

Turning YoYos

There are three basic ways what I know to turn a yoyo.

1. Solid piece. This is the most economical. The entire yoyo, including the axle is made from a single piece of wood. It also presents challenges for holding the yoyo while turning the second half.
 - Turn to round between centers
 - Make a tenon on one side
 - Mount in scroll chuck
 - Part end at 1.5
 - face end
 - true up the blank
 - 3/8-1/2" for each side
 - Cut groove in center 1/8"x 1/2" deep
 - Measure right side. transfer mark to the left
 - Use parting tool to cut to the left of the mark - 1/6" deep The two sides must match
 - Cut V-grooves on each side for holding/O-rings 1/6" from inside edge
 - Shape to suit your chosen profile
 - Use calipers to make sure both sides are still equal
 - Widen center a but - V/butterfly shape
 - Sand to 400
 - Decorate/chatter/embed cabochon
 - Seal/finish right hand side
 - Part
 - Tape finished side
 - Mount in chuck, using groove - be sure it runs true
 - face outside to reference cut
 - Sand to 400
 - Complete axle cut - down to about 3/8"
2. Pen mandrel turning. The technique uses a kit that contains a metal axle. The work pieces (2) are skilled through the center, then mounted on a pen mandrel and turned together.
 - Cut two blanks 2.5"x2.5"x5/8"
 - Drill holes in center of each to match kit (10mm)
 - Mount both pieces, along with bushings onto pen mandrel
 - Sand and finish
 - Glue in axle inserts
 - Assemble
3. Using inserts, turning the two pieces separately. The insert gets screwed onto a screw chuck.
 - Cut to blanks 2.5"x2.5"x3/4"
 - Drill 5/8"x1/4" deep into each side
 - Mount non threaded side of hub into the blank
 - Using Jacob's chuck and mandrel, mount piece
 - Turn/shape/sand/finish
 - Repeat



4. Cheating. Penn State Industries sells drill bits - rosette cutters that can drill and shape the two yoyo halves. All that's left is to find sand and finish them. You will still need an axle. Either a metal axle as in technique 2, or a wooden dowel.



Key points for a successful yoyo:

- The two halves MUST be identical in size, shape, and weight.
- The inside faces of the yoyo halves should not be sanded or finished. This allows the string to grip.
- Stick to heavier woods, tight grain. 45-75g is a good weight range.
- The grain orientation for a one piece you should be in spindle orientation - axle should be parallel to the grain direction.

Solid piece:

Tools:

- Roughing gouge
- Spindle gouge
- Scraper or skew
- Narrow parting tool
- Caliper

There are three basic yoyo profiles:

