



### **Making Char Cloth**

Char cloth is a valuable material to have in your bag when out and about in the woods. It can make all the difference to getting your fire lit, especially on a damp day. Char cloth is essentially cotton cloth transformed into carbon. It catches a spark very easily and then helps it grow into a larger glowing ember that can be blown in a tinder bundle to ignition. It's quick and easy to make on a fire with very basic equipment.

### **Primer**

Before making char cloth with a group I usually have some from a previous batch that we can use to light a fire. If unfamiliar with the material, the children will likely ask about what that 'black stuff' is and this curiosity of theirs is the perfect launch pad to go on to make some with them, dropping in a few science principles along the way:

- Char cloth is made through 'pyrolysis' which literally means using fire (*pyro*) to split (*lysis*) a material. Practically it looks like heating material in the absence of oxygen.
- During the process of pyrolysis, substances other than carbon leave as gases. They need an escape route, otherwise they could pop the tin open by expanding and building up pressure in the tin - this is why we make a hole in the tin

### **Ages**

Any age can witness this process and learn from it

### **Duration**

15-20 minutes

### **How To**

- You'll need a fire that is established, a tin with a hole in it and 100% cotton cloth and a striker if you want to try it out straight after
- Fold, tear or cut the cotton cloth so it fits comfortably in your tin
- Ensure there is a hole in the tin for gases to escape
- Place the tin on the fire and observe. After a few minutes you should see gases (looking like smoke) leaving the tin out of the chimney hole. You may also see these gases ignite and a flame appears at the hole in the tin
- When the smoke and flame have finished appearing at the hole in your tin, this is your indication that the process is complete.
- Take the \*hot\* tin off the fire with sticks or a fire glove and leave in a safe place to cool completely

*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.*

- When it is completely cool, open the tin and see if your char cloth is completely black
- If there are some brown patches you can put those bits back in the tin and put it back on the fire to complete the process. In this case it is likely there wasn't enough heat under the tin - sometimes the tin stops air getting to the fire under it so consider propping it up

### Equipment Needed

- Fire
- 100% cotton cloth
- Small tin with a hole in, or a knife or nail with which to make a hole

### Variations

- You can use this same process to create charcoal to draw with from sticks or charcoal for BBQs is also made with the same principles, but a much larger 'tin' or metal barrel is used.

### Teacher Tricks and Tips

- Make sure you have a hole in the top of the tin
- Ensure the tin is completely cool before opening once the process is complete. If you take the lid off too early you risk the char cloth self-igniting as it exposed to the oxygen

### Invisible Learning

- Understanding of pyrolysis
- Survival material for fire lighting from sparks (works to catch sparks from modern steel and strikers as well as older flint and steel)

### Hazards to Highlight

- Burns on hot tin
- Burns from holding a piece of char cloth where it has caught alight from a spark

### Risk Assessment Considerations

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

- Fire Related Activities
- Site risk assessment (specific to your site)

### Links

- Making Charcoal for Drawing
- Fire Lighting Activities