

Make a 'natural elbow' boomerang

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Intro: Make a 'natural elbow' boomerang

For many years I've been designing, making and throwing boomerangs. At the beginning my booms were made of plywood, a cheap and easy to handle material – all you need is some plywood, a jigsaw and some sanding paper. Boys grow up, and men always want more. So I wanted to make my projects a bit more exciting and discovered a whole new world: natural boomerangs, or better 'natural elbow' boomerangs!

Natural elbow boomerangs are made of elbows you can find on almost every tree (you can also use natural 'Y's'). Actually living in the outback of Southern France, I'm working with the local species: Holm oak (*Quercus ilex*) and Olive (*Olea europaea*). In this Instructable I'll show you how to make a boomerang made of Olive. You'll see, the making of this kind of boomerangs is really great fun and once you started with it, you'll never more touch plywood again. Making natural elbows is a drug and, besides a creative process, it's a perfect way to relieve stress of the daily life! ;-)

Materials

To make this kind of boomerang you'll need the following:

- pocket saw
- grafting wax
- polyurethane glue
- manual saw
- vice
- plane (electric is highly recommended)
- jigsaw
- sander
- sanding paper (from 80 to 600)
- safety gloves, goggles & ear plugs
- natural oil



Step 1: Find a natural elbow

First approach: 'I'll go out for a ride and I'll see what I'll find'. Not bad at all, go sniffing in the bushes and I'm sure you'll find something.

Second approach: choose your wood species, find the right trees and check them for elbows. If you're looking for Sequoia-stuff you'll need a telescope and some climbing equipment. The advantage of Olive is that it's a small species with lots of potential booms easy reachable from the ground. If you've got the chance to find a dead tree you can skip the next step. Look for branches with a diameter of 10 cm (3 inches) more or less. The more it's curved, the better. Cut the branch with your pocket saw, cut the elbow from the branch and hide the waste-wood – or take it all with you. Don't forget to put some grafting wax on the wound you've left.

I found this one a year ago in an old and forgotten orchard in Mireval, a small village near Montpellier in Southern France.



Step 2: Let it dry

Fresh wood is not suitable to handle directly. You've got to dry it, of course. To fasten this process I usually peel off the bark with a knife and seal both ends of the elbow with polyurethane-glue. You can also use candle wax. This prevents the wood from drying too fast and cracking. Give it some time – one year is perfect – and store it in a well ventilated place. Do not put it in direct sunlight or on a radiator. The slower it dries, the better.



Step 3: Preparing the elbow

Our elbow is finally dry and we're ready to go. It doesn't look very well yet, but inside this piece of wood three boomerangs are hidden. Before going to slice the elbow into pieces we have to prepare it, this means that we're going to plane it to have a flat surface on both sides with a thickness that's almost the same everywhere. Use an electric plane and don't forget safety gloves, goggles & ear-plugs.



Step 4: Slicing

The bigger the diameter of the elbow, the more slices you can make of it. I usually try to saw boards of 1 cm thick (1/3 inch). Secure the elbow in a vice and slice it with a manual saw. I don't recommend electric saws. Circular saws are too difficult to handle, too dangerous as well and I don't have great souvenirs from jigsaws. A good old well-cutting saw will do the job very fine. In this phase you'll be submerged in the wood smell. Every species has its own flavor, but I'm sure there's nothing better than the smell of fresh cut Olive-wood: a mixture of grapes and cherries!



Step 5: Designing

Now you've got at least one slice from your elbow, time for the real work. You don't have to think a lot, the tree has done this job for you. Look accurately at the wood structure and benefit from the possibilities it gives you. Let your imagination go, draw some basic lines and get back to work. Never forget: the tree shaped your boomerang, all you do is fine-tuning its job.



Step 6: Shaping

In this phase you're using sander, jigsaw and plane. To remove small sections you can use the sander (I fixed mine in a vice). For the rest you can use the jigsaw. During this step you can always adjust the shape of your boom (first I wanted to make an asymmetrical boomerang but I changed my mind and went for a pure traditional shape).

Optional: When this shaping is done you can pay attention to the thickness (I always make my boomerangs thicker in the middle). Use a plane for this.





Step 7: Profiling basic boomerang aerodynamics

Back to the table. A boomerang is a set of wings put together in a certain way. Wings are profiled, and flattened towards their ends. To understand why and how boomerangs behave, you've got to know some basic principles.

Boomerangs do not just go away and come back. The main reason they do so is that they turn very fast around their axe after being thrown. While throwing a boomerang the right way, you're giving it the necessary rotation. This movement is counterclockwise (for a right-handed boomerang), the leading edges (steep wing-sides) cutting the air, just like airplanes, birds etc. The rotation gives them uplift, and the setting of the wings causes a spin. This spin forces the missile to flow not just right away. Translated: your rocket is coming back home. Get these basics in mind while setting the profile or download the picture. This drawing-thing isn't exact science, sanding and feeling will do the rest.

Shaping the profiles is sanding, sanding and especially sanding: heavy (electric) sanding with coarse grain at the beginning and manual sanding with finer grains to finish. This phase is pure instinctive, so try to make the best wing-profiles you can get. And take your time.

Note: I never throw away the sawdust and woodchips because it's perfect stuff to smoke fish. Maybe I'll explain this in a following Instructable ;-)



Step 8: Oiling

Your boomerang is almost finished now. All you have to do yet is giving it some protection. Some prefer varnish, others epoxy... I prefer natural oil. Nothing is more exciting than putting the oil on your hands, warming it up and giving the fresh made boomerang its first massage. Rub away the oil excess with a piece of cloth and give it a second treatment the day after.







Step 9: Throwing!

Your boomerang is finished, ready to give it its first flight? Wait for the following Instructable and thanks for watching!

