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**Fire Documents**

Of all the animals in the natural world, we have a unique relationship to fire. Our modern physiology has been formed through our interaction with fire over many thousands of years.

Fire gives us warmth and light, providing us a place to come together, to cook our food, to share stories and song, to craft and connect.

Sharing time around the camp fire and developing the skills of fire making can be considered intrinsic to forest school practice, or at the least, a rich opportunity to learn. Watch any child light a fire for the first time and see how they light up from the inside!

There is a life times worth of learning in the progression of fire making skills and how to use the fire well as a tool for cooking and crafting. Relating respectfully and safely to fire is invaluable practice.

**Environmental Conditions**

It is important to choose your fire site well and to use common sense. We need to consider the natural environment as well as the children in our care.

**Please consider the following:**

* Do you have permission to have a fire on the land? National parks and Nature reservations usually have a no fire policy.
* What is the soil type? Peat is a real hazard when making fires, as it can ignite underground, out of sight and burn for days, potentially causing above ground fires. Consider choosing an alternative sight, or use a fire bowl.
* Consider the seed bank. Soil is alive and contains millions of micro-organisms and many seeds. The bigger and hotter a fire, the greater the impact on the soil. (Though wild fire is a natural phenomenon and that when in balance, the ash and carbon help to nourish the soil and enable certain plants to grow).
* (LEAVE NO TRACE)
* In Ireland, the ‘Leave no Trace’ movement has a specific protocols and practices, which can be applied in a Forest School setting (LINK HERE)
* Consider the resources in the area. A healthy forest needs dead wood to support a myriad of life forms who are vital in the food chain and the balance of the eco-system. If the sessions are regular and the resources are getting depleted, consider buying firewood.
* Only burn wood on the fire. Burning rubbish is harmful to the environment and toxic for people to breathe.
* Avoid using aluminium foil for cooking on the fire. It is questionable use of environmental resources and often leaves remnants in the fire or forest.
* Seasonal considerations are vital. During the dry summer months particular care must be taken in the management of fire in a woodland setting due to the risk of forest fires.
* Choose the fire site carefully, avoiding overhanging branches, tree roots and being too close to trees. Clear leaf litter to avoid leaving embers you cannot see.
* Use common sense with the size of the fire. It is not unusual for people/children with a lack of experience to put a lot of wood on the fire. A large fire within a woodland setting creates a risk of forest fire.

**Forest School Fire Safety Check List**

**Equipment**

* Fire Risk assessment and emergency plan
* First Aid
* 2 buckets of water – clean and other
* Fire gloves
* Log circle (log seats are safer than benches).

**Safe Set up**

* Log circle 1.5 from fire
* Consider exits
* Tie hair back, scarves out of the way
* No gloves
* Wind direction and smoke direction

Encourage the practice of going round the outside of the log circle once the fire is lit. Only those given permission in interact with the fire to move within the log circle.

Songs and games reinforces factors and a fun interactive way.

**Fire making principles**

The element of fire has three requirements known as the fire triangle

1. Heat source
2. Fuel
3. Air

**Heat source – the spark!**

 There are many ways to create the ember or spark to ignite the fire, from modern to ancient methods. In and of itself this can be a wonderful area of development over many years. Listed below are some methods for igniting fire and the easiest materials on which to catch the spark. Notice how the modern methods that using the old ones, however the ancient techniques can be created entirely from source in nature:

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| --- | --- |
| **Heat source** | **Tinder** |
| **Modern Methods** |  |
| Matches/Lighter | Paper, cotton wool, natural tinder |
| Magnifying glass (needs sun)  | Natural tinder |
| Fire striker – a modern firelighter made from an amalgamation of metals. This is the method most commonly used in Forest School practice at this time. | Cotton wool, charcloth, natural tinders |
| **Fire by percussion** |  |
| Flint and iron – Iron age onwards. Uses a piece of flint and a piece of iron, can be shaped as from iron age or an iron cut in half. | Charcloth is most effective to catch spark and certain dried mushrooms such as *Daldinia concentrica* (King Alfred’s cake) or *Ganoderma genera* are natural tinders for this method. |
| Flint and iron pyrites – these two rocks create probably the oldest fire kit used by our ancestors. Iron pyrites can often be found in chalk-flint landscapes. The rocks can be struck together to form a spark. This is known as ‘fire by percussion’.  | Dried and powdered mushroom such as the *Ganoderma genera* or *Fomes fomentarius* (Tinder hoof fungus). |
| **Fire by friction** |  |
| Bow drill – a method used in many cultures to create fire by friction, rubbing two pieces of wood together with the use of a stringed bow to help spin the wood effectively. This method takes time and dedication and offers the potential to create fire directly from the resources of the forest. | Natural tinder |
| Hand Drill - used throughout the world in many indigenous cultures, like the bow drill, this method creates ‘fire by friction’ but uses fewer parts. Only two pieces of wood or plant material are used, the fire lighting person rubs them together in a particular method. This requires dedicated practice. | Natural tinder |

**Fuel for the fire**

**Tinder**

The fire making principle is to catch the spark onto a suitable dry material which has many tiny surfaces, usually fibers, for example cotton wool, dry grass, scrapped birch bark. This initial material used to catch an ember or spark is often referred to as ‘tinder’. Paper is a form of tinder as it easily catches a flame because it is made out of many tiny fibers of wood.

**Good natural tinders commonly found in or near a woodland environment:**

* Dry dead *Pteridium* (bracken)
* Dry dead grass
* Dry dead *Galium aparine* (cleavers/sticky weed)
* Silverbirch bark – only take a small amount and use the very thin bark which the tree is naturally shredding.
* Dry inner bark from dead trees
* *Daldinia concentrica* (King Alfred’s cake)
* *Ganoderma genera* (found often on dead beech but other trees also.)

**Charcloth**

Charcloth is easy to make and is very effective at catching a spark which can then go into the natural tinder bundle/nest. Like charcoal, it is a way of making cotton cloth into ‘carbon’ cloth which easily holds an ember. Into the tin put strips of cotton cloth. It must be 100% cotton to work effectively. Do not pack too tightly or the cloth will not char properly. Place the tin into a fire. The holes in the lid allow the gases to escape, they may catch fire which is fine. When the tin stops smoking remove from the fire and leave it to cool before opening. If you open it too early, the cloth ignites.

Charcloth is often used in Forest School practice as it works well to catch the spark from the fire striker which are easy and safe the children to use.

**Wood**

**Kindling**

Wood is gathered from thin to thick (from spaghetti size to pencil then thumb thickness). Children love gathering firewood. Find inventive ways to make it fun. Often sticks on the ground are damp whereas the dry dead wood is blown down by the wind and can be found caught in the bushes and lower branches.

**Fire Wood**

The wood from different species varies in its suitability and way of burning. Experience will show you for example: Pine burns fast and bright, oak burns very slow and hot with less flames, sweet chestnut burns well but spits.

Avoid burning toxic woods such as yew and rhododendron. Wood needs to be dry to burn well, it is important to gather and dry tinder in advance. Wood needs to be seasoned which means it has been dead long enough to dry out from the middle.

**Air for the fire**

Fire needs oxygen. The way a fire is lit, laid and tendered is an art of helping to ensure the right amount of air flow. Too much wood all packed on may put the fire out, just as having too much space between the pieces of wood. There are many different ‘fire lays’ which are arrangements of the wood designed for particular purposes. Some of the most commonly used are Tipi fire, upside-down fire and crisscross fire. Be aware on windy days how flames can be larger than usual and blow around unpredictably. It is good practice to arrange the log circle in a horseshoe shape to allow a gap for the smoky area. When lighting the fire ensure you sit with your back to the wind, this way the wind can aid your fire lighting and you avoid flames and smoke blowing towards you.

**Benefits of fire**

Fire creates a heart to the camp, a place to gather together and share warmth. It enables us to cook food. Fire is a tool for crafting in many cases. Fire making is a rich place to learn many skills and learn a lot about oneself and the environment. Fire can enable us to survive in the cold or wet.

Fire is often central to seasonal celebrations and ceremonies. Coming together to share food, stories, laughter and songs around a fire is a timeless human pastime.