input-opinions-tips-new-cabbing

DIGEST was Last Update 03/17/2021 thru page 12

NOTES: To the left in the PDF reader you can open the bookmarks pane and use it to navigate to any location in the table of contents. This is my take as a newbie on what was useful to pull out and make into a separate file. Not all made it and I am sure there is some I missed but it is what it is. I hope this is a useful digest for others. I would suggest reading the entire post as there was a lot of info I was not able to put here.

Standles

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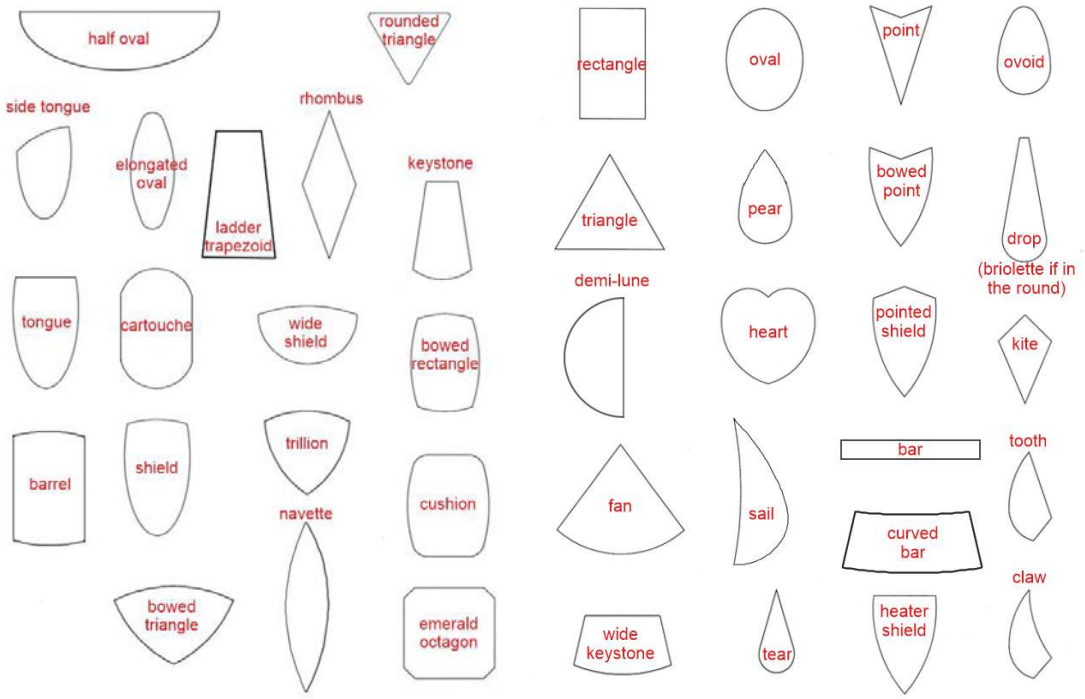
Cabochon Making

Cabochon Names



Tutorials

www.edmontonlapidary.ca/making-a-cabochon.html (Rockjunquie)
https://www.gemsociety.org/article/lapidary-fundamentals-cabochon-cutting/

My Process is …

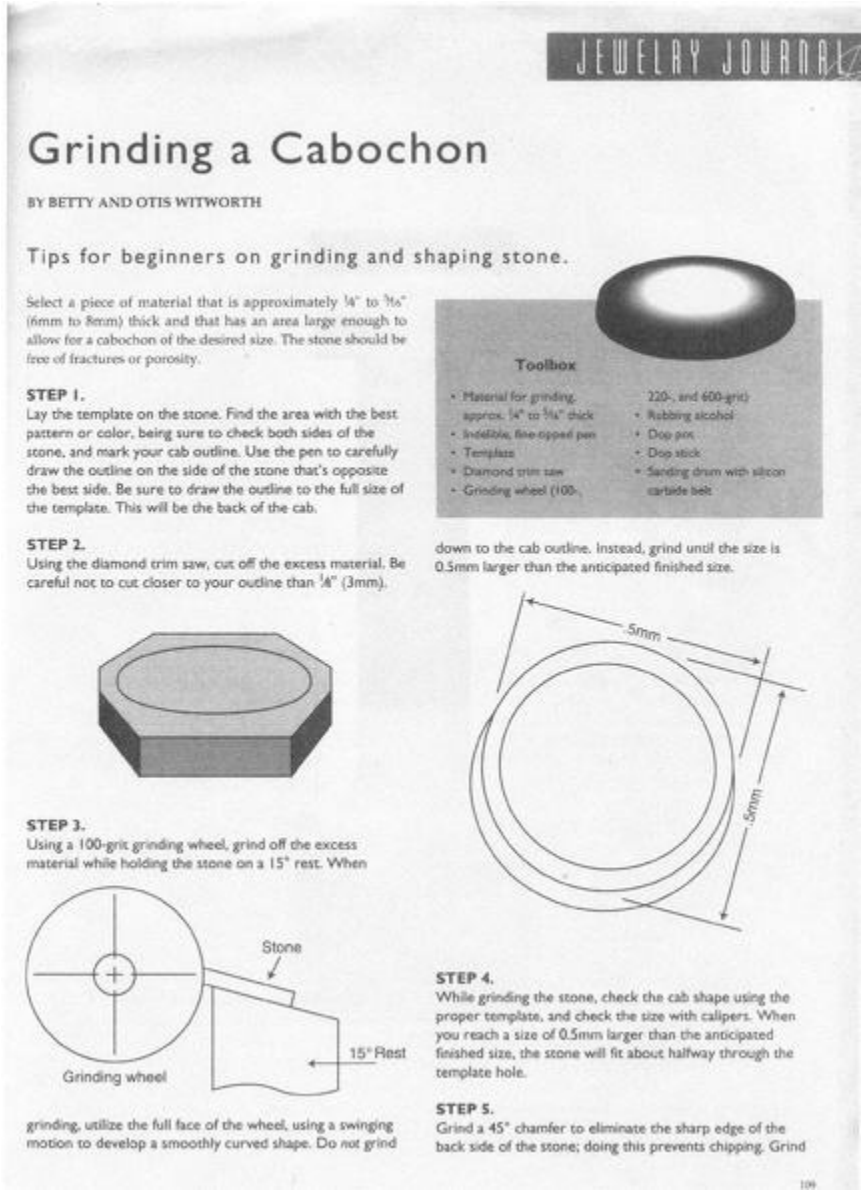
(stardiamond)
1. Rough shape with trim saw.
2. Follow the shape on the bottom leaving a little extra outside the lines 80 hard through 220 soft.
3. Mark the girdle and center lines.
4. Grind from above the girdle line toward the center line with 80 grit repeating the process moving toward the girdle line and up to the center line.
5. Grind down from the center line toward the girdle line getting the dome even.
6. Refine the dome and work toward the girdle line with the 220 hard.
7. Grind from the girdle line toward the center line with the 220 soft.
8. When I am satisfied with the dome and the girdle line is reached, I rotate the cab and remove the excess material outside the line on the bottom.
9. I sand from the girdle line to the center line with the 600 and 1200 grit. I make sure the dome is completely sanded and then rotate and sand the girdle line.

This approach worked reasonably well on the girdles with and without a dop. A couple of problems with the girdle may be attributable to having dop sticks that are too long so they get too close to the adjacent wheel. I made the dop sticks and the dops are not 90 degrees to the face of the cab.I 'm going to cut and try to square the dops. I have bad feet and when my feet aren't steady it impacts my hands. I have trouble keeping the dop aligned and even pressure as I rotate the cab with the dop.

I try to stay away from touching the girdle line until the 220 soft because material can be subtracted but not added without lowering the gridle line. I went past the girdle line with the 80 grit when I started cabbing.

Grinding a Cabochon

(nevadabill)



JEWELRY JOURNAL

Grinding a Cabochon

BY BETTY AND OTIS WITWORTH

Tips for beginners on grinding and shaping stone.

Select a piece of material that is approximately ¼" to 5/16" (6mm to 8mm) thick and that has an area large enough to allow for a cabochon of the desired size. The stone should be free of fractures or porosity.

STEP 1.
Lay the template on the stone. Find the area with the best pattern or color, being sure to check both sides of the stone, and mark your cab outline. Use the pen to carefully draw the outline on the side of the stone that's opposite the best side. Be sure to draw the outline to the full size of the template. This will be the back of the cab.

STEP 2.
Using the diamond trim saw, cut off the excess material. Be careful not to cut closer to your outline than ⅛" (3mm).

STEP 3.
Using a 100-grit grinding wheel, grind off the excess material while holding the stone on a 15° rest. When grinding, utilize the full face of the wheel, using a swinging motion to develop a smoothly curved shape. Do not grind down to the cab outline. Instead, grind until the size is 0.5mm larger than the anticipated finished size.

Stone
15° Rest
Grinding wheel

Toolbox

- Material for grinding, approx. ¼" to 5/16" thick
- Indelible, fine-tipped pen
- Template
- Diamond trim saw
- Grinding wheel (100-, 220-, and 600-grit)
- Rubbing alcohol
- Dop pot
- Dop stick
- Sanding drum with silicon carbide belt

5mm
5mm

STEP 4.
While grinding the stone, check the cab shape using the proper template, and check the size with calipers. When you reach a size of 0.5mm larger than the anticipated finished size, the stone will fit about halfway through the template hole.

STEP 5.
Grind a 45° chamfer to eliminate the sharp edge of the back side of the stone; doing this prevents chipping. Grind

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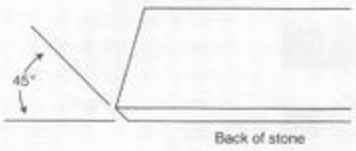
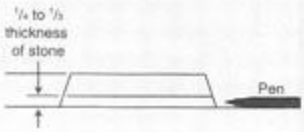
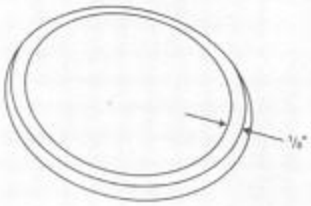
the chamfer using a fine-grit wheel (220- or 600-grit), being careful not to touch the cab outline drawn in STEP 1.



STEP 6.
Lay the stone, back side down, on a flat surface. Using an appropriate marking device, draw a line completely around the stone at a height between ¼ and ⅓ of the stone's thickness. This is the girdle line.



Draw an oval, approx. ⅛" (3mm) from the edge, around the top side of the stone.



STEP 7.
Clean back of the stone with alcohol. Without touching the area, heat the stone on the dop pot to warm it. Dop the stone, then let it cool.

STEP 8.
Grind the stone on a 100-grit wheel at an angle (approx. 45°) that will touch both lines drawn in STEP 6. Do *not* grind the lines away; instead, stop grinding when you just touch the lines.

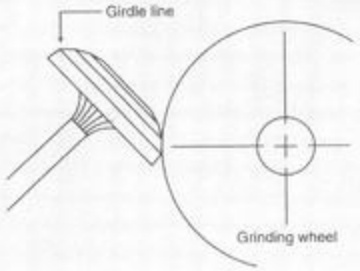
STEP 9.
Using the marking device, draw another line around the edge of the stone approx. 1/16" (1½mm) above the girdle line drawn in STEP 6. Draw another oval around the top of the stone, ⅛" (3mm) in from the edge.

Grind between these 2 lines until you just touch both of them (approx. 60°). It may be easier to use a finer grit wheel for this operation.

STEP 10.
For large, thick cabs, you may want to repeat STEP 9. This will produce an angle of roughly 75°.

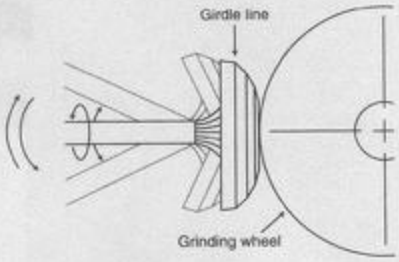
The cab should now look like this:

STEP 11.
The stone must be smoothed to the true cab shape. Move the stone in an up-and-down motion and, at the same time, move it from side to side in an arc motion against the grinding wheel. The motion must be large enough to remove all sharp angle breaks created when grinding. Do not grind below the girdle line.



STEP 12.
As you crown the cab, constantly turn the dop stick so that the crown curve will extend from all the way around the girdle line, up and over the high point (or center) of

the cab. A finer grit (220 or 600) grinding wheel may prevent overcutting during this operation.



STEP 13.
To further refine the cab shape, use a sanding drum. These items are covered with silicon carbide belts, which usually have 320- or 400-grit abrasive surfaces. The resilient surface of the drum will help even out the stone surface. Continue using the arcing and rotating motions, but now increase the arc to include the entire stone's surface. This will decrease the size of the stone. Continue the process on coarse-grit down to 600-grit belts until the cab size is approx. 0.1mm larger than the anticipated finished size. Use the 600-grit belt to remove all deep scratches.

STEP 14.
The next step is polishing; we'll use diamond charged belts on resilient drums. Cleanliness is of the utmost importance during this process. After finishing with one grit size, clean the belt with an alcohol-saturated tissue and return the belt to its proper container. Thoroughly wash both the stone and your hands, then place the next finer grit belt on the drum. This procedure must be followed for every step of the polishing process; if it isn't, any flecks of material that don't get washed away will scratch the cab during consecutive polishings. Be sure to polish the chamfer edge of the stone each time you change the belts.

STEP 15.
Polish your cab using the motions described in STEP 13. Remove the remaining 0.1mm of material during this process. It is necessary to remove any traces of scratch lines from the previous step (from a coarser grit) before proceeding to the next finer grit. If you do not follow this procedure, it is difficult and time-consuming to remove the deeper scratch marks. The basic grit size range is from 600 to 50,000. ◆

Betty and Otis Winsorth are southeastern Pennsylvania-based lapidaries.

Advanced Cabochon cutting

https://www.gemsociety.org/article/advanced-cutting-techniques-cabochons/

Quick Tips:

What is the correct Angle for cutting the Girdle?

(pat) I think it is officially 12.5 degrees.

Scratch removal tip

(rockjunquie)
I've got a tip for newbies: You know how you get those little scratches on the 280? The ones you just can't seem to get rid of? You get frustrated and go over the scratches over and over, pushing harder and harder. Think about it logically- the scratches are there because there is a minuscule dip where the wheel can't reach. Even though your dome looks perfect, you still have a divot. So, stop going over them and start going around them. Just keep going around them and you will lower the sides on the divot, eventually leveling the spot, allowing you to get the scratches out. This may not work every time. Sometimes, you just have to go back to the last wheel.

Pressure on wheels

(gemfeller)
Here's another thought on the same subject. I've found many people push too hard when sanding. I've learned to lighten the pressure and let the wheels do the work as they're designed to do. Too much pressure often works in the opposite way intended and it definitely wears Nova-type wheels out much faster. Just a thought...

Using reflection to check domes

(parfive)
Quickie dome check, H/T to Bobby1 . . .
If you have a 2-lamp fluorescent shop light over your bench, it's easy to see how well you're shaping the dome.

Cab's still wet, and you just check the reflection of the two lamps as you tilt the cab back and forth.

Take a look both ways – N/S and E/W.

Dressing Wheels

(rockjunquie)
For those of you using diamond wheels, which is the only thing that I can speak to, learn how to dress your wheels. Kingsley North has several dressing sticks. YES, you can dress a Nova. I dress mine as often as needed. When you do a lot of hard stones, agates, etc., it can cause the wheel to glaze over with tiny particles of harder rock filling in the gaps between the diamonds. The dressing stick will remove some of the diamond, rock and

resin, exposing a new surface. The trick is to use it sparingly, use the right one and use a light touch. Personally, I have been using a 220 grit for all my wheels. I think that is technically a no-no, but I do it and haven't had any problems. It's better to have a fast cutting wheel than a wheel that it isn't cutting at all, so I don't worry about the small amount of wear to my wheels. I have been using my last 2 wheels for years! I dress them occasionally to keep them sharp.

You can also cut some obsidian to help clear your wheels. I have not had a lot of success with that, but a lot of people swear by it.

Slab fracturing

(rockjunquie)
With slabs that tend to be fracture prone, you can drop the slab and cab what doesn't break ie- the pieces. Saves a lot of heartache. I like to hold it about 10-12 inches above the table and let it drop flat onto the table. I hear lots of people will take the drastic measure of dropping waist high onto the concrete garage floor. I won't go THAT far. But, when something looks like it might not survive the saw, I drop it and freeform and/or mark out and cut the pieces. Also, you'll develop a better eye for where your problems will be and mark out your cabs accordingly. I like to mark close to fracture lines- saves me a cut. I start to saw and it breaks. Problem solved- I get my cut, it gets to break. LOL! Of course, you just need to get a little more experience, but you'll learn to "read" the slab, too.

Safety considerations

(various)
- Mandatory: Eye protection. Optional: Light weight Gloves, Ear protection.
- Use the whole wheel, back and forth, keeping one Right of Left side fresher for girdle or certain work
- Terry cloths, dry towels, and maybe a heat lamp (old hair dryer) for quick drying and close inspection of stone
- Lighting Lamp, Illuminated Magnification tools, glasses (Optivisor or equivalent) for close ups
- Flipping grinding wheels for longer life, using More / Less water for better grinding action

-Perhaps some arm / wrist rests for more comfortable long sessions, but ability to work around them too

Tip: Dome it right or you'll chase your tail later.

(tommy)
In my opinion a properly shaped dome with no flat spots when viewed from every angle is the single most important step of cabbing. More important than size, shape, girdles, symmetry - unless you are creating a bezel-calibrated cab. Everyone's method of achieving dome, shape, and girdles is somewhat different depending on how they learned, but a perfect dome is a perfect dome regardless of how you got there or if it is thick or thin. After rough grinding in from the outer edges and achieving what you see as a good dome, step back, dry it off and stare at the side of the cab, rotating it to look at every angle, and see if it is a perfect uninterrupted curve from every direction even when looking at the skinny end of an elongated cab. If it's not, go back and work on it

some more otherwise you'll spend a lot of time and frustration chasing scuffs/scratches in that flat spot and wondering why they won't disappear.

Polishing Backs of Cabochons

Can you do it on wheels?

(rockjunquie)
Strictly speaking, you really cannot polish a back with a wheel. The center will never polish. UNLESS you rock the stone, but then you won't have a flat bottom anymore. You need to use a flat lap, or settle for a less than perfect polish. If anyone else knows how- then please share. I was always under the understanding that you can't polish a flat with a round wheel.

By Hand on flat surface.

(RWA3006)
I have a pal who does it by hand and he makes it look easy. He just uses wet/dry silicon sand paper and places it on a flat plate of granite that's about 8" square. Then he places the stone on it and uses a back and forth motion, alternating direction between grits so he can make sure scratches are gone. He uses a little water on it and takes it to 1500 grit and finishes on a buffer wheel. It's a bit harder to do with smaller cabs because there's less to hang onto.

Alternate opinion on using wheels

(stardiamond)
I've polished a lot of backs and double sided cabs. Your fingers won't like it. At some point the work needs to be done without a dop. If a person uses wax to dop they make be able to remove the wax from a polished face. With superglue that isn't an option. What I do is complete top and sides of the cab, remove the dop sand and polish the bottom. The backside of the cab may have scratches and they show up more when polished I might have to start on a 220 hard wheel. The thicker the cab the less likely I am to grind, sand or polish my fingers. The trickiest part is the polishing wheels. I hold the cab on the edge and slide it on the turning pad and move my fingers to press the cab on the pad and move it the same as when dopped. When I'm done using the pad, I slide the cab toward the outside of the pad and grab with my fingers. I have a lot of practice doing this and haven't lost a cab for a long time. A suction cup on the face might work but a person would have to deal with any defects the cup caused.

I have some laps but with practice a flat back can be ground sanded and polished with wheels. I do a lot of flat top cabs and only use wheel or pads. I can make a lumpy bottom flat also and the work can be checked putting the face on a flat surface. I use a figure eight motion.

Flate Plate Method

(pauls)

The absolute best way to do backs is to get very manual with them. No machinery at all until polish.

Get a piece of flat steel plate reasonably thick so it doesn't flex, you should be able to pick something to do the job at a sheet metal shop for free, you only need a smallish scrap, several for different grits is even better.

Put loose tumbling grits in salt shakers or spice bottles, and you will need a squirty bottle of water.

Sprinkle a small amount of coarse grit on the steel plate with a squirt of water then just rub the back of your cab on it around in circles and figure eights until all saw marks are gone and the surface is a nice even matt finish. Wash everything thoroughly then do the same with 220 600 1000 grits. wash thoroughly again and take to your polish wheel, you will need to use the very edge of the buff to get into the middle of the flat. While this seems like a lot of bother and frankly pretty old hat it works and does so very quickly. really only a few minutes to get a back done.

Thoughts on polishing backs and chamfer angles.

(rmf)

OK I'll chime in. I have cut literally thousands of cabs and my first one was good enough to sell (I regret selling it to this day). That said, most of the time the rough dictates the thickness and shape. However, I am of the opinion a cab that is about 5mm thick is ideal. Yet if I have thin tough material Thinner is possible. I have cut Brazilian agate to 2.5mm thick because the material was nice.

I have been cutting since 1972 and see no reason to polish the back on most stones unless there is a need. I consider it a waste of my time for something that will never be seen (of course with wire wrap that is different now). For stones like Rutilated Quartz you need to somewhat polish the back to let the light do its best with the Rutile. I polish the backs of all Opals, Tourmaline and anything that is transparent. For material that is thicker and has a great pattern I cut double cabs. Domed on both the front and back and come to a sharp edge at the girdle. What I call a buff top cab has a low dome and angled sides. I have never measured the angle.

For many years I did not angle the bottom because the mounts I was cutting for did not require it. Now all stones get either a chamfer (more or less 45 deg) or round with a 325grit diamond wheel. This reduces the stress on the cab while it is being set (reducing chipping). For buff top cabs I also round or chamfer the sharp edge where the dome transitions to the girdle. This keeps the top from chipping. As for flat spots we all get

them and for me it is due to being too impatient. I also found a cab I "finished" I have to redop to take out some lines I did not notice while it was wet.

Using Vibratory Tumbler to polish

(standles) General consensus was that was not a good idea. You would tend to lose the defined shape and in some cases depending on how far you took your cab process counterproductive. An example would be polishing cab up to 3K and putting it in tumbler at 1200.

There was one counter opinion by hummingbirdstones outlined below and tommy where he discussed tumbling flats. These would be shapes like crosses, turtles, or just flat pieces for giving away.

(hummingbirdstones)
I'm going to 'fess up to putting my cabs in a vibe tumbler with 50K Vibra Dry in it sometimes. I had a cab that just wouldn't polish to the extent I wanted so I threw it in the Vibe (it's just a reloader vibe I bought for jewelry) and I'll be damned if it didn't polish up as pretty as you please. Everything I've put in there since has come out better than when I put it in. Even some hard porcelain jaspers or agates look better somehow when I take them out. I don't know why. Doesn't round the stone or take material off.

Vibra Dry is made and sold by Diamond Pacific. **www.diamondpacific.com/vibra-drypolishi.html** I was using it for metal. Does a great job taking tarnish off of silver jewelry. I use the 50K grit.

Grooving a Cabochon for wire wrapping

Links to forums posts showing process.

https://forum.rocktumblinghobby.com/thread/68169/groove-wrap-tutorial-photo-heavy
https://forum.rocktumblinghobby.com/thread/30091/groove-wrap-bail-tutorial
https://forum.rocktumblinghobby.com/thread/23856/groove-tutorial-pacific-drop

Template usage

What are best templates to use?:

(nevadabill)
OK, BEGINNER Question here. I would like opinions on what the experienced (didn't use the word PRO), cabochon makers here find are the best templates they most often use. I need to buy some templates and a scribing pencil (aluminum & brass). But we have many choices. I am on Kingsley North, and Graves sites right now. But can't decide.
- Single sided Aluminum templates. Seem great, but can't see through them.

- Double sided Aluminum templates. Can slip the slab through, between both templates, and can scribe on both sides, making it easier to not mess up the grinding part.
- Single sided Plastic templates. Can see through them. Will probably hold up. Cheaper.

Many to choose from.
But there are just so many templates.
Some maybe too small, (like the Lortone ones from what I read), some with crazy shapes I won't use for years maybe. Some that looks cool, like "Great Shapes" templates.
I'm just looking for templates with most common shapes, that will last. Maybe the Gem-Temp?

Sources for Templates

https://www.barnhouselapidary.com/online-store
https://www.amazon.com/s?k=cool+tool+jewlery+shapes&ref=nb_sb_noss
https://www.etsy.com/search?q=cabtopia&ref=auto-1
http://www.gravescompany.com/Templates.html#462
https://kingsleynorth.com/
https://thegemshop.com/products/great-shapes-template-complete-set

How to make a double sided template.

(rockindad)
To Make A Double Sided Template

A very easy trick I used to use frequently in my woodworking:

-Take two of the same templates and stack them so they match
-Insert the material you want to cut, in this case a slab
-Line up the edges of the templates so the edges are flush, you can use anything that is perpendicular to the surface the templates are laying on- a table saw fence, wall, block of wood etc.
-Tape the templates together book binding style maintaining the gap. Type of tape and amount used depends on how permanent you want this to be.

Freeform Cabochon

What is freeform?

(rockpickerforever)
Any stone that does not fit a prescribed shape (round, oval, pear, etc) is said to be a free-form. Free-form only means the final shape is not predetermined, set in stone (pun intended). You are not trying to make a calibrated stone (both size and shape) to fit a pre-made, off-the-shelf fitting. Unless one has silversmithing skills, this is the option many people take to set their stones. Another setting option is wire wrapping.

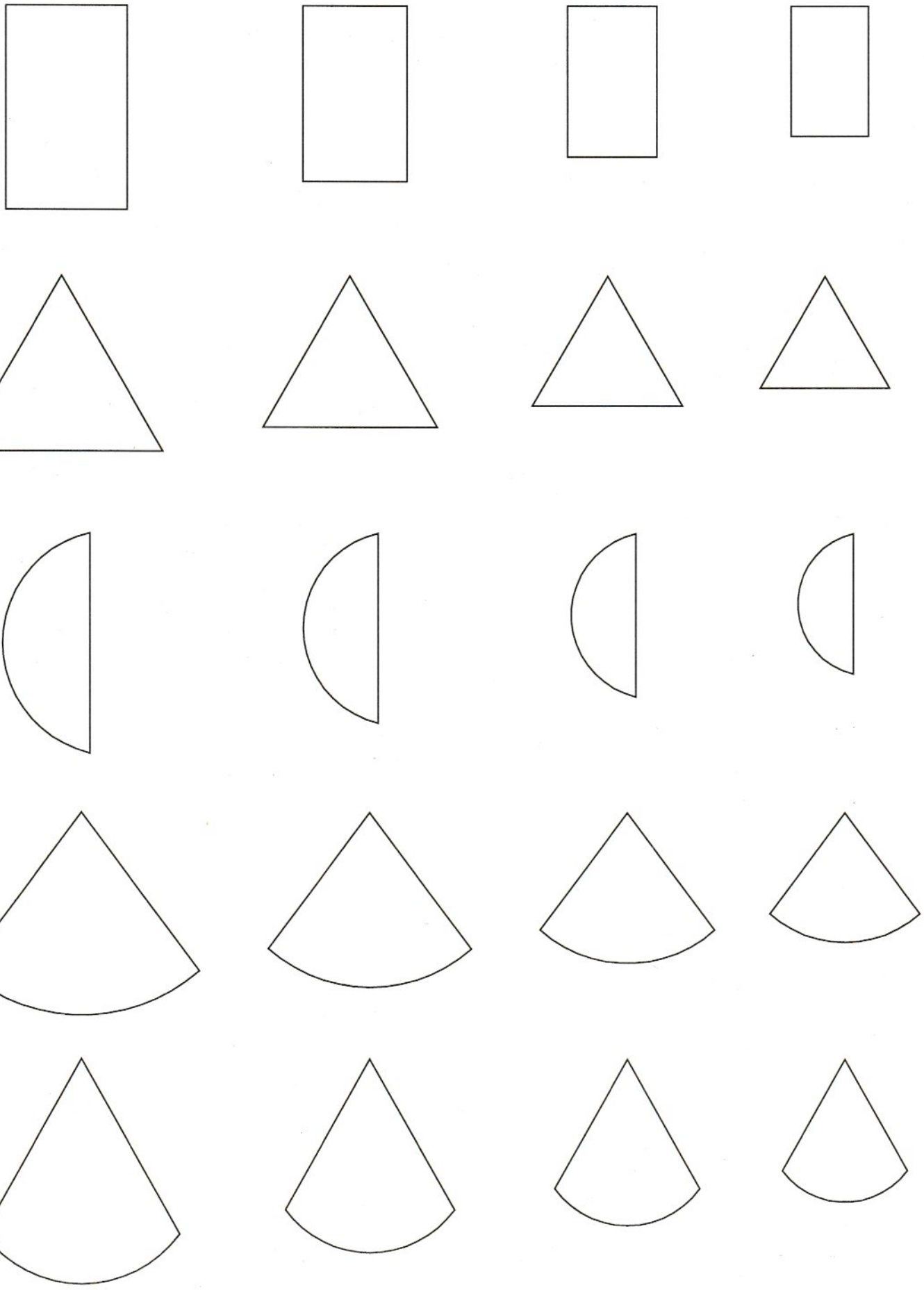
I've always liked to make free-forms because it means I don't have to break out a trim saw, lol. Take a fragment of slab (slabette), eyeball it to find the best features, and then shape it to incorporate those features. I'm not talking any odd shapes, mostly round triangles, or oblong ovals and rounds. I don't mark them out, just keep going until the stone is a pleasing shape, and then finish cabbing it. Wrapping a free-form stone is not any different than a calibrated stone. Almost more important than the stone's shape is the girdle - angle, proper thickness and even edge.

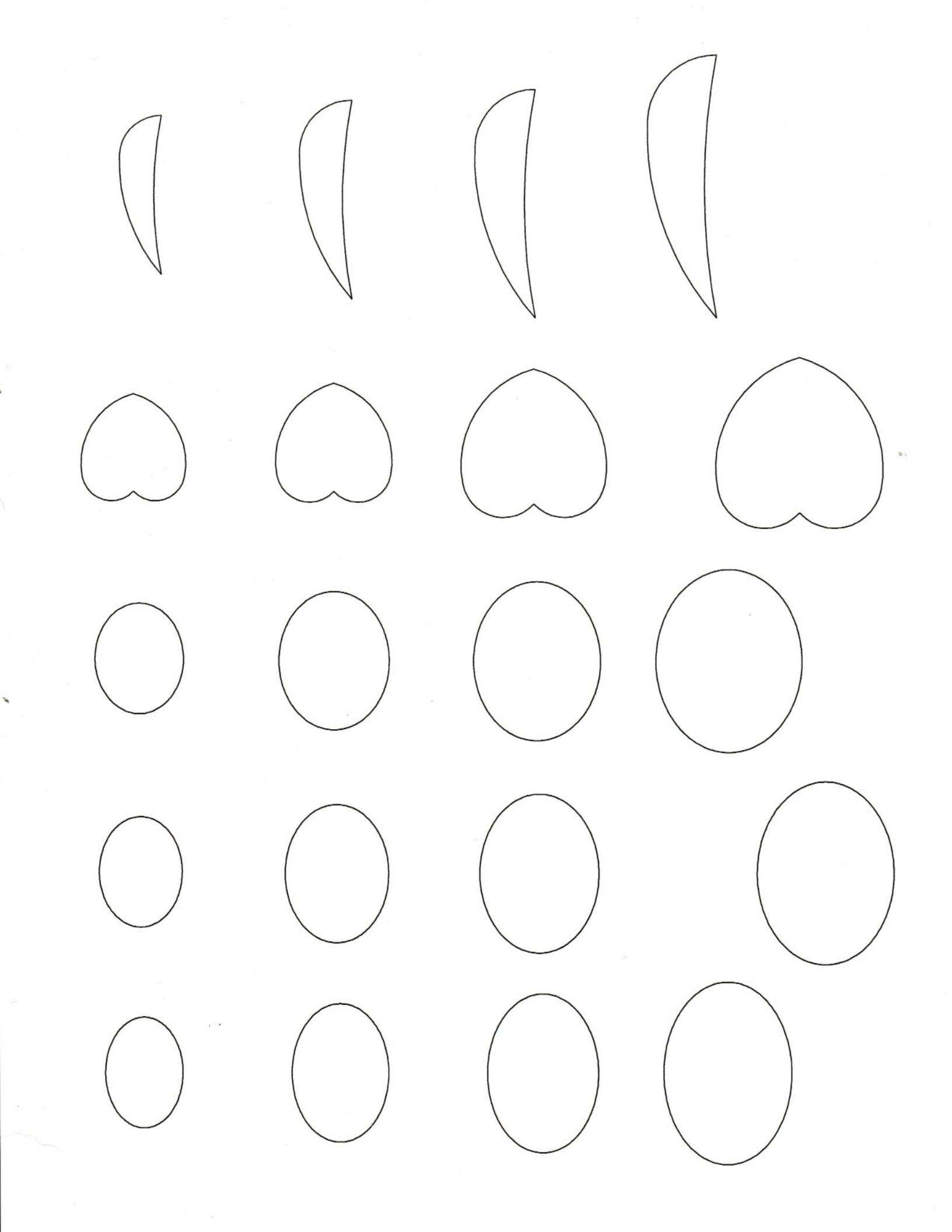
(roscks2dust)
I'd narrow it even further: shape is irrelevant except in those relatively few shapes and sizes for which pre-made cabochon settings are manufactured.

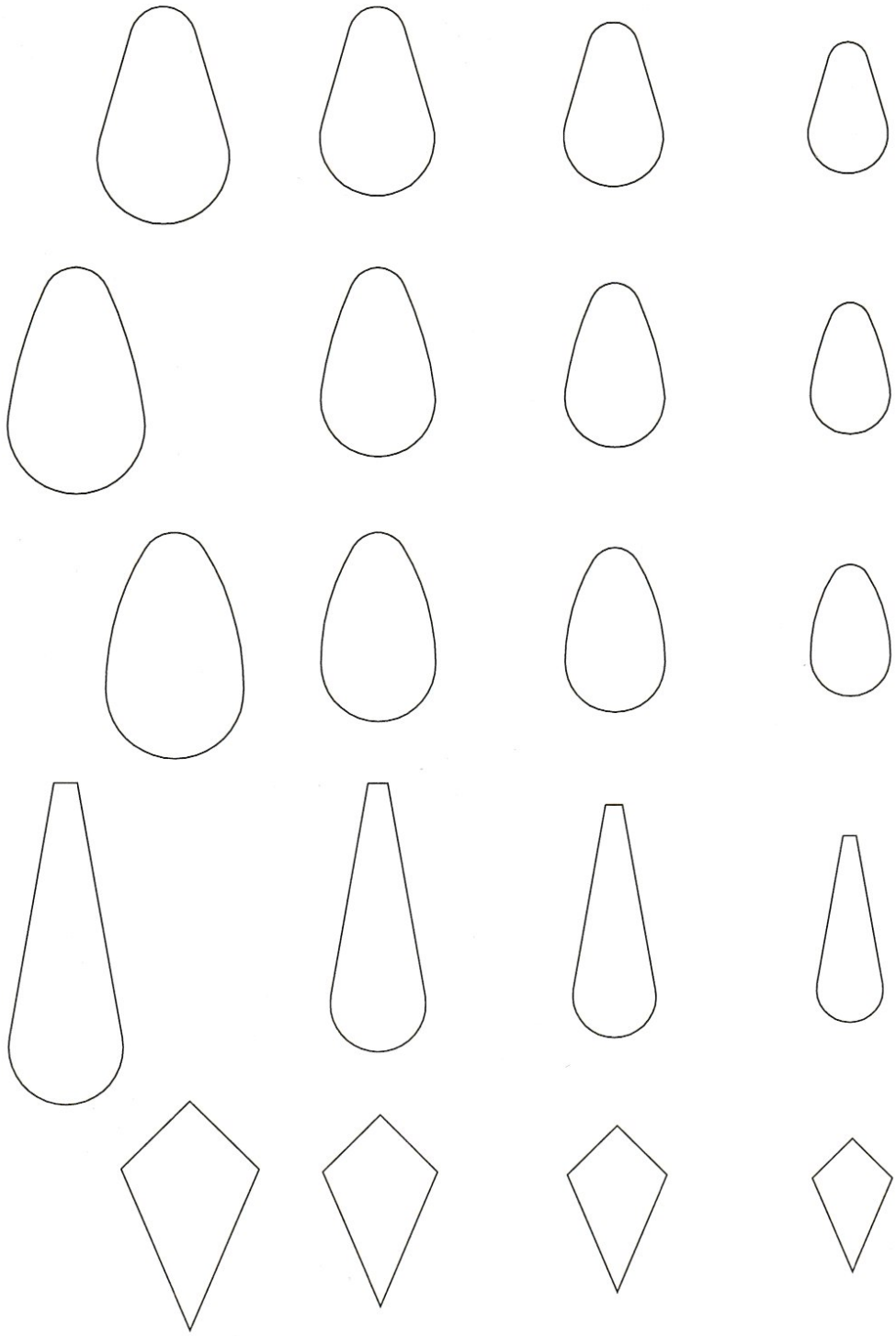
Other than those (mostly ovals for cabs, and mostly aimed toward stones cut for the mass market), a custom setting is going to have to be made. So you largely needn't worry about this unless cutting for particular pre-made settings. Go for the best pattern, color, optical phenomenon, etc. that you can from any given stone. If you are doing matched sets or graduated sets of cabs, then shape is more of a consideration, though they still needn't be standard ovals and rounds.

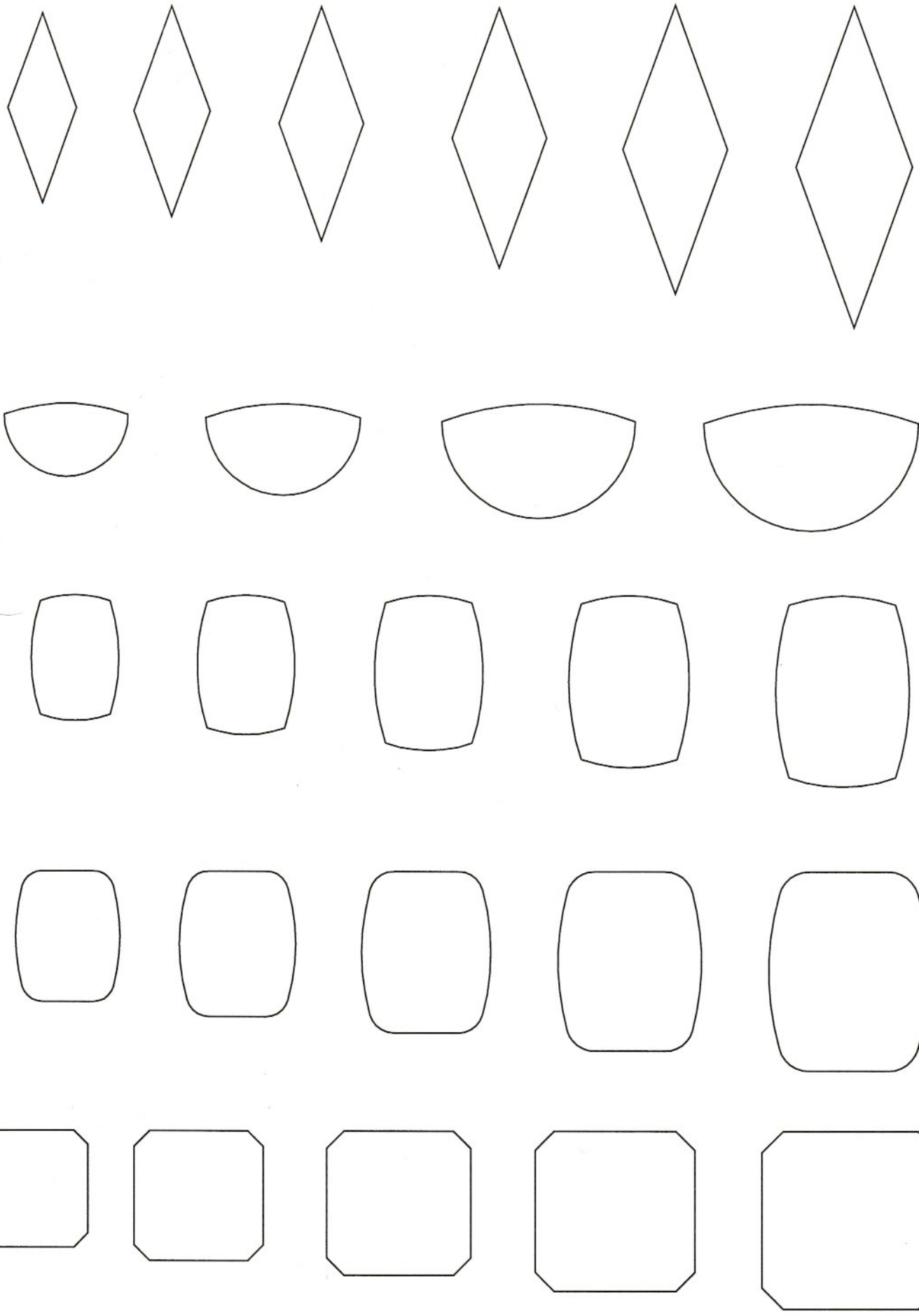
Appendix 1: Full Size Cabochon Templates (Original set by Tonyterner)

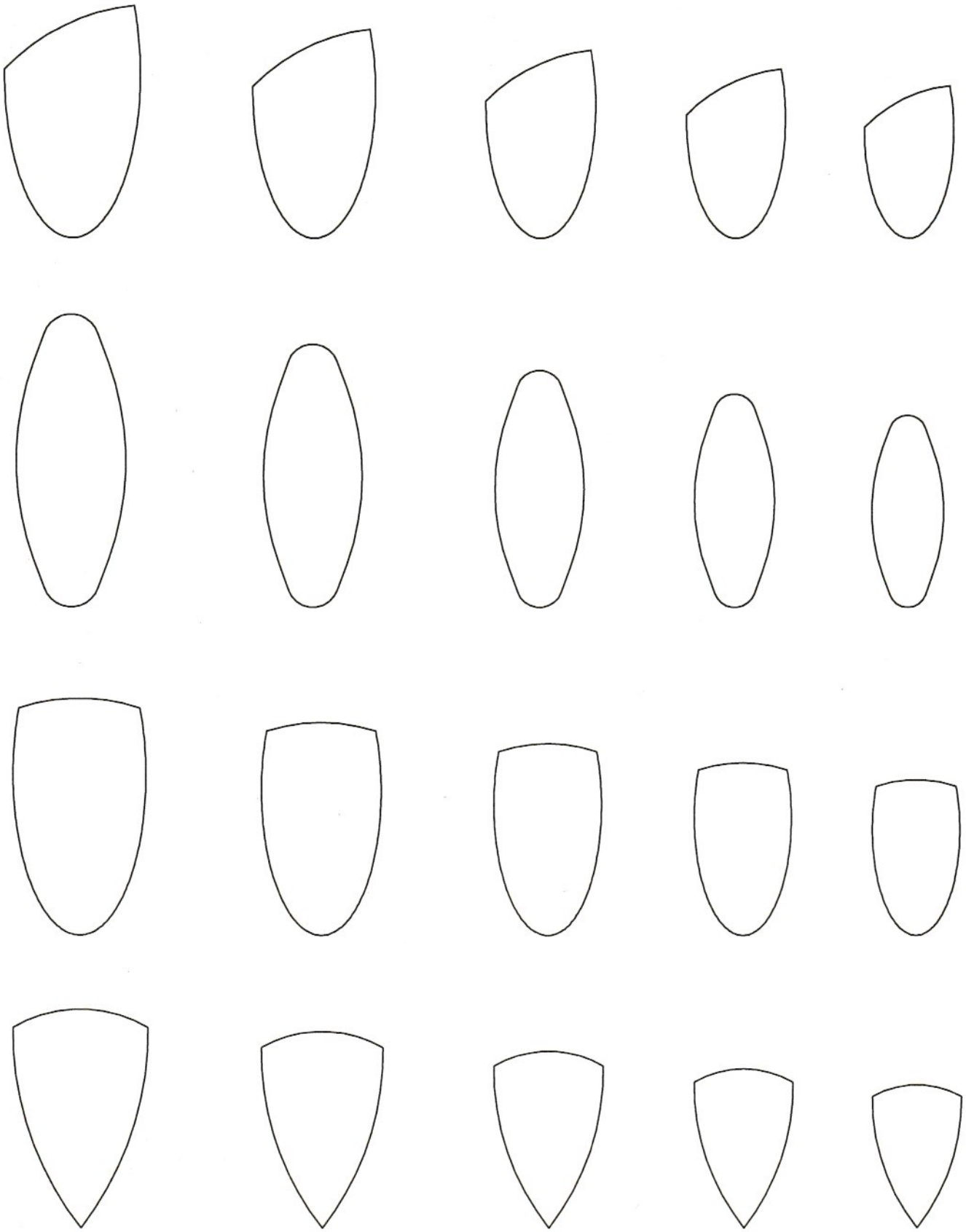
http://forum.rocktumblinghobby.com/thread/87592/free-downloadable-templates











Appendix 2: Terminology

- Buff top cabochon
  - A style of stone cutting, where the top of the gemstone is a dome and the pavilion is faceted
- Cabochon
  - A cabochon (/ˈkæbəˌʃɒn/, from Middle French caboche "head") is a gemstone which has been shaped and polished as opposed to faceted. The resulting form is usually a convex (rounded) obverse with a flat reverse.
- Calibrated
  - A calibrated stone (both size and shape) is made to a specific size to fit a pre-made, off-the-shelf fitting.
- Crown
  - The facets or portions of a gemstone, located above the girdle
- Domed
  - A gemstone shape in which the top of the stone is rounded, resembling half of a sphere
- Doping
  - The process of attaching a stone to a dop to prepare it for faceting, usually with dop wax. Other ways of doping a stone include using super glue or epoxy.
- Fire
  - Flashes of different spectrum colors seen in diamonds and other gemstones as the result of dispersion
- Fracture
  - A general term for cracks, feathers or chips
- Freeform
  - Any stone that does not fit a prescribed shape (round, oval, pear, etc) is said to be a free-form. Free-form only means the final shape is not predetermined
- Girdle
  - The outer edge or periphery of a fashioned stone, the portion that is usually grasped by the setting or mounting, the dividing line between the crown and pavilion, or the dome or edge of a cabochon
- Hardness
  - The resistance of a substance to being scratched usually measured on Moh's scale
- Inclusion
  - A visible internal flaws in a stone, including: fractures, crystalline abnormalities, and foreign objects
- Iridescent
  - A display of lustrous rainbow-like colors
- Jasper
  - An opaque, impure, Polycrystalline variety of Quartz that may be red, yellow, or brown
- Lapidary
  - Lapidary (from the Latin lapidarius) is the practice of shaping stone, minerals, or gemstones into decorative items such as cabochons, engraved gems (including cameos), and faceted designs.

- Moh’s hardness scale
    - Hardness Scale is used as a convenient way to help identify minerals. A mineral's hardness is a measure of its relative resistance to scratching, measured by scratching the mineral against another substance of known hardness on the Mohs Hardness Scale.
- Oiling
    - A temporary treatment used to enhance the color of a gemstone
- Pavilion
    - The portion of a stone located below the girdle
- Pit
    - An indentation on the surface of a stone
- Symmetry
    - A term for the uniformity of a stone's cut, including the shape and placement of facets