

Notching & Final Trim For Your Point.



37. Base of the rough side of the point, corners trimmed for notching process.



40. Rough side, notches completed, base trimmed for attachment to dart shaft.



41. On the smooth side, notches are completed, base is trimmed to finish shape.



38. On the smooth side of the point, long guide flake in upper corner, for notching.



39. Abrading tool and pressure flakers which can be used for making arrowheads.



42. On the originally rough side of the arrowhead, the notches are done, the base is trimmed to its finished shape, and a final trimming series of flakes balances the point.

Beginner's Flint Knapping Kit from www.StoneBreaker-FSC.net



A Great Gift Idea With All You Need To Learn A Challenging Skill.

Our **Beginner's Knapping Kit** includes:

- Complete photo-illustrated and written instructions, with greatly enlarged photos of authentic points for reference;
- Deer antler tine and copper-tipped pressure flaking tools;
- A leather hand pad for protection and support;
- **18** flint and obsidian chips the right size for making arrowheads;
- All this, plus a bonus, **free arrowhead** made from similar material to help show you how.

Order your **Beginner's Knapping Kit** today, for just \$29.95 plus \$7.20 Priority Mail shipping & handling. Use this link to place a secure order with a **PayPal** Buy Now button from our web site: <http://www.StoneBreaker-FSC.net>



How To Make Your Own ARROWHEAD



\$9.95, U.S. postpaid.
\$10.45, Canada postpaid.

by F. Scott Crawford
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“So Easy The Cavemen Did It ... For Thousands Of Years” ... So Can You, With Practice.

Actually, ancestors of all of us used stone for hunting weapons for a very long time. The use of metal only replaced sharpened stone, bone and wood in the last few thousands of years. And then, in most of the world, the knowledge of “flint knapping” became a lost art. It wasn’t until the Europeans came to the Americas that Old World eyes once again realized the efficiency of stone arrow heads and knife blades.

MAKING YOUR OWN STONE ARROWHEAD

All knapping begins with a piece of stone. Then you break away the parts of the stone which do not fit the idea you have in mind for the final product. This process is called reduction. The thing is, that once you break a piece off of a stone, you can not put it back. Unlike clay or metal, which can be reshaped, a stone tool is not moldable or bendable or malleable. You break it to change its shape.

To break stone you must obey the laws of physics. I think observant flint knappers first codified knowledge of the physical laws which provide order and predictability to the world around us. Much was discovered by trial and error, and then passed on to students from the masters of stone craft.

For the beginning knapper, making an arrowhead usually begins with a flake of stone. When you order the **Knapping Kit** from <http://www.StoneBreaker-FSC.net>, it supplies several flakes, or chips, of stone such as obsidian and flint. These may include chert from Oklahoma, novaculite from Arkansas, or flint from Texas, and obsidian from Oregon.

STEP ONE

Select a chip from the materials in the kit. Also pick up the leather hand pad. It goes in either your left or right hand, as is appropriate, to protect the palm of your hand from small pieces which you will break off the chip. In addition, you will need either the antler tine or the copper tipped flaking tool. You can work on a bench top if you prefer,



Here is the rough trim outline for the arrowhead on the opposite page, laid out on the chip from which it was made.

These arrowheads were made from the flake in the corresponding position in the scan on the other page. Three of the chips were not made into arrowheads at the time the scans were produced. As you can see, the one brown chip became a broken point, when I applied too much pressure during the flaking procedure. A close examination shows the edge preparation prior to pressure flaking the opposite side of the trimmed point.

These scans of obsidian flakes and arrowheads show the beginning condition of the flakes, with both sides shown on these two flakes immediately left of this note. You can readily see the smooth side of the flake, which is the fresh fracture and the ridged side of the flake. The ridges are made by the scars of previously removed flakes off the original obsidian nodule. You can also see the extremely thin parts of the chip along the edge, the parts which need to be trimmed prior to making an arrowhead.

so you can stand, or you can work in your hand and sit down. For the first time or two you may find working on a bench gives you better visibility and control.

First, a word about safety.

Use safety glasses and wear leather gloves. Work in an open, well-ventilated area when knapping, preferably outdoors.

Flaked stone is sharp. That is the point. Be careful with flakes, chips and tools. Always have a first aid kit at hand.

Now, look at the chip. You will see that one side is smooth, and the other side has some ridges. The chip illustrates how this kind of stone breaks during the knapping process. When obsidian, or flint or chert or the other fine grained quartz stones are struck with a hammer stone or other implement at the correct angle, the resulting curved flake or chip will tend to follow the ridges on the face of the

stone. By harnessing this characteristic of knappable stone, we are able to break the stone in a controlled and intentional manner. The same rules of stone breaking at a large size apply to working with smaller pieces of stone. The only difference is a matter of scale. In addition to striking with a hammer stone, by applying pressure at the edge of the stone, at the beginning of a ridge line, we can “push” off a flake along

the ridge. This process is called pressure flaking.

This is the primary kind of force which is used to create an arrowhead from a chip of stone. Once you choose a chip, then we will proceed to prepare the edges of the flake so that you can apply pressure along the edge and push off small flakes.

STEP TWO

Choose which end of the flake you wish to be the point of the

arrowhead. When you look at the smooth underside of the flake you will see a bulbous shape, rounded and slightly higher than most of the flake surface, radiating away from the spot where the stone was struck to knock the chip off the stone. This is called the bulb of percussion.

Usually arrowheads are made with the pointed end at the bulb of percussion, and the base with its notches is located at the other end of the flake. The secret is to use the portion of the flake which is essentially straight. Flakes naturally have some curve, as the chip follows the contour of the original stone surface. Yet, if you look at the flake in profile, from the side along the lengthwise direction of the flake, you can see the natural curve, and you can see what portion of the chip could be used, allowing a straight line to the arrowhead.

STEP THREE

Now, we will use the antler tine to trim the chip to the general shape for the arrowhead. Lay the chip on the leather pad on your work bench. Place the smooth surface down. Then use the side of the narrow end of the tine to begin pressing at the thin edges, along the length of the flake, in a shearing motion along the edge. Hold the antler tine basically parallel with the edge and press down along the edge with the side of the antler. Do not overlap the edge except for a tiny distance, and press down along the edge, breaking off small pieces to trim the thin, curved edges into a straighter line leaving a thicker amount of material along the edge. Just press enough to break small pieces off. You will need to hold the flake in place, but do not press down on it too much, as you can break it. Odds are, you will break some flakes; that is why I am providing 12 flakes in the kit.

This trimming action can quickly provide a flake in nearly the size and shape of your finished point. You can trim it to straight edges in a triangular shape, or to curved edges in more of an oval configuration. Trim the base to fit your shape.

STEP FOUR

Next, you can use either the antler tine or the copper tipped flaking tool to begin sharpening your arrowhead. First, lay the flake down on the leather pad, to support the flake. This should be done with the smooth face of the chip up, so that the new flakes will be removed from the ridged face of the chip. This will allow you to press against the protruding or leading edge of the stone. You will place the point of the tool against this outer edge. But first, you should roughen or grind this edge a little by rubbing the side of the antler tine or a hard, slightly rough stone along the edge. This will rough up the sharp edge, providing better gripping surface for your tool.

Now, hold the piece in position with two or three fingers. Do not press too hard, just enough to keep it in position. Press the pointed tip of the tool against the edge. Generally, this first flake should be taken off at or near the tip end of the point. The force should basically parallel the face of the chip, aimed toward the center line of the chip. Press against the roughened edge and then push a new flake off of the bottom face of the chip.

It takes a bit of pressure, against the edge, not against the face of the flake. You are essentially prying or pushing a small flake off the chip, running from the edge toward the middle of the chip.

After the flake comes off, turn over the point so you can see what happened. Your objective is a flake which runs to or beyond the centerline of the rough point. Many times the first flake may be short, but it will produce an edge along which your next flake will travel more easily.

For the second flake, move a little ways down along the edge and repeat the pressure process, overlapping the previous flake a little, so that the next flake will run along the ridge left by the first.

Do not press down on the chip too much while you are pressing against the side. Just enough to hold it in position. Too much pressure and you can break the chip at the

place where you are prying off a new flake. I know, as I have done this more times than I like to admit. It takes practice. And to know how much is not too much pressure, will also take practice and experience. This includes breaking an unknown number of points in the process!

Now, continue to remove additional flakes in progression along the edge towards the base of the point. Once you have worked your way along one edge, then work along the other edge on the same surface of the arrowhead. When you finish this side, you have what is known as a unifacially worked arrowhead. These are often found, where the stone craftsman only flaked the point or blade on one face, and left the other side as a smooth surface, with little or no additional flaking on that side.

STEP FIVE

Prepare the second surface of the point for pressure flaking by trimming along the new edges. First remove the small triangular protruding edges between the new flakes. These are called "deltas" because of their shape. To remove them, press against their outer edge with the tip of your flaking tool. Just enough to break off the little triangles. Then use a shearing motion along the new edge again, in a motion parallel to the edge, pressing from the smooth face, just along the very edge. Just trim off a little bit of the thin edge, leaving a strengthened edge for additional pressure flaking toward the smooth face of the point.

Next grind or roughen up this edge line as you did before with the other side. This gives your flaking tool a better grip at the edge.

Repeat the pressure flaking process along the smooth face, beginning at the tip again, and working toward the base.

Now you have a basic triangular or oval shaped arrowhead.

STEP SIX

In ancient times, in many parts of the world, you would now be finished. These points were bound into either a split shaft, with glue and/or plant or animal fiber, or into a hollow shaft such as a reed with

glue and fiber. However, many points were also notched to facilitate the binding process.

So, you may wish to notch your arrowhead.

There are many different styles and methods. Side notch, corner notch, base notch, etc. Yet all basically remove material from the edge toward the middle, to make a groove or notch for binding.

The process is similar to preparing for pressure flaking, except that you will do this at just two places, in mirrored positions across from each other so that the point remains balanced and symmetrical.

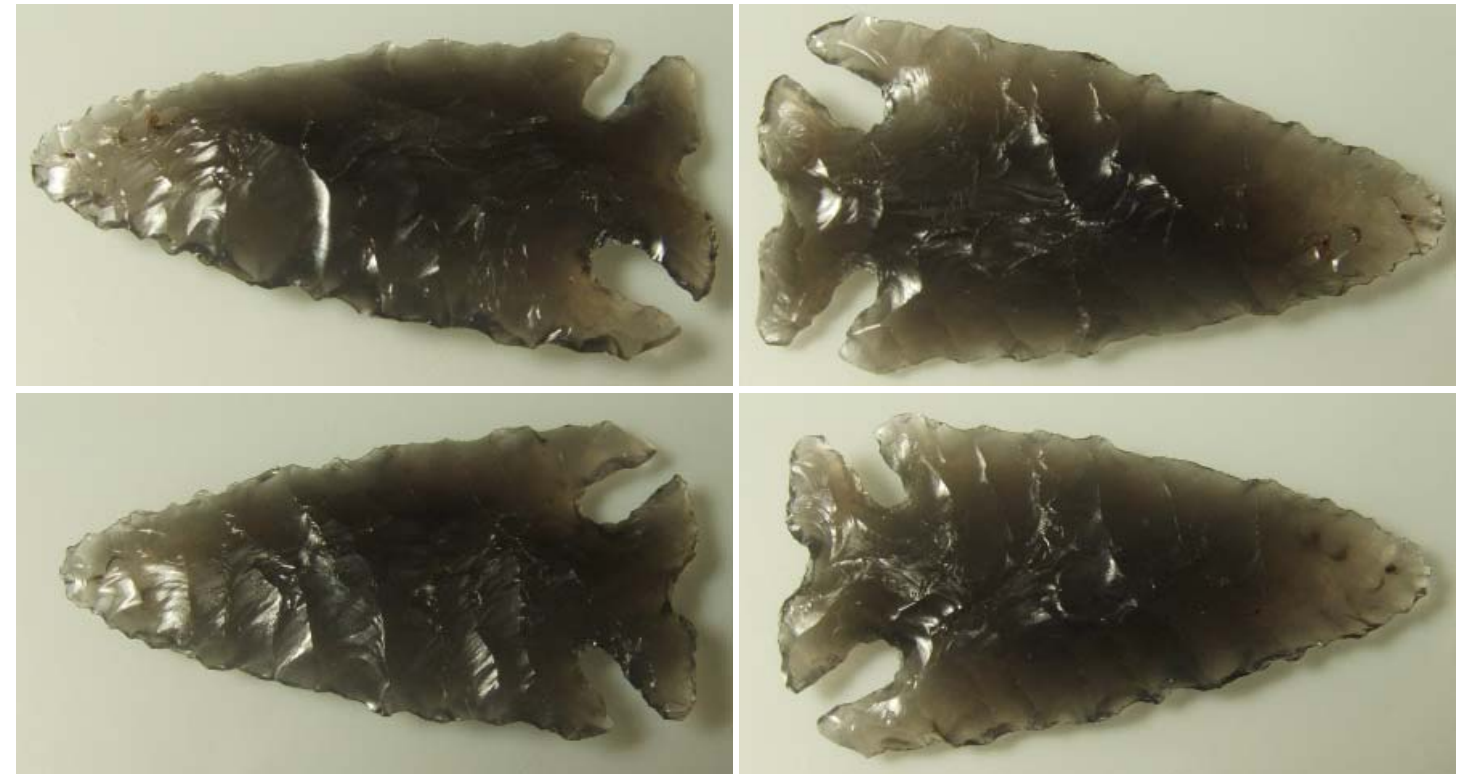
First, measure where you want the notches, equally up the edge from the base or from the centerline along the base edge of the point, or at the corners. Make a tiny flake at the edge where you want the first notch. Then mark the other.

Use the sharp tip of the copper flaker to rough up the edge inside this marking notch. Just enough to get a grip with the tip. Push a flake off the underside of the point from the marking notch in the direction you want the finished notch to proceed. Turn the point over, rough up the edge of the notch and push another directional flake off from the other side. Repeat this channel flake process at the marking notch for the second notch. This will give you a series of guides for finishing the notches.

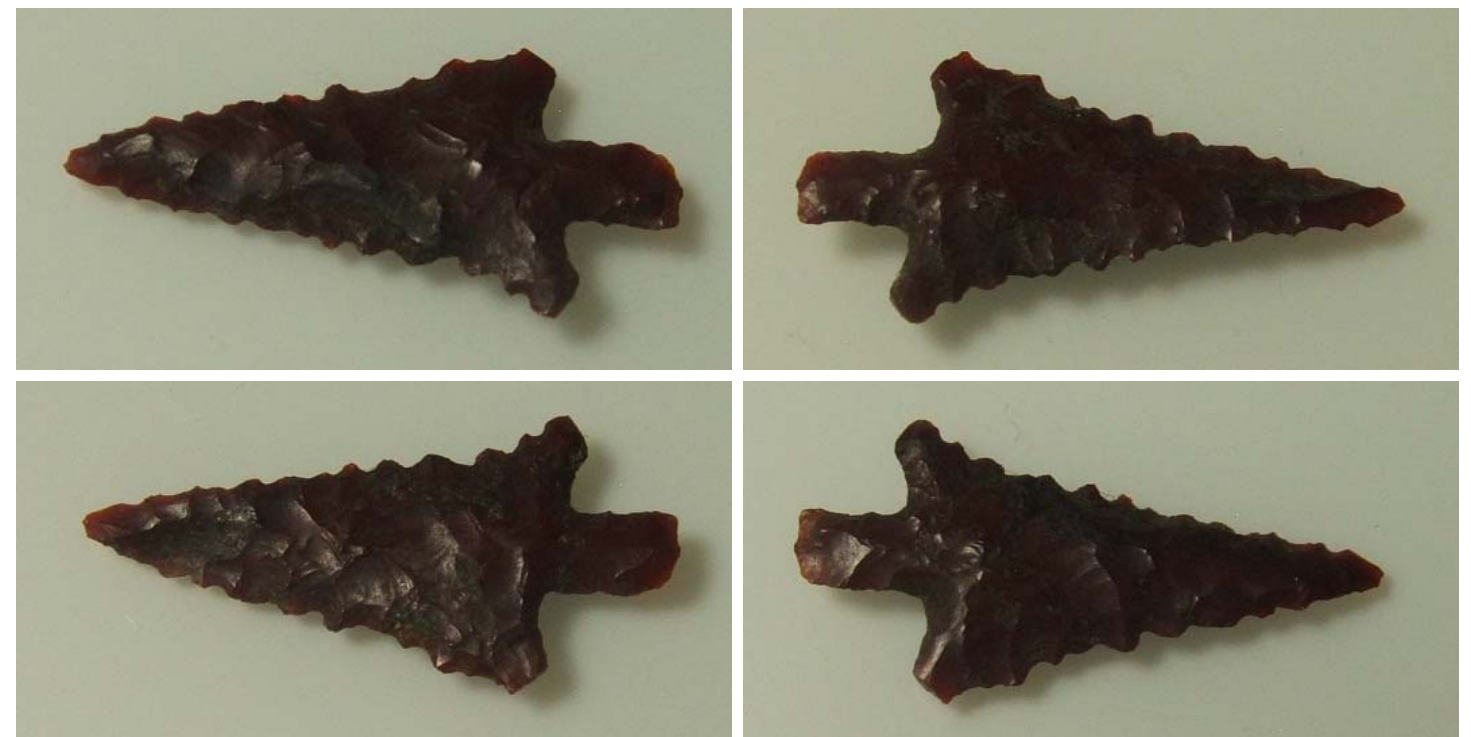
Now, trim in the end of the guide channel to create an edge to press out the next flake in the notch. You rough up the edge from one face of the point, then turn the point over to press the new notch flake off by prying against the newly roughened edge. Repeat on each notch until you have the notch you want. Do not allow the tool to touch the corners of the notch when you press inside the notch, as this will break off the corners of the notch, or more. Many knappers work a little on one notch, then the other, so that both notches progress evenly toward completion.

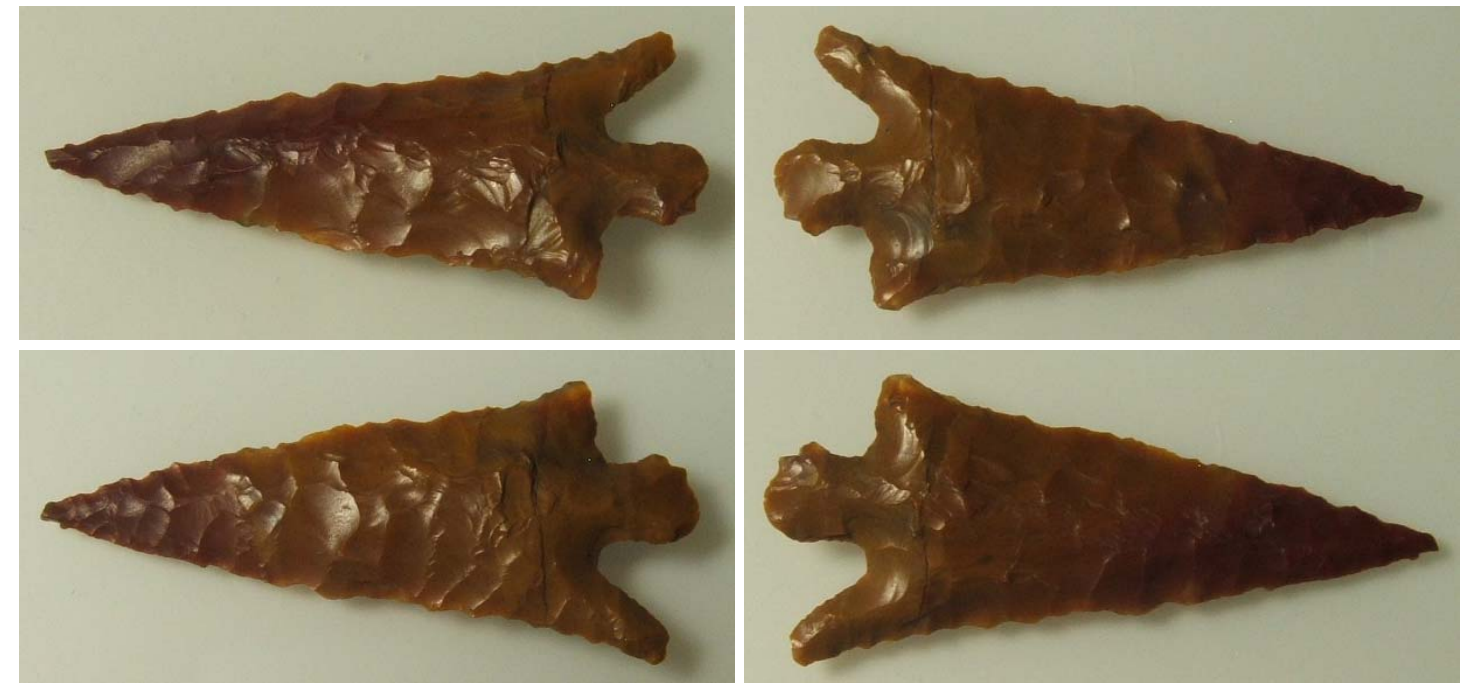
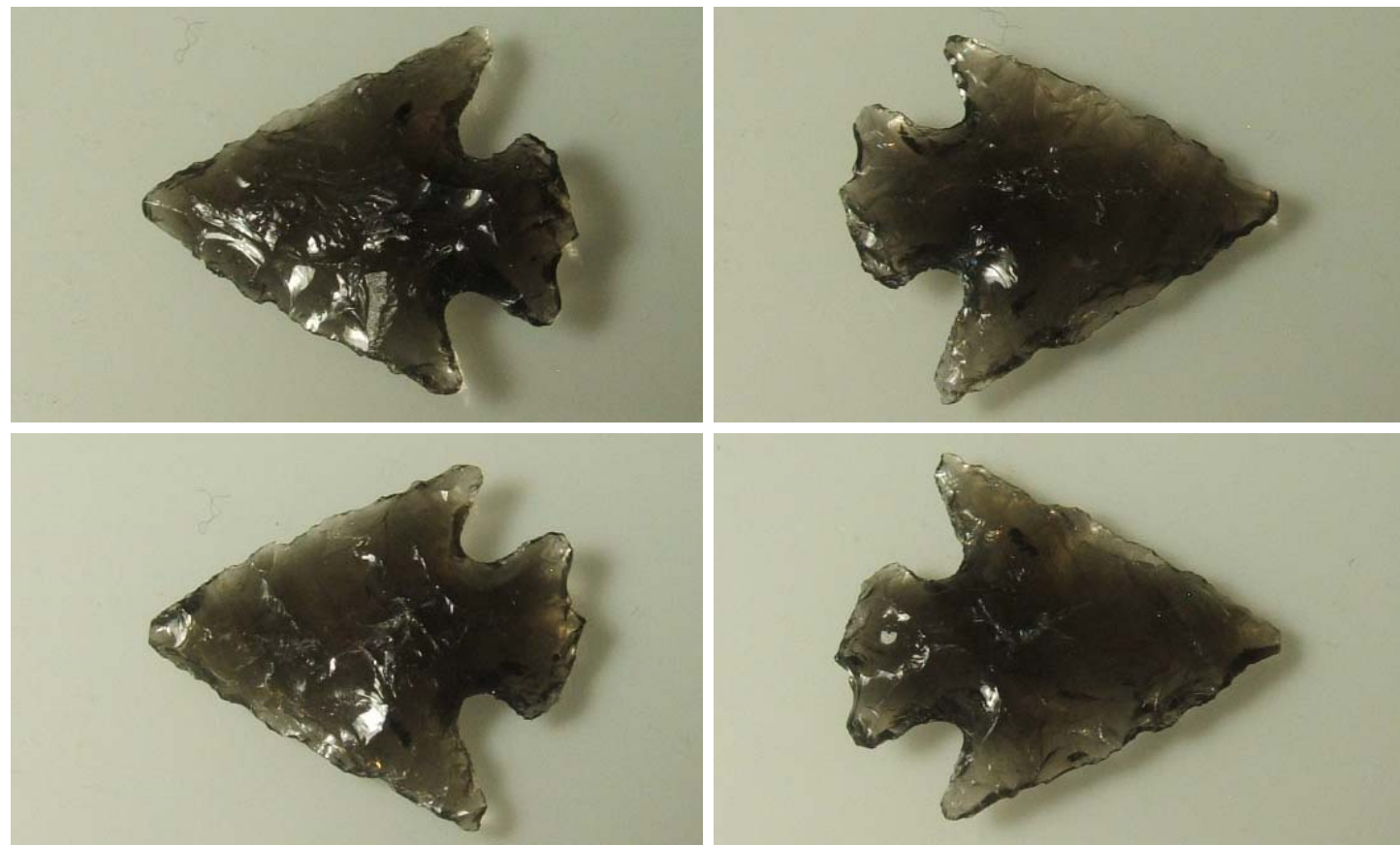
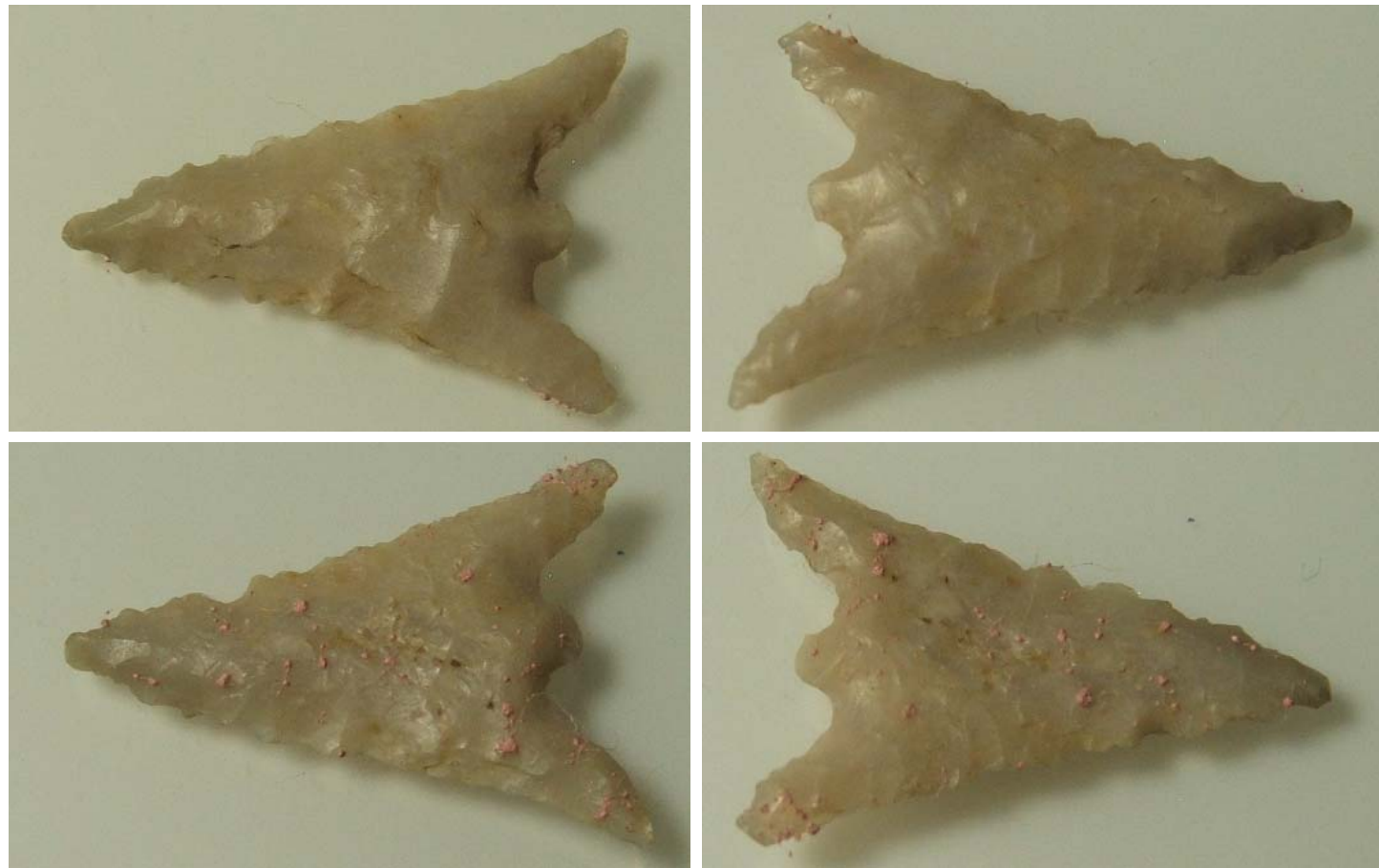
Voila! You have finished your own arrowhead. Congratulations.

Now, do it again. Enjoy.
<http://www.StoneBreaker-FSC.net>



Here Are Several Examples Of Authentic, Ancient Arrowheads From Oregon ... So You Can See Some Point Designs & The Stone Materials Actually Used Long Ago.





These Photographs Are Enlarged So You Can See The Detail Of The Point Designs And The Quality Of The Craftsmanship Employed By The Native Knappers.



From A Chip, Every Step Along The Way.



1. Keokuk Chert chip, bulb of percussion is on the left end. Stone from Oklahoma.



2. Keokuk Chert chip, outer surface of the flake.



3. Rough trim along both long edges and across the base, to general shape.



4. Using the side of the copper tip to trim the edge to shape, in a shearing motion.



5. Using the side of the antler tine to trim the edge to shape, in a shearing motion.



6. Holding in position to pressure flake; edge is trimmed and ground for tool grip.



7. See where the first few flakes have been pressed off near the tip end of the chip.



8. Copper tipped flaker in position for next flake removal by pressure.



9. Next flake removed, you can see that the flake broke into a few smaller pieces.



10. Turn the chip over after each flake removal, so you can see the results.



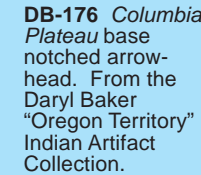
11. First run of flake removals along this edge is complete. Examine your work.



12. The removal of the flakes takes away most of the edge trim, as you can see.



VI-60 Desert Delta side notched arrowhead. From the Vernon Immel Indian Artifact Collection. These ancient arrowheads shown actual size.



DB-176 Columbia Plateau base notched arrowhead. From the Daryl Baker "Oregon Territory" Indian Artifact Collection.



VI-61 A Calapooya corner/base notched arrowhead. From the Vernon Immel Indian Artifact Collection.

Trim & Flake, Trim & Flake, Repeating As You Move Steadily To The Point You Envision.



13. Now the first pass along the other side has been completed. Whole side smoother.



17. A look at the smooth side of the point, while still working rough side, pass two.



21. First full pressure flaking pass along one edge of smooth surface.



25. Early in second full pressure flaking thinning pass, first edge of rough surface.



29. The rougher side, after another good run of thinning flakes along both edges.



33. This pass of thinning pressure flakes at the base of smooth side, too.



14. After the new edge is trimmed again and ground for your tool to get good grip.



18. On rough side, completed second pass along second edge, see the "deltas" at edge.



22. First full pressure flaking pass along second edge of smooth surface.



26. Fracture occurred from too much pressure, where chip was curved, also.



30. The smooth side, ready for another pass of thinning flakes along each edge.



34. Base of the rough side of point, prepared for thinning pressure flakes.



15. Remove a few flakes to thin the bulb of percussion, and straighten the point.



19. On rough side, "deltas" removed, edge trimmed, preparing for smooth side flaking.



23. First full pressure flaking pass along base end of smooth surface.



27. Trimmed to a new point, straighter now, ready for more thinning flakes.



31. The smooth side, after this pass of thinning flakes along the lower edge.



35. Base of the rough side of the point, after a series of thinning pressure flakes.



16. Trimmed, and a second pass along the first side, removing the rough ridges.



20. Edge trimmed and ground, ready for smooth side pressure flaking.



24. Midway through full pressure flaking pass along second edge of rough surface.



28. A view of the rougher side, before more thinning flakes will be removed.



32. Midway through this pass of thinning pressure flakes along the upper edge.



36. Base of the smooth side of the point, after a series of thinning pressure flakes.

VI-62 A Rose Springs corner/base notched arrowhead. From the Vernon Immel Indian Artifact Collection.



JE-04 A Rose Springs corner/base notched arrowhead. From the Eldon Presley Artifact Collection.



DB-401 An Elko corner notch dart point. From Daryl Baker "Oregon Territory" Collection.



DB-404 A Northern Side Notched dart point. From the Daryl Baker "Oregon Territory" Indian Artifact Collection.



DB-78 A Gunther or Calapooya base notched arrowhead. From the Daryl Baker "Oregon Territory" Indian Artifact Collection.



DB-390 A Calapooya corner/base notched arrowhead. From the Daryl Baker "Oregon Territory" Indian Artifact Collection.

