

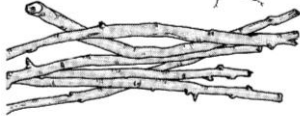
## Firelighting at Forest School

Having chosen your site, the first step towards a successful fire is gathering the right fuel. This activity gives the young people an opportunity to move away from the group leaders and work independently choosing and sorting their sticks. The whole process of building and lighting a fire enables the young people in the group to practice their large and fine motor skills and provides them with instant gratification and a sense of achievement as the fire grows before them. Fire is also a potentially dangerous thing, so to entrust an individual with the responsibility for building and lighting a fire can be a huge boost to their self esteem. It is therefore important to ensure that all the elements are in place to maximize their chances of success.

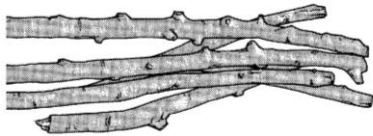
To begin with, twigs the thickness of a matchstick are used to enable the flame from the tinder (newspaper/cotton wool/various appropriate barks/seedheads to grow and establish itself. The next twigs required are of pencil thickness, followed by thumb thickness and finally up to wrist thickness depending on the purpose and size of fire required. It is important to ensure that all wood selected is dry and brittle, look for standing dead wood (hung up in trees). Birch, Holly and Pine are good woods to select for the initial stages of a fire.



Plenty (at least 2 handfuls) of extra fine (matchstick size thick), and fine kindling used to establish flame from tinder.



Kindling of pencil thickness, brittle and dry. Good to keep some extra ones of these in case a fire needs to be rekindling at a later stage.



Thumb thickness – this is the beginnings of the fire proper and will burn down to embers.



Normally the largest fuel required at Forest School would be of up to wrist thickness. Anything larger is best left to overnight camps.

**Remember:** It is important to gather all the fuel you need in enough quantity to create an established fire before you light it. Kindling will burn away very quickly and any flame will probably have gone out by the time you return with the next size of fuel.

Fuel is best collected as standing dead wood, that is wood that is dead but still attached to the tree on which it grew. Suitable wood can also often be found caught up in the branches of neighbouring trees. Wood found in these ways is best because it has not come into contact with the ground and is more likely to be dry.

## **BUILDING THE FIRE**

For a fire to burn successfully three things are required- FUEL, OXYGEN and HEAT. These three elements together are commonly known as the fire triangle. Remove any one of these elements and your fire will go out or will not light in the first place. It is therefore important, especially in the initial stages, to protect your fire from the weather and from the dampness of the ground. To do this you can either shield your fire by using your body, or more practically by lighting it within the shelter of a log framed fire pit. To insulate the fire from the ground construct a small platform of dry sticks (about thumb thickness) and build your fire on top of this. As the fire establishes itself this will burn and provide a good heart of embers.

**Building a 5-Minute Fire:** Next, create a 'nest' of loosely rolled balls of newspaper (or whatever tinder you are using) on top of the platform. On top of this lay a criss cross waffle pattern of matchstick thin twigs. Next start to build a 'tipi' shape around the tinder and fine kindling with the pencil thickness twigs. Ensure these come into contact with the matchstick sized pieces and that they create a steep pyramid shape (height is important for successful fire lighting). Leave a small gap clear of any twigs as a 'door' facing into the wind so that you will be able to light the tinder. Finally the thumb thickness pieces of wood can be added by forming a second layer to the pyramid (on top of the pencil thickness ones), still leaving a 'door' facing the wind. Once ready, take a match (or whichever method of lighting you are using) and light the tinder through the door at the base of the fire. This will allow the wind to help blow the flames into the fire and the heat to build and rise to ignite the twigs.

There are many ways and shapes of laying a fire. The '5-minute fire' lay is a method we have used when working with children/young people. Its benefits is that all the fuel that you need for the task is added before the fire is alight, so you do not have the risks associated with adding firewood during the burn. As an adult, if you need a fire to burn longer or to cook on, it may be that you begin the fire using the '5 minute fire' but then change the shape of the lay and add more wood once the fire is established.

## FIREWOOD

It is generally accepted by most people that any wood will burn if you can get it hot enough. However, different types of wood have different properties (densities and water content) and hence will burn differently.

**Starting the fire:** In the early stages of firelighting you want the kindling to burn fast and bright with a lot of flame, so that this heat will build and spread to the larger pieces of wood. Species that tend to burn in this way include: Birch and most conifers (like pine, larch etc), so they would be a good selection for your small kindling. They would also work well for boiling water or for fast cooking. The disadvantages of them are that they burn very quickly, conifers tend to spit/spark and once burned leave mostly ash with very few embers in the fire pit to cook on.

**Controlling the fire's heat:** Once the fire is established you usually want the wood to burn more slowly (so you use less fuel) and evenly in a controlled way. Also if you are cooking you will often want woods that will create a nice bed of embers to grill, bake or roast things. Species that tend to burn like this include: Oak, Beech, Ash, Fruit Species, so they would make a good selection for your larger pieces of firewood.

**Woods to avoid:** Alder, Elder and Poplar burn very poorly and tend to do little more than smolder.

Sweet Chestnut and Willows can spit and crack, sending embers flying out of the fire into the surrounding area!

Although there is no evidence that the smoke from burning poisonous species of woods is any more harmful than woodsmoke from any other species, some people choose not to burn those woods (particularly when cooking). Poisonous woods include – Yew, Rhododendrum, Laurel etc.

## TINDER

There are various different types of tinder that can be used to start a fire, some can be found in the natural world and others are man-made. It is very important that your tinder is as dry as possible. All tinders will light when a flame is introduced (as in a match) however if using other methods of firelighting (like sparks etc) you may need to be more selective with the type of tinder and ensure it is fine enough.

**Examples of Man Made Tinders:** Newspaper, Cotton Wool (can add petroleum jelly to extend the burn), wax paper, firelighters.

**Examples of Natural Tinders:** Outer Barks of Birch, Clematis, Honeysuckle, Dried plant stems such as bracken, docks, nettles, grasses (hay), Seedheads such as thistles, rosebay willowherb, clematis etc.

## ENVIRONMENTAL IMPACT

If you are having frequent fires at your Forest School it is important to monitor and manage the amount of resources you are harvesting and using. It is amazing how quickly dead wood can be diminished, and it is an incredibly valuable habitat (some of the rarest minibeast species live in standing deadwood). It is also important that you are aware of the species present in your area and their lifecycles – for example Dormouse (a protected species) make their nests from the outer bark of honeysuckle, so if you are in a Dormouse woodland perhaps it would be best to leave honeysuckle bark and use another type of tinder. In the long term you may need to consider importing fire wood and tinders from another sustainable source.

## TIPS FOR FIRES AT FOREST SCHOOL

- Site your fire carefully; avoid tree roots, peaty soil, stones, paths, overhanging branches and/or structures etc.
- Don't light in very windy or tinder dry conditions.
- Consider the distance between the fire surround and seating logs and keep this area free from trip hazards. Ensure there are emergency exit routes in case you need to leave the area quickly.
- Ensure a competent adult is always supervising the fire
- Fix surround and seating (using pegs) to ensure stability.
- Have sufficient water available to extinguish the fire.
- Have a bucket full of fresh water as a burns bucket with a soaked bath towel to use as a fire blanket or hang a fire blanket near the fire.
- Use wood as a fire surround and base (rather than rocks as some types of rocks explode and shatter)
- Practice how to behave around the fire area before lighting it to ensure the group knows what to do. Games and stories/songs could help with this – depending on the age of the group.