

Woodworking With Kids

Making what *they* want introduces children to tools

by Richard Starr

While some woodworkers make bowls or tables, my specialty is helping children make what *they* want from wood. I've been at it for 14 years, the last 10 at the Richmond Middle School in Hanover, N.H., where I teach woodworking to kids 11 to 14 years old. I've also taught in nursery and primary schools, and I've learned that children even 5 years old or younger enjoy using tools and wood to bring their ideas to life. For many children it's a natural step after crayons and finger paints.

Kids just starting woodworking need adult help at every

step of a project. This sets the stage for a trusting collaboration between you and the child: he or she provides the ideas and energy, you supply the materials, techniques and a friendly helping hand when the going gets rough. Both of you will find the partnership rewarding and fun. And the child, who is learning physical coordination, patience and the ability to overcome frustration, is also finding that by creating real objects he or she can influence the world in a positive way—an important part of growing up.

It's easy and inexpensive to set up a workspace or to equip



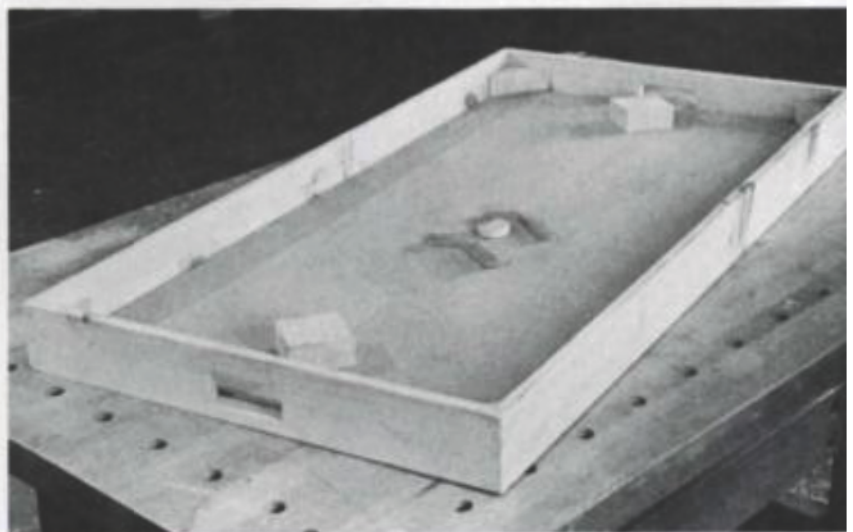
A Gallery of Projects

When you give kids tools, materials and instruction, don't be surprised at the results. This selection of projects built by Starr's students illustrates a few of the possibilities. Jay Sailor, left, an eighth-grader, took a full school year to build this drafting table, which has adjustable angle and height. Legs are held together by a removable wedge driven through tenons in the stretcher. Eighth-grader Emily Kucer, right, made this elegant music stand out of cherry. The height and angle of the stand are adjustable and are locked with wooden screws. Marble rolls demand both imagination and engineering skill; seventh-grader Peter Ghirardini, below left, used dowels as uprights and glued-up strips for ramps. Lisa Miles, below, a kindergartner, made this little horse out of pine and dowels.





After Starr rips the sides for the hockey board on his radial-arm saw, he has the kids nail and glue ledger strips to the bottom edges, left. Children should be reminded not to put nails too close to the ends of the boards, to avoid sawing through them when the sides are mitered. At first, mitering is confusing for children, so Starr bangs a mitered mirror frame on the wall as a teaching aid. Above, a fifth-grader saws a miter on one end of a board hockey frame.



Making a board hockey game gives children a chance to learn several basic skills: sawing, boring, chiseling and nailing. Above, a second-grader uses an auger to bog the waste out of one of the hockey board's goal openings. He'll finish the job with a chisel and a file. Above right, a student nails the plywood bottom into the hockey board. The completed board, right, will be given a coat of shellac, followed by wax for a fast-playing surface.

Photos: Richard Starr

your shop for teaching children. A few basic tools will do—a hammer, crosscut saw and coping saw, brace and bit and hand drill, a Surfform tool, a couple of clamps and a vise. Older kids can use more sophisticated tools—bench planes, a miter box, chisels, carving gouges, spokeshaves and even a lathe. I use power saws to make basic rips and crosscuts for kids, but they do all the rest of the work by hand.

Workbenches for small children should be about 24 in. high. Middle-school-age children are comfortable at a 30-in. bench. You can cobble together a workable bench or cut down a sturdy old table. Kids can manage at an adult's bench (usually around 34 in.) by standing on a sturdy chair or a platform nailed together for the purpose.

Children come up with lots of original and surprising ideas on their own (I've included a gallery of interesting projects on p. 103). There are several popular projects the children choose again and again. The board hockey game I describe here is a good first project because it involves a variety of basic skills—nailing, mitering, drilling and chiseling. Kids can bash the puck around as soon as the last step is done, so gratification comes quickly.

To start this project, the children should make a rough sketch showing dimensions. The maximum size I recommend is 2 ft. by 4 ft., but smaller boards are fun too. From $\frac{3}{4}$ -in. pine, you should rip four boards $3\frac{1}{2}$ in. wide and about 5 in. longer than the sides and ends of the board. Also rip four $\frac{3}{4}$ -in. by $\frac{3}{4}$ -in. ledger strips equal in length to the four boards. Have the kids glue and nail the ledger strips flush with one edge of each side. They should be told not to nail within about 6 in. of the ends of the strips so there will be no danger of sawing through a nail when the ends are mitered. Children new to mitering find it confusing, so I illustrate the concept by pointing to an old oak mirror frame hung in the shop for this purpose. I explain that the miters point away from the center of the rectangle. Have the kids place one of the sides of the game on the miter box with the outer face against the fence and the ledger strip down. Show them how to clamp the piece in the box so it rests against both the fence and the base. They should saw only the left end of each piece, starting about 1 in. from the end.

When that's done, help the children mark the final length of each piece, equal to the full outside dimension of the board. Ask them which way the cut should go on that end, reminding them to imagine the piece as part of a complete frame. Draw an arrow to indicate the direction of each cut.

Cutting the goals is next. Show the kids how to lay them out by finding the center of each end piece along the upper inner edge and marking half the width of the goals to either side of that point. Project these points down the inner face of the end pieces using a combination square. To lay out the top of the goal, demonstrate how a square can be used as a marking gauge by holding a pencil against one end while sliding the square along an edge.

The children can use an auger bit of any convenient size to remove the bulk of wood from the goal opening. Protect the workbench top with a piece of scrap wood covered with colored paper. Fasten the end piece with two clamps set close to the goals. The children will enjoy drilling as many holes as can be fit within the layout lines. Be sure they stop drilling when shreds of colored paper come up among the shavings, a signal that each hole is finished.

Leave the piece clamped to the scrap wood as the kids chip

out the rest of the wood with a $\frac{3}{4}$ -in. chisel and mallet. Before giving a child a chisel (or any other tool for that matter), be sure to go over the safety rules: Always carry the chisel sharp-edge-down, work with both hands behind the sharp edge, and put the tool down when you're not using it, but don't lay it down with the edge hanging off the table. The kids should chop across the grain to sever fibers of wood before removing chunks with the grain. Show them how to take small shavings as they approach the line, and how to work from both faces in, to prevent tearout. When chiseling is done, file the inner edges smooth with the piece held in a vise.

When both goals are done, you can help the kids assemble the frame. Spread glue on the mitered ends and pull the frame together with a band clamp. After the glue has set, reinforce the joint with nails. If you don't have a band clamp, nail and glue each corner together in sequence around the frame, holding each one with a corner clamp as you nail. Cut a piece of smooth $\frac{1}{4}$ -in. plywood to fit snugly inside the frame, run a bead of glue around the ledger strip, and nail the board down with $\frac{3}{4}$ -in. wire brads. Set the heads of the brads so they won't interfere with the puck.

The children can use the miter box to cut the goal blocks and corner blocks. Glue the goal blocks in place—be sure they are centered in front of the opening and the same distance from each goal. One of the children can test for the best distance by holding a block in place while a friend tries some shots with the puck. Corner blocks will keep the puck from getting stuck in the corner of the board.

For a really fast-playing board, the kids can sand the plywood with 220-grit paper and apply a thin shellac wash. When that's dry, they should sand the surface with 400-grit paper and add a coat of paste wax.

I ask children to draw their hockey sticks full-size on paper so they can experiment with different shapes. The pattern is transferred to 1-in. thick hardwood. I bandsaw the shape, then resaw through the thickness to make two thin sticks. Have the kids use a pair of dividers to scribe pucks on the same thickness hardwood, but resaw the wood in half before cutting out the circle—it's safer. Sand the sharp edges off the stick, pucks and playing board. The faces of the puck can be waxed for extra speed.

Most kids know the rules of this game. First the puck is centered on the board while the players tap their sticks over it and back on the board three times before trying to hit the puck to their own side of the board. Whoever gets the puck goes first. With the puck on top of a goal block, the player tries to ricochet it into the opponent's goal. Players alternate shots from wherever the puck lands. After a goal is scored, the opponent gets the next shot from atop his or her own goal block. Kids often come up with lively variations of these rules, as well as alternatives to the shape of the board. □

Besides teaching children how to work wood, Richard Starr contributes frequently to Fine Woodworking magazine. He has written a book entitled Woodworking with Kids, which will be available this fall in hardcover for \$19.00 from The Taunton Press. In this 216-page volume, Starr shows how adults can help children build all sorts of things out of wood, from simple boxes to tables and stools. In addition to describing projects, the book has a tools and techniques section that explains fundamental woodworking concepts to non-woodworking adults.