

# The Starter Turner's Basic Kit

## A Santa Cruz Woodturners' Opinion Survey

January, 2021

*Short version: This is what you need to get started turning.*

We all started somewhere and some time. For some of our members, that happened around the time British rock and roll crested across the Atlantic, bell bottom pants became “normal,” and macho gentlemen wore hair over their collars. At that time, most lathes were primitive by modern standards, tools lacked the alloys and fancy grinds we use now, and woodchucks were considered “varmints” by outdoor magazines. One of our members served on the design and control team for the 1969 moon landing...so let's not reflexively disregard the old technology, eh!

Those guys and gals may be older now, but rarely has any group of “elders” offered such a sincere welcome to newer turners who have joined our club.

Our new members face tough decisions with gaudy promotions and price tags for entry level turning equipment. We surveyed our club for opinions. Eight members, including our pros, some seasoned amateurs, and some notably enthusiastic newcomers responded regarding “What you need” to start...added to lots of earlier input.

Here are the consensus recommendations, some unanimous, some qualified and original as you would expect from Santa Cruz:

**The Lathe:** *Hint: This is the anchor for the whole enterprise...but responsible for less than a majority of your total cash outlay. Don't skimp on an inadequate first tool.*

Unanimous recommendation: start with a 12” lathe with variable speed control and a live tailstock center. These generally use a #2 Morse taper with a 1” x 8 TPI headstock thread. Prices range in the \$600-800 range, and most of the mainstream manufacturers have responded to competition with excellent bearings, strong-enough motors, stable platforms, and good customer support. Jet, Nova, and Rikon all have good products, and our club bought one for our demos. “Big Machine” makers like Powermatic, Oneway, Robust, and Laguna have developed competitive tools in this smaller range, although those tools run a bit more expensive.

A glum note: **Buying a used lathe** is not that different from buying a used car. You're at the mercy of the behavior of the previous owner. If you choose poorly and if luck is not favoring you, you'll quickly spend more on bearing replacement, electrical anomalies, and bent critical structures than the cost of a brand new tool with a manufacturer's warranty. You need to know the previous owner. Craig's List, E-bay—some opportunities do crop up...along with some dreary sadness. Be wary. Start out with a good tool and spend your time and money learning optimum techniques, not ordering replacement parts for an outdated tool!

## The Turning Tools

Your respondents were generally happy with 5 basic tools, maybe 6, although virtually all turners will want more within a year of starting. Add tools only when you need to.

	Tool	Size	Comment
1	Bowl gouge	1/2"	<p>Most important tool in the rack and by far the most used. Buy a good one to start!</p> <p>Learn to sharpen it with precision, and it will last a decade.</p> <p>Price (blue font gives new price range) \$70-110</p>
2	Spindle gouge	3/8"	<p>Essential for spindle work, avoiding lots of frustrations, but also versatile with many bowl functions, including boxes, beads, coves. JW recommends 1/2" for sturdiness</p> <p>Get a good one and it will last for decades</p> <p>Price \$40-65</p>
3	Spindle roughing gouge	3/4 - 1"	<p>Essential for spindle work—take square and irregular blanks down to round—fast and smooth</p> <p><b>NOT for bowls! Catch City!</b></p> <p>Price \$60-90</p>
4	Skew Chisel	3/4-1"	<p>Essential spindle tool...take lessons or watch videos, because learning by trial and error yields lots of the latter and some scary catches. Used properly, it's an essential, comforting friend.</p> <p>Price \$50-80</p>
5	Diamond Parting Tool	NA	<p>You need one of these for virtually every spindle project, but they're "quickie" tools. This is one area where a used tool will serve you adequately</p> <p>Price \$40-80</p>
6	A curved nose scraper	1"	<p>Not all respondents considered this an essential starter, but all turners are going to want one within a year. Used scrapers can be a bad investment. Modern negative rake scrapers, treated well, will last the rest of your career...so get a good one and learn how to sharpen it.</p> <p>Price \$60-120</p>

**Steels:** All tools should be HSS—High Speed Steel. The era of carbon steel is pretty much over. HSS will hold edges a long time and support you for many years of growth. Fancier new alloys have advantages more meaningful for experienced, high volume turners. You can wait.

**Carbide:** Carbide tipped tools now come in lots of clever designs and definitely have a place. Move into that arena when you have mastered standard basic tools. They're pricey, and the ads are alluring. Get some advice.



From top right clockwise:

1. Negative rake curved scraper
2. Diamond parting tool
3. Skew chisel
4. Spindle roughing gouge
5. 3/8" spindle gouge
6. 1/2" bowl gouge



Live center in tailstock. There are lots of choices, and most lathes come equipped with one. Any one will get you started.

There's another decision: ***Purchase tools new or used?***

It's the same deal as mentioned for the lathe. Used tools, especially older (last century) items made of inferior steel and often with inferior handles, may have been abused by the earlier owner, lost their temper with bad grinding technique, or ground down until there is little useful future life. Seriously, for your starter tools, get new ones from a reliable vendor *unless you have a trusted, solid fix on the history of used ones.*

Older tools of lower caliber steel have a definite place for specific chores that come up infrequently, and you can custom grind these without remorse. But those are not the ones that will "teach you" how to turn effectively.

And yet another decision: ***Who is selling your tools?***

- There are several reliable online vendors with personnel with deep expertise in turning. Knowing (a) what *not* to buy and (b) when added cost makes sense for a beginner and when it doesn't isn't always easy. You can squander a lot of money. They'll tell you straight, because they want you to be a customer for life. <sup>1</sup>
- There are general hardware vendors with turning tools but rarely with the in-house expertise specific to turning. Prices are competitive, and sales do come around.
- There are specialty tool vendors (e.g. Carter Toolworks, Easy Wood Tools) who sell elite tools to experienced turners...and eventually you will get to know them.
- Local hardware stores and lumber yards cannot afford to stock the turning tools we generally want. There's just not enough demand for a community store. They might be able to special order them, but rarely will you find discriminating expertise if you don't know *exactly* what you want. Finishes, abrasives, glues, and other expendables are different, so *make friends with your local stores.*

## **Chuck**

Modern 4-jaw chucks have become an essential for turning—combining reliability, versatility, and efficiency. Get a good one, for which additional jaws of varying sizes can be purchased in the future, strong enough to accompany you into more ambitious dimensions, and built like a battleship. Oneway, Vicmarc, Record, and Nova all make good ones. The extra money spent on a more substantial one will be returned when your upgrade costs will only be some bigger jaws, as opposed to a whole new chuck.

You won't find many used chucks for sale, because they last forever and can do so many things. It's hard to break one. If you find a used one, and it's not covered with rust...buy it. However, stick with one manufacturer so the jaws will be interchangeable.

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<sup>1</sup> Craft Supply, Provo, Utah, has compendious turning tools, experience, a formal product evaluation team, an active teaching program, and many instructional videos free to "browsers."

--Woodworking Wonders, Woodworkers Emporium excellent sources with deep turning knowledge.

--AAW's magazine and website have ads with excellent sources for tools, wood, and ancillaries.

--Woodcraft, Rockler, and Woodworker Supply offer extensive, general hardware, excellent online shopping service, & reliable quality. They have a predominant casework focus, more limited turning.

Wise purchasers would get some local advice first.

Starter jaws—closed 2" diameter, fully open 3 ½", give or take (e.g. Oneway #2). Purchase "dovetail" grip, sometimes labeled "smooth" jaws, as opposed to serrated cylindrical grip—much more security. This will serve all of your needs with a 12" lathe. Later you can move incrementally to larger jaws which can be changed out in a matter of 2 minutes. [Cost for a heavy duty chuck with 2" jaws will run in the range of \\$250-290.](#) [Less expensive, less durable, less versatile chucks can be found for 50-60% of that.](#)



*Side and frontal view 2" chuck (Oneway Stronghold in this case).*

## **Grinder**

This is really important. You categorically cannot turn anything well with dull tools, and dull tools additionally add substantial safety hazards. You *must* stay sharp!

Three essential criteria:

1. Slow speed—1700 RPM. Most shop grinders run at 3200-3500 RPM, which simply are uncontrollable for turning tools...burn them up, eat them up, destroy contours, and rattle your nerves. DO NOT EVEN TRY to use a 3000+ RPM grinder for your lathe tools. Might as well scrape them on the sidewalk.
2. 8" diameter wheels. You can get by with 6 or 7" wheels, but you won't be happy with the results. A grinder has stones on both sides of the shaft, so an 80 grit and 180 grit stone wheel will get you started admirably. Eventually you'll want a CBN (cubic boron nitride) wheel, but you don't need that to start. Grow into it. [\(\\$120\)](#)
3. 1" wide stones. Narrow stones simply don't work with turning tools other than very small cutters, such as pen making tools.

Rikon seems to have the corner on the market with its ½ hp, slow 1700 RPM, 1" wheels grinder at [\\$120, sometimes less on sale.](#) [Other manufacturers come in around \\$150.](#) A more powerful grinder (1 hp) really isn't necessary unless you're running a pro shop. As usual, don't buy used power tools unless you know the user history.

## Sharpening Jig

I was skeptical until I saw one in action. Without a jig...or without thousands of hours of practice...doing lathe tools freehand mostly makes expensive dust. Using an improperly ground tool is like driving into the setting sun with peanut butter on your glasses.

Wolverine (pictured right) is the market dominant jig, although Sorby and Tormek have persuasive advocates among advanced turners. The Wolverine jig costs around \$180 with all the gadgets, and they all last forever. Before you buy one blind, go to a shop of a fellow member and watch one in action and get a lesson. It's not intuitive to most learners.



## Lighting

According to a popular book, *in the Beginning, there was only Darkness ...and then there was Light*. You need good light for safety, quality, and tranquility. Overhead lighting with good LED's is easy and important, but those don't get into the inside of your bowls.

You need at least one spotlight, the brighter and more focused the better. Ten years ago those were incandescent bulbs getting hot, baking sawdust, and inflating your electric bill. Now powerful LED spots (250-750 lumens) with magnetic bases to grip the lathe are the standard. My hint—the less expensive ones often have flimsy wiring (irritating skimp!) as well as weaker magnets which dislodge too easily. You're going to spend north of \$100 for a good one, but money for a wonky one is money wasted.

If you can find a used one from somebody who is upgrading, good! The LED bulbs are rated for 30,000 hours new, and chances are you have plenty of life left in the bulbs...it's just the wires and magnets that are likely to frustrate you. Make sure it works before leaving fresh bills on the bench.



## Dust Mitigation

Dust is an aesthetic nuisance, but worse, it can cause cumulative lung damage with prolonged exposure. The most dust-prone practice in turning is sanding, of course, and sanding for 15-60 minutes (not unusual) can really get to you. Sneezing, coughing, and technicolor boogers are indicators. Turning dry wood is another dust generator, not as bad, but with certain woods (cedar, cypress, yew, redwood, bay laurel, and exotic hardwoods) enough dust gets liberated to mess with your lungs. Whether that's a *bona fide* allergy, a toxic reaction, or a just an irritant is an interesting question, but the solution is the same for all of them: **Delete the dust before you inhale it.**

Turning wet wood, something you'll definitely be doing with lots of pleasure, even giddiness, is the lowest risk with essentially no dust. Some turners may skip the mask with palpably wet wood if it's one with a peaceful reputation (among our local woods, that list probably includes maple, oak, cherry, sycamore, madrone, locust).

You need 2 things to mitigate dust, with a third "maybe":

1. **Wear a really good mask.** It needs to be a good mask that filters out very fine particles—the little hazy floaters—because those are the ones that go deep into your lungs. After COVID, everybody knows N95! Invest in a box of good masks...and you can wear them to the store, too. More advanced personal filtration systems may come later for you.
2. **A vacuum tool.** A shop vacuum with a home-crafted funnel works reasonably at the volume most turners start. Figure you'll need to clean out that pleated filter every couple of days. You'll eventually upgrade to more powerful device, which means looking at 220V service, a lot of noise unless you can rig it up outside, and [\\$1000 investment](#) if you buy new. Shop-built systems can work if you're handy with that! The Black Hole scoop ([\\$150](#)) mounted on the lathe owns the market, but that's also something you might jury rig. How soon you go "big" depends on how much you do, but it's inevitable. Since busy turners are frequently upgrading, you can sometimes stumble into a sweet deal on a used system which represents a big improvement over the simple beginnings. Get some advice before doing that.
3. **Fans.** Quite a few turners started with fans to blow dust away from the turner. That can work fairly well if you have a powerful enough fan, through-and-through ventilation, and a large opening (window or larger) to evacuate the dust to the great outdoors. Some of our members use multiple fans. Most of us, however, have upgraded to modern vacuum and filtration systems.
  - Reality check—lots of turners have reached retirement age, and they don't want to have to drag an oxygen bottle around in the Golden Years. Better not to cut corners on safety when you're young, because you won't stay forever young. You wouldn't drive a car to San Jose with sketchy brakes or bald tires, and it's not smart to rely exclusively on a garage sale fan to protect your lungs.

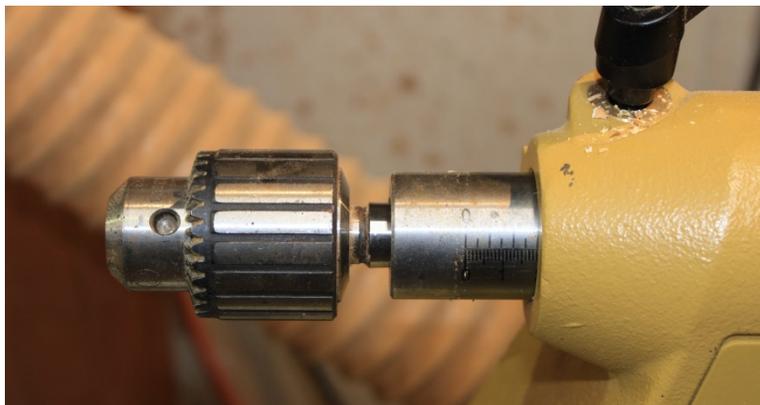
## Other Accessories, Tools, and Gizmos

Turners accumulate lots of stuff over the years, but you don't need all of it to start, and it becomes a tense spousal negotiation if you buy too many trinkets on whim at first. Here are some of the things our members thought would be useful and affordable early in your experience, if not necessarily right at the beginning:

1. **Drill motor and hook-and-loop sanding disc arbor and sanding discs** of graduated grit (80, 120, 180, 240, 320). Do not use an ancient cast-off drill...often too high RPM (2400 RPM), way too heavy, with non-ergo features. A relatively lightweight, corded (not battery—heavy/clumsy) drill with a hand twist, plastic coated chuck is what you want. Key chucks—ugh. Metal chucks—wear holes in your palm or your gloves. Bad ergo—maybe OK for quick drilling, but insufferable for hours of sanding. My hands-down favorite after testing seven is the Ryobi D43 3/8" corded drill, max RPM 1600 (not screaming), 5 amp, balanced ergonomics, costs [about \\$40](#) at big box stores, less on sale.



2. **Drill chuck** you can mount in the #2 Morse taper of your tailstock to drill accurate, centered holes with regular bits or Forstner bits. These are surprisingly affordable...under \$50...and will last 100 years if lubed. Buy one new when you finally need one, unless a well-tended used one appears at an estate sale.



3. **Chain saw.** Turners either are...or will become...chain sawyers. It's essential to be able to process downed wood for your turning blanks as opposed to buying and shipping them from a vendor. For the starter 12" lathe we recommend, you can get by with a 16" bar, but you'll eventually want 20"...or a friendly connection with one.
  - a. Traditional gas-oil saws take some experience for safety and skill, but golly, they are powerful. Get a lesson...no shame in that...if you're not really confident, because these things can hurt you in ugly ways.
  - b. Corded electric saws are plenty powerful to trim rough blanks into polygons you can mount on the lathe...and they're blissfully fume-free to use inside.
  - c. Battery powered saws have become quite powerful, and a charge can get you 30-50 minutes real work. The bars tend to be short (14"), but they're ultimately portable, quiet, and pretty darn fast if you keep the chain sharp!
  - d. Most crucial matter with the chain saw of any power source is sharp chains...*familiar theme, eh!* Dull ones cut inefficiently, but also require the operator to push too hard, which is where the gruesome accidents often start. Get a quick sharpening lesson if this is not second nature to you.
  
4. **Band saw.** I think the band saw is the most dangerous tool in the shop, especially if it's new to you. You do not have to cut perfect circular blanks to turn bowls, but if you have a band saw and know how to use it, it's handy at times. Be afraid, be very afraid...of large, unbalanced blanks with your fingers within inches of that blade. I would not advise buying one as an adjunct to your turning if that were the only reason. Band saws do turn up in garage sales fairly often, and other than the *caveat emptor* admonition that some owners abuse and neglect their tools and that some tools no longer have parts available, if you know what you're looking for, have at it.
  
5. **Circle Makers.** Turning is all about circles.

- a. Vendors sell clear plastic templates with concentric circles you can use to find centers and scribe a circle up to 15" diameter ...pretty cheap and durable
- b. A grade school compass can make fine circles up to 5-7" diameter
- c. More "serious" metal compasses can make circles up to 12-14" diameter (right)
- d. You'll find lots of methods, including making cardboard circles or scrap plywood circles of

graduated diameters, empty tin cans of graduated diameters.



*Gotta love Sharpies*

6. **Calipers.** Uniform wall thickness is a fundamental quality standard which takes a while to master. While some turners are remarkably good with their fingers (a neurological gift), most use calipers when the stakes are high. No need to go top of the line...[inexpensive ones run around \\$20](#) and will serve you well for decades. Used ones turn up fairly regularly. Special case involves bottom thickness, for which zero-cost shop made devices work fine. (photos below)



7. **Magnets.** Lathe accessories have lots of little screws, wee Allen wrenches, and other fidgety things which disappear forever into a pile of shavings. Magnets can keep track of those while you're making adjustments, keep your sandpaper from flying away, and keep your small tools from wandering. They can easily be epoxied in place if you want one in a permanent position.



## Parting Comments: Safety Equipment

We didn't list basic protective equipment in our written survey because it seemed so obvious, and we've been over that before, but let's list them anyway.



**Good face shield** is essential.

Polycarbonate glasses with side shields have advocates as sole protection, but as soon as you rough out a big blank and hear the hail of shavings rattling off your shield like gravel on your windshield behind an uncovered truck on Hwy 17, you'll want full face protection.

**Mask.** See comments under "Dust."

**Ear protection.** The lathe isn't loud...in fact it hums. However, vacuums and compressors will damage your ears. Believe that. Some of them hit 80+ db every cycle. Wear good quality sound suppressors, not the funky little foam plugs which may knock down only 10-20 decibels. Eventually, you'll need to deal with obnoxiously loud compressors.

**Gloves.** High dexterity, grippy, rubber gloves or flexible leather can be a big help, as tools can get hot and blanks can shed splinters. In addition, a bare hand on a vibrating tool rest can make your finger(s) go numb. Don't let that happen. Padding is not wussy.

**Armor.** A heavy shirt, sweatshirt, or smock can keep you clean as well as protect you from stings from splinters and chips and flying bits of bark and grit. Take off that garment before you go inside if you prize harmony in the home.

**Wandering tools.** Most lathe tools have handles which are ever so happy to roll on horizontal surfaces. There are lots of ways to put a tool down so it won't go walkabout, but choose one of them. Most you will make yourself.

Never turn in sandals or flimsy footwear for obvious reasons. There's a really important artery running down the top of your foot...



**Chain saw special safety.** If you are using a chain saw, an integrated hard hat/ear muffs/ face screen is possibly the best \$70 investment you will ever make.

If you are cutting blanks out in the field, especially with sketchy footing, Kevlar chaps are smart. The chain saw vendors always chuckle when somebody buys a set, saying something like: *So, um, how long ago did you cut yourself and how much did it cost you?* (I've done it.) Chaps cost around \$70, which won't even get you past the first sheet of paperwork in the emergency room.

Get some steel toe boots, too, and never cut in sandals or cloth shoes.



**Common Sense.** Loose garments, long hair, neckties, necklaces, and dangly jewelry have their place, but not in front of a lathe.

### **And last:**

Get some lessons. Not only for safety, but for fun and satisfaction. Trial and error is overrated and terribly wasteful of scarce time. Ask for advice...some say we're full of it! All turners have made some purchases they regret...and probably declined opportunities they would like to have back. Our club has some really seasoned turners. We love to share, love to learn, and love to teach...so tap that resource.

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**Appendices next page**

Appendix 1: Thanks to SCW Members who contributed to this survey and prior narratives on this subject:

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And special thanks to Kirk deHeer and Craft Supply for including this material in formal course work and personal correspondence.

Appendix 2: References to SCW documents and surveys for safety and technique discussions expanding on thoughts for this paper.

[www.scwoodturners.org](http://www.scwoodturners.org) Open “Communications” for Educational Materials and Surveys regarding safety, sanding and dust, compressors and ear protection, chain saws, shop made “hacks,” steels and wheels, interviews, and more.



Make shavings, share light