



creating a **Straightedge**

An accurate straightedge is invaluable when it comes to setting up a jointer (and many other shop tools). But purchasing a three or four-foot long, precision straightedge is an expensive proposition. For the average home woodworker, it's hard to justify. Fortunately with a little patience, you can make your own straightedge.

This technique for creating a straightedge has been used by machinists for years. Basically, you start with three long, narrow strips of wood (or other material) and compare the edge of each one to the other two, removing material from the high spots until the edges of all three are perfectly straight.

Why three pieces? Because if you use only two, it's possible to create a pair of edges that mirror each other, but aren't necessarily straight. In other words, the high

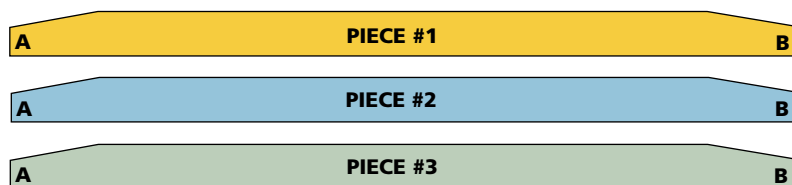
and low spots on each piece cancel each other out. With the three edges to compare, this can't happen.

GETTING STARTED. To begin, you'll need three strips of straight-grained, well-seasoned hardwood as shown below. (Walnut and mahogany are both good choices.) The pieces should be $\frac{1}{2}$ " to $\frac{3}{4}$ " in thickness, and two or three inches wide. You can cut the pieces any length you want, but if you make them much longer than four feet, they'll have more tendency to twist and warp. (Note: You can also use

metal to make your straightedges, but it will take a little more effort to remove material from the edge.)

To make things easier, all three pieces should be reasonably straight to begin with. You can rip the edges to width on your table saw to get as straight an edge as possible. This will reduce the amount of work you have to do later.

Next, you'll want to number each piece and label the ends so you can keep track of them when comparing the edges, as shown in the drawing below.



Start with three straight pieces of hardwood and label them as shown.

Now you're ready to start "straightening" the edges of the pieces. Select the first piece to use as your "reference" straightedge.

LOCATE THE HIGH SPOTS. Place the edge of this reference piece against the edge of one of the other two pieces and note where they don't match. A good way to create a visual reference is to rub colored chalk or graphite on the edge of the reference piece (See illustration).

When you place the second piece against the reference piece, the chalk will transfer to the high spots. (You can also use an automotive feeler gauge to determine if there are any gaps between the two pieces.)

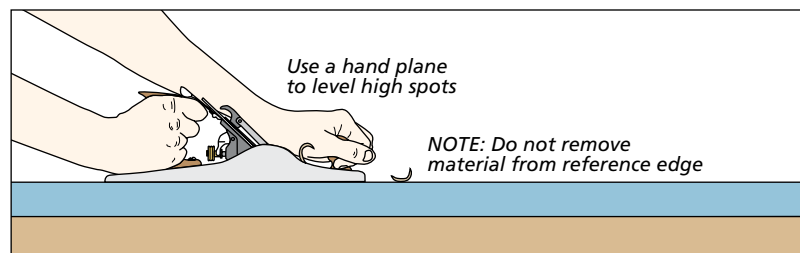
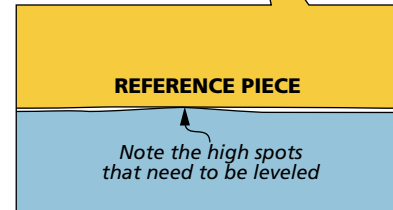
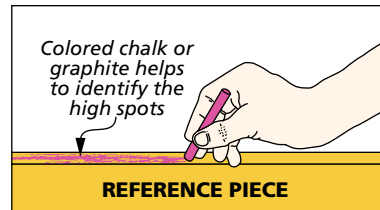
Then you can remove material from the edge of the second piece by planing or sanding. Be careful not to remove too much material at once. You just want to take a little material off at the high points. After you're done, turn one of the pieces around and repeat the process, using the same piece as the reference edge.

Now do the same thing with your third piece, checking it against the reference edge in each direction and removing material at the high points. (You should only remove material from the piece being tested, not the reference edge.)

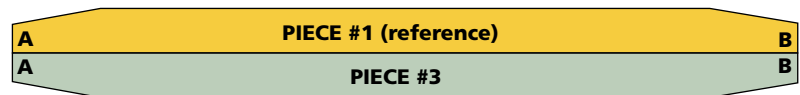
REPEAT. Once you've checked both pieces against your reference edge, you can repeat the process. Only this time, you'll use the second piece as your reference edge to compare to pieces one and three. Then do another round of comparisons, this time using the third piece as your reference edge.

Keep repeating this procedure, in the same order. With each round, you should notice the edges getting straighter and making more contact along their length. (The chalk will transfer along most of the edge, not just at the high spots.)

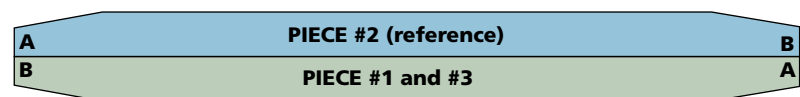
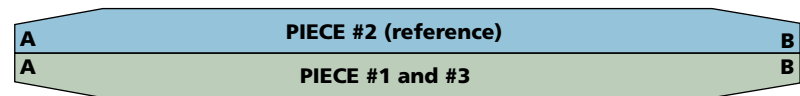
Once you're done, you should have three straightedges. Since wood can move, I like to use just one of the straightedges to set up machinery and keep the other two to check the accuracy of the primary straightedge periodically.



Step 1. After rubbing some colored chalk along the edge of the reference piece, compare it to the edge of the second piece. The chalk will rub off on the high spots, showing where to remove material.



Step 2. After checking the second piece in both directions, repeat the operation on the edge of the third piece and plane down any high spots. Don't remove any material from the reference piece.



Step 3. Now start the process all over again, but this time using the second piece as the "reference" edge. Compare this edge to the edges on the third and first pieces and plane off the high spots as before.