Creating a bush knife with layered wood handle

by 42ndOddity on September 29, 2008

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intro: Creating a bush knife with layered wood handle

This documents the process of creating a 'bush knife' from scrap steel and wood, to the finished product. The aim was to produce a useful tool for one of my favourite pass-times, wild camping. It was designed to meet the following criteria:

Be light enough to be carried as part of my regular kit, replacing my heavy hand axe.

Be sturdy enough to take a bit of abuse, using it to split small logs, function as an improvised hammer etc

Be something that looks like I can be reasonably proud of making it.

Fit my hand perfectly, I don't like blisters.

Have a tip delicate enough to do a bit of wood carving

Hold a sharp edge

I deplore the prospect of knives as weapons, if you have any comments along those lines, please keep them to yourself, I don't want to know.

Asides from that, I'd love to know your thoughts. This is my first attempt at such a project and I have likely missed a few vital steps.

Image Notes
1. grrrrrr

step 1: Materials and tools

Materials
Steel, at least 3mm thick.
Wood, a couple of different kinds, I used pine and redwood
Threaded rod and nut, for fixing the handle in place

Tools
You can probably get away with less powertools than I used, so I'll list them in order of importance

MIG welder
Bandsaw
Grinder
Vice
Pillar Drill
Hacksaw
Disk sander

Others
Wood Glue
Anti-rust primer
Polishing wax
Sandpaper/Glasspaper
Cloths and rags

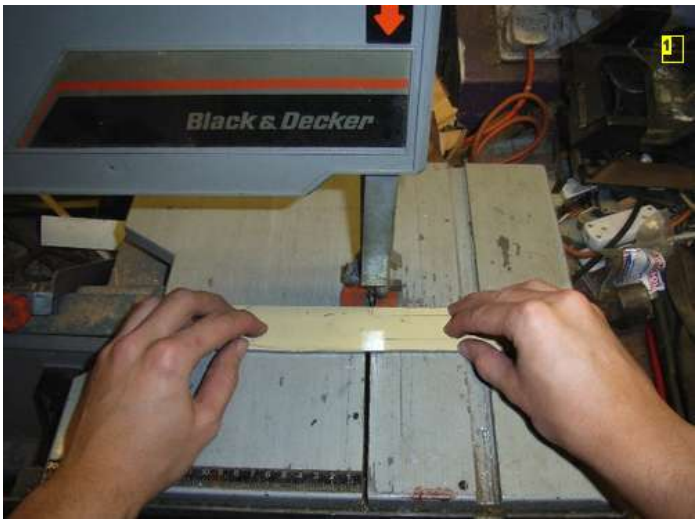


Image Notes
1. I don't reccomend using power tools whilst holding a camera in your teeth, it's hard to get the focus right.

Image Notes
1. Grinding the paint off

Image Notes
1. Cutting the slot in the hilt. Drill the holes as close as possible, using a punch to start them helps. Then file through the sides to make one smooth slot.

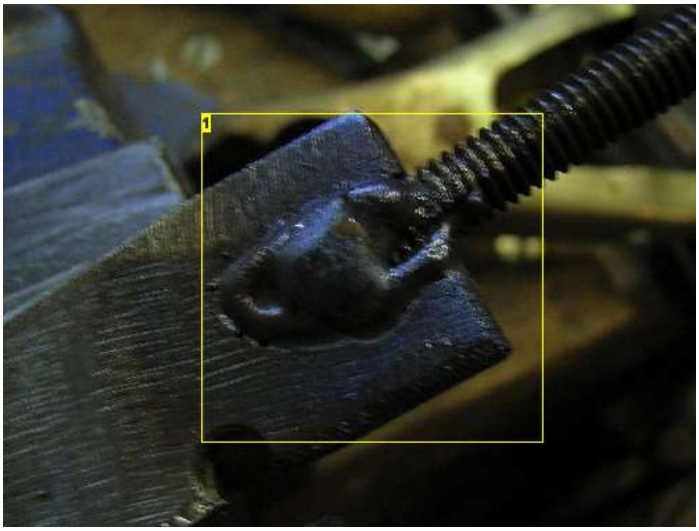


Image Notes
1. Welded in place, ready to be ground down. All the wood has to slide over this point.

step 2: The Blade

This is going to be a through tang/stick tang knife, so the same steel that forms the blade runs through the handle.

Mark out the shape of the blade, leaving at least a 2cm wide handle.

Start cutting. If you are using a hacksaw then you have my sympathy...It's worth a new bandsaw blade to save all that effort. And most bandsaws are capable of cutting metal of this thickness, just take it slowly.

If your metal had a coating, grind it off, we'll be heating and welding later and bare metal is preferable.

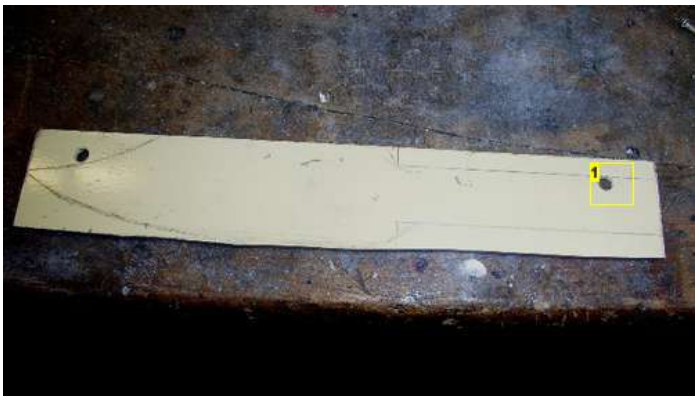
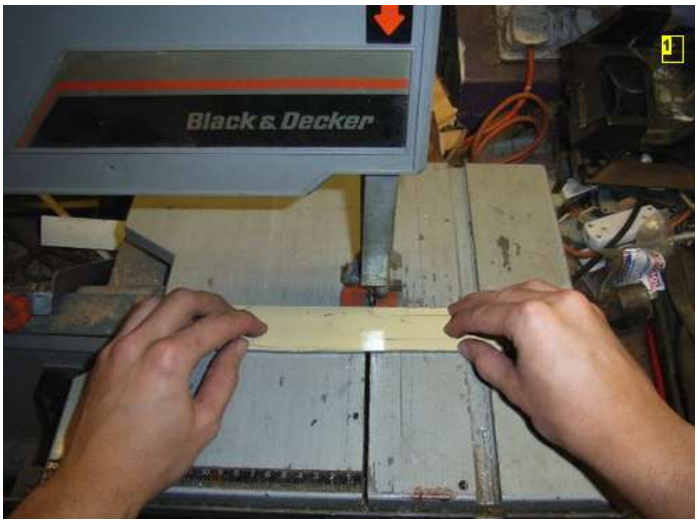


Image Notes
1. Yes, this will get in the way, but it;s not at a weak point, and will be hidden under the handle



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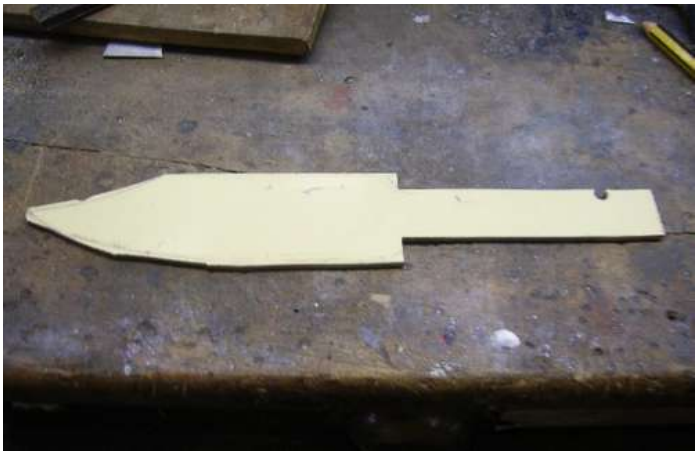


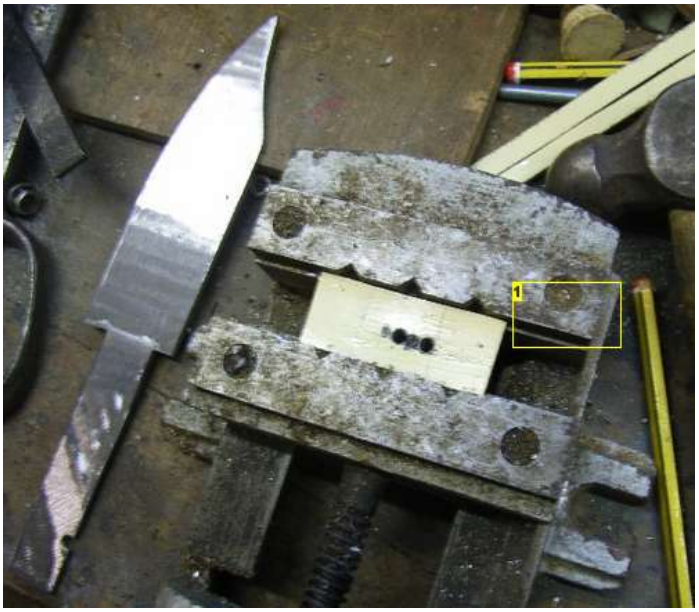


Image Notes
1. Cutting the slot in the hilt. Drill the holes as close as possible, using a punch to start them helps. Then file through the sides to make one smooth slot.

Image Notes
1. Grinding the paint off

step 3: Metal work

Now you have a knife shaped piece of shiney metal, it's time to give it a edge. Not sharp, but taking off the square edge while it's still unpolished.

I used an angle grinder for this step, very carefully and lightly brushing over the edge until it was at the right kind of angle. Then turning it over and doing the same on the other side.

The masking tape was intended to act as a visual guide, but didn't really help much.

Do this until you are happy with the shape and blade angles, then temper the metal with the method of your choice.

I opted for the quick and dirty method of heating and quenching a few times. With no forge to hand, I used a blowtorch to heat the metal before dropping it into a bucket of water. My intention was to focus the heat on cutting edge of the knife, there seems little point in making the whole knife harder and more brittle. Some flexibility will add to the durability and strength.

step 4: Welding and polishing

This seems like a good point to practise my MIG welding skills, as you are about to see, they need a little more work.

The hilt needs to be welded in place, if you have a perfect fit, then only weld from 'below'. But if, like me, the slot is a little larger than the tang, weld all around and grind down the excess metal afterwards.

At this point I had the idea of using a threaded rod and a nut to hold the handle in place, so I cut a slot from the end of the tang, and welded a length of threaded rod (a.k.a, bolt with head chopped off) in place.

While the handle is still bare metal, you may want to clamp it in a vice and start the long process of filing/sanding/polishing the balde. Just work through the grades of (glass) sand paper, finishing with a wet fine grain texture.
I spent a few hours doing this, but didn't get anywhere near a perfect finish. In the end I decided that it was a working knife, not a display piece, so a mirror finish wasn't necessary.

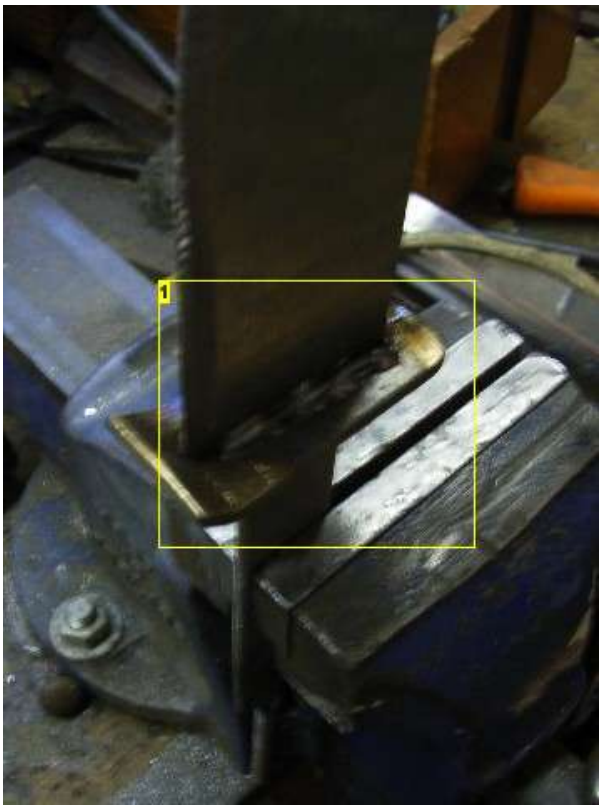


Image Notes
1. This isn't actually all that bad, but I ground most of it off anyway.

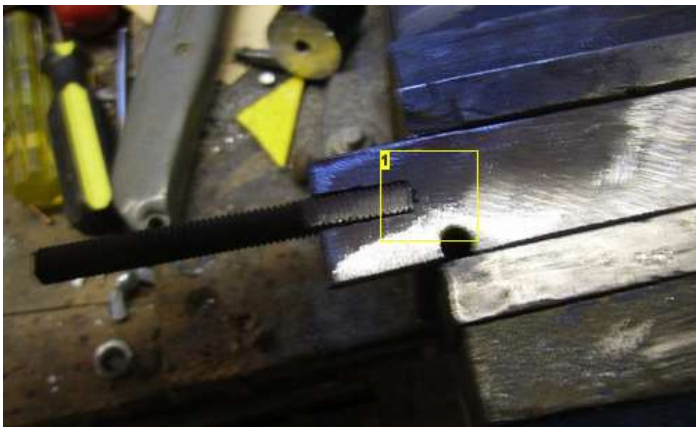


Image Notes
1. Ground down fairly flat, take care not to damage the threads that will actually be used.

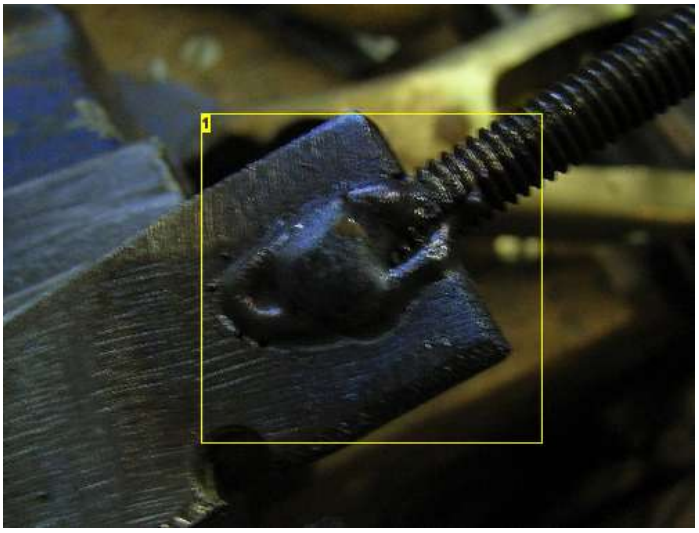


Image Notes
1. Welded in place, ready to be ground down. All the wood has to slide over this point.

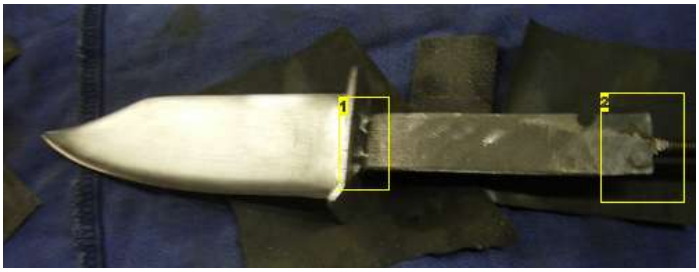


Image Notes
1. Messy weld, but it'll be hidden
2. As long as this is reasonably flat, it's fine.

step 5: The Handle

I saw this technique years ago on a documentary, the craftsman was using slices of bone and antler as well as wood, but those aren't easily available to me. I chose to use hardwood, (I think it's some kind of redwood) seperated by strips of white pine.

Again the pillar drill comes in useful for cutting the slots in the wood...To do the pine strips I taped them all together and drilled the whole lot at once.
The hardwood chunks were done individually, but using the same method of drilling five parallel holes and then knocking through to form a slit. A larger drill bit was used to widen the slot to allow it to pass over the threaded rod.

The process from here should be fairly obvious, slip each layer onto the handle, smear with glue and repeat.

I'd reccomend the top and bottom pieces being of the harder wood, as these will take the most wear and tear.

Tighten it all up, then leave it 24 hours to set.

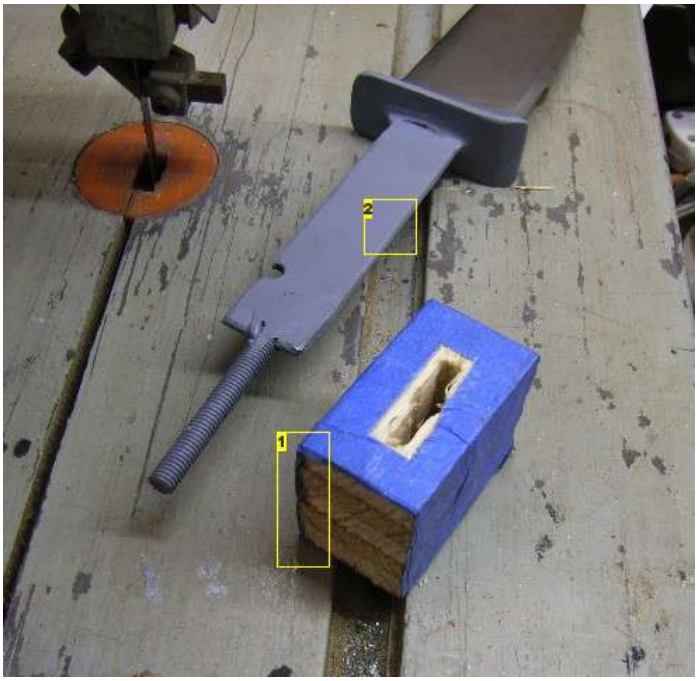


Image Notes
1. 5 layers of pine, all same thickness, other dimensions don't really matter at the moment, as long as they are all bigger than you want the handle to be.
2. Given a quick spray with primer, just in case it ever gets wet, this should prevent rust.

Image Notes
1. Smear this with glue, then slide on the next layer

Image Notes
1. Scrap piece of pine, washer, then nut. To protect the wood beneath from indentations
2. Tightening the nut to compress the layers.

step 6: Finishing the handle

Basically start cutting lengthways down the handle, work it into a basic handle shape. I used the bandsaw for this, but it's not particually safe to do so...fingers in vunerable places.

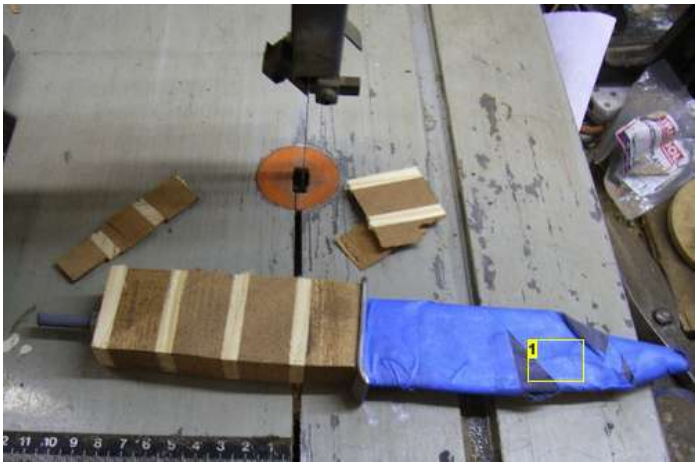
Work it down with a file or rasp until it fits comfortably into your hand.

I made the butt slightly crooked, and added some subtle grooves for my fingers and thumb. This is for my use, so it may as well fit my hand perfectly.

Once you're happy with the shape, start sanding. Try a long thin strip of sandpaper, pulling it back and forth around the handle to smooth out the curves. An occasional wipe down with a damp cloth helps reveal which areas still need work.

To strengthen the butt, I added a steel plate, made slightly smaller than the wood, which was then sanded down to fit the metal. Smear some rust protecting substance (wax?) under the metal before tightening it up for the last time.

Once you're happy then apply some polishing wax or oil to seal the wood and bring out the colours.



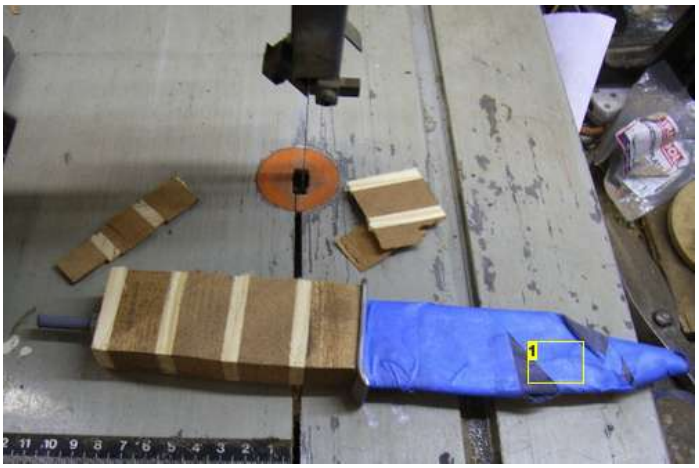


Image Notes
1. Improvised sheath

step 7: Finished, future improvements.

I could keep on polishing and sanding for hours, but at this point it looks reasonable enough for photographs.
It's not yet sharpened, but several other instructablesseveral other instructables cover that in detail already.

Future Improvements

A sheath, preferably real leather, with a strong belt loop.

Initials, when I find the metal letter stamps, I'll stamp my initals on the base of the blade.

Tempering, I suspect it could be done better...Maybe a forge is a good investment

Better wood, the pine will eventually wear down, leaving grooves in the handle.

Final point
In the UK it is illegal to carry a fixed blade knife in most, if not all, public places. Check with your local law enforcement. I usually keep all such items stowed away in bags until I'm actually out in the countryside and away from roads.

I was unsure about publishing this, but there seem to be several other 'make a knife' instructables already. Please, be sensible.

Image Notes
1. grrrrrr

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Pocket Knife from Junky Multitool by Lego man

Comments

50 comments **Add Comment** **view all 128 comments**

crayzclown1 says: Nov 1, 2008. 5:15 PM **REPLY**
where can i get the steel, im too poor to buy it.

:[

cowscankill says: Nov 3, 2008. 1:37 PM **REPLY**
Binders!!! Look up the instructable about how to make a binder knife!!!

crayzclown1 says: Nov 9, 2008. 3:25 PM **REPLY**
i mean THICK steel, ive seen and made the binder knives, they are terrible

cowscankill says: Nov 9, 2008. 4:12 PM **REPLY**
You haven't seen mine...

crayzclown1 says: Nov 10, 2008. 7:46 AM **REPLY**
how big is it?

cowscankill says: Nov 10, 2008. 2:49 PM **REPLY**
Length, width, or height?

crayzclown1 says: Nov 10, 2008. 5:17 PM **REPLY**
all plz

cowscankill says: Nov 11, 2008. 11:24 AM **REPLY**
Just the blade right?

crayzclown1 says: Nov 12, 2008. 7:49 PM **REPLY**
yeah

panstar1 says: Nov 4, 2008. 11:29 PM **REPLY**
I've done this before ,except I didn't use steel. I used band saw blades from a saw mill (about 12 inches wide with carbite teeth) the blades were made out of stainless steel or a alloy of I am not sure ,but they had to be cut with a plasma cutter. I did this with my uncle and use a some sort of plastic and held the two half's together with bits of aluninum pounded into a rivet. The knife can hold and edge ,but is not as fancy as this one is but is still good for what I need it for.

VogelYogel says: Oct 28, 2008. 5:29 AM **REPLY**
"I don't recommend using power tools whilst holding a camera in your teeth, it's hard to get the focus right."
Buddy, I think that was the least of your worries.

Great instructable, if I had a welder and most of those power tools, I would definitely make one.

nukietheAtomiczomBie says: Oct 25, 2008. 11:57 PM **REPLY**
That's very impressive craftsmanship. Perhaps you could use the drill press to drill a hole in the nut at the end of the handle for a leather wrist band. I think the white pine is especially nice, when you pass that knife down in generations it will have the evidence of your life, your existence, in the lines of its handle. A wonderful hand-made piece.

cowscankill says: Oct 4, 2008. 8:03 AM **REPLY**
>:(

I'm making a knife, and my mom got mad and said "make something all of of can use, not weapons."

I have more than 10 guns, 4 of them can be lethal. I have tazers, lighters, even pocket knives but she gets angry when I try to make a knife....

kingalexl says: Oct 25, 2008. 3:53 PM **REPLY**
that makes little sense...

Do_Not_Turn_Off_The_Power says: Oct 22, 2008. 3:51 AM **REPLY**
Sucky mom, huh? I am a weaponmaker, (One of the weapons I made is the sword shown on the pic), and my mom don't give a dang. She actually supported me! :)

cowscankill says: Oct 22, 2008. 12:59 PM **REPLY**

:(

Thanks makes my life worse....

lol

Do_Not_Turn_Off_The_Power says: Oct 22, 2008. 1:02 PM **REPLY**

Why? You feel inferior to my swordmaking skills, hmmmm? Nah JK I'm sure that your knife look great :)

cowscankill says: Oct 24, 2008. 2:18 PM **REPLY**

No, because your mom is more... carefree? My mom hates weapons. My dad on the other hand just says "Just be careful"

brandon borick says: Nov 2, 2008. 10:31 PM **REPLY**

same here exept my mom says ask your dad

nerfer192 says: Oct 25, 2008. 4:38 PM **REPLY**

hahaha same here

Do_Not_Turn_Off_The_Power says: Oct 24, 2008. 3:44 PM **REPLY**

I did say I was JK, you know :P

Aaaanywaaayyy.....pic of your knife?

cowscankill says: Oct 27, 2008. 1:15 PM **REPLY**

If I remember to.

Holden_vy_s says: Oct 12, 2008. 12:34 AM **REPLY**

Why would you ask?

cowscankill says: Oct 12, 2008. 6:43 PM **REPLY**

I didn't ask.

" I'm making a knife, and my mom got mad and said "make something all of of can use, not weapons.' "
I was making it and she got mad.

Holden_vy_s says: Oct 13, 2008. 1:23 AM **REPLY**

Then hide it?

cowscankill says: Oct 13, 2008. 3:30 PM **REPLY**

she kinda forgot about it... It just laying on my desk, actually two are :D My second one looks so sexy!

Firebang says: Oct 7, 2008. 7:41 PM **REPLY**

All guns can be lethal if used right. If only four of your guns have deadly potential, then I highly doubt that they are real guns... Airsoft, maybe, or paintball?
And if the lethal guns (I'm guessing a .22 calibre rifle and up) are permitted by your mom, then I don't understand as to why she's uptight about the knife making.

brandon borick says: Nov 2, 2008. 10:32 PM **REPLY**

ok just for point of consept a nerf gun can not be leathel

cowscankill says: Oct 11, 2008. 11:44 AM **REPLY**

depends... how big is .22 caliber? I have a 25mm gun, my biggest. My most powerful and heaviest too.

brandon borick says: Nov 4, 2008. 9:52 PM **REPLY**
o wait is it an air gun

brandon borick says: Nov 2, 2008. 10:34 PM **REPLY**
um a 25mm is used buy aa guns it has the same forse in the casing as 14 30-06 rounds or about 42 12ga shot gun rounds

brandon borick says: Nov 4, 2008. 9:51 PM **REPLY**
no sary you dont ar you shere its not 25cal

cowscankill says: Nov 3, 2008. 1:38 PM **REPLY**
yes, i have a 25mm gun.... dang strong

brandon borick says: Nov 12, 2008. 11:44 AM **REPLY**
if its no an air gun know you dont sarry but these can kill a tank i 4 rounds

Firebang says: Oct 13, 2008. 5:40 PM **REPLY**
Your standard .22 bolt-action rifle, which can defenitely kill small game like gophers and rabbits, but will injure most coyotes.

cowscankill says: Oct 14, 2008. 2:48 PM **REPLY**
but how big is a caliber? specifically .22 caliber...

andrew_29 says: Nov 11, 2008. 10:57 AM **REPLY**
a 22. cal round is 5 mm its a kids gun there just used for fun i don't recommend trying to hunt with one thats y they have 30-30s & 45s

brandon borick says: Nov 12, 2008. 11:45 AM **REPLY**
22 is good for small game but i like a mossberg 500a 12ga exta full choke for quil

brandon borick says: Nov 2, 2008. 10:34 PM **REPLY**
a 100th of an inch

Nilhilustfrederi says: Oct 14, 2008. 3:31 PM **REPLY**
.22 inches, or 11/50ths of an inch. Caliber refers to a bore measured in inches, while gauge is more complicated. Some calibers are measured in milimeters, like the 9mm. .22 rimfire is a very common caliber for shooting cans, rodents, or those damn kids playing on the lawn.

BTW, when you say gun, people think the iron and wood kind that shoots bullets, not the plastic and aluminum kind that shoots foam/paintballs/pellets.

cowscankill says: Oct 14, 2008. 3:34 PM **REPLY**
uh.. its not plastic and aluminum. It's plastic. And it is very dangerous, more so than airsoft and paintball, possibly even my dad's pellet rifle.

cowscankill says: Oct 14, 2008. 3:35 PM **REPLY**
wait, so a .50 caliber gun has a half inch bullet?

kingalexl says: Oct 25, 2008. 3:55 PM **REPLY**
yes.

Nilhilustfrederi says: Oct 14, 2008. 4:29 PM **REPLY**
yes it is. Caliber is not necessarily related to power, though. And there are lots of different .50 caliber rounds. They all shoot half inch bullets.

Also, Airsoft/paintball/spudgun/whatever != real gun (firearm). Having the word "gun" on the end doesn't make it so. Ex. hot glue gun, marshmellow gun, etc.

brandon borick says: Nov 2, 2008. 10:36 PM **REPLY**

hay ever wonder w spud guns ar elligal i ca it becuse ganes used them to noke ecother

Nilhilustfrederi says: Oct 14, 2008. 4:41 PM **REPLY**

It also isn't a rifle unless it has spiral grooves in the barrel that put a spin on the round.

brandon borick says: Nov 2, 2008. 10:37 PM **REPLY**

roung a smoth bore musket is difined as a rifel

cowscankill says: Oct 15, 2008. 12:58 PM **REPLY**

Oh, so my dad only owns a pellet gun, not rifle. But are you saying my air gun isn't a gun?

Nilhilustfrederi says: Oct 15, 2008. 2:51 PM **REPLY**

Generally if it shoots only BBs, it's smoothbore, but if it shoots pellets it's rifled. If its a breech-loading, break barrel style pellet gun, you can look into the breech and see the rifling in the barrel.

I wouldn't consider an air gun a "gun" in the firearm, gun-owning, small arms, no felons allowed, deer hunting sense of the word. Like I said, when you say gun, it's assumed you mean the kind that propels metal projectiles via burning gunpowder.

brandon borick says: Nov 2, 2008. 10:38 PM **REPLY**

hay a the right pellet gun can kill a dear in one shot even if you dont hot the head or heart

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