Drill Techniques

Introduction

Drills are affordable, must-have tools for anyone making crafts. If you don't own a drill, get one — even the cheapest drill will more than meet your needs for making the toys in this book.

If you're building a lot of toys, consider buying a drill press, too. Although all the toys were built using a regular hand drill, many toys would benefit from the accuracy offered by even a small drill press.

The techniques here are for drilling wood; to learn additional techniques for drilling metal, see "Metalwork Techniques" on page 115.

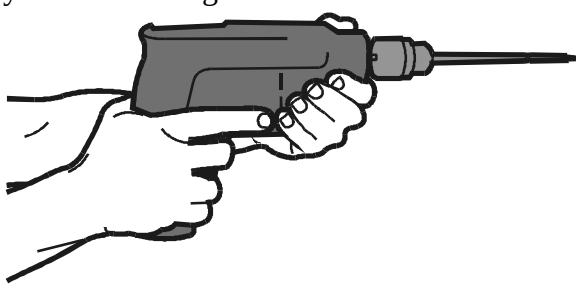
Safety

- Read the manual
- Don't change a drill bit while the drill is plugged in.
- Make sure that what's on the other side of the material to be drilled isn't your hand, your leg or something you want to keep.
- When using larger drill bits or when drilling through metal, hold the drill with both hands to prevent the drill from wrenching away should it catch.
- Don't use a drill as a router or to make egg-shaped holes.

Techniques

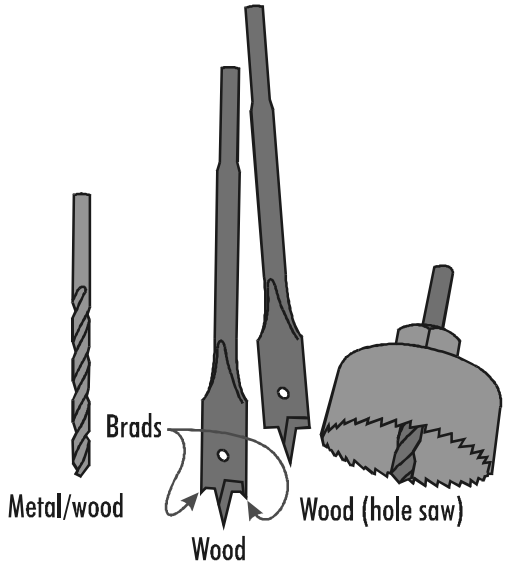
Holding the Drill

To improve your accuracy and help sense when the drill is perpendicular to the surface, extend your index and press the trigger with your second finger.



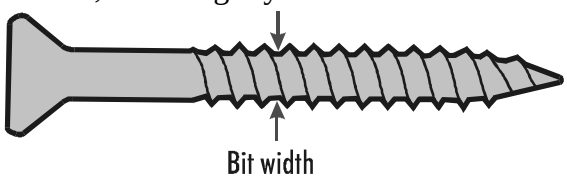
Choosing Drill Bits

Almost any bit that works on metal will work for wood, but the reverse isn't true. Some bits have pointed brads to make more accurate holes in wood. Use a hole saw to make very large-diameter holes in wood.



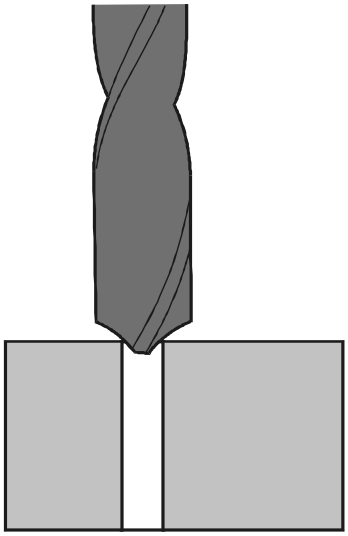
Pilot Holes I

The bit should accommodate the narrowest part of the shank, not including the threads, or be slightly smaller.



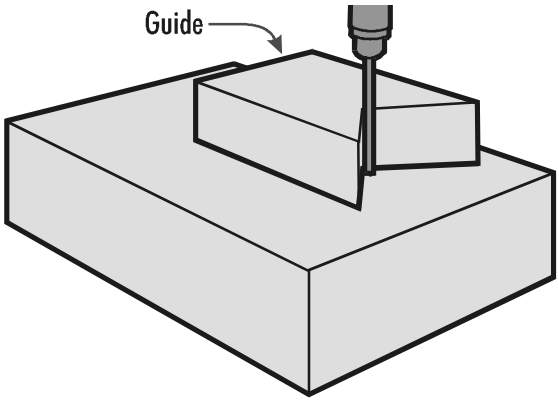
Pilot Holes II

A large bit can't be used as accurately as a small one, so always drill a pilot hole with a small bit before attempting a large diameter hole. A 1/8" [3 mm] bit is a good-sized bit for most pilot holes.



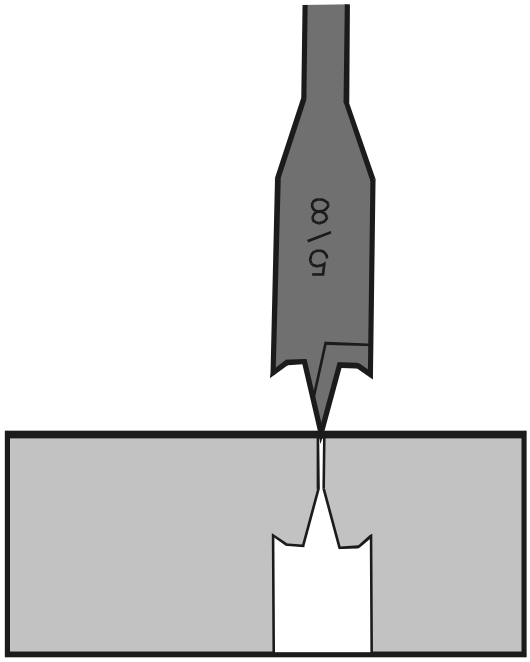
Drilling Perpendicularly

Use a board with a perpendicular notch as a guide for making perpendicular holes.



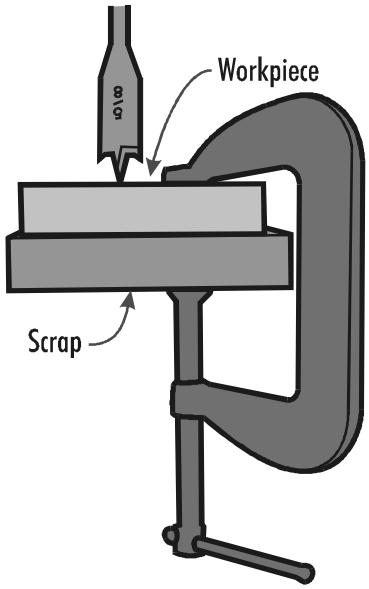
Clean Holes I

Drill part way through the workpiece until the bit pokes through the other side. Turn the workpiece over and finish drilling from the second side.



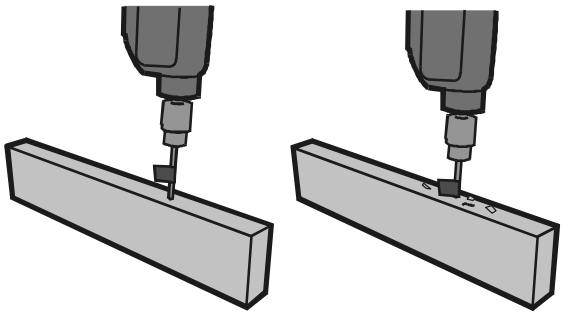
Clean Holes II

Clamp a scrap of wood to the underside of the workpiece. Drill through both. The scrap keeps the workpiece from splintering. (Covering the back of the workpiece with tape may also help but to a lesser degree.)



Drilling to a Certain Depth

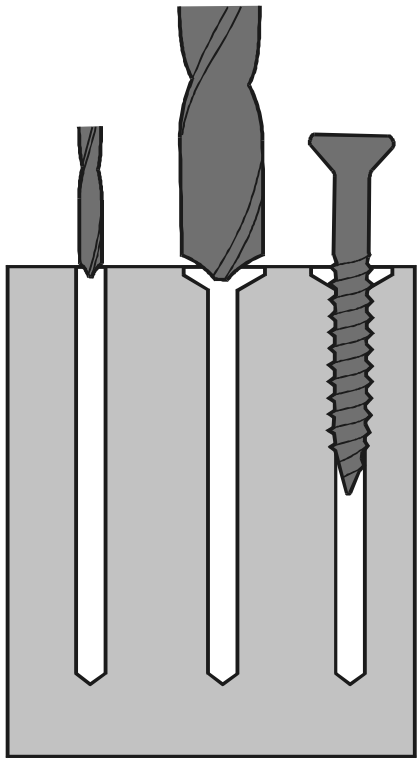
Wrap the drill bit with a length of masking tape then gently drill until the tape touches the wood. Leave the end of the tape loose to improve visibility. The end of the tape will brush away the sawdust once the correct depth is reached.



Countersinking

Countersinking allows flat head screws to sit flush with the workpiece. When countersinking, the drill bit should be slightly larger than the head of the screw. Countersink only deep enough that the screw head will be at or just slightly below the surface of the wood.

This technique is particularly important when attaching screws to hardwood.

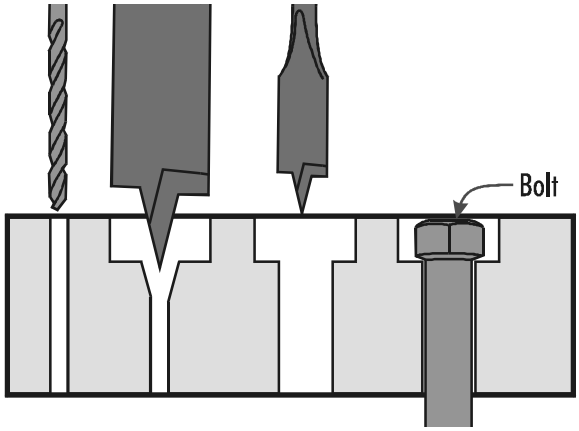


Counterboring

A counterbore is a hole with a wide, flat-bottomed mouth. Counterbored holes are usually used to let bolts sit flush with the material they're put through.

To make a counterbored hole, first drill a pilot hole. Next, drill the large diameter hole. If possible, use a bit with no brads on the edge.

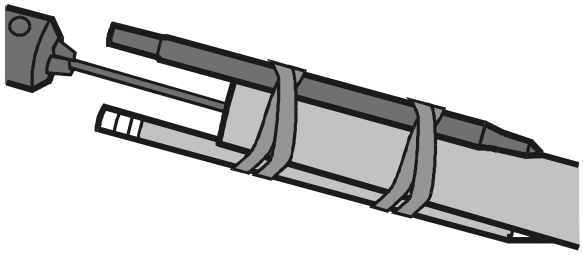
Finally, enlarge the pilot hole.



In some cases you can substitute a counterbore with a hole and a kerf.

Drilling Dowels

To help drill perpendicular holes in the ends of dowels, attach two pencils to the end of the dowel using elastics. The pencils give you a perpendicular reference. Don't hold the pencils while you're drilling — use a vise!

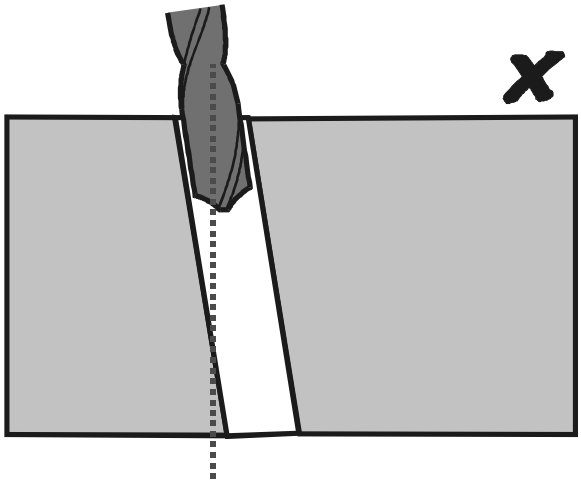


Enlarging a Large Hole

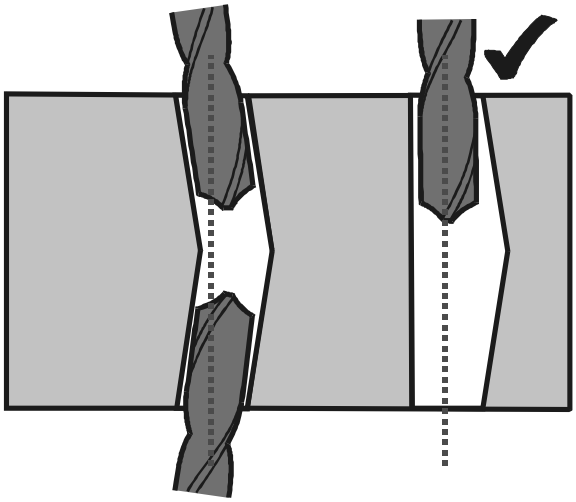
Holes drilled with a hole saw can't easily be enlarged, so try to be sure of the correct size before drilling. It may be possible to enlarge the hole by clamping a scrap of wood underneath the workpiece. It may also be necessary to clamp a scrap of wood on the top too. Attempting to drill holes that are only slightly larger than the original is more likely to make a mess than to work well.

Drilling Deep Holes

On thick material, even a slight misalignment of the drill will make the drill bit poke out far from its intended target on the opposite side.



Instead, drill partway from both sides then straighten out the hole with a third pass.



Match Drilling

In a perfect world, holes would end up exactly where you want them. In reality, hole positions are never exact (even with sophisticated machinery).

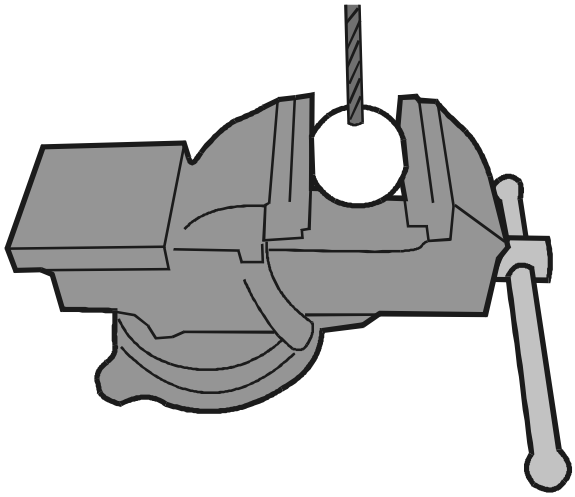
When you're drilling through two or more pieces, having the holes line up exactly is often more important than the exact location on each piece.

In these cases, line up the two workpieces as they are intended to be joined and drill both at the same time. If necessary, clamp them together.

This way, your bolt (or other hardware) passes easily through both materials no matter how inaccurately you made the hole.

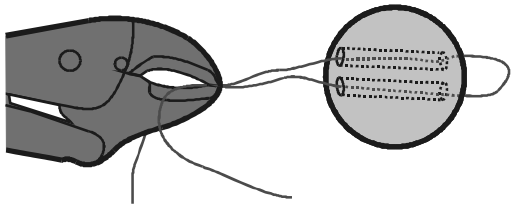
Drilling Balls

Wrap cardboard or several layers of paper (not shown) around the ball and clamp it in a vise. Don't overtighten the vise. Drill plastic and rubber balls at low speed to keep from burning or melting them. You can further reduce the risk by freezing them beforehand.



Making Slots in Plastic Balls

Drill two parallel holes in your ball and feed a fine, strong wire through both. Using a pair of vise grips, pull the wire out, slicing the material between the two holes. Repeatedly pull the wire through until you can pass a strip of leather through.



Sample from:
The Better Built Bondage Book: A complete guide to making your own sex toys, furniture and BDSM equipment

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