













SPHERE TURNING Handout
By Courtney Gale
(505) 410-1678





	<p>Need:</p> <ul style="list-style-type: none">- Roughing spindle gouge- Bowl gouge (if end grain is present)	<p>Step 1:</p> <ul style="list-style-type: none">- Take a spindle-oriented blank from rectangle to cylinder
	<p>Need:</p> <ul style="list-style-type: none">- Calipers/any way to measure diameter	<p>Step 2:</p> <ul style="list-style-type: none">- Take the diameter of the middle most part of the blank
	<p>Need:</p> <ul style="list-style-type: none">- Pencil/pen	<p>Step 3:</p> <ul style="list-style-type: none">- Mark the center of your blank- Take the measurement taken with calipers, divide that measurement by two, mark that distance on either side of the center line

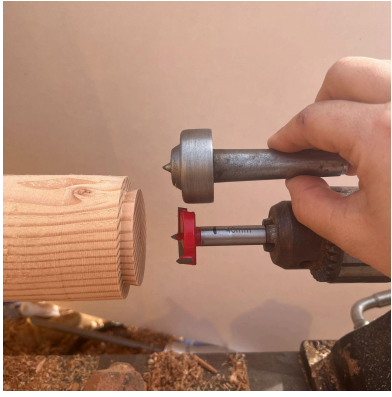

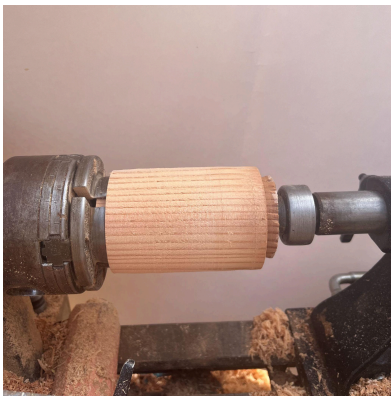
	<p>Need:</p> <ul style="list-style-type: none"> - Parting tool 	<p>Step 4:</p> <ul style="list-style-type: none"> - Using a parting tool, take down the wood on the outside of your marks - *take less waste on the ends if needed
	<p>Need:</p> <ul style="list-style-type: none"> - Spindle gouge 	<p>Step 4:</p> <ul style="list-style-type: none"> - Using a spindle gouge, shape the cylinder into as close to a sphere as you are able to get. - Be sure it is not too flat in the center near the center line - Separate the waste ends off with a saw or snap them off if able
	<p>Need:</p> <ul style="list-style-type: none"> - Cup centers - Spindle gouge 	<p>Step 5:</p> <ul style="list-style-type: none"> - Tighten rough sphere between cup centers at the center line - Use a spindle gouge to shape the rough sphere into as close to a true sphere as you can get. - Rotate between this axis, and original axis for best results

TURNING CUP CENTERS

Center #1 - Headstock/Chuck		
	<p>Need:</p> <ul style="list-style-type: none"> - Roughing spindle gouge 	<p>Step 1:</p> <ul style="list-style-type: none"> - Rough out a block of wood from a rectangle to a cylinder - Choose a wood that is relatively softer than the wood you will choose for a sphere so you do not indent the sphere easily
	<p>Need:</p> <ul style="list-style-type: none"> - Parting tool 	<p>Step 2:</p> <ul style="list-style-type: none"> - Make a tenon on one side of the blank
	<p>Need:</p> <ul style="list-style-type: none"> - Chuck 	<p>Step 3:</p> <ul style="list-style-type: none"> - Turn blank around and chuck up your blank - Support the left side with the tailstock

	<p>Need:</p> <ul style="list-style-type: none"> - Spindle gouge 	<p>Step 4:</p> <ul style="list-style-type: none"> - Shape your blank into a tapered end - Don't create an end that is smaller than 1 inch in diameter
	<p>Need:</p> <ul style="list-style-type: none"> - Spindle gouge 	<p>Step 5:</p> <ul style="list-style-type: none"> - Remove the live center and carefully shape the end grain into a cupped shape - If you have a sphere to test if the cup will hold the sphere properly - A sphere should fit snugly in the cup without rocking
<p>CENTER #2 - Tailstock/Live center</p>		
	<p>Need:</p> <ul style="list-style-type: none"> - Roughing spindle gouge 	<p>Step 1:</p> <ul style="list-style-type: none"> - Rough out a block of wood from a rectangle to a cylinder - Choose a wood that is relatively softer than the wood you will choose for a sphere so you do not indent the sphere easily

	<p>Need:</p> <ul style="list-style-type: none"> - Calipers 	<p>Step 2:</p> <ul style="list-style-type: none"> - Be sure to not use/shape your blank to smaller than one inch bigger than the diameter of your live center
	<p>Need:</p> <ul style="list-style-type: none"> - Parting tool 	<p>Step 3:</p> <ul style="list-style-type: none"> - Make a tenon on each side of the blank - Keep your tenons as large as you are able
	<p>Need:</p> <ul style="list-style-type: none"> - Chuck 	<p>Step 4:</p> <ul style="list-style-type: none"> - Chuck your blank up in your chuck
	<p>Need:</p> <ul style="list-style-type: none"> - Jacob's chuck - Forstner bit 	<p>Step 5</p> <ul style="list-style-type: none"> - Choose a forstner bit slightly smaller than the diameter of your live center

	<p>Need:</p> <ul style="list-style-type: none"> - Jacob's chuck - Forstner bit 	<p>Step 6</p> <ul style="list-style-type: none"> - Drill to a depth where the inside of your hole will create a shoulder for your live center to sit on - Be sure you are not drilling a hole that will make your tenon too thin to use in the chuck
	<p>Need:</p> <ul style="list-style-type: none"> - Spindle gouge/skew/scrapper 	<p>Step 7:</p> <ul style="list-style-type: none"> - Use one of these tools to shape the hole to fit the profile of your live center as tightly as possible. If there is too much wiggle room, you may need to start again - Be sure to leave enough thickness so you can still use the tenon
	<p>Need:</p> <ul style="list-style-type: none"> - Chuck - Spindle gouge 	<p>Step 8:</p> <ul style="list-style-type: none"> - Turn your blank around and carefully grip the drilled out end of your blank in the jaws of the chuck - Do not over tighten and crush drilled out end - Go to Step 3 of Center #1 for the rest