

# Furniture Kids Will Love

Follow your imagination  
but don't lose sight of safety

BY JEFF MILLER

Whether it's for your children, grandchildren, or the children of other family and friends, making things for the kids in your life can be uniquely satisfying. But there are challenges as well. How do you know what will be appreciated or what will be safe? Children's furniture differs from the adult variety in many ways, much as children themselves do.

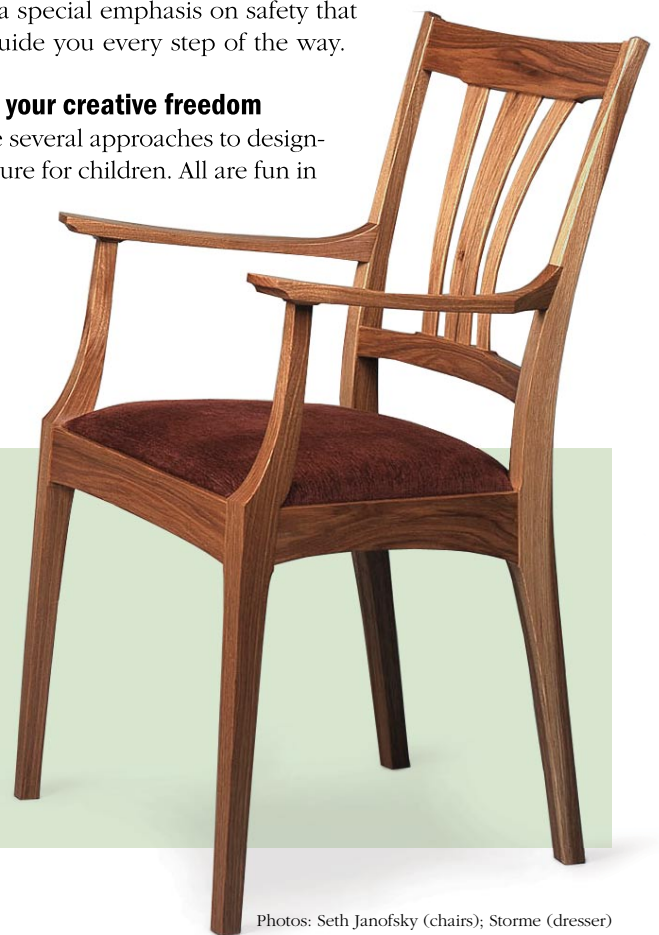
A whole set of design considerations revolves around how children see and interact with furniture. But these are opportunities—new creative avenues for designer and builder. Kids' furniture also requires a special emphasis on safety that should guide you every step of the way.

## Exercise your creative freedom

There are several approaches to designing furniture for children. All are fun in

## WHIMSICAL OR ALL GROWN UP

*Part of the fun in designing kids' furniture is turning the imagination loose. This anthropomorphic chest of drawers by Vancouver furniture maker Judson Beaumont experiments with storybook shapes. You also can create replicas of adult furniture, like these Arts and Crafts-inspired chairs by Sam Norris of Burlington, Vt.*





**Multicolored wall shelves.** Kids no doubt find plenty of ways to fill the nooks and crannies of these storage units by Beaumont.

their own way. For example, children love having their own version of a special adult piece. It makes them feel grown up, even though they'll certainly use the furniture in some rather un-grown-up ways.

On the other hand, many successful designs have an element of whimsy, such as bold shapes and bright colors. I believe children see the world as bright, new, and exciting. This can be inspiring—and liberating—to adult designers. Just don't leave out a healthy measure of taste when you add in the whimsy.

You can't always know what sort of playful role a child will find for a piece, but you can certainly encourage one. This is the impulse behind things like a bed with a race car, animal, or castle theme, but the play element also can be more subtle. One of my more successful designs is a "Marble Chair," which has a back that is a marble race (see center photo, p. 59). It is endlessly entertaining, although definitely not suitable for children under 3 years old.

Some pieces serve new roles after the kids outgrow them: A play table

## Quick and easy can be fun

The last time I built something fancy for my kids was before I had any. The piece was a Colonial cradle in walnut, with classic lines and tricky dovetails on a compound angle (see photo, p. 56). I finished it the night my wife went into labor, in a last crazy burst of nesting instinct.

Like many pieces of fine children's furniture, I suspect, the cradle has been more useful in its second life as a hopper for stuffed animals. As a cradle, the heirloom soon lost out to a parade of plastic contraptions—vibrating chairs, automatic swings—that were ugly but very functional, and the baby outgrew it in a few months anyway.

Since then I've been a busy dad, and the kids have grown like weeds. If I were their retired grandfather, maybe I could keep them in little Windsor chairs, but I just don't have the time. I save my finest woodworking for full-size things we'll use for life. But I've also made at least a dozen kid items, from beds and storage to desks and chairs.

I think of kids' furniture as quick and dirty: It's got to be quick and it is going to get dirty—the chipped paint, crayon marks, and Elmo stickers are kiddie patina. And while my stuff is not ready for the Readers Gallery, I don't apologize for any of it. There is great fun in whipping up a mini Adirondack chair or a child's desk in an afternoon, and then seeing it give good service

for many years.

Spend an hour measuring your child and sketching up a plan, and then bang it out in Baltic birch, using biscuits, router roundovers, and water-based poly. I also recommend paint-grade pine and acrylic paint. Paint covers mistakes, cheap lumber, and easy joinery, and kids love bright colors a lot more than bird's-eye maple, in my experience.

Call it "Pine Woodworking" if that makes you feel any better. I call it fun.

—Asa Christiana is editor of *Fine Woodworking*.



### Save the quilted maple.

Smaller kids especially are more likely to appreciate bold colors. Christiana made this bed from home-center lumber and finished it with latex paint.





# Cribs and cradles



**Custom made for a lullaby.** Cradles like these by Miller (left) and Christiana (right) are especially popular projects for granddads. They share some safety concerns with cribs, from slat spacing to the fit of the bedding. Christiana made this dove-tailed walnut cradle for his first daughter, but it soon became a repository for stuffed animals.



## CRIB AND CRADLE SAFETY



There should be no more than 1 in. of space around the mattress.



Posts should project no more than  $\frac{3}{16}$  in. above the crib rails.

Crib and cradle slats should be spaced no more than  $2\frac{3}{8}$  in. apart.

## MATTRESS SIZES

Before building a crib, cradle, or youth bed, measure your specific mattress if at all possible. Variations from standard sizes are common. In a crib or cradle, this can be the difference between an appropriately tight fit and something that is either dangerously loose or too tight to fit.

Bed type	Mattress size
Cradle	15 in. by 33 in., or 18 in. by 36 in.
Crib	27 in. by 52 in.
Twin	39 in. by 75 in.
Double	54 in. by 75 in.

turns into a coffee table; a baby's changing table becomes a sideboard for the dining room.

## Guidelines for safe construction

Foremost in your mind should always be the overall safety of the furniture. There should be no sharp edges or corners. I'm not fond of rounded-over edges, but in this case they're a very good idea.

The construction of the piece should be beyond question—the best possible joinery on strong components. A child is much smaller and lighter than an adult, but adults rarely drag their chairs all around the house and use them as step stools. Areas around joints must be almost as robust as on full-size furniture.

Consider using extra screws (and glue) for mattress-support rails, and corner blocks on chairs. Pin mortise-and-tenon joints if it will strengthen the structure. For children 3 and under, avoid loose parts small enough to cause a choking hazard.

Another issue related to younger children is the safety of the finish. Most finishes designed for furniture are considered food-contact safe once the solvents have evaporated or the various chemicals have combined. And even Consumer Product Safety Commission rules allow a little bit of lead (0.06%) in paint deemed safe for cribs. But I've seen how kids will gnaw on crib rails, and I, along with most new parents, would err on the side of caution and select finishes that are nontoxic.

One of the most readily available safe finishes, shellac, is actually edible, and has been used for coatings on medicines and candies. For this level of "edibility" you should probably mix your own with shellac flakes and high-proof grain alcohol or denatured alcohol (the alcohol evaporates as the finish dries). Shellac may not be as durable or protective as some other finishes, but it is quick and easy to apply. There are other commercial finishes designed to be completely nontoxic. These include oils, waxes, paints, dyes, and stains.

So far, we've discussed general guidelines that apply to any piece. Here are some specific tips for the most popular types of children's furniture.

## Beds



**Quiet curves and color.** Craig Jentz of Minneapolis built this bed of ash and ash veneer over bending plywood. It features compound curves in the headboard and footboard.

### Cribs and cradles

Cribs and cradles are subject to many regulations, because babies are left unattended in them and safety is paramount. A rule that most people seem to be aware of limits the distance between slats or spindles to no more than  $2\frac{3}{8}$  in. This will prevent an infant's body from slipping between the slats (the head is bigger, and typically won't pass through). The slats also should be securely attached. Your best option is mortise-and-tenon joints pinned at every tenon, both top and bottom.

It is very important that the posts or legs on a crib or cradle stick up no more than  $\frac{1}{16}$  in. above the rails, headboard, or footboard. Anything projecting farther can snag clothing and create a strangulation hazard. An exception would be for high posts that project at least 16 in. above the rails (as with a canopied crib). It



**Comfier than a hive.** Themed furniture—trains, dinosaurs, cars, and nature, as in this bee bed by Judson Beaumont—is popular with kids. The honeycomb cutout in the headboard was made on a CNC routing machine. The materials are stained maple veneer and MDF.

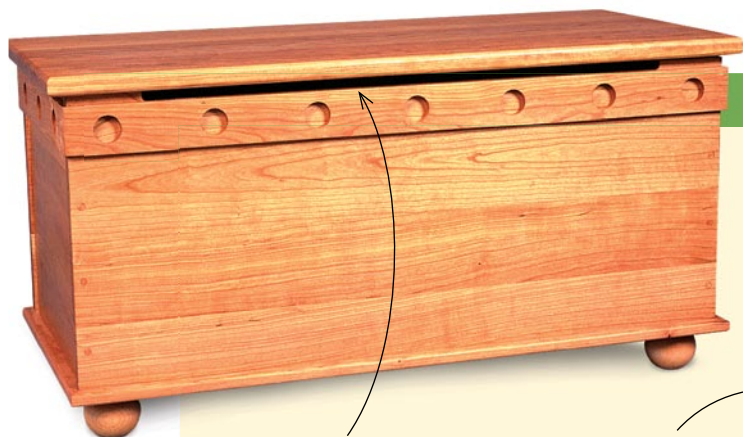
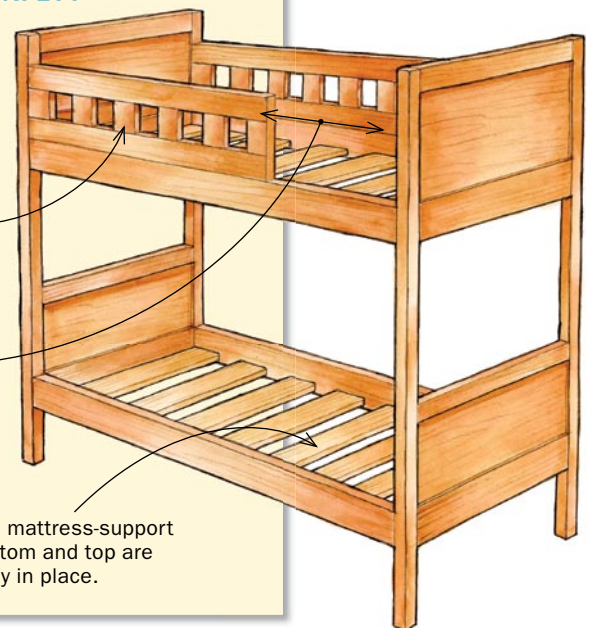


### BUNK-BED SAFETY

Guardrails must extend at least 5 in. above the top of the mattress; any opening should be no larger than  $3\frac{1}{2}$  in.

The ladder opening should be 15 in. or less.

Be sure that the mattress-support slats for the bottom and top are screwed securely in place.



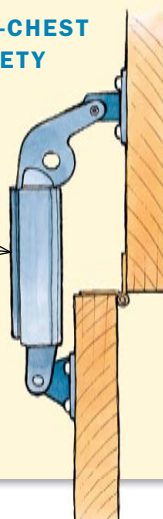
#### VENTILATION

A toy chest needs some form of ventilation, either a slot or holes, to allow a child to breathe if he or she climbs inside and closes the lid.

#### LID SUPPORTS

Use a spring-and-cam lid support for added safety. The support should hold the lid in any position.

### TOY-CHEST SAFETY



## Toy chests

A toy chest is one of those pieces that lends itself especially well to a second life. Let's face it, the design—basically a big lidded box—is pretty flexible. The most obvious second use, perhaps, would be as a blanket chest. But the piece might also be used for out-of-season clothing storage or, depending on the child's (or dad's) interests, a tool chest. Christiana's chest, on p. 55, is whimsical. The piece shown here, by Miller, reflects a more serious approach to the form.



# Tables and chairs



## TWO WAYS TO PLAY

**Imaginative touches, both bold and quiet.** Kids' furniture can artfully meld eye-catching shapes and bright colors, as in this desk by Jay Jones of Greensboro, N.C. (top) Or it can be more subdued. FWW art director Michael Pekovich built a more traditional desk for his son, but enlivened it with trout inlaid in silver and secret compartments. Textured end grain on the top adds a distinctive tactile detail.



**A changing table that changed with the times.** This piece by Pekovich started life as an infant's changing table but now serves as a sideboard in his family's dining room. The key is a design that's basic enough to serve more than one need.

would be extremely difficult for a child to get clothing snagged on posts this high. Likewise, any cutouts or shaped components must avoid potential for catching either the neck, body, or clothing. Check the size of the mattress if possible before you begin your project. It's important to fit the crib or cradle well to the mattress to prevent a child from getting trapped between them. For the same reason, joinery should be very secure, so there is no loosening of the rails that would create extra space between mattress and rails. Cribs or cradles that bolt together should be checked periodically for tightness.

## Bunk beds

As you might expect, bunk beds have plenty of regulations. Any openings on the upper bunk must be less than 3½ in. in the smaller dimension. Guard rails are required on both sides of the top bunk, and these rails must be attached securely to the bed. The opening in the guard rail for the ladder should be 15 in. or less. It is also very important to secure the mattress support to the upper bunk side rails. Kids love to kick the upper bed from below; there should be no chance that the upper mattress support could come loose. The safety standards also strongly suggest that children under 6 not sleep on the upper bunk, and that a night-light be installed in any room with bunk beds. Discouraging play on the upper bunk is also strongly suggested, but good luck in enforcing that rule.

## Toy chests

Toy chests, or anything with a lid that lifts up, should be outfitted with special lid-support hinges. The spring mechanism in these hinges allows the lid to remain in any position without slamming down on heads, hands, or anything else. The specific hardware will have its own installation instructions, and will often be designed for a lids of a particular weight and size. Toy chests should also have ventilation holes or slots. Kids will climb into them and hide, and it's important that air can flow in and out.

## Kid-safe finishes

**Because younger children will chew on anything within reach, Miller prefers nontoxic finishes. Shellac flakes, milk paint, and natural waxes are all good choices.**



Photos: Scott Crowder (top desk); Tanya Tucka (plywood rocker, marble chair); Michael Pekovich (all others on this spread)



**An old-fashioned play station.** Built for a toddler, this set by Pekovich pairs a lightweight but sturdy post-and-rung chair with a bombproof table that features pinned mortise-and-tenon joinery.

## Tables and chairs

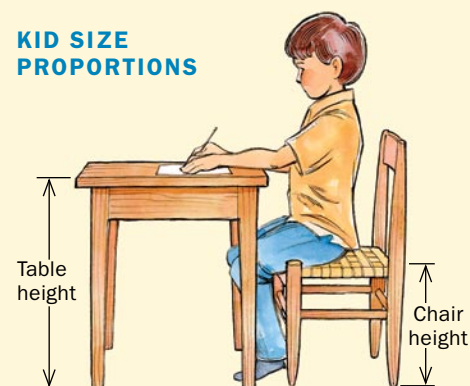
Sometimes, safety requirements send you into uncharted waters. For example, high chairs should have both waist and crotch safety straps—not something a woodworker encounters every day. A trip to a camping-supply store (and some good sewing-supply stores) can outfit you with appropriate nylon webbing and buckles for making these straps (changing tables should also have safety straps to secure the wriggling baby). High chairs should also be built with enough splay to the legs so that they are harder to tip over during all of the writhing, twisting, and bouncing around that happen there. Kids love to test the limits. You don't want such an experiment to end with a fall.

The trick with tables and chairs is in building them the right size. Kids will outgrow tables and chairs



**Rocking and rolling.** Miller's plywood rocker (left) and Pekovich's Arts and Crafts version (right) both have runners with a 30-in. radius, just tight enough to rock without tipping. Miller's marble chair (above) features a built-in element of play. Grooves in the slats and uprights form a zig-zag track for a marble.

## KID SIZE PROPORTIONS



### CHAIR AND TABLE HEIGHTS

Standard adult chair height is 18 in.  
Standard adult table height is 28–30 in.

Age	Chair height (in.)	Table height (in.)
2–4	9–11	17–20
4–7	10–15	18–21
7–10	13–17	19–25
10–13	15–18	23–27
13+	18	24–30

almost as quickly as they outgrow their clothes. I usually make children's chair seats 12–14 in.

high, but my chairs are made more for play. For writing or school-work, the range is much wider, depending on the age and size of the child. At my local primary school, writing-table heights range from 17 in. to 25 in. for 2- to 10-year-olds. Chair seat heights range from 9 in. to 17 in. for the same age range. Play tables tend to be 16 in. to 18 in. tall. □

Jeff Miller is the author of *Children's Furniture Projects* (The Taunton Press, 2002). The second edition of his book

*Chairmaking and Design* was recently issued by Linden Publishing.

