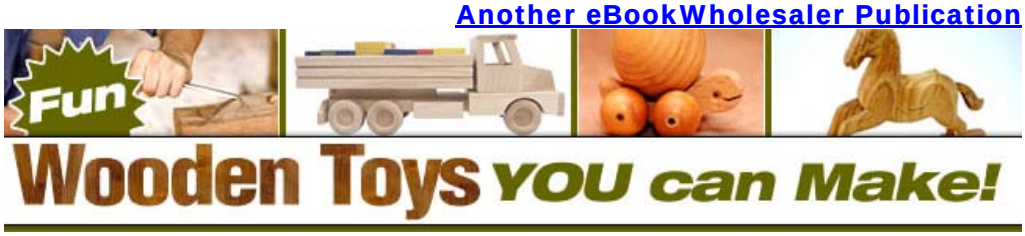

Fun Wooden Toys YOU can Make!

By Peter Wodehouse

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Important Safety Tips

Read instructions thoroughly before starting to work on making any wooden toy or other project.

Wear approved dust mask while cutting, sanding or planing any timber.

Keep tools and materials away from the reach of small children.

1. Wooden Toys – An Overview

Wooden toys have been objects for children's recreation since very earliest times. Archeological excavations and discoveries have located different types of wooden dolls from as early as 1100 BC. Ancient Greeks, Egyptians and Romans made miniature versions of all the things they were using in wood. These were obviously play things for their children. Some of these toys were miniature animals like crocodiles with movable jaws, carved horses, wooden dolls, chariots and spinning tops.

Growth and Development of Wooden Toys

Production of wooden toys for sale started as early as the 1500's in Germany. German artisans started selling their toys across Europe. Initially, European royals placed orders for such toys to commemorate any special royal occasion like a royal anniversary or birthday.

Educational wooden toys, like wooden alphabet blocks, appeared during the 1700's in England. By the 1800's, humble wooden toys became more elaborate and intricate. In addition to miniature animals and dolls, elaborate and decorative dollhouses, fire engines, trolley cars, decoratively painted soldiers, wooden trains that could be moved along grooved tracks and jack-in-the-boxes became popular.

The 1900's saw a huge growth in the American toy industry. Charles H. Pajeau and Robert Petit invented Tinker Toys in 1914 with many different toy sets of spools, rods, spokes, and sticks. Children could build their own wooden toy kingdoms of people, animals, vehicles and buildings using these wooden accessories.

John Lloyd Wright created Lincoln Logs in 1916. These wooden accessories went a step further; you could create an entire town with them.

One of the world's largest producers of wooden toys, Brio (Toy Directory), have an annual production of more than 3.5 million cars, trains and trucks today. This is even more than the annual car and truck production of the Ford Motor Company of the United States.

What Makes a Good Wooden Toy?

Wooden toys can be made of softwood or hardwood. Other common ingredients that go into making of wooden toys include natural and non-toxic dyes and colors. The colors of these toys rarely fade over time, so they retain their charm for many years.

Many wooden toy-manufacturing companies regularly plant trees in accord with the number of manufactured toys. This helps to maintain the ecological balance.

Wooden toys can offer innumerable hours of imaginative play for your children. These toys are very durable and you can pass them on to your next generation. You can even get customized wooden toys made according to your preference of wood and design.

These simple wooden toys can help in the sensory development of children. Colorful wooden blocks attract attention of infants just starting to look around and locate objects. This develops their sense of sight. Babies then learn to grasp things with their hands. Smooth-edged wooden toys can fit in easily into a baby's soft grasp.

Soon, babies taste everything they lay their hands on. Wooden toys have vegetable dyes, which are nontoxic and therefore most suitable for babies in this phase. Teething infants have less risk if they chew on such wooden toys.

Children need to see and observe many different colors, shapes, and sizes. You can have many different types of these inexpensive wooden toys to give your child pleasure of playing with them.

And, you can even buy the do-it-yourself kits to allow your children to make toys and stretch their imagination. Young schoolchildren can use wooden building blocks to solve puzzles and develop their intuitive mind. Older children can spend many hours on their favorite wooden rocking horses or wooden toy train sets.

Availability of Wooden Toys

You can find different types of wooden toys around the toyshops. You can also place your order at online toyshops. Although these toys are a bit more expensive than the normal plastic toys, you can find toys according to your budget. Wooden toys are available for the different age groups. It is a wise choice to give a wooden toy to

almost any child but, of course, young children must be supervised with all toys.

While choosing wooden toys for your children, take care to see that they do not have any separatable or very small parts. These could prove to be a choking hazard.

The Allure of Wooden Toys

Many modern day toys are electronic items that run on batteries. Toys have evolved greatly over the ages.

We now live in an instant gratification society, and you may find a child who will look at a wooden toy and say, "What does it do?"

It's your job to bring the magic back to wooden toys when you find a child lacking in imagination.

For the most part with children the allure and fascination of wooden toys remains unchanged and unchallenged. Modern children, just like those before them, have a special attraction to wooden rocking horses, abacuses and wooden trains.

Wooden toys can take any shape; be it an animal, bird, doll, dollhouse, cars, trucks, tops or anything else.

Magnetic Appeal of Wooden Toys

Slowly, over the years, wooden toys developed greater intricacy and were more elaborate in creation and presentation. This was the age of ornamental dollhouses, intricately carved wooden toys, and wooden trains in tracks, and toy soldiers.

The Second World War brought about a complete change of preferences. Plastic came into being and all cultures started making many different types of plastic toys. They were comparatively cheap and it was easy to produce such toys on a large-scale.

But, after the initial appeal of the new plastic toys, preferences shifted back towards the old and ubiquitous wooden toys. Wooden toys generally cost more than their plastic counterparts, yet parents and educators prefer them to all other types of toys. The reasons for this allure are many:

- ✓ Wooden toys are relatively safe and should cause no harm.
- ✓ Wooden toys use vegetable dyes, which are non-toxic (but care should be exercised that children do not lick at them).
- ✓ Wooden toys kindle imagination and creativity of a child.
- ✓ Children can keep playing with their wooden toys for ages.
- ✓ Although wooden toys do not offer the complexity of plastic toys, they ignite special problem-solving and cognitive abilities in children. These help them in their later life.
- ✓ Wooden toys are very durable and you can often pass them down to your next generation. Therefore, you do not mind spending extra money for them.
- ✓ Modern toys are very flimsy and may break at the slightest fall. Wooden toys are durable and should survive a few falls.
- ✓ The increasing incidence of toxicity of plastic dissuade parents from purchasing such toys for their children. This is especially true of toys for teething infants.

- ✓ Wooden toys are environment friendly and should not cause any toxicity or spread pollution in the environment.
- ✓ Quality wooden toys can be an excellent gift item for adults too. You may come across many adults who are collectors of wooden toys.
- ✓ Even older children can spend numerous hours playing with wooden toys that can build up their imagination without restrictions.

Why You Should Have Wooden Toys for Your Child?

The toy market is ever changing and there are regular innovations in toys. You can find many hyped electronic toys made of plastic and other materials. However, the common preferences for customers are to purchase wooden toys. There are many advantages of wooden toys, which motivate parents to buy them for their children.

Having wooden toys for your child is wise because:

- ✓ Well-designed wooden toys do not have any sharp edges and are safe to play with.
- ✓ Wooden toys are educational; wooden alphabet blocks and building blocks too.

Germans are famous for quality wooden toys. These toys have many coatings of natural, water-based, nontoxic lacquers that are safe for your children to play with and probably even for teething infants.

Wooden toys remain the same for ages and will suffer less breakages even in the hands of the most destructive children.

New "fad" toys cannot hold the attention of a child for long. But, the old rocking horses, dollhouses or similar items will keep your child interested.

Wooden toys help develop and expand the imagination of your child. This helps to develop your child's creativity.

Wooden toys rekindle nostalgic memories of your childhood. You relate stories of the games you used to play and incidents with your wooden toys. Therefore, wooden toys help you bond better with your children. Children also develop a closer feeling of bonding with you.

Wooden toys help carry forward the tradition. When you make or purchase a wooden toy, you should expect it to last. You purchase these toys to maintain a link into the future.

Wooden toys can stand the wear and tear of time. You can pass down the wooden toys you played with to your children and they can pass down the ones they grow up with.

Wooden toys help maintain the ecological balance in nature. They plant new trees to replace the trees cut down for making wooden toys.

The geometric construction and formation of wooden toys helps you get the right look and feel of the toy. The toy looks very much like the original. Therefore, wooden toys have more appeal to children and parents alike. Most plastic toys have a limp and lifeless look.

Plastic toys cannot be recycled and therefore deplete the oil resources of the universe. Some plastic toys may contain

carcinogenic elements. Wooden toys can be recycled and do not pose any danger to the environment.

Cleaning and handling wooden toys is easier. Even children can easily wash their wooden toys without suffering any injuries.

Wooden toys help children to relate and personify their imaginary creations like Superman or being an adventurous seaman. The wooden toys project life-like images and help children play and grow in their imaginary world. This helps your child grow into a balanced individual.

Wooden toys, although slightly more expensive than plastic toys, last longer. This justifies the extra cost of these toys.

Paints used on wooden toys are usually free of any toxic material. These toys are therefore very safe for your child.

The simplicity of the designs of wooden toys proves very beneficial for kindling the imagination and exploratory tendencies of your child. Children love the inherent naturalness of the wooden toys.

Wooden toys do not bear any similarities to the normal characters children view on television. This encourages more imagination in your child. This is essential for their overall development.

Different types of wood help create different wooden toys. Each wood has its individual character, smell and grain texture. This awakens the natural senses of your child to recognize and understand the type of wood.

Types of Wooden Toys

Wooden toys offer unbridled enjoyment to your children. These toys do not move by themselves; your child needs to make them move. Therefore, wooden toys help develop imagination and creativity in your child.

The Many Different Types of Wooden Toys

Educational Toys: Wooden toys can teach your child anything from music to mathematics to language. Wooden blocks with the alphabet of a language help them learn the language. An abacus, normally made of wood, helps teach children the basics of mathematics. Brightly colored toys help make learning an easy and interesting process.

Construction Toys: Some wooden toys, like building blocks, help children learn to construct buildings, animals, dollhouses, and the like. It kindles the imagination and creativity in your children. These traits prove useful in later life. These toys help in the development of various mathematical and memory skills in your child.

Musical Toys: Wooden musical toys like small stringed instruments and wooden drums help develop musical and artistic abilities in your child. Your child hears many different musical sounds and understands rhythm and musical chords. The auditory skills of your child develop immensely by playing with musical wooden toys.

Puzzles: Different wooden puzzles form and develop logical abilities of your child. They encourage your child to think of suitable ways to place the differently shaped puzzle parts to create the ultimate formation. This helps channel the natural curiosity of your child.

Children enjoy this type of learning and never feel any boredom. Buy appropriate puzzles to suit the age of your child. Large and easily recognizable puzzles are most suitable for young children while smaller pieces could prove challenging for a growing mind to think and form correctly.

Wooden Game Toys: You can buy various wooden games and toys. They include wooden chessboards and pieces, wooden carom boards and others. Wooden chess sets may have metal tops and carry forth a distinct individuality. The games can help keep your children occupied while traveling. Wooden boxes help prevent damage to the chessmen.

Wooden Carom Boards are popular with children of all ages. This interesting and intriguing indoor game can prove an ideal form of relaxation for your entire family. You can play an interesting game with your children. The carom boards are available in different sizes with playing area ranges of 24" to 36". Wooden carom coins and strikers help you play the game.

Antique toys: Antique toys are passed down from generation to generation. It is a type of family heirloom. These toys help your children understand their heritage and learn to value such traditions. Wooden toys retain their color and shape and can sustain the ravages of

time.

Automobile toys: Wooden toys are also available in the form of wooden trains, trucks, cars, golf carts, helicopters, airplanes and other vehicles. These toys have various relevant accessories like tool sets. They may be made of premium wood like maple. The toys provide unlimited hours of enjoyment and fun to children of all ages.

These toys have clear designs and project a safe finish with rounded corners and edges. The axles of the wheels do not come off. Some of these trucks, cars, trains and golf carts have a small driver to get in and out of the toy vehicle.

Additionally, your children can set up an entire village by assembling all the different types of toys. Wooden train sets come with many accessories like tunnels, bridges, sheds, stations, and crossings. You can recreate a full scene of a train arriving at a railway station or passing through various tunnels on the tracks. These toys sharpen the skills of your children. You can create different layouts, tracks, and railway systems. This helps your children develop various explorative skills and expand their imagination.

Ride on toys: Wooden toys are available as ride on toys like wooden horses. Rocking on a wooden horse can provide excellent entertainment to your children.

Swings: You can hang a wooden swing in your garden for your little ones to play with and enjoy. Big swings can provide entertainment for the entire family.

While purchasing wooden toys for your children, buy ones appropriate for their age. You can buy such toys from the many different toy shops or from toy stores on the Internet. Alternatively, you can also place an order for customized wooden toys to suit your taste and preference.

Or, this book will help you to make your own.

Children's Traditional Wooden Toys

Modern toys come with various attractive accessories; flashing lights and bulbs, and run on batteries. Children today have a wide choice of toys ranging from video games like Xboxes and other mechanized toys.

Amidst all the modern playthings, the traditional wooden toys are still the choice of most children and adults alike.

These traditional wooden toys include dollhouses, rock horses, step stools, wooden toyshops and many others. Wooden toys continue to offer unbridled joy and playing hours to children long after the other toys go into oblivion. Surprisingly, dollhouses and rocking horses came into existence in the beginning of the nineteenth century. They continue to enthrall the children of the twenty-first century.

Wooden toys have been a favorite of children from the early civilizations of Egypt and Rome. Toys then were wooden, as plastic and rubber were still unknown. People of those ages used to carve out exquisite wooden toys to keep children busy while their parents were working. Wooden toys were very popular with the children of wealthy families as is evident from various archaeological findings. The tomb of a

ten-year-old girl contained a beautifully carved wooden doll with many other things.

Rocking Horses - an Ideal Gift for Any Child

Consider a few important points before purchasing or building a rocking horse as a gift for any child. The first consideration is the height of the child. The rocking horse should be proportionate for the child to climb and ride on safely. If it is too high, the child cannot climb on by himself. If it is too low, the child may have to fold his legs while riding. Either way, it would be very uncomfortable for the child and they may be disappointed.

Get a horse that the child can mount easily. Normally, toy companies suggest the correct size if you tell them the age of the child. While choosing a rocking horse, compare the height of the seat from the floor to the inseam of the child riding it. Again, buying a horse that is perfect for the child to ride right now does not make much sense. Consider buying one that they can grow to enjoy in the years ahead.

Where to Place a Rocking Horse

Rocking horses do not occupy much space. However, it needs more than a place for the child to rock and play on it. The child's play room should be able to accommodate the rocking horse along with other playthings. It should not collide with other toys and the child should be able to push it aside to a safe place after playing. It should not be close to stairs or any other place where a child can be hurt.

Other Wooden Toys

You can choose many other wooden toys as a gift for the child. It could be any other form of rocking vehicle along the same lines of a traditional wooden rocking horse. In some cases, traditional wooden toys become antique decorative items for your house. You can place them as decorative items long after your children outgrow them. In some cases, adults also buy some of the traditional wooden toys for themselves. Although they do not play with them, they consider these traditional wooden toys to be exclusive decorative pieces for beautifying their drawing rooms.

Wooden toys are available for all ages. You can come across a traditional wooden toy for a toddler or a school going kid, to a bubbly teenager. These toys hardly show any signs of the passage of time.

Children's Modern Wooden Toys

Toy making is a huge industry now. Although wood is not the main material in use for making modern toys, yet wooden toys remain the eternal favorites of children. Modern toys are available in plastic and rubber too. These materials support easy toy making and therefore manufacturers are able to produce many toys using such materials. They can provide many choices of toys too. Yet wooden toys are perennial favorites.

Some popular modern wooden toys include wooden trains with railroad accessories, wooden horses, wooden toy houses, wooden planes, wooden cars, wooden toy trucks, wooden carom boards, wooden chess sets, wooden blocks and wooden cradles too.

Wooden toys normally are made of hardwood and manufacturers dip these toys in natural oils that are safe for children. The paints used contain non-toxic toy enamel. Wooden cradles are easier to install and maneuver. These cradles pose very few risks and are therefore less harmful.

Wooden children's toys score over plastic and synthetic toys for various reasons:

- ✓ Wooden toys do not suffer serious damage even with rough handling. It is difficult to damage a wooden toy due to its sturdiness, so they have a longer lifespan.

- ✓ Wood is a biodegradable and natural product. Therefore, manufacturing wooden toys does not create any pollution.
- ✓ Wooden toys are safe for children, as wood is a natural product. Paints used on wooden toys are nontoxic and do not cause any allergies.
- ✓ Wooden toys do not usually have any small parts. Therefore, wooden toys ensure a safe playtime for your children.
- ✓ Wooden toys may be exclusive art pieces too, with excellent carvings that may be handcrafted. These toys make excellent gift items.
- ✓ Some of the modern wooden toys are becoming more tech-savvy. Manufacturers are using technological measures to introduce various safety measures and produce unique wooden toys.

The Art of Making a Wooden Toy

The following supplies are needed to make a wooden toy cradle:

1. Two feet of 2" X 4" stock
2. Six feet of 1" x 6" stock with interesting grain
3. One foot of 3/8" diameter wood dowel
4. Two 18" room-divider posts with a thickness of 1-1/2"
5. Three dozen Number 8, flat head wood screws of 1-1/4"
6. Four decorative wood drawer-pull knobs
7. One or two decorative pressed-woods
8. Saw

Procedure

1. Cutting

Take a 6' length of 1" X 8" stock with interesting grain and mark the various dimensions of the wooden toy cradle like ends, sides and bottom.

Use a suitable saw like a table saw, carpenter's handsaw or portable electric circular saw to make the straight cuts.

Cut scrollwork at the head end of cradle with a coping saw or jig.

Next, cut rockers from a 2' length of 2" X 4" stock.

2. Drilling

The box of the cradle has 1-1/4" flathead wood screws at the corners. The sides and ends of the wooden cradle box push against the corner posts within the inside edge.

Make starter holes with an 1/8" drill bit through the posts at correct positions, according to the desired dimensions.

Next, drill 3/8" countersunk holes into the starter holes to such a depth that you can screw in the sides and ends of the cradle box.

Drill each of these countersunk holes separately for the posts, as each corner post needs to match its particular sets of joining sides.

Similarly, drill starter holes. After that, use countersunk holes along the bottom of the sides and ends to help attach the sides to the bottom of the cradle.

Drill larger holes (around 3/4" to 1" in diameter) into the two short and flat surfaces present at the top edges. These serve as seats.

Next, drill 1/8" screw holes through the centers of these holes to the other side.

Then, drill countersunk holes of 3/8" from the bottom side. This should be to a depth that allows screws to fit finely into the ends of the posts.

3. Assembling

Apply white glue down a side of one of the shorter legs. Attach it to the foot end of one side along the inner edge.

Next, attach the longer post in a similar fashion using glue and screws.

Similarly, assemble all the other sides of the other legs. Always make sure that the countersunk holes are on the outside at all the sides.

Next, assemble the head and foot end-pieces to the corner posts of one side.

Finally, attach all the other posts to the end-pieces in similar fashion.

Next, slip the cradle bottom in between the sides and sink screws from sides and other places to fix it into place.

Apply some glue in the cacti hole and insert bottom ends of corner posts into larger holes at one end of the top edge of the rockers. Firmly screw up from the bottom edge of rockers into bottom edge of corner posts. Similarly, attach the other rocker at the other end.

You can use different types of decorations like wooden drawer pull knobs at the top of the posts. Most such decorations are easily available at most hobby stores.

Cut very small lengths of 1/4" to 3/8" from a 3/8" dowel, using a table saw. Apply glue at each countersunk hole on any one side of the cradle, insert the short stub of the dowel, and then tap it well inside the hole so that it is flush with the surface.

Do all the other holes in a similar fashion.

Round off or smooth all the upper edges of the cradle box and the rockers. Use fine sandpaper to level edges and remove all potential splinters.

4. Finishing

Final changes depend on your individual preferences like decorating with colored trimmings or giving a satin finish varnish.

Put in a blanket and a doll.

The cradle is now ready for your little girl and her doll to play with.

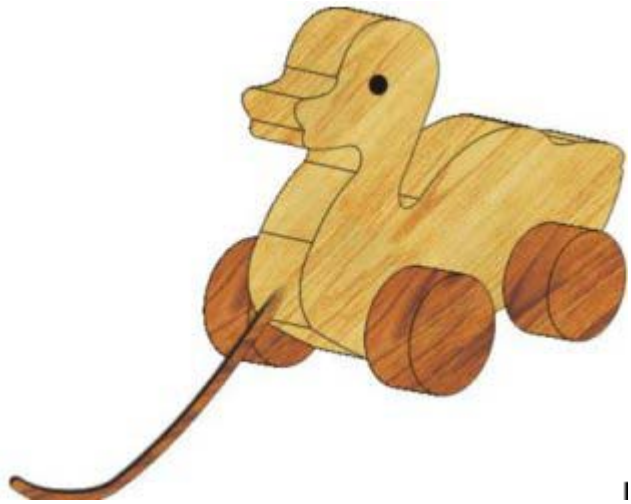
How to Build a Pull-Along Wooden Toy

Wooden toys are an all-time favorite of children. Wood is durable and strong, so they can bear the careless handling of children. Wooden toys do not break easily. They remain the same for years.

How to Make a Pull along Wooden Duck

The Pull along Duck is a favorite wooden toy of most children. It is simple to make in a few hours. You can then present it to your young ones.

Where to Start



The first thing you need to make a wooden duck is a good pattern for the body of the duck. Although it is possible to get one on the Internet, the duck pictures on children's coloring books make great patterns. Coloring book pictures are large and simple. You can choose a lateral view with the duck sitting or standing.

Pinewood and oak are good for making wooden ducks. Although oak wood is more durable, it is easier to work with the softer pinewood.

Here are the steps:

1] Collect three pieces of half-inch thick wood.

2] Pin or tape the duck pattern to one of the pieces.

3] Trace the duck outline using a ballpoint pen. Press hard with the ballpoint pen so that it makes an indent into the wood.

4] Using a table saw with a sharp blade, carefully cut out the duck picture.

5] Place the cut out on the other two wood pieces and cut them out similarly.

6] Apply good quality wood glue on both sides of one duck. This will be the middle part of the duck's body.

7] Apply glue on one side of another duck and paste it to one side of the middle part of the duck's body.

8] Similarly, apply glue on one side of the third duck and then paste it to the other side of the middle part of the duck's body.

9] After few minutes, press both sides hard on to the middle part of the duck's body.

10] Check for any leaking glue and that all pieces are in perfect alignment.

11] Allow the duck's body to stand with ample support from all sides. This will help the glue dry and fix well.

12] After glue dries thoroughly, mark two points on the duck's body. Measure half an inch from the bottom and from the left and right sides.

13] Mark these points and drill two small holes through the body at these points to put in the axles.

14] Attach both the wheels through two wooden axles.

Both wheels should be approximately two inches in diameter. You can make the wheels by cutting two round wooden circles or just purchase them.

15] Make a hole in each of the wheels so that diameter of the holes match those of the axles.

16] Next, attach a wheel to one end of the axle using glue. Slide the axle end through the duck's body and then glue another wheel to the other end.

17] Repeat the same process with the other axle.

18] Use fine sandpaper to lightly rub down the duck and make the body smooth.

19] After wiping off the dust, paint the duck in bright colors with good quality non-toxic lead-free paint.

20] Attach a long and thick cord to the front of the duck. This completes your Pull-Along Duck.

Building a Wooden Toy Car

Cars are a major attraction for young and old alike. Wooden cars are an all-time favorite of young children. You can make an attractive wooden car in a few hours using simple tools. Although hardwood proves to be the best bet for making wooden cars, you can use shelving boards of good quality, popular as whitewood boards. Similarly, laminated ¾" boards also prove to be the ideal choice. You can use scrap materials too.

However, if you want to paint your toy car, wood quality is possibly less important.

Materials Required for Making a Wooden Car

1. One 6" piece of 1" dowel
2. One 3/4"x 6"x 3' board
3. One 2" piece of 1/4" dowel
4. Sandpaper
5. Finishing Materials

Essential Tools

1. Drill/driver with bits
2. Clamps

3. Band saw or Jigsaw
4. Files
5. Rasp
6. Palm sander, if needed

Design of the Car

Cut out the necessary paper patterns of your wooden car.

It is essential to have a pattern that shows;

- a top view of the hood template
- side view of the hood template
- top view of the radiator
- side view of the radiator, and
- the outside body.

Other patterns might include the front bumper with the bumper extension area, housing seat, dash, and cockpit area, front wheel template and rear wheel template with wheel covers, and fender blanks depending on the amount of detail you want to include.

The side view of Hood template consists of three pieces of ¾" thick plywood laminate.

The outside body consists of two pieces of ¾" thick plywood.

The front wheel template and the rear wheel template consist of two pieces of ¾" thickness each.

Fender blanks consist of four pieces of ¾" thickness or two pieces of 1½" thickness.

Steps to Make Your Wooden Car

1. Trace out the paper patterns of your wooden car on to the wood stock. You can use carbon paper to trace the patterns or glue the patterns directly to the wood. You can remove the paper cuttings after you cut your wood.
2. Accuracy is essential in cutting the wood so that it is easy to assemble all the car body parts. If you use a scroll or jigsaw saw, cut all patterns individually and thereafter laminate each one afterward.
3. If you use a band saw, you need to laminate stock for the fenders and inside body into 1½" before cutting out the car patterns. Band saws can easily cut through the thickness and hence, all parts match perfectly.
4. If you cut individual patterns with a scroll saw, you have to laminate the fenders. Both the fender blanks are of 1½" thickness. Laminate the inside body pieces into a single piece of 1½" thickness. A band saw can cut through thick wood without any problems.
5. You have to complete the inner car parts before doing the outside.
6. Allow the glued inside body parts to dry thoroughly.
7. Carve out floorboard, seat, and dash exactly.
8. Use sandpaper to smooth the cockpit region.
9. Use glue to fix one of the two outside body pieces with a thickness of ¾" to one side of the inside body block. Do the

same to the other side. This encloses the cockpit area and completes the main body assembly.

10. Wipe away any excess glue that squeezes out.

11. Use sandpaper to flatten the bottom of the car and round off edges of the car body. You can use sandpaper, rasp and files to mold the look of your car into any desired shape.

12. Also, make the bumper extension area smooth to give it a rounded and good shape.

13. Make a right angle of the firewall with the bumper extension area.

14. Next, assemble all the three pieces of the car hood together to form a block and glue them together. Allow the glue to dry thoroughly.

15. Use the hood top view template to make the outline of the top of the block. Mold the hood with a saw and give it the basic shape.

16. Use sandpaper at the bottom of the block to help it fit perfectly against the bumper extension of the main body.

17. Similarly, fit the back of the block with a file so that there are no gaps.

18. Round off the edges of the top of the hood. Fit the curvature of the hood to the main body at the firewall.

19. Next, extend the curvature to the radiator area for a perfect fitting.

20. Use glue to fix the car hood to the bumper extension area.

Fenders: These provide the essential shape and add to the beauty of your toy car. Curved and well-rounded fender blanks are essential. They should match each other perfectly.

The fenders house the headlights and taillights.

21. Use a hole saw to make 1" holes on the front side of the fenders. Drill carefully so that you do not drill away the entire fender.

22. Similarly, make ¼" holes in the fenders at the back of your toy car for the taillights.

23. Take a 1" dowel and make headlights of 3/8" by rounding the face of the dowel. Make taillights of the same dimensions.

24. Fit the headlights and taillights according to your preferences. You can make small adjustments to suit the overall appearance. If you want to paint your toy car, glue in these lights after painting.

25. Clamp the fenders and glue them in place. Do not paint the fenders before gluing them as raw wood attaches best with raw wood rather than to painted wood surfaces.

26. You can make round wheels, carve out the centers of fenders and then connect round wheels to the body of the car using nails that function as axles. An alternative is to glue wheels to the inside of the fenders.

27. Cut out wheels from the wood stock. These wheels should not have a round shape as they need to fit inside the fenders. Fit the wheels within the fenders, using glue, and then round off the rest of the wheel to give the desired shape of tires. It also makes the wheels look very realistic.

28. Using a 1" bit, drill ¼" holes in the wheels for the wheel covers. Use black ink markers for coloring the tires. Color tires before inserting them inside the wheel covers.

29. Cut ¼" slices from the one-inch dowel. Sand these perfectly and glue them into the one-inch holes of the wheels to give a rounded look to your wheels.

30. Glue in all the different parts of the wheels to the insides of the fenders.

31. Now, your toy car is ready for painting and the final touches. If you want to paint the entire car, you should do it before gluing your headlights or taillights. If you build your car from contrasting hardwood components, you have to assemble the different body parts and then complete it with your favorite clear finish.

Further innovations to your car are according to your preferences and choices. You can add a steering wheel and make a figure to sit in front of the steering wheel. You could also paint the different instruments on the dashboard. You can make different outlines for the doors of your toy car and grooves for the radiator and trunk lid.

You could also script your child's name across the grill of the radiator.

Add a hood ornament or paint different instruments on the dashboard. You can paint and decorate according to your imagination.

Use bright and lively colors to give a sharp look to your toy car.

It is essential to complete the inner portions fully before starting on the outer parts because, once you start with the outer parts, you cannot reach the inside the car. You have to glue all outer parts. Incomplete interiors will mean an incomplete finish to your toy car.

Building a Rocking Horse

A rocking horse is one of the favorite toys of any child. Children often have fond memories of the time spent on their rocking horses. In some cases, rocking horses pass down from generations as a family heirloom.

Rocking horses are, in most cases, a permanent feature in a home. Many grandparents purchase a rocking horse for their grandchild. And some, of course, labor to present a handmade rocking horse to their grandchild on some special occasion.

Building a wooden rocking horse is a tedious job. Nevertheless, the result is truly fascinating and enthralling. You cannot but help admire your creation. Moreover, children will be more than happy and excited to ride the rocking horse.

Nonetheless, before starting to build the rocking horse, you should stress on three main points:

1. The design, shape, and appearance of the rocking horse should be simple and pleasant. Pleasing colors on a simple design leaves lots of room for

developing your imagination. This ensures that the rocking horse becomes a family member and an inherent part of your child's growing years.

2. Build a durable rocking horse, so that it can withstand wear and tear. Children, in their growing years, often drop and push away their playthings. They are still in the process of learning to take care of things. So, make a durable rocking horse that will not break easily.

3. The rocking horse should be a safe toy for your child to rock and play on. There should not be any toxicity or any sharp edges. Make a fairly low rocking horse so that it is easy for your child to climb up and down. A low rocking horse will minimize the effect of any fall too. Gentle curves on the rocking board prevent your rocking horse from overturning.

There is nothing to beat the emotional ties which children develop with their rocking horses. As they grow up, they may not be able to ride on the rocking horses any more. But, they would be devastated if you even ask them to give their favorite rocking horse to some other child. This emotional bond makes them keep their rocking horse with them even when they grow to be adults. Some rocking horses carry personalized inscriptions like name, date and the occasion of gifting, while some others just carry the signature. In any case, it is always a treasured plaything.

Wooden Rocking Horses

As the name suggests, wooden rocking horses are made of good quality wood. Different types of wood have different levels of hardness, texture and color. Hardwoods like Black Cherry, Black Walnut or Red Oak present an easy carving surface. These woods do not degenerate easily and, therefore, your rocking horse can have a long life. Softer woods like pine do support tough creations, but cannot match the durability of hardwoods. Nevertheless, rocking horses, made of pinewood, are not a rare sight.

You can try using contrasting wood colors to give a majestic appearance to your rocking horse. Pale wood like Sugar Maple blends exquisitely with dark wood like Black Walnut. The superb Black Walnut is a 'dream' lumber. The quality and strength of this lumber proves to be very alluring, but it is among the most expensive woods.

Other interesting woods for your rocking horses include Red Oak, Black Cherry, Beech, White Ash, Hickory and similar durable woods. Red Oak is one of the hardest woods. There are many trees to the east of the Great Plains. Such abundance is the main factor behind its low cost. Although the texture of Red Oak is coarse in comparison to Walnut or Cherry, the touch is very pleasant and soft. The grains in the wood turn golden with time. Red Oak for your rocking horse is also an excellent choice.

Black Cherry is an all-time favorite wood for making toys. This wood becomes smoother and smoother over time and with use. Your rocking horse made of Black Cherry exudes a soft touch even after many long years. The red color of this lumber turns a dark red with

age. Children just love the touch, feel and color of this wood and a rocking horse made of this lumber.

All these woods are strong and heavy. They can withstand any number of falls. Your choice of wood presents an interesting surface to work and carve. Simple sharp tools make carving easier. The texture of the wood does not require extensive sanding. In any case, before finally deciding on any particular type of wood, make sure that it has the requisite thickness for making a rocking horse. It is difficult to locate requisite wood thicknesses in wood like Beech, White Ash, Hickory or Sugar Maple.

Tools and Materials for Making a Wooden Rocking Horse

A simple wooden rocking horse requires simple tools and materials. Only a few hand tools are needed.

If you have an electric sander, radial arm saw, router, and a drill press, you can turn out a great rocking horse.

Although a sharp knife is sufficient to carve out playthings from wood, yet, these different tools make your job easier and faster. You do not have to labor too hard. These tools not only help you to make a rocking horse in much less time but also ensure the quality of your rocking horse.

A Full List of Useful Tools:

Hand tools

1. Spoke shave and hand plane
2. Bar clamps (2)
3. Shallow sweep gouge
4. Large C-clamps (2)
5. Hammer

Power tools

1. Saber saw or band saw
2. Electric hand circular saw
3. Table mounted router
4. Bench mounted belt sander
5. Drill press or electric hand drill
6. Inflatable drum sander
7. Table saw

Materials for Making Wooden Rocking Horse

1. Four dowels of maple, hickory, birch, or oak in dimensions of length 36 inches and diameter of 3/8 inch. You will have to cut these into lengths of 2 ¼".
2. Ten board feet of 5/4 hardwood lumber with a width of nine inches; you need to plane them to 1 1/16". If you are unable to get ten board feet of lumber, you could manage with a

shorter piece of nine inches width for the head. The rest of the lumber could have a width of seven inches.

3. One dowel with a length six inches and a diameter of ¼" (of any wood species).
4. One walnut dowel with a length of nine inches and diameter of ¾"
5. Twenty feet of jute macramé fiber (This makes the tail of your rocking horse)
6. Two ounces each of sunflower and walnut oil.
7. Four ounces of good quality wood glue like Elmer's Carpenter's Wood Glue or Titebond Wood Glue

Get the Correct Type of Lumber

Major lumber companies do not normally have hardwood supplies. Often, obscure companies can provide necessary hardwoods for your rocking horse. You can locate these companies through the Yellow pages. Also, be on the lookout for woodworkers and cabinetmakers. Before venturing to survey the available stock, try talking to them over the telephone.

Gather information about necessary details like wood thickness, sanding and making lumber plane and, importantly, inquire if they allow you to handpick lumber.

Many enthusiastic lumber dealers would gladly send you samples. Normal costs (at the time of writing) for lumber for your rocking horse would be within $20 to $50.

How to Identify the Best Quality Lumber

You should have a basic knowledge of lumber before talking to lumber dealers. Hardwood lumber is available in various thicknesses, lengths, widths, and grades. Grading of lumber is according to specific grading rules.

Lumber boards are mostly in use in small parts and pieces. Therefore, size and number of clear cuttings is an essential feature of grading. A clear board with a huge knot in the middle earns a high-grade. The highest available grade is Select and Better. Such quality lumber is long and wide with few knots.

Common boards include Number 1 lumber. These are narrow and remarkably cheaper. The board should have sound wood and be flat. There should be few clear cuttings. Normally, Number 1 boards come from the heart of the tree. Hence, they support deep colors and dense grains. It is easy to band saw knots that might be present in Number 1 lumber.

Often, lumber dealers handpick a few wood stacks and pass them as Number 1. You can locate many defects in these, like knots, splits, warp, twist, decay, honeycomb, checks and crook.

Standard Measurements of Thickness of Lumber

Lumber for your rocking horse needs planing. Lumber loses around ¼" in the planing process. Lumber thicknesses, before planning, are around 4/4, 5/4, or 8/4. After planning, lumber that had a thickness of 5/4 will usually have a thickness of 1 1/16 inches.

The standard unit of measurement of hardwood is board foot (bd.ft.). One board foot is equal to 144 cubic inches. You need ten board foot to make a wooden rocking horse of normal height.

Lumber companies normally charge five to ten dollars for planing the wood. Sanding machines remove planer marks too.

Moisture Content of Lumber

Trees retain a lot of water. The natural process is that this water content starts drying up as soon as trees detach from their roots. Wood starts shrinking and many defects could arise if lumber dries fast. It is essential to control the rate of drying of moisture to make good quality lumber. Normally, lumber companies dry lumber in a dry kiln. There are powerful heaters and fans to evaporate moisture from wood. Wood should neither dry too slowly nor too fast.

The ideal moisture content of your lumber should be around seven to eight percent. Normally, hardwood lumber companies maintain this percentage. A little relaxation in the percentage is possible in lumber purchased and used in dry climatic regions where it can be around six percent.

Do not purchase lumber with a moisture content of twelve to twenty percent. There will be further shrinkage as the wood dries and uneven grains around knots will suffer further shrinkage. This will change the dimensions of lumber and the finished products too. Some types of wood twist and crack while they dry. Hence, if you make a rocking horse out of such lumber, all your hard work will be wasted.

An electronic moisture meter can help determine the exact levels of moisture in your lumber.

Cutting the Rocking Horse Pattern

Ideally, draw or trace out the pattern for your wooden rocking horse. Cut out the different pattern pieces to their specific dimensions.

Take advantage of the natural characteristics of your wood. The most interesting wood grain should be the head of the rocking horse, as this is the main part of the horse.

Place the different cut patterns across the wood and judge their effectiveness. Make any adjustments as necessary. Use a ballpoint pen to trace the edges of the patterns only after you are fully satisfied about the dimensions, pattern and the locations.

Sawing the Rocking Horse Pattern

Cut the boards into manageable pieces with a portable circular saw or a handsaw. As saw kerfs are wider than pen lines, saw on the waste side of the lines to split them.

A saber saw with high quality blades can make your work fast and easy. Use a belt sander to remove saw marks and smooth the sawn edges.

If you use hand tools, you need a combination of spoke shave, hand plane and hand sanding. But, these could leave you with thick bumps on the skin of your hands.

Use a table or radial arm saw to an angle of 24 degrees and trim the bottom ends of the legs. Ensure that the ends are extremely smooth.

Also, use a piece of scrap to back up the cut and prevent 'chip out'.

Using V or W patterns, drill a 3/8" hole through either end of the footrest. Make a slightly larger hole to avoid splitting. Drill two holes of ¾" and one hole of 1¼" diameter through the head of the horse. Clamp a piece of scarp as a precaution before drilling.

Routing

Use a ball bearing pilot with a radius of 3/8 inch on your table mounted router to round off all edges, like the nose and eyeholes. Clamping a board on the router table can help make a fence to rout straight pieces. You can move the fence further closer to the cutting edge to get a smooth finish. Once you are finished with the straight pieces, remove the fence and rout the curved pieces with a ball bearing pilot to get a smooth edge.

Feed stock into the table-mounted router accurately, keeping in mind the direction of the wood grain and also the speed. Ideally, slow feeding works best if cutting against the grain and fast feeding is correct if cutting with the grain.

Sanding

An inflatable drum sander helps in using varying air pressure levels in the drum. This changes firmness of the sanding surface. Pressures between three to fifteen pounds are usually best, as the sanding cloth at these low pressures match curved wood parts and provide the perfect shape and necessary contours.

You have to attach the drum to a motor or drill press. If you have a lot of work and sanding to do, fit it to a separate machine base. It can help you perform better.

Use an inflatable drum sander to flatten surfaces and round off edges of various parts of the horse. The sanding motion should remain parallel to the wood's grain as far as possible.

Sanding scratches may be very visible, even after you varnish or apply oil on the rocking horse if you sand across the wood grain. Sanding is essential around the rounded eyes and nostrils of the rocking horse, as children are prone to poke their fingers through such holes right at the beginning.

Do not sand across the sharp non-rounded edges of legs and crosspieces, as it looks better if these parts retain their sharpness. It makes the rocking horse look more natural. Hand sanding of hardwood rough surfaces could prove very time-consuming and exhaust you.

The ideal choice is to use a sanding machine. Sanding all individual parts before assembling can prevent cross grain scratching of adjacent pieces.

Dowels and Drills

These can help you join all the different parts of your wooden rocking horse appropriately. Carefully fitted wood dowels at all the joints are essential.

A drill press can bore dowel holes. Practicing beforehand on scrap pieces can help you perfect your technique. Otherwise, ragged holes of dowel ends could spoil the look of your rocking horse.

There are many different kinds of dowels like Hickory dowels, Sugar Maple dowels, and Birch dowels. Each of them is available in a variety of species and sizes. Dowels are normally rough and differ in shape and size from season to season. Your drill bits need to match the dowels. You can try on scrap pieces to check if they match well and offer a perfect finish.

The finish should be snug and a hammered-in fit, but should not be too tight. Hickory drills are harder than most other drills. If you use an electric hand drill, it is possible for the drill to slide away from the hard hickory and go into the softer walnut or cherry parts. Although cherry drill parts are not very strong, they may prove to be the best bet for your wooden rocking horse.

Assembly

The first step in assembling the different parts of your wooden rocking horse is by marking the two rockers. This highlights the attaching point of crosspieces.

Place a 3/8-inch piece of scrap wood in between rockers to support the crosspieces. The crosspieces should meet the rockers just above the rounded over edge of the rockers. Push the pieces to check their alignments.

Check the pressure application points of the joints by placing bar clamps. Apply little yellow wood glue at cross ends of pieces and clamp all pieces with medium pressure.

Allow glue to settle in thoroughly. Later, remove clamps and drill holes for dowels. The holes should be three inch deep and the length of the dowel should be 2 ¼". The extra space prevents the dowel from going to the bottom of the hole.

Apply a thin layer of glue to each side of the hole and to the side of the dowel too. Hammer in carefully without driving the dowels below the surface of the rocker. A slight protrusion of dowels is fine. You can cut them off later with a belt sander.

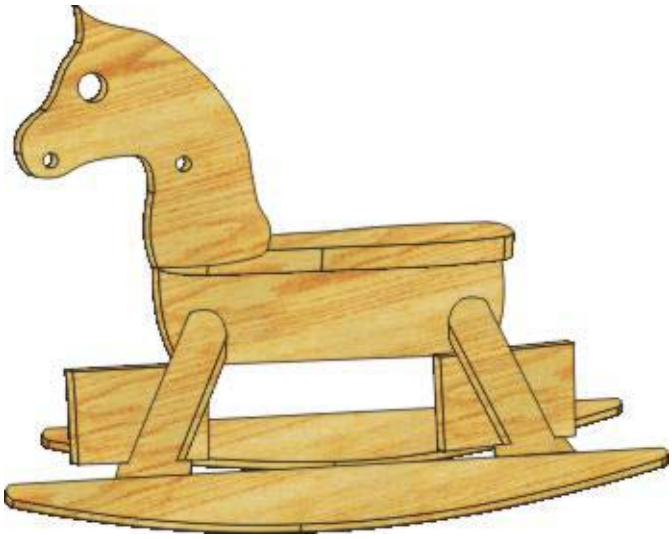
Next, mark locations for your leg pieces. The legs should ideally be 17/32 of an inch from either side if body of your horse is 1 1/16 inch thick. The main idea is that the distance between the legs should equal the thickness of the horse's body.

Apply some glue to the bottom of one leg and place it in the perfect position. Apply a little pressure to fix the leg well. Repeat the same process to fix all the legs. Allow the glue joints to dry overnight.

The next day, drill and dowel leg joints. Turn the entire body upside down and drill the holes using a drill press. Take care that your drill press does not come out through the side of the leg.

Driving the dowel on an upright assembly could prove tricky. You could use a helping hand to hold parts upright while you drill dowels. Hammer steadily and allow glue to join in perfectly. You can try doweling twice to complete a perfect job.

Place the horse's head in the perfect position on top of the seat with



a little hang to the front side of around ½". Mark the base of the head with a ballpoint pen and use your band saw to make a perfect slot for the head. You have to check the sawing and fitting off and on, as slight differences in sawing can create a misfit for the horse's head. Carefully judge the fitness and its accuracy.

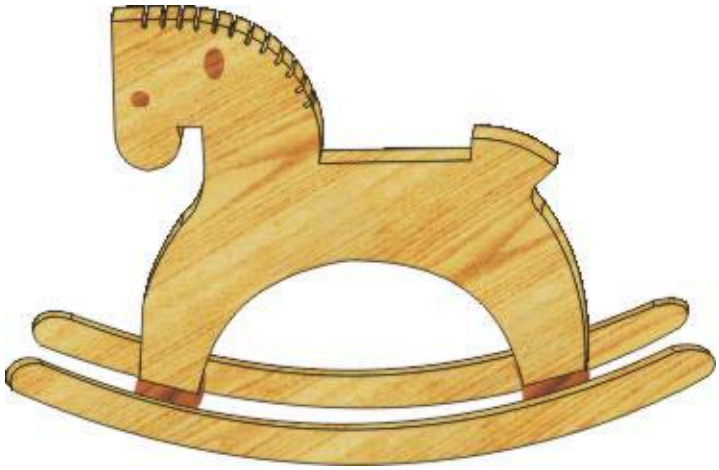
Next, apply glue on the inside the slot and fix the head perfectly. Place the horse's body on the upside-down head or seat assembly. Check the fitting and then apply glue to the body. Then, place it on the seat.

Apply a little hand pressure and press with a heavy weight for few hours.

Next, use a hand electric drill to make holes through the footrest. Carefully insert horse's body between legs of the rocker assembly. Make four ¼" high blocks to prevent the body from going deep down the space in between the legs.

Use C clamps on legs to keep all parts in proper places. Drill two holes through each leg into the body of the horse. Match hole positions on each side of the horse so that they do not meet.

Make your horse stand upright and fix the handle. Check all dowel ends and trim off wherever necessary.



Use sandpaper over the entire rocking horse.

Make a mixture of equal quantities of sunflower and walnut oils. Brush it on heavily and wipe off after half an hour. This gives an ideal wood finish.

You could also use a polyurethane finish to give a plastic finished look.

After the horse is dry, gather about fifteen strands of jute fiber together and make a tail. Ideally, it should be a bundle of ¾" diameter. Apply glue in tail hole and in between jute strands. Drive a small dowel in the center of the jute bundle and press into the hole to keep it secure and give a firm fix.

Your Rocking Horse is now ready for many enjoyable and memorable rides.

How to Make a Wooden Puzzle

Joining wooden puzzles is an all time favorite pastime of children. It is simple and interesting to make wooden puzzles at home instead of buying them from toyshops. You can make any scenery, favorite cartoon character, or a beloved pet the subject of a great puzzle. Just allow your imagination to run wild and carve your own wooden puzzle.

Where to Locate Puzzle Graphics

The simplest way to locate puzzle graphics is to visit online sites. These offer free puzzle plans with woodworking details too. Another way to gather puzzle graphics is through your children's coloring books. Graphics in coloring books are normally large and clear.

Cut and paste them directly to plywood or trace them on plywood and cut. Otherwise, draw random shapes and figures on onionskin and make your own puzzle stencils. Cut and glue these shapes on plywood. Then, trace and transform them into a fantastic wooden puzzle.

Essentials for Making Wooden Puzzles

1. Bass plywood or good quality 5-layer birch with thickness of ¼"
2. Two-speed scroll saw with neck depth of 18"
3. .009-inch thick scroll saw blades
4. Sandpaper of fine and medium grades
5. Stencils

6. Pencils
7. Paste wax
8. Acrylic Craft Paint

How to Make Interesting Puzzles?

Puzzles are sure to keep your children busy for many hours. Simple steps for making a puzzle are:

1. Trace or draw out patterns on plywood. Otherwise, cut patterns and glue them on plywood.
2. Use a scroll saw to cut puzzle shapes.
3. Use medium grit sandpaper and make edges smooth.
4. Next, use fine grit sandpaper to make edges smoother to ensure a perfect fit of different puzzle pieces.
5. Use paste wax for a perfect polished surface of puzzle pieces.
6. Use acrylic craft paint to paint your puzzle pieces.

Useful Tips

Keep a stock of extra scroll saw blades, as they often break while cutting puzzle shapes.

If you are a first-timer, practice using the scroll saw on waste wood pieces. Cut out random shapes and sizes.

While using sandpaper, take care not to sand on any particular area too much.

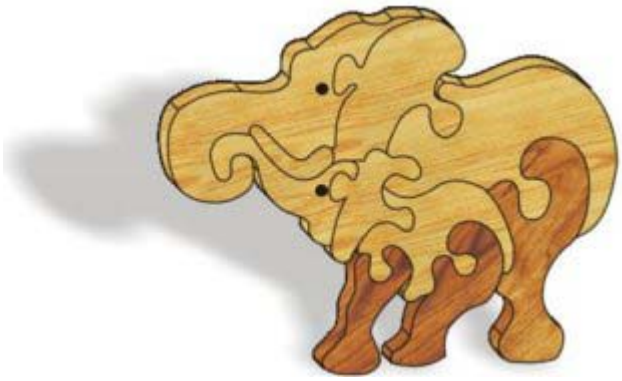
Do not press the scroll blade very hard against the wood.

Use a lint-free cloth to clean away sawdust before painting.

Allow painting to dry thoroughly before giving a coating of acrylic finish.

Always cut individual puzzle pieces. Do not cut many pieces of the same shape at one go.

Building a Wooden Elephant Puzzle



Materials Needed

1. Pine or Basswood of ¾" x 7" x 7"
2. Fine sandpaper
3. Adhesive spray
4. Primer sealer
5. Paint pens
6. Packing pens
7. Scroll saw
8. #9 saw blade
9. Small bristled paintbrushes
10. Power sander

Steps to Make the Puzzle

1. Use a power sander and sand wood on both sides. Cover wood on one side with packaging tape for necessary lubrication of the saw blade while cutting.
2. Copy elephant puzzle pattern. Leave a margin of ¼" to ½" around the outside edge of the pattern and cut it out.
3. Attach cut pattern to packaging tape using spray adhesive.
4. Use a scroll saw with #9 saw blade and saw outside lines of the pattern. Then, proceed to saw individual pieces through the inside lines.

5. Now, remove the pattern and packaging tape too.
6. Use fine sandpaper on individual pieces and smooth any imperfections.
7. Next, apply primer and allow it to dry.
8. Then, apply a coat of enamel paint and allow it to dry before applying the next coating.

Do not put too much paint at the joining places of puzzles.

Your wooden elephant puzzle is ready.

How to Make a Wooden Toy Spaceship

A UFO or a spaceship can bridle your child's imagination to limitless boundaries. Make a simple spaceship at home with easily available materials.

Materials for the Wooden Toy Spaceship

1. Two pieces of ½" x 31" x 48" for UFO sides
2. Two pieces of ½" x 5" x 24" for the bottom portions of spaceship
3. Four pieces of 5/8" x 5/8" x 5" doe the bottom cleats of spacer blocks
4. Three pieces of 1½" diameter x 21 7/8" for cross parts of bottom cleats
5. Four ¼" diameter x 4" wing nuts, bolts, and washers for the sides
6. Six ¼"diameter x 2" for cross dowel connectors and bolts
7. Handheld jigsaw with a ten teeth per inch blade
8. Exterior grade plywood covered with weatherproof cellulose veneer

This plywood is the best material for making a spaceship. It has a smooth surface and does not develop any splits on the surface. Although this material is a bit on the expensive side, the long-lasting ability makes up for the cost.

The Method

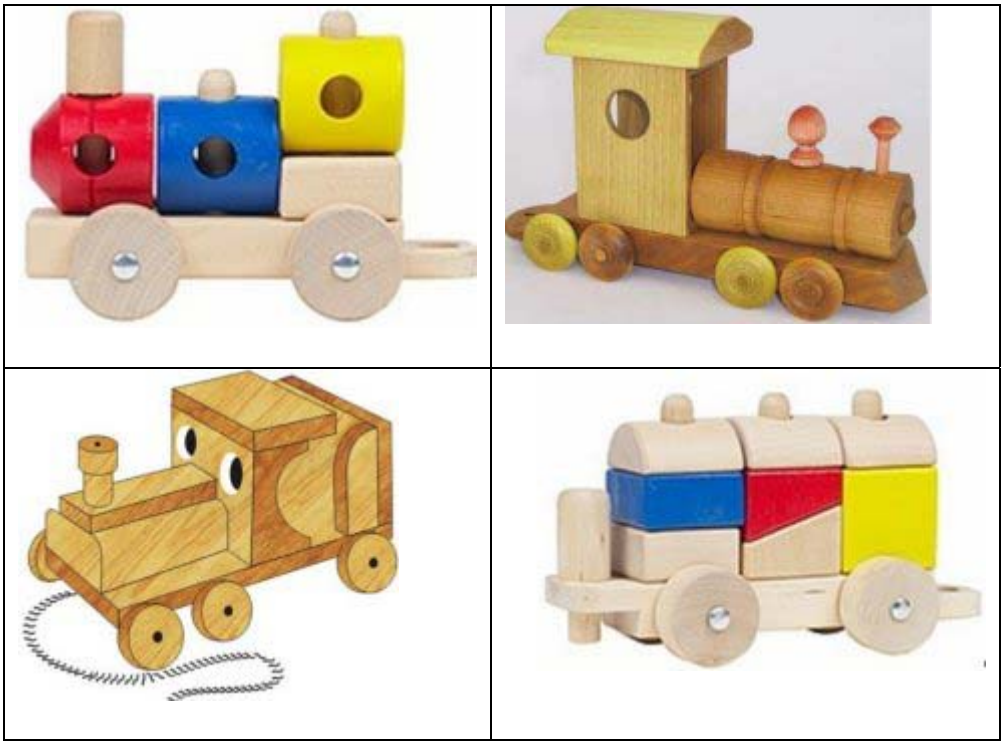
1. Trace out the spaceship diagram on your signboard with a pencil. Then paint it in bright colors.
2. Use a jigsaw to cut the shape of the UFO into a spacer base and two spacer blocks on each side creating a flat mounting place.
3. Now use relevant bolts to fix side panels with three crosspieces of hardwood dowel. Use metal dowel connectors and bolts to give a perfect fixture of your space ship.
4. The front dowel at the top can act as a handle. You can place a few aliens here to make them seem to be on lookout duty. Metal cross dowel connectors are better than ordinary screws as they are stronger and last longer.

Your Wooden Spaceship is ready for takeoff.

How to Make a Wooden Toy Train

Make a wooden toy train and let your child enjoy many blissful hours of play with their train.

Some train designs:



Materials Required for Wooden Toy Train

1. Drill and hole saw
2. 180 grit sandpaper
3. Handsaw or jigsaw
4. PVA wood glue
5. Pine 90mm x about 1.5m x 19mm
6. Pine 140mm x 305mm x 90mm
7. Pine 42mm x 600mm x 19mm
8. 1 x 60mm for smokestack
9. 30mm tech screws
10. Washers 1cm with 3mm hole
11. High gloss premium paint

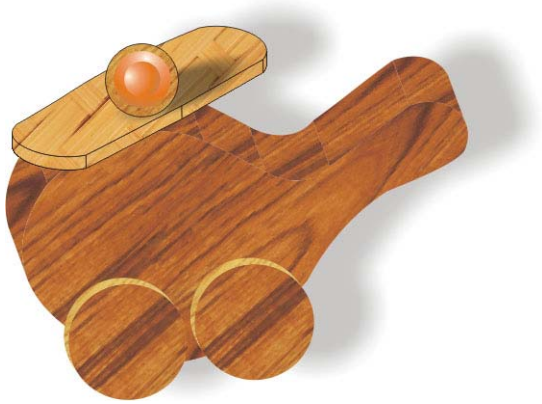
Instructions for Making Wooden Toy Train

1. Using a jigsaw or handsaw, cut 140mm x 19mm pine to length 305mm
2. Cut 90mm x 19mm pine into six blocks each, 140mm long.
3. Next, cut one of the six blocks into three pieces lengthways with dimensions of 19mm x 30mm. These are the axles.
4. Use nails or screws to fix these to the base block.
5. Use 35mm diameter hole saw to cut a circle for smokestack.
6. Cut 42mm x 19mm in four pieces with a length of 90mm each.

7. Use a 60mm hole saw to cut out windows from two of these four pieces.
8. With a 60mm hole saw cut 6 wheels from 90mm x 19mm pine.
9. Drill holes for screws and screw in necessary parts like wooden wheels with washers on each side.
10. Use PVA wood glue to assemble all the different parts.
11. Use bright colors to paint your wooden toy train.

How to Make a Wooden Toy Helicopter

A wooden toy helicopter



definitely comes across as an unusual toy. However, children love them and you can follow these simple steps to make a wooden toy helicopter. You can either make this helicopter with a single wood piece or glue together many different colored wood pieces.

The Body Parts

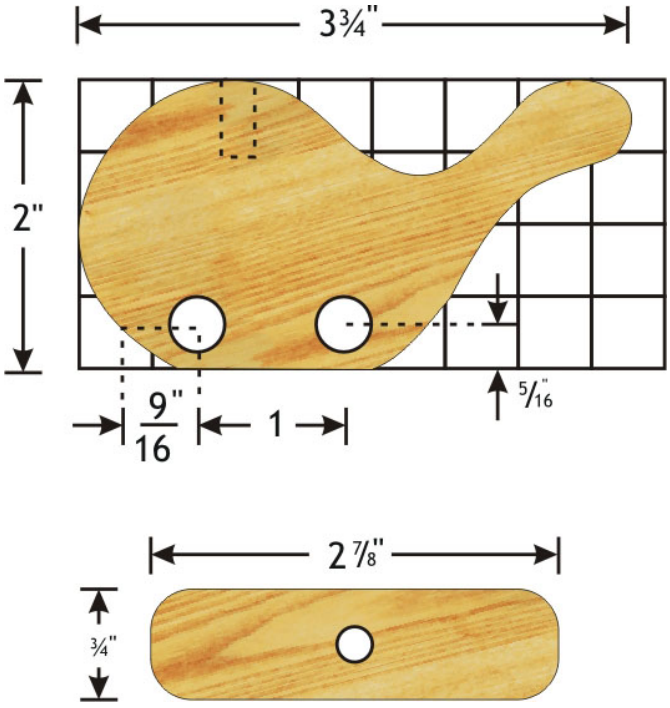
- 3 ¾" x 2" x ¾" walnut wood for the body of the helicopter
- 2 7/8" x ¾" x ¼" birch for the helicopter blades
- 1" x 3/8" wheel of the blade cap
- 7/32" axle peg for helicopter blade axles
- Four wheels of 1" dowel cap
- 3/8" dowels for axles
- Sandpaper for a smooth finish
- Wood glue for fixing helicopter parts
- Mineral oil

Tools Needed for Making Wooden Helicopter

1. Drill bits of 7/32", 15/64", and 25/64"
2. Drill Press

3. Band saw, scroll saw, or coping saw

Steps for Making Wooden Toy Helicopter



1. Use wood glue to fix a piece of 1/8" x ¾" birch with two pieces of 15/16" x ¾" walnut wood for the body of the helicopter. The birch gives the appearance of a stripe across the walnut.
2. Trace out the pattern of a helicopter on the wooden body.
3. Use a band saw to cut out the body, leaving a small edge along the line.
4. Use sandpaper to sand the helicopter body and remove band saw marks. You can round the edges with sandpaper or use a router with round over bit of 1/16".
5. Use a 15/64" drill bit and drill a hole in the center of the round end of the blade.

6. Next, use 7/32" drill bit to drill a hole on the top of the helicopter blade. This is for holding the axle of the helicopter blade.

7. Use a 13/32" drill bit to make rear and front axle holes in the body of the helicopter. These holes should be at a distance of 9/16" from the back and front and about 5/16" from the bottom.

8. Glue in blade axle through the one-inch wheel and blade at the top of the helicopter.

9. Cut rear and front axles to length. Place axles in axle holes and glue dowel caps to axle ends.

10. Allow sufficient time for glue to dry. Check and use sandpaper on any rough edges. Also, check if all wheels move freely.

11. Apply mineral oil on the helicopter and allow it to soak in overnight.

16. How to Make a Toy Wooden Bug

A cute little wooden toy bug will hold your little one's interest. You need few tools to make a wooden toy bug.

The Tools and Supplies

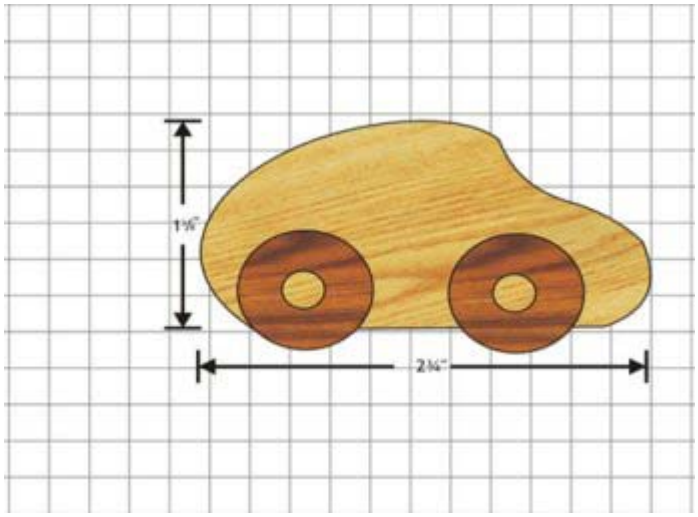
1. Electric drill, hand drill, or drill press
2. Coping saw, band saw or scroll saw
3. Mineral oil, available locally at all drugstores
4. Sandpaper
5. Wood Glue

The Parts of Wooden Toy Bug

1. Four wheels with diameter of one inch and half inch width
2. Toy body in pine of 2 ¾" x 1 3/8" x ¾"
3. ¼" dowels for axles
4. Four one-inch dowel caps
5. 3/8" dowels for axles

Mineral oil is edible, so it probably will not cause any harm to your child even if the child tries to bite through the wooden toy.

But, children, especially the very young, should always be closely supervised.



Procedure for Making Wooden Toy Bug

1. Trace the toy body in given dimensions on the wood.
2. Use a saw to cut it out.
3. Use sandpaper on the cutout of the toy body to remove saw marks. Also, round the edges to give a smooth look.
4. Drill two axle holes using a 17/64-inch drill bit. The axle holes should be at a distance of ¾" from the front, 5/8" from the back, and ¼" from the bottom.
5. Cut axles according to their length, fix them in axle holes, and glue them onto wheels.
6. Check if all wheels move freely after glue dries completely. Also, check if the wheels do not come off if pulled hard.
7. Use sandpaper on any rough spots, if anywhere.
8. Apply mineral oil on the finished wooden toy bug and allow it to stay overnight, so that the wood absorbs all oil.

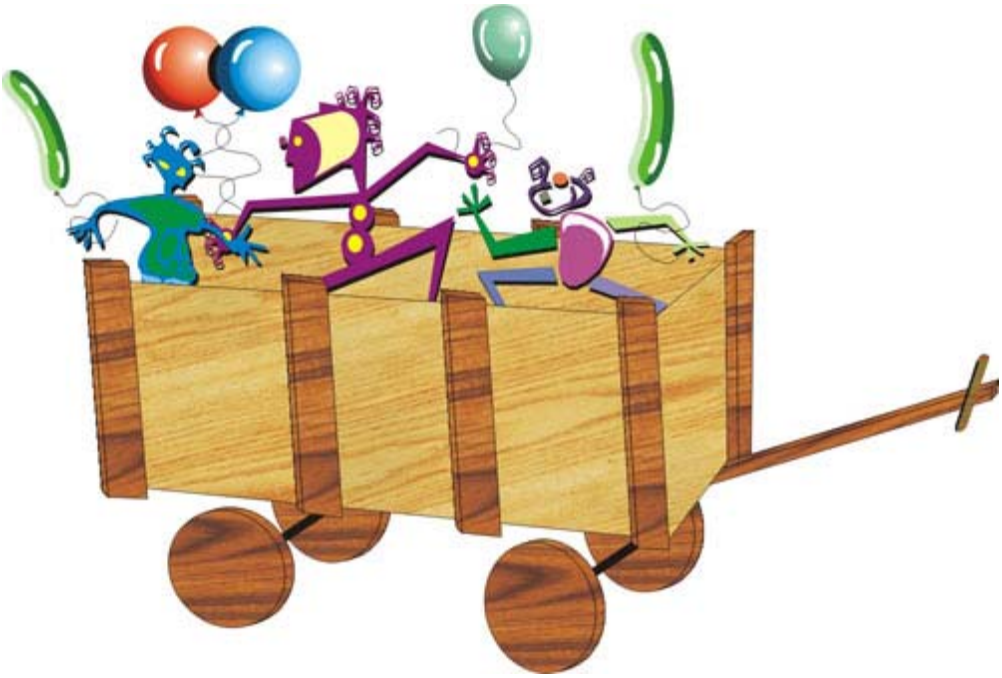
How to Make a Wooden "Covered Wagon" Toy Box

A wooden covered wagon toy box could serve as a storehouse of toys for your child. The top cover can conceal all toys within the wagon. This toy wagon is strong enough to hold and carry a full load of many heavy toys.

Another simple way to use this wagon toy box is to take off the cover and use it as a pull-wagon. Your child can play for many hours by loading and carrying all their different toys in this pull wagon.

This wooden covered wagon toy box is an excellent gift for any family with kids.

It's also wonderful when teaching your children to put their toys away. Pulling their toy box to fill it up makes a great game.



Materials for Wooden Covered Wagon Toy Box

Sides

1. Six pieces of red Oakwood in ¾" x 5¾" x 45"
2. Eight pieces of red Oakwood in ¾" x 2" x 17¼"

Ends

1. Six pieces of red Oakwood in ¾" x 5¾" x 21"
2. Four pieces of red Oakwood in ¾" x 2" x 17¼"

Bottom

1. One piece of Oak Plywood in ¾" x 21" x 43½"
2. Two cleats in ¾" x 1" x 19¼"
3. Two cleats in ¾" x 1" x 43¼"

Front Wheel Pivot

One piece in ¾" x 4" x 19 1/8"

Bottom Wheel Supports

Two wheels in ¾" x 4" x 19 1/8"

Dowel Plugs

Twelve pieces of ½" length and 3/8" diameter

Axle Supports

1. Two front pieces in 1½" x 4" x 1 7/8"
2. Two back pieces in 1½" x 4" x 8¾"

Lattice Slats

Three pieces of 3/16" x 1 3/8" x 45"

One Canopy

Canopy Frame

1. Two pieces of ¾" x 1½" x 19 3/8"
2. Two pieces of ¾" x 1½" x 43 ¼"

Handle

1. One four-inch long dowel with diameter of ½"
2. One seven-inch long dowel with diameter of ½"
3. One pivot block stem of 1½" x 4" x 10"
4. One stem of 1½" x 2" x 30"

Wheels

Four wheels of 11¼" diameter x 1½"

Hardware

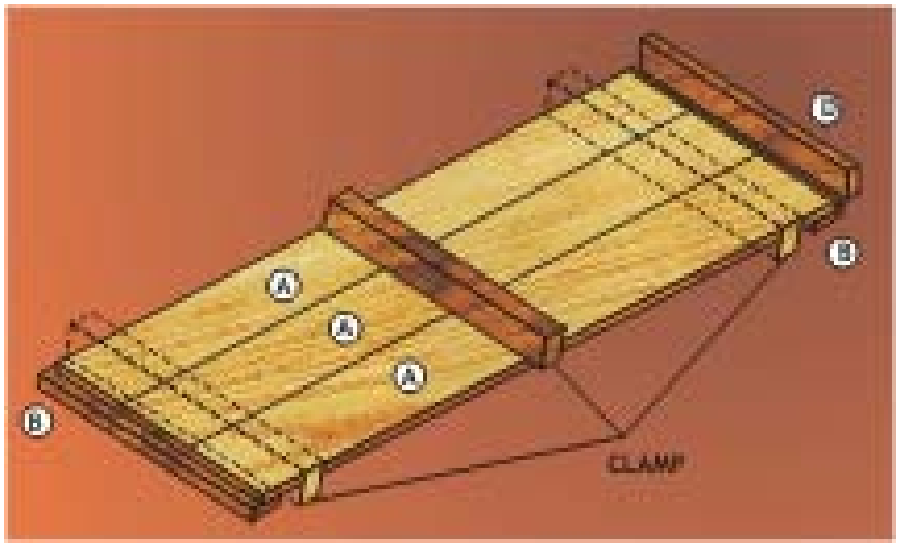
1. One large Fender washer of diameter ½" through hole
2. Two Washers of small diameter ½" through hole
3. One lock washer of ½" diameter through-hole
4. Eight through-hole washers of 3/8" diameter
5. Four Nylock or Castle locknuts of 3/8 diameter x 16-Pitch
6. Two threaded axles of 3/8" diameter and length 20"
7. One carriage bolt pivot of ½" diameter and 2" length

8. One ½" Nylock locknut
9. One dozen wood screws of #10 x 1 ½" for axle supports
10. One dozen wood screws of #6 x ¾" for canopy lattice
11. 150 Phillips Head Woodscrews of #8 x 1¼"

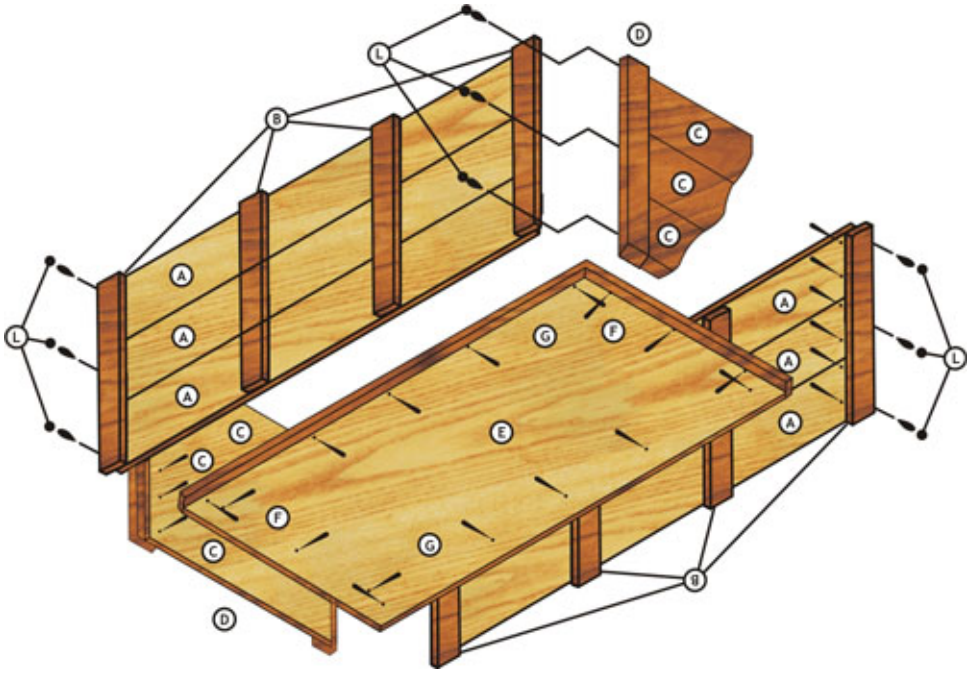
Tools and Other Accessories

1. Radi-Plane with radius blade
2. Bar clamps
3. Braces
4. Wood screws
5. Wood glue
6. Band saw
7. Disk sander

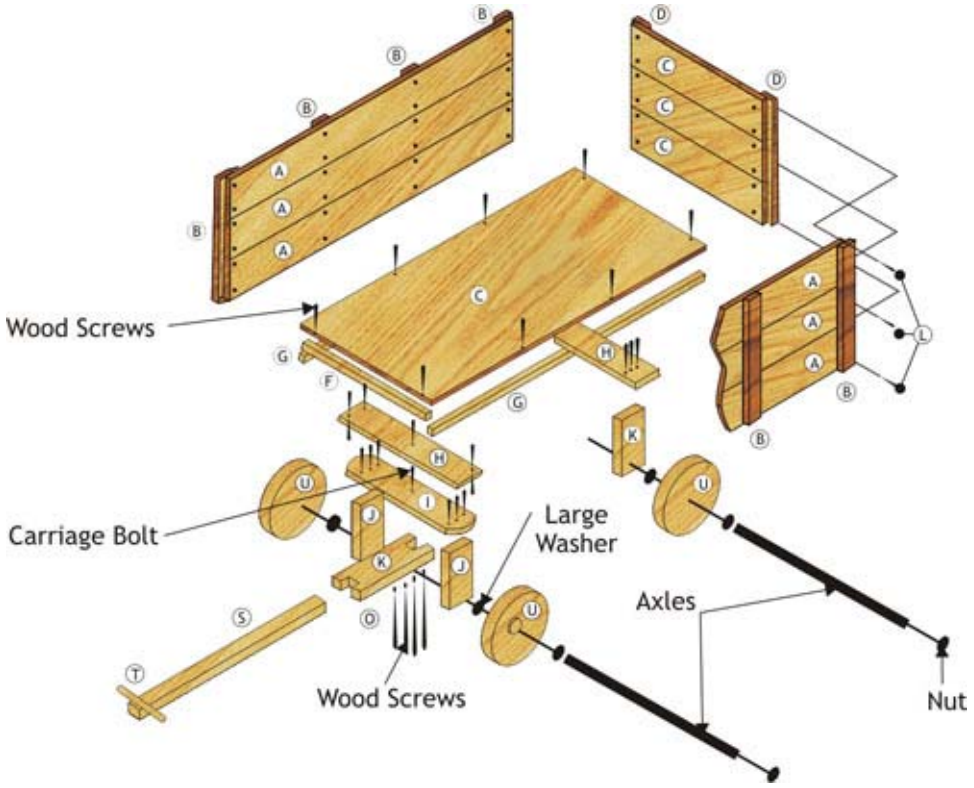
Instructions



1. Cut all wood pieces according to given dimensions like bottom, sides, cleats, and ends. Make sure that all wood pieces are of similar thickness. Otherwise, sand them to maintain perfect thickness, as even little variations can make a huge difference - your wagon parts may not fit well enough.
2. Using Radi-plane round off edges of ends and sides. Start with the 5¾" stock and proceed to the 2" stock eliminating sharp edges.
3. Fix the ends and sides together. Initially, hold the sides and ends with aluminum bar clamps. Place a clamp at each end of your stock, open it sideways, while keeping the face of your stock down, and put a third clamp across the center. This will make it easier to mount the vertical braces at the ends of the sides.



4. Hold one brace perfectly to align the other two end braces. Drill pilot holes using 7/64" screws and fix them to allow screw heads to be at board surface levels. Use six 1 ¼" x #8 wood screws to fix brace ends. Use glue to complete fixing them into position.



5. Similarly, mount two center braces from each of the two attached end braces at a distance of 14 1/8".

6. Drill the requisite pilot holes and screw in screw heads to be perfectly level with the board surface. Use six 1 ¼" x #8 wood screws to fix center braces and glue them in place.

7. Next, drive in wood screws from the top surface of the bottom of the wagon toy box into the cleat strips. You should ensure that screw heads are well into the holes to prevent

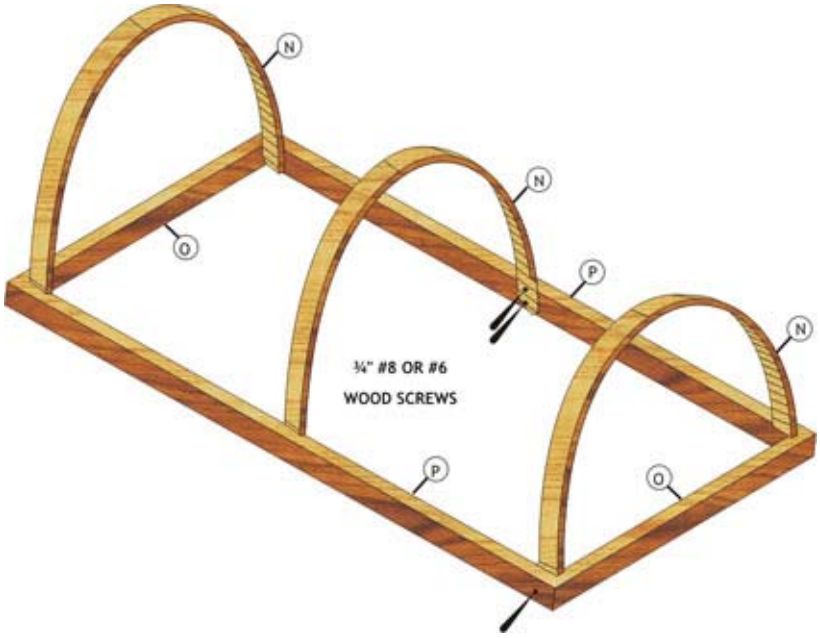
any scratching. Mount cleats properly and perfectly. You can use wood plugs to cover screw heads.

8. Now, you have to hold together the different box pieces with the help of bar clamps. These clamps hold the box temporarily in position. Thereafter, use screws to fix all four parts perfectly.

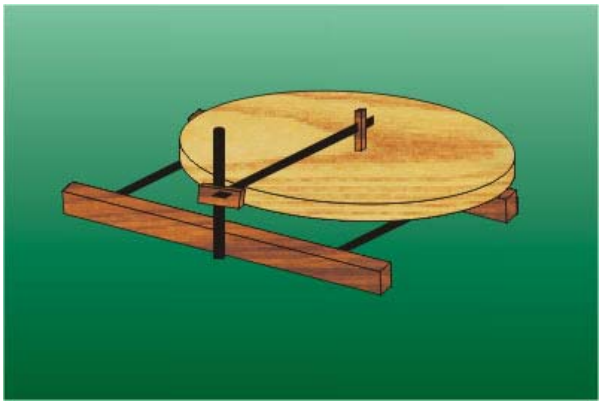
9. If you want to use wood plugs over the screw heads, drill counter bores at each screw position to a depth of 5/16" x 3/8" diameter. Next, drill pilot holes of 7/64" into the center of the counter bores. Make your plugs from matching scrap pieces of wood, using a 3/8" plug cutter.

10. Place the wooden wagon toy box in such a way that the topside is open and the bottom with attached cleats is into the box. Cleats should be facing you.

11. Use small hand screws or C-clamps to hold the bottom in position while you drill in holes. Drill 7/32" screw pilot holes through the cleats and into the ends and sides of the box. Drilling at a slight angle makes the job easier and faster. Countersink all holes of screw heads before assembling.

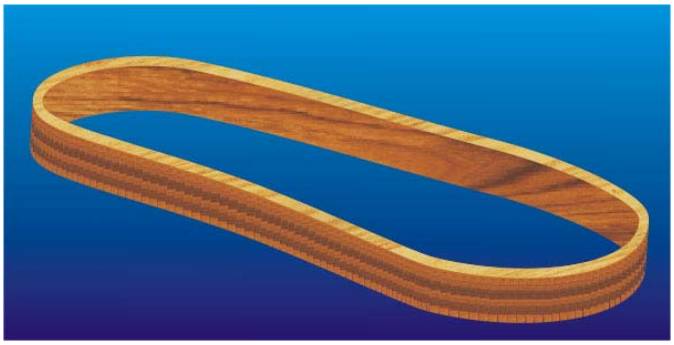


12. Next, cut out-front wheel pivot, bottom wheel supports, and axle supports according to necessary dimensions.



A circle-cutting jig can help you cut wood with necessary diameters. Drill a hole with a depth of ¼" with diameter ¾" at the top center of the Front Wheel support.

13. With the same center point, drill a hole with a diameter of ½" and another hole through this center with a diameter of ½".



14. Draw arcs at each end of the pivot board to cut through with your band saw. Use a disk sander to smooth the board.

15. Laminate two pieces of ¾" stock and use wood screws to hold laminations in place.

16. Then, make axle supports from these. Otherwise, make your axle supports from wood stock of 1½" thickness.

Front wheel supports should be shorter than the back wheel supports by 7/8". This sets off the difference in the height arising due to the thickness of the Front wheel pivot and pivot washer.

17. Use double stick tape to attach each pair of supports for making a perfect match of profiles and hole locations.

18. Fix the back axle supports to the bottom wheel support and the front axle supports to the front wheel pivot with the help of wood glue and wood screws. Countersinking screw heads a bit more than the normal sinking ensures that the screws of the front side do not rub with those of the bottom wheel support in the front.

19. After cutting out pivot block stem and pull handle stem from the wood stock according to the plan, use your band saw to cut the rear pivot bolt cutout and the front joint.

20. Insert a cross dowel to the handle, and then the joint dowel through pivot block stem. Glue the ends carefully so that there is no wet glue on the dowel while passing through the handle.

21. Place canopy frame and canopy lattice slats in hot water for fifteen minutes to soften them.

22. Attach strips to the frame with screws only; do not use any glue. Allow them to dry for twenty-four to forty-eight hours.

23. Use six-inch wide pieces and glue four of the pieces with the grains in alternating directions to form your wheels. Use a circle-cutting jig to cut wheels with diameter of 11¼". Sand wheel edges to make them smooth.

24. Drill a 3/8" diameter center hole for the axles through each wheel.

25. After cutting wheels, use a band saw tire or any old bicycle inner tube to cover wheel edges.

26. Paint all parts of the toy wagon according to your choice of color and put on a protective covering coat too. Allow all parts to dry thoroughly.

27. Use a Nylock® locking nut as the pivot bolt. Make a through-hole between the front wheel support and the front

wheel pivot to reduce friction. This also helps in easy steering of the toy wagon.

28. Use wood screws to fix all the front and back wheels in place at the bottom of the box. Mount wheels and axles to wheel assemblies with the help of Nylock® Axle nuts.

Use an old piece of canvas to make a canopy. Sew lattice slat pockets at each end and install the canopy after removing the lattice slats.

Your wooden covered wagon toy box is ready.

Tips

When cutting wood to size, first cut them lengthways, and then proceed to make them of the requisite width.

Before using a Radi-plane® on wood stock for your wooden covered wagon toy box, use it on a scrap piece of wood to test it and set cutters to the desired depth.

While plugging in your wood plugs, ensure that the face-grain of your board and those at the top of the wood plugs are the same.

The position of lamination screws should not interfere with axle locations or other screws used for mounting the rear wheel or front wheel supports.

Wheels from laminated stock will provide necessary strength and thickness.

When drilling holes through the center, do not drill in a single pass. Instead, drill from one side until the tip of your drill just penetrates

from the other side. Then, turn over the wheel and drill from the other side.

You could soak an old sheet in brewed coffee for half an hour. Dry this before giving it another wash and use it as a canopy.

Phillips head screws function better than straight slot screws. It is also easier to drive them with a power screwdriver, as they do not strip off easily.

Always dip all wood screws in soap or paste wax before assembling. This helps in easy penetration without any fear of breakage of screws.

Place dowels in a 400-degree oven for seven to ten minutes to remove all moisture. This also shrinks the dowels slightly. However, you have to glue dowels into position soon after removing them from the oven. Otherwise, they will swell back into their original shape.

Apply a thin coating of varnish and allow it to dry thoroughly before staining or painting. This helps to get a better matching of grain color and face grain colors.

Personal Message from the Author.

I hope that these ideas, plans and tips will help you to create some great toys and even better memories for your family to share in future years.

Peter Wodehouse

January 2007