

Toy Pattern: Train Engine

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The pattern for this toy is similar to these illustrative images but differs in the details. Make the toy as drawn or modify the design as you see fit.



Tools

- Band Saw or Scroll saw
- Sanders – Disc, Belt and Spindle
- Router with 1/8" round over bit
- Drill Press
- Sandpaper

Material

- 2" x 4" lumber or 6/4 hardwood
- 3/8" thick lumber or hardwood
- 1/4", 1/2", & 3/4" dowels
- 1-1/4" train wheels with 1/4" hole or 1-1/2" train wheels with 5/16" hole

Instructions

1. Make pattern from print of engine by gluing to a piece of cardboard or hardboard. Cut pattern to shape.
2. Draw shape on wood surface and mark axle centers and center of window hole.
3. Drill 5/16" or 9/32" axle holes for wheels with 1/4" holes OR 3/8" or 11/32" holes for wheels with 5/16" holes.
4. Drill 5/8" hole for the window.
5. Saw body from 2" x 4" lumber (sand sides smooth). Fill any voids, cracks, or knot holes with filler.
6. Sand cut surfaces with a belt or disc sander to smooth.
7. Round over edges with 1/8" router bit.
8. Sand edges to remove roughness.
9. Resaw wood to 3/8" thick for the engine roof. Cut to the dimensions indicated ((2-1/2 x 1-3/4) and bevel the top and bottom as shown on all 4 sides. Sand edges and corners to remove roughness and sharp points.
10. Center on the top of the engine and pin-nail/glue in place.
11. Cut 3/4" dowel to length for the boiler. Sand one side flat, then drill a 1/2" hole on the opposite side for the smokestack.
12. Cut 1-5/8 long piece of 1/2" dowel for smokestack.
13. Glue boiler to the engine and the smokestack to the boiler.
14. Cut a short piece of 3/4" dowel for the stack cap and bevel one end as indicated. Pin-nail and glue to the top of the stack.
15. Cut 1/4" or 5/16" dowel to length (body + 2 x wheels thickness + 1/16" or 3/32" clearance). It is important to taper the ends of the axles to get them to easily go into the wheels. An easy way to do this is to gently sharpen the axles by turning the sharpener backwards in an old-fashioned pencil sharpener-much easier than trying to do this with sandpaper.
16. Assemble wheel to one end of axle using white or yellow glue (**hot melt will not work**). An easy way to glue the wheels to the axle is to dip a pencil point into a pool of glue and use the pencil to add the glue to the inside of the wheel axle hole. Add second wheel to complete assembly. Test that wheels turn freely.
17. Rub your hands over the entire vehicle to make sure there are not sharp edges or points. Remove with sandpaper if any are found.

