

## PROCEDURE

### 1. TEMPLATES

Start by making patterns for the various cars. Draw 1/2" grids on stiff cardboard or tempered hardboard; then transfer the patterns from the plans to the grids. When cutting out the patterns, make sure the axle hole locations are marked on them. Axle hole locations for all cars are 1/4" from the bottom edge and 1/2" from the side edge. The hole locations for the engine are noted on the plans.

### 2. CUTTING

Transfer the patterns to the stock, making sure the grain direction on all the cars is hori-

zontal. If you've laid out all the cars on the same stock, cut it into manageable blocks for easy handling when working on the scroll saw. Cut out the pieces. (A scroll saw is really the best tool to use here because almost no sanding is required after the cuts have been complete.)

When all the cars have been cut out, drill the 5/16" diameter axle holes. Sand all the edges of the cars smooth, paying particular attention to splinters and sharp edges.

### 3. WHEELS

Make the wheels for this simple old-time train using a hole saw. For the 1-1/4" diameter wheels, use a 1-3/8" diameter

hole saw; for the 2-1/4" diameter locomotive wheels, use a 2-3/8" diameter hole saw. Make all wheels out of 3/4" stock along with extras for future toys. Once you've cut out the wheels, sand them smooth.

Cut axles to length; then glue the wheels to the axles.

### 4. FINISHING TOUCHES

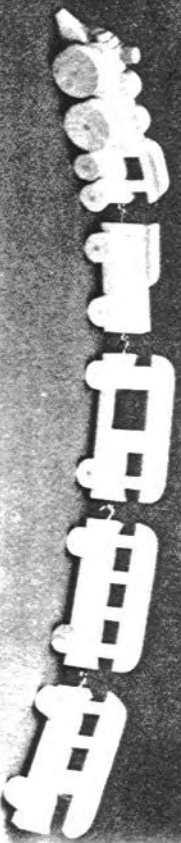
Drill a 3/32" diameter hole in the end of each car and insert the screw hooks and eyes.

Crimp the hooks so the eyes barely fit onto them and turn the hook to the down position for safety. Leave the wood natural or paint it with primer and nontoxic paints.

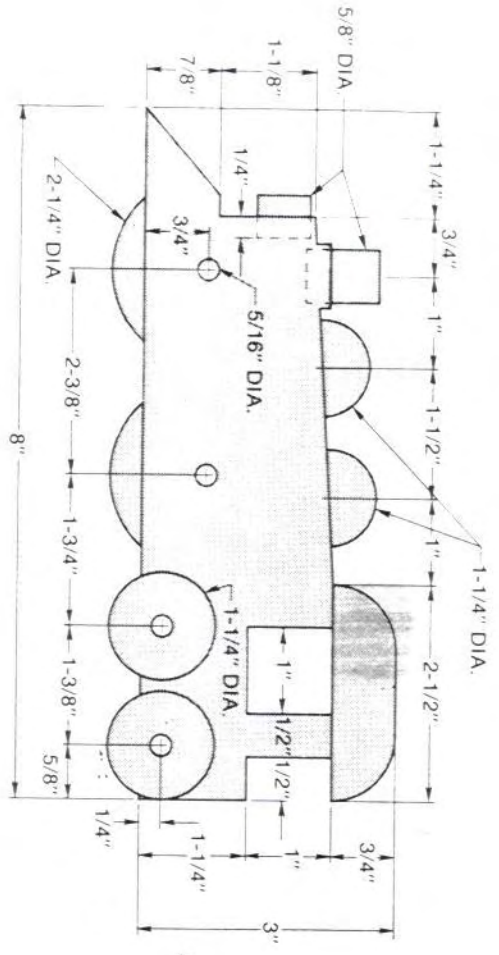
## MATERIALS

Part	Description	Pieces	Dimensions
A	Engine	1	3/4 × 3-1/2 × 6 (finished dimensions in inches)
B	Tender	1	3/4 × 2-1/4 × 2-3/4
C	Hopper Car	1	3/4 × 2-1/4 × 3-1/2
D	Boxcar	1	3/4 × 3-1/2 × 3-1/2
E	Caboose	1	3/4 × 3-1/2 × 2-3/4
F	Large wheels	2	2-1/4 dia. × 3/4
G	Small wheels	20	1-1/4 dia. × 3/4
H	Axles (not shown)	11	1/4 dia. × 2-3/8

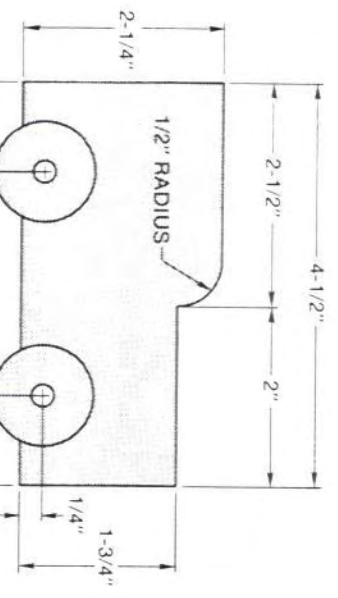
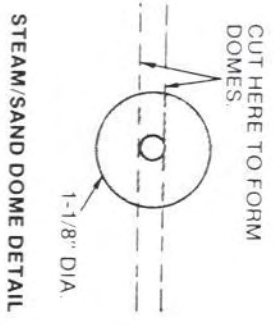
# FANCY PULL-ALONG TRAIN



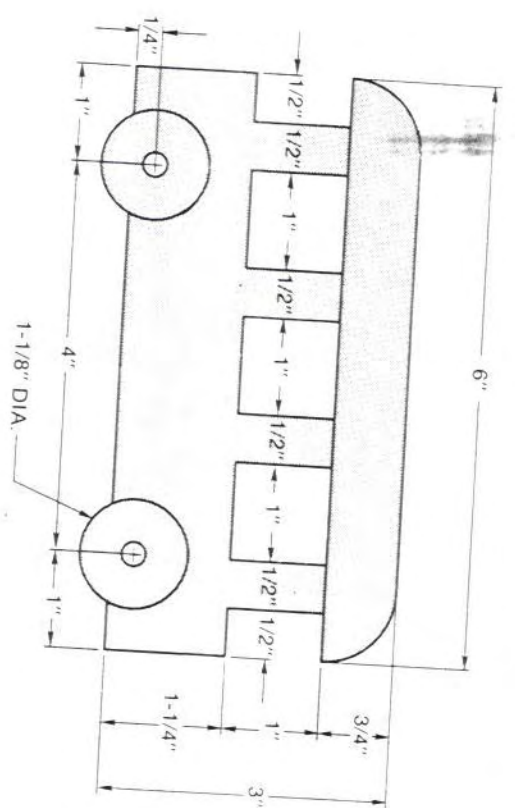
**T**his version of a pull-along train is fancier than the previous train and provides more interest for the older toddler. This project requires only a 4' long piece of 1 × 4 stock, is simple to build, and goes together fast. Be sure to read through all the instructions before making any cuts.



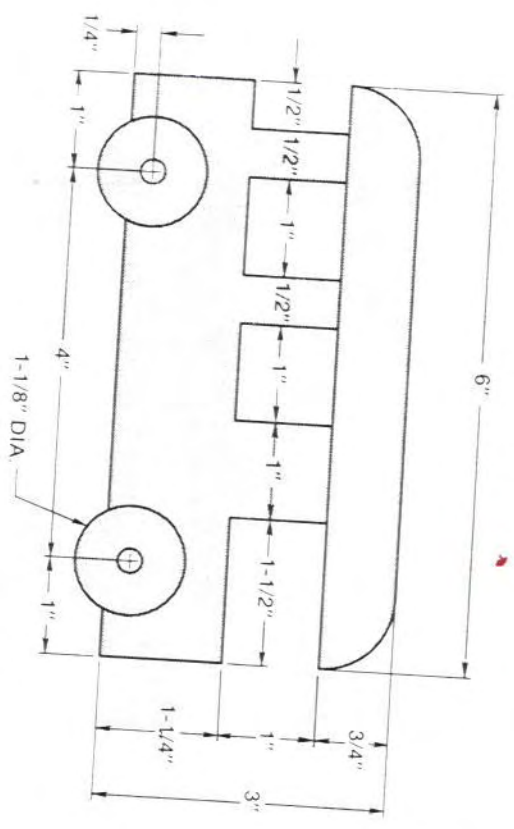
ENGINE DETAIL



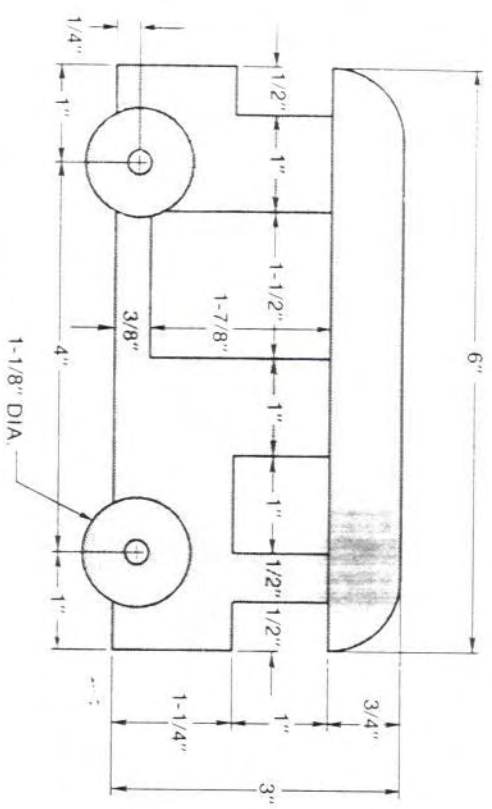
TENDER DETAIL



PASSENGER CAR DETAIL



OBSERVATION CAR DETAIL



BAGGAGE CAR DETAIL

**PROCEDURE**

**1 PREPARATION**

Although these train cars look complicated, construction is simple. Rip a 3/4" x 3-1/2" x 32" piece of stock to 3-1/4" width. Cut 3/4" from the width of the board; this piece will form the roofs of the cars.

Cut all the cars to length as specified under Materials; then cut the roofs to length. Make sure the roofs correspond to the car bodies. (It's possible to cross-cut all the cars to length first, then rip-cut the roofs from the cars. However, if you're using a table saw, the cars are too small to handle safely when cutting.)

**2. CUTTING THE SHAPES**

Making cardboard templates

for this train means constructing future trains will be easier. Refer to the plans for the required location and dimensions of the doors, windows, and roof profiles of the various cars. Also, don't forget to locate the 5/16" diameter axle holes on each of the cars.

Once you've laid out all the profiles, use a scroll saw or handsaw to cut out the shapes. Sand the shapes; drill the axle holes; then drill the 1/4"-deep holes for the headlamp (D) and the smokestack (C) in the locomotive.

**3. WHEELS**

With a 2-3/8"-diameter hole saw, cut out the four 2-1/4"-diameter drive wheels (I) for the locomotive. Sand the wheels and set aside.

Use a 1-3/8"-diameter hole saw to cut out the twenty 1-1/4"-diameter wheels (J) for the remaining cars. Cut out one extra 1-1/4"-diameter wheel for the steam/sand domes (B).

On the extra wheel draw a line just above and below the 1/4" pilot hole. Use a scroll saw to cut along these lines to form the two domes.

**4. LOCOMOTIVE**

The locomotive is the most complicated car, but it's still rather simple. At this point you should have a body with the profile cut out on it and holes drilled for the axles, smokestack, and headlamp.

Finish construction by gluing and clamping the steam and sand domes to the top

edge of the boiler. Next, cut the smokestack and headlamp to length and glue them into place. Finally, cut the axles to length and assemble the wheels and axles with glue.

**5. ASSEMBLY**

Assemble the rest of the cars by gluing and clamping the roofs to the profiled car body.

ies. After the glue dries, power-sand the sides of each car flush and knock off all sharp edges. Assemble the wheels and axles to the cars.

Finish the cars by drilling a 3/32"-diameter hole in the end of each car. Install the screw hooks and eyes. After mounting the screw hooks, turn them facing down; then

crimp them so the screw barely slip in and out. If you like, you can prime the train—first with a coat primer, then with a coat nontoxic paint.

Your old-time pull-train is complete and ready to serve the needs of an excited child...all aboard!

**MATERIALS**

Part	Description	Pieces	Dimensions
A	Locomotive	1	(finished dimensions in inches)
B	Steam/sand domes	2	3/4 x 3-1/8 x 8
C	Smokestack	1	3/4 x 1/2 x 1-1/8
D	Headlamp	1	5/8 dia. x 1
E	Tender	1	5/8 dia. x 1/2
F	Baggage car	1	3/4 x 2-1/4 x 4-1/2
G	Passenger car	1	3/4 x 3-1/8 x 6
H	Observation car	1	3/4 x 3-1/8 x 6
I	Large wheels	4	2-1/4 dia. x 3/4
J	Small wheels	20	1-1/4 dia. x 3/4
K	Axles	12	1/4 dia. x 2-3/8

**MISCELLANEOUS**

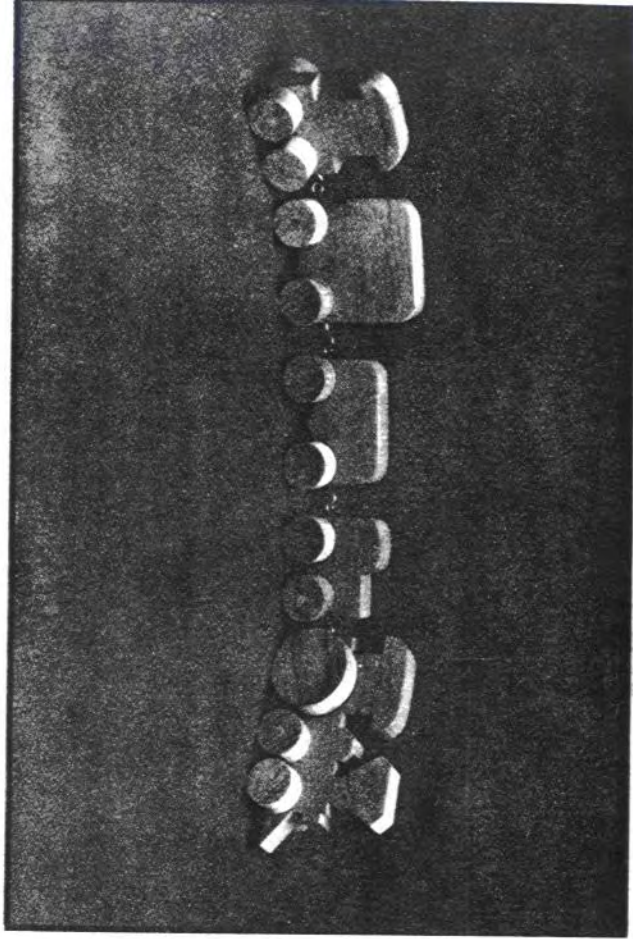
- 1-1/8" screw eyes (4)
- 1-5/8" screw hooks (4)

**CONSTRUCTION NOTES**

1 Dimensions of the cars include roof dimensions.

2 Steam/sand domes are made from a 1-1/4"-diameter wheel blank.

# BASIC PULL-ALONG TRAIN



**T**oy trains are always a favorite of children. Here's a plan for a very simple toy pull-along train that's sure to delight the little ones. This train is so simple to make that building extra ones for needy children at Christmastime is an easy way to bring joy into a lot of little lives.

As with all of the toys, make sure you use good stock and sand all edges smooth so there's no chance of splintering.

This project can be made entirely on a scroll saw or bandsaw. Be sure to read through the instructions for more details on how to make this train.

