



Bowdrill - Going for An Ember

Here we assume that you've got a functional bowdrill kit that has already been burned in with a notch carved. This video takes you through the process of creating an ember and looks at some of the challenges that can arise and some tips to help overcome them. There are previous videos on making a bowdrill kit, burning in the socket and carving the notch.

The Overall Process

In the video you'll see Daniel gets his kit in position with his non-dominant foot on the baseboard, non-dominant hand on the handhold with his wrist supported against his shin and his dominant hand on the bow.

He starts with long, slow, steady strokes of the bow. This gets the kit moving and warmed up. It doesn't take long until you see wisps of smoke coming from the base of the spindle. He steadily speeds up his bowing and has added some more downward pressure enabling the dust being produced to build up. You'll notice here that the smoke thickens. As the notch fills up he speeds up a little more, continuing to use the full length of the bow, to help the dust ignite. He then stops under control, lifting the spindle away from the baseboard.

At this stage you can tell that there is an ember as there is smoke coming from the dust pile itself that continues to smoke. He gives the ember a moment to grow into a slightly stronger ember before transferring it into his tinder bundle. Then he blows it into flame.

Positioning and Things to Remember

All of the aspects that you were learning about in the previous video to enable you to burn in the socket apply now when using the kit to build up enough dust in your notch that is hot enough to ignite as an ember:

- Add any lubrication you need for a wooden handhold (holly leaf, wax, soap...)
- Place your non-dominant foot on the baseboard
- Twist the spindle into the bow string so the string is in the middle of the spindle. The spindle sits on the side of the string that is away from the bow.
- Ensure your handhold is positioned so the spindle is upright and not leaning at any angle. You can adjust your foot placement on the baseboard so that your shin is in a good position to support the wrist and hand holding the handhold.

Bowing Technique

- Start moving the bow slow and steady

Disclaimer: The advice in this guide is considered to be correct at the time of writing, but Red Squirrel Resources accept no liability for actions inspired by these resources.

- Use the full length of your bow when bowing
- Bow horizontally (not lifting the bow at the end of the stroke either front or back)
- Having the tension on your bow string just right is important for a bowdrill kit to work efficiently. If the string starts slipping just occasionally or when you think you're close to getting an ember you can temporarily tighten the string by pinching it between the thumb and finger of the bowing hand. Another way is to grip the string of the bow to the bow itself to tighten it a little whilst bowing.

Refining your Notch

If you find that you've been successful in getting your kit moving and you are generating dust between the spindle and the baseboard, you may need to refine your notch to gather this dust effectively. In the video I show how dust will gather around the base of the spindle if the notch is not quite wide enough. If this happens, it is relatively easy to refine the notch by widening it a little. It's best to make adjustments a little at a time rather than having a problem of the notch being either too wide or too deep.

If the notch is too wide, the spindle can move from its socket toward the edge of the board. The only way to counteract this is to then move your handhold so that the spindle is drilling in at an angle slightly away from the notch.

If the notch is too deep, you'll find the centre of the spindle start to have a protrusion on it. This will keep getting bigger and so the best way to deal with this is to keep carving the protrusion off. You can of course also start burning in a new hole.

The notch is another detail to pay attention to and it's worth spending the time to get it just right.

Is There an Ember?

So when you've refined the kit and your technique is good, you'll be generating some good quality dust that can fill the notch and you will likely get some fairly thick or noticeable smoke coming from where the base of the spindle meets the baseboard.

When I think I've got an ember, I usually do an extra 10 bow strokes, just to give it the best chance. Then I'll stop under control, take the spindle out and observe the pile of dust. I'm looking for a small stream of smoke coming from the dust pile to indicate that there is an ember there.

If you've done it, and there is an ember, carefully remove the baseboard. It can help to hold the tip of a knife on the top of the dust pile to keep the ember and its dust undisturbed. You can add some air by gently fanning it with your hand, letting it grow and establish a little more before you lift up the welcome mat and transfer the ember to your tinder bundle.

There is another video on tips for blowing tinder bundles into flame and another on types of tinder and tips for making a tinder bundle.

Variations

- You can adapt the bow to use plant fibre cordage when using the Ancient Egyptian bowdrill method
- You can use various materials for the handhold to create less friction at the top of the spindle and ease the process of using the kit.
- When you get very proficient in bowdrill, it can be a fun challenge to try it left handed if you are right handed, or vice versa.
- Another extension challenge that will develop your skills in bowdrill further is to do it blindfolded.

Invisible Learning

- Perseverance
- Attention to detail
- Qualities of different woods
- Principles of friction
- Connection to Fire
- Connection to our ancestors

Hazards to Highlight

- Cuts from tool use

Risk Assessment Considerations

These are the risk assessment consideration documents to be referred to for this activity.

- Safe Tool Use
- Safe Knife Use
- Site risk assessment (specific to your site)

Links

- Making a bowdrill kit parts 1 and 2
- Going for an ember with bowdrill
- Egyptian Bowdrill
- Knife Safety
- Tinder

Tags

- Fire by friction, bowdrill, bow drill, whittling, carving, fire, preparing a bowdrill kit, making a bowdrill kit