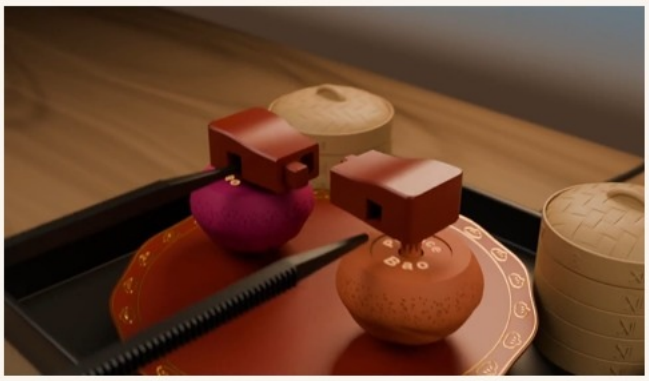
You can spin a fighter by hand. The chopstick launcher is strongly recommended for viewing the fighter's face and for battles.

1. **Separate the chopstick rest.** Each player takes one half, one chopstick and one fighter.
2. **Fit your half over the stem.** Set the fighter in the arena and lower your half of the chopstick rest over its stem.
3. **Load the chopstick.** Slide the narrow end through your half of the chopstick rest with the teeth facing the stem. Stop when the shoulder at the grip meets the chopstick rest.
4. **Launch the fighter.** Pull the chopstick out. Keep your half of the chopstick rest over the stem until the spin is steady, then lift it clear.



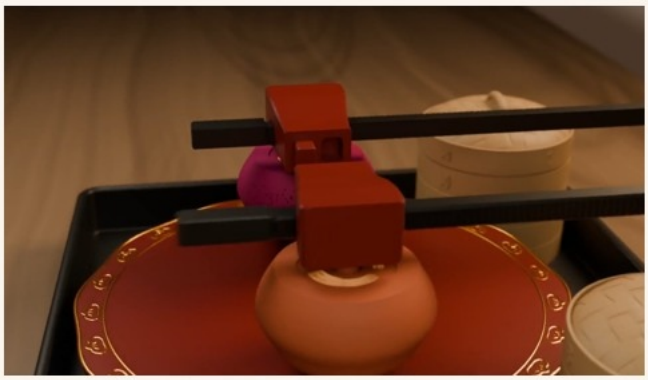
Step 1

Separate the chopstick rest



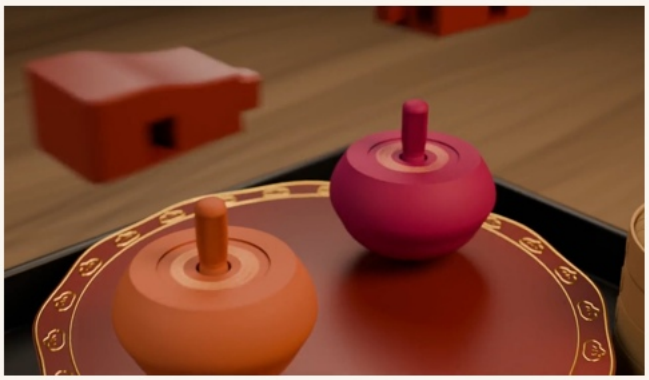
Step 2

Fit your half over the stem



Step 3

Load the chopstick



Step 4

Launch the fighter

Viewing With a Flashlight

Dim the room and watch the spinning fighter or Egg from the side. Hold a bright, focused flashlight close above it and aim down into the diffuser. Keep the beam off the surface facing you so the fighter's face or the Egg's dragon stands out against the darker shell.

The UltraTac K1 is one flashlight option (affiliate link).



Viewing With Induction LEDs

The coil turns on when you plug the arena into USB. The button on the underside of the plate cycles through the lighting modes. For play, use **steady on**.

The coil gets warm while it's on, so use the button to switch it **off** when you're done. Alternatively, unplug the USB cable to prevent it from turning back on automatically if power is interrupted and restored.

Glowing Name and Wave

Bring a fighter or the Thousand-Year Egg close to the powered plate. Its name or pattern glows on top.





Seeing the Face and Dragon

Watch from the side as the fighter or Egg spins. The fighter's face and the Egg's dragon appear brighter when they're closer to the center of the arena.





Battle and Keep Score

When both players are ready, pull your chopsticks out together and quickly count down: **“3, 2, 1, Fight!”** Lift your halves of the chopstick rest together on **“Fight!”**

- If a fighter leaves the arena, it loses the round.
  (Keep the arena away from the table edge. A fighter that falls to the floor can crack its stem.)
- If both stay in the arena, the one that spins longer wins the round.

The winner earns **one point**. Turn your steamer basket’s score lid until your new score lines up with the crosshatches on the basket. **First to 8 points wins the match.**



For an epic battle, agree on the stakes before you launch. The winner can keep the Thousand-Year Egg trophy or hold it until the next matchup.

Manual STL Reference

Try the 3MF first. For most users, the easiest option is to open the prepared 3MF in Bambu Studio. If you use another slicer, try importing the 3MF there first. Some slicers can convert the print settings and color assignments during import. If yours does, you can skip this reference.

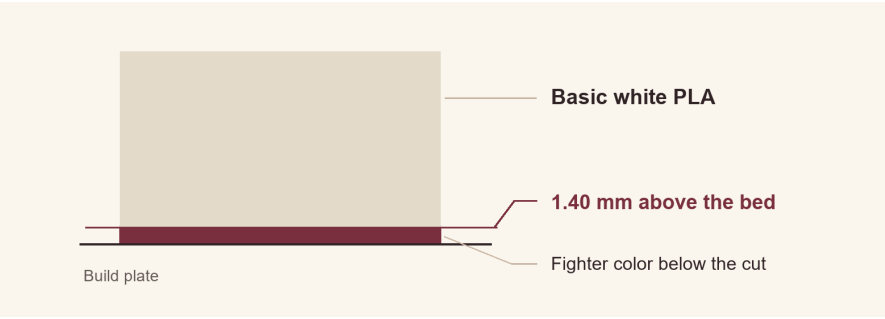
These settings are for a 0.4 mm nozzle. Adjust them as needed for your printer and filament. Choose the parts and filaments for your build (p. 3), then use the settings for that component below.

Dumpling Fighter

For all parts, try a 0.20 mm first layer, Arachne walls, and concentric top and bottom surfaces.

Part	Layer height	Walls	Infill	Part-specific settings
Fighter body (e.g. pow-bao.stl)	0.10 mm	3	25%	Build-plate-only tree supports. Top and bottom Z distances 0.20 mm. Turn off **Independent support layer height**.
Stem (stem.stl)	0.10 mm	6	10%	Same support settings as the body.
LED tray (led-tray.stl)	0.20 mm	3	10%	—
Flashlight diffuser (flashlight-diffuser.stl)	0.20 mm	3	10%	—
Named LED diffuser (e.g. pow-bao-led-diffuser.stl)	0.20 mm	3	10%	See below for coloring instructions.

How to color the Named LED diffuser: The 3MF already contains the color split. For the STLs, cut horizontally **1.40 mm above the bed**. Keep both pieces aligned as parts of one object and assign the fighter color below the cut and basic white PLA above it.



Steamer Components

For all parts, try a 0.20 mm first layer and 0.10 mm layers after that, two Arachne walls, 10% infill, monotonic line top surfaces and concentric bottom surfaces, automatic normal supports with the snug style and build-plate-only placement, and top and bottom Z distances of 0.20 mm with **Independent support layer height** turned off.

Chopstick Components

For all parts, try a 0.20 mm first layer and 0.10 mm layers after that, Arachne walls, monotonic line top surfaces and monotonic bottom surfaces.

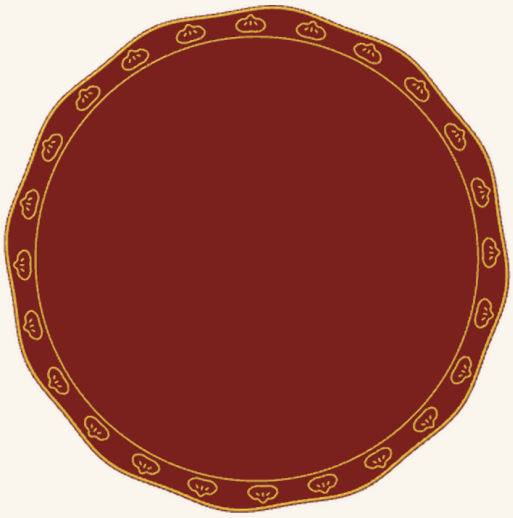
Part	Walls	Infill	Part-specific settings
Chopsticks (chopstick-left.stl and chopstick-right.stl)	4	10% gyroid	Set infill direction to 0° to mimic wood grain.
Chopstick rest halves (two of chopstick-rest-half.stl)	3	25% zig-zag	Automatic tree supports with build-plate-only placement and top and bottom Z distances of 0.20 mm, with **Independent support layer height** turned off.

Arena Plate

For all parts, try a 0.20 mm first layer, Arachne walls, 10% infill, and monotonic bottom surfaces.

Part	Layer height	Walls	Part-specific settings
Arena Plate or Deluxe Arena Plate (arena-plate.stl or arena-plate-deluxe.stl)	0.10 mm	2	Hilbert curve top surface. Random seam.
Plate foot (arena-foot.stl)	0.20 mm	4	Monotonic line top surface. One wall on the first layer. Build-plate-only automatic tree supports with 0.20 mm top and bottom Z distances. Turn off **Independent support layer height**.
Plate foot insert (arena-foot-insert.stl)	0.20 mm	3	Monotonic line top surface.
Deluxe Plate LED Retainer (arena-plate-deluxe-led-retainer.stl)	0.10 mm	3	Monotonic line top surface.

Painted accents. For raw STLs, paint the gold accents in your slicer if desired.





Gold rim accents

Serving Tray

serving-tray.stl

Try a high-adhesion build plate and a **10 mm outer-only brim** to help keep the large tray's pointed corners from lifting and warping.

Try 0.20 mm layers throughout, two Arachne walls (one on the first layer), 10% gyroid infill, a monotonic line top surface and a monotonic bottom surface. Automatic tree supports from the build plate with top and bottom Z distances of 0.20 mm and **Independent support layer height** turned off.

Thousand-Year Egg Trophy

For all parts, try a 0.20 mm first layer, Arachne walls, and concentric top and bottom surfaces.

Part	Layer height	Walls	Infill	Part-specific settings
Egg body (dragon-egg.stl)	0.10 mm	3	25%	Build-plate-only tree supports. Top and bottom Z distances 0.20 mm. Turn off **Independent support layer height** and **Remove small overhangs**.
Cap (dragon-egg-cap.stl)	0.10 mm	3	10%	Automatic tree supports from the build plate. Set both support Z distances to 0.20 mm with **Independent support layer height** turned off.
Stem (dragon-egg-stem.stl)	0.10 mm	6	10%	Build-plate-only tree supports. Top and bottom Z distances 0.20 mm. Turn off **Independent support layer height**.
Display stand (dragon-egg-stand.stl)	0.10 mm	3	10%	—
LED tray (led-tray.stl)	0.20 mm	3	10%	—
Flashlight diffuser (dragon-egg-flashlight-diffuser.stl)	0.20 mm	3	10%	—
Egg LED diffuser (dragon-egg-led-diffuser.stl)	0.20 mm	3	10%	See below for coloring instructions.

How to color the Egg LED diffuser: Cut horizontally **1.40 mm above the bed**. Keep both pieces aligned as parts of one object and assign the Egg's body color below the cut and basic white PLA above it.