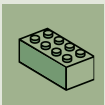




RUBBER BAND POWER!



Build a mini toy car launcher out of scraps. By Nancy “Dot” Dorsner

This project was inspired by my son's love of Hot Wheels cars and making them go fast, as well as my husband's love of making cool toys for him and wanting any excuse to play with power tools. This car launcher shoots out Hot Wheels-type cars using rubber band power, and it's makeable using materials you probably have lying around the garage or in the scrap pile.

While I can take credit for the concept and documentation of this project, the design and execution were all by my quite handy maker husband, Dameion. This can either be a stand-alone launcher, or can be modified to attach to a standard Hot Wheels track. Here's how to make one yourself, or maybe even two so you can race!

Before you begin, gather the materials and tools listed on the following page.

1. Cut out the launcher.

Find the center of your wood block, center a car on top of it, and mark the car's width just outside each wheel (Figure A, following page).

Use a pencil and straightedge to draw 2 reference lines for cutting, slightly outside the car's width; ours were about 1" in from either side of the block. Cut the block along both lines. Now your wood is in 3 pieces. The 2 side rails will hold the car in place, and the middle block will move to launch the car.

2. Cut and attach the base.

Reassemble your 3 pieces of wood, placing a few business cards between each piece as temporary spacers (cut these in half lengthwise so they don't show and get in your way).

Measure your reassembled block's length and width, and sketch the dimensions onto the plastic for



A



B



C



D

Fig. A: Center a car on the wood block and mark the car's width outside each wheel. Fig. B: Use screws to attach the base to the blocks.

Fig. C: Insert the rubber band through the eye screw and stretch its ends over the side screws. Fig. D: Measure and mark your clear plastic to match the top of the block.

MATERIALS

Hot Wheels, Matchbox, or similar toy cars
to ensure size and for testing
Square block of wood, taller and longer than your
cars Ours was 1¼" tall, 3½" square.
Short screws (14)
Finishing washers (4) (optional)
Eye screw aka screw eye
Scrap of thin plastic as wide as your wood block and
a few inches longer for the base. Or try stiff card-
board, thin wood, or even an old circuit board!
Scrap of clear, stiff plastic (such as Lexan) as wide
and long as your wood block for the top
Rubber bands (1 or more) Various sizes are nice.
Small rubber or plastic feet for the base
String or twine (optional)

TOOLS

Saw for cutting the wood
Sandpaper
Pencil
Screwdriver
Drill or Dremel rotary tool
Business cards or scrap cardstock Try junk mail!
Utility knife
Straightedge
Sharpie marker for marking plastic

the base. For a standalone launcher, mark it 2"–3" longer than your wood block on the front, for a loading ramp. If you'll be attaching the launcher to a track, you can just make the base the same size as the block. Cut the base out, and sand the edges of the plastic.

Drill pilot holes about ½" in from each corner of the base, and centered on each of the side rails. Then drill the holes slightly larger than your screws, so they don't crack the plastic. Use screws to attach the base to the blocks (Figure B). Remove the spacers and make sure that the middle block moves freely.

3. Add the guide screws, and test.

Mark the center of one side, drill a pilot hole, and partially screw in a short screw. Repeat for the other side. These 2 screws will anchor your rubber band. If you like, you can add more screws, to give different levels of tension or to accommodate different-sized bands. We ended up with 3 on each side. On the back of the middle block, mark the very center and screw in a small eye screw.

At this point, it's a good idea to test that everything is working. Insert your rubber band through the eye screw (Figure C), then stretch its ends over the side screws. When you pull back on the eye



E



F



G



H

Fig. E: Attach the top as you did the base.

Fig. F: We added glue-on rubber feet to the base to prevent scratching up surfaces.

Fig. G: Pull back the eye screw, put your car in the slot, and let go! Fig. H: The finished track-connector version, with a homemade plastic track connector.

screw, the middle block should slide smoothly in and out.

NOTE: During testing, we decided to add more screws to make it easier for a child to operate. We also trimmed the corners off the back. These steps are optional.

4. Cut and attach the clear plastic top.

Measure and mark your clear plastic to match the top of the block (Figure D). Score deeply along your lines, then snap off the excess plastic. Use a sander or sandpaper to sand any rough edges down to the lines marked.

Attach the top as you did the base in Step 2 (Figure E), making sure to drill the holes larger than the screws. (The washers we used here were for looks only. They're called finishing washers. If you have them, use them, but they're not necessary.)

5. Add the final touches.

- » So that it doesn't scratch any surfaces, we added some glue-on rubber "feet" to the base (Figure F).
- » A candle rubbed along the sides of the middle

block will make things run smoothly.

- » Optional: Decorate with stickers, paint, whatever you like!
- » Optional: To attach your launcher to a track, use a track connector as a template to cut your own connector out of plastic. Then super-glue your connector to the bottom of the base (Figure H).

6. Launch some cars.

Attach your rubber band as in Step 3 and pull back the eye screw (we tied some twine to the screw to make this easier for kid-sized hands).

Put your car in the slot (Figure G), and let go! The car shoots across the floor ... Yay!

⚠ WARNING: Be sure to instruct small children in the care and handling of the launcher before letting them go to the races. Leave it on the ground! No pointing at people!

Artist and craft blogger Nancy Dorsner can be found at Dabbled: Experiments in Art, Craft, and Food (dabbled.org) when she's not coming up with projects for her maker husband, Dameion.