# Draw a Jenga Tower: Stacking, Pull-Out Steps, and Mid-Game Views

Original tasks 1, 2, 3 / complete keys

Task 1

Draw a four-layer tower with no missing blocks. Use a footprint 5 cm by 3 cm and a layer height of 0.8 cm as hypothetical values. Show all three block positions in each layer.

Answer: A four-layer tower with alternating orientation. Each layer has three blocks side by side. The footprint is 5 cm by 3 cm, and each layer is 0.8 cm high. Vertical edges are parallel.

Reason: Four layers means two pairs of alternating orientation. The footprint's long edge divides into three equal slots of about 1.67 cm each. The layer height repeats four times.

Check: Count four layers and three block positions per layer. Measure the footprint and layer height with a ruler. Check that adjacent layers rotate ninety degrees.

Task 2

Draw a five-layer tower with the middle block of the third layer pulled out by half a block length. Use a footprint whose long edge is 12 cm, divided into three slots, so each block is 4 cm long, and use a layer height of 1 cm as hypothetical values. Show the gap and the pulled block's faces.

Answer: The third layer's middle block is offset outward by 2 cm, half its 4 cm length. A gap 4 cm wide and 1 cm high remains. The pulled block shows top, front, and side faces. The other layers are complete.

Reason: Half of 4 cm is 2 cm. The gap width equals the block length, 4 cm, and the gap height equals the layer height, 1 cm. The pulled block's front face is 2 cm outward from the tower face.

Check: Measure the offset and gap width. Confirm the gap is one layer high. Check that the pulled block has three visible faces.

Task 3

Draw a six-layer tower missing one end block from the second layer and one middle block from the fifth layer. Use a footprint 7 cm by 4 cm and a layer height of 1 cm as hypothetical values. Shade both gaps.

Answer: The second layer has two blocks and one empty end slot. The fifth layer has two blocks with a middle gap. Both gaps are shaded. The other four layers are complete.

Reason: Each layer still shows three positions. The missing blocks create readable gaps. The footprint and layer height are consistent across all layers.

Check: Count three positions in every layer. Check that the second layer's gap is at an end and the fifth layer's gap is in the middle. Measure the layer height.

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Original tasks 4 / complete keys

Task 4

Draw a three-layer tower with one block pulled from the top layer. Use a footprint whose long edge is 9 cm, divided into three slots, so each block is 3 cm long, and use a layer height of 0.7 cm as hypothetical values. Add a motion arrow outside the tower outline.

Answer: The top layer's block is offset outward by 1.5 cm, half its 3 cm length. A gap 3 cm wide and 0.7 cm high remains. The arrow points outward and stays outside the tower. The lower two layers are complete.

Reason: Half of 3 cm is 1.5 cm. The gap width equals the block length, 3 cm, and the gap height equals the layer height, 0.7 cm. The arrow is a separate mark, not part of the tower.

Check: Measure the offset, gap width, and gap height. Confirm the arrow does not cross the tower outline. Count three layers and three positions per layer.

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Source rubric / reflection

- [ ] Tower footprint is a clear parallelogram with three equal slots.
- [ ] Layers alternate orientation and use a consistent layer height.
- [ ] Each layer shows three block positions, even when a block is missing.
- [ ] The pulled block has an offset front face, a visible gap, and a shadow.
- [ ] Vertical edges are parallel to the paper's side edges.
- [ ] Line weight is consistent, and construction lines are lighter.
- [ ] The mid-game panel reads as the same tower with missing blocks.
- [ ] Valid alternatives: rounded or sharp edges, optional motion arrow, and varied letter styles for labels.

Reflection: What did you check, what did you change, and what will you try next?