

# Scout Skills

## Fire Lighting



0845 300 1818

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### INFORMATION SHEET

Fire lighting is an important basic skill in Scouting. It is vital for cooking, keeping warm, camping and as a focal point for various activities. People have needed and congregated around fires since man lived in caves!

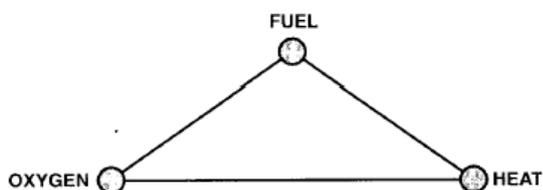
Knowing how to prepare, lay and light different sorts of fires, therefore is very important. It is equally important to know how to extinguish a fire and to clear the fireplace correctly.

A fire needs to be built carefully - you can't just pile lots of wood together and hope for the best! So, whether you are lighting the fire directly on the ground or using a raised, ready-made altar fire, it is always necessary to take time to prepare everything before you actually strike the match.

You need to think about where your fire is going to be, collecting suitable materials, how to build your fire appropriately and make preparation for putting the fire out in an emergency.

### Essential Elements

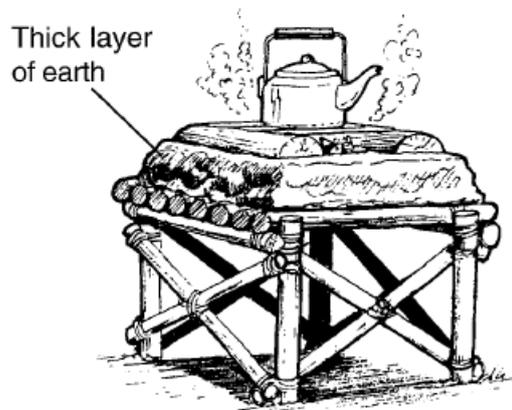
There are three elements needed to make a fire:



In a typical fire, the fuel is the wood; the oxygen comes from the air – although you may also need to blow gently to help the fire start – and the heat is initially provided by the match. If any of these elements is removed, the fire will go out.

### Different types of fire

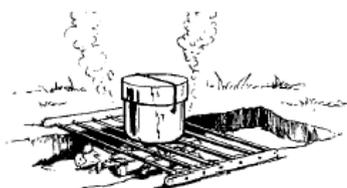
*Altar Fire* - Some camp sites do not allow ground fires so an altar fire is a useful alternative. A traditional style altar fire may be built from substantial logs laid at right angles to one another, or using trestles as in the diagram below. The top layer consists of a number of logs side by side and covered with mud. The mud provides a base that will not catch alight and the fire is built on this base. Trestles must be braced and lashed very firmly. Altar fires are more often built out of metal or are permanently free standing on site.



*Star fire* – This is a small fire started in the centre of three logs placed in a star shape. As the logs burn, they are moved towards the centre of the star.



*Trench fire* – To build a trench fire, dig a trench or pit and place a screen of logs, bricks or stones along the side. The fire is built in this trench. This is an ideal fire for cooking on a hot day as you are shielded from much of the heat.



There are many other types of fire, such as gypsy fires, reflector fires, and keyhole fires. Further information can be found in the *Nights Away* resource and *A Complete Guide to Scouting Skills*, or by using a good internet search engine.

#### Tricks of the trade

- Never use paraffin, petrol or methylated spirits to light or revive a fire.
- Use a left over candle end to build a wigwam shape around (see Teach Yourself for details).
- Get everything ready first. The kindling (thin twigs and sticks) is very important. If it has rained recently, dry kindling may still be found under bushes, trees and so on. Keep your kindling dry while hunting for larger twigs and small sticks.
- Feed a fire - don't smother it. Fires are fickle and tend to go out if they are not looked after in the early stages.
- Replenish fuel frequently, remembering that it is important not to allow the fire to become too 'dead'.
- Leave the fire place as you found it, so that there is no trace that you have been there.
- For real emergencies, always keep a supply of waxed matches and take ready made fire lighters.
- If you are intending to cook on your fire, it should not only be 'smokeless' but also 'flameless'. Hot embers give a constant heat suitable for cooking. Do not cook over flames.

#### So you want more?

Draw up a list of fires that can be lit in a variety of situations and places, and have a go at them. Investigate the burning properties of wood – try some out.

#### Further Information and Resources

There are various resources you can look at for further information:

*Nights Away* - a comprehensive guide for adults about camping, holidays, expeditions and sleepovers; it includes a chapter on catering within which you can find more information on cooking outdoors, building and lighting fires, types of fires/fuel.

*A Complete Guide to Scouting Skills* - With a foreword by The Chief Scout Bear Grylls, this book has everything you need to know for your outdoor adventures. Whether it be about making plans, sleeping outdoors, fire, food and cooking or what to do in an emergency, this book has it all and much more.

*The Scout Handbook* - With tips on getting all nine Challenge Badges, together with diagrams and full colour photographs, this handbook helps Scouts to gain the Chief Scout's Gold Award.

*FS315001 The Burning Properties of Wood*

Have a look at the badge requirements for the Outdoor, Outdoor Plus, and Expedition Challenges to see how Fire Lighting skills can be included in the balanced programme.

## TEACH YOURSELF

### Time

Preparation is often longer than actually lighting the fire. Allow yourself between 20 and 30 minutes to include both.

### Equipment/materials

- Punk or tinder - Dead leaves, paper, bark, birch, wood chippings, fluff from a tumble dryer;
- Kindling - Thin twigs and sticks;
- Larger twigs, sticks, and wood of different sizes.
- Logs or stones (optional);
- Matches (kept in a plastic bag or waxed in case of wet weather);
- Knife or spade if turf needs lifting;
- Bucket of water, sand or fine soil.

### Learning all about it

#### A. Preparation

This is definitely the most time consuming part of the whole process. A lot needs to be done before any matches are lit!

Decide where you are going to light the fire. This should be in a safe area away from trees, hedges, buildings and tents which could potentially catch fire.



If you are lighting the fire directly on the ground (as opposed to a raised altar fire), look for where fires have been lit before. Always check with the Landowner or Warden before lighting a fire. The area will simply need to be checked that it is ready to use. If it is a grassed area, check whether it is normal practice to lift the turf. If the landowner gives permission, lift enough turf to give a patch of bare ground for your fire. Usually, a 1 metre square x 10cm thick area will suffice. If the turf is to be kept for more than a day, turn it upside down and keep it well watered.

Collect plenty of wood of different sizes. You will need kindling to get the fire started. This material will not burn for long and you must use the heat from this to make the larger wood catch fire; thin twigs first and in turn, larger twigs and sticks to help light small logs.

Have ready a bucket of water, sand or earth and a spade should you need to put out the fire in an emergency.

#### B. Laying and lighting the fire

1. Stand the first twig upright in the ground.
2. Surround it with tinder or punk.
3. Start to a wigwam shape by surrounding this with kindling.
4. Use progressively thicker twigs, expanding this shape and leaving a gap at the bottom for your match to reach the tinder or punk.



5. Light your match, shielding the flame in your hand and getting as near as possible to the fire.



6. Light the tinder or punk and any small pieces of kindling.

7. Add more twigs as necessary to each flame until it spreads to thicker wood.
8. If you need to blow the fire, get in close and blow gently. Ideally blow towards any prevailing wind.



9. Once alight, add larger and larger twigs and sticks. Then add a few pieces of wood at one end so that they catch light. When these are well alight, add more wood to the other end.
10. When it is firmly established, and the wigwam shape has been abandoned, lay bricks or thick logs parallel with the wind direction on either side of the fire.



11. If you intend to cook, you will have to wait until there are hot embers as this is where the heat is retained.

### C. Extinguishing the fire and clearing up

You must always make sure that any fire you have lit is well and truly put out. There are two main methods:

*With water* - Let the fire die down. Spread out sticks and coals, sprinkle with water being careful that it does not turn to steam and scald you.

*Without water* - Let the fire die down. Spread sticks and coals out; scrape any burning embers from the logs and sticks. Cover thoroughly with earth or soil. This method should not be attempted on peat type soils or after dry weather.

In both cases, check thoroughly and make sure that the fire is out. Any fire pits must be thoroughly cleared out and re-filled with the earth before turf is replaced.

### Safety Rules

- No matter what happens, don't panic!
- Never use paraffin, petrol or methylated spirits to light or revive a fire.
- Choose the site of your fire with care - especially if you are in camp where it will be in a permanent place for a weekend or longer.
- Get everything ready before lighting any matches.
- Never leave a fire unattended.
- Never underestimate a fire or the strength of the wind.
- It is a wise precaution to keep handy a bucket of water, earth or fire beaters for use in an emergency. This is especially true in periods of extended hot, dry weather.

### Can you do it?

When you feel confident about lighting fires, check how you are doing and see which of the following you can tick off:

### Can you...

- Prepare the ground for a fire?
- List the equipment and materials required for a fire?
- Demonstrate how to build a fire?
- State what needs to be done when putting out and clearing up after a fire?
- State the safety rules for fire lighting?
- Build and light a fire in dry, wet and windy conditions?

### So you want more?

There are many different types of fires. Talk to other Leaders and find out about some of the others including their names and uses.

Try to build and light a camp fire. This is a special skill. Why not ask the Warden of your nearest camp site for information and if you can, assist with building one of these?

## HOW TO TRAIN OTHERS

This section is designed to give some practical ideas about how you can help other people to understand how to light fires safely and effectively. This might be Leaders or young people - either in an informal way at a meeting or more formally on a skills workshop, training course or something similar.

### Objectives

By the end of this session, participants will be able to:

1. Prepare an area for lighting a fire.
2. Lay and light a fire.
3. Put out a fire and clear the area correctly.
4. State the safety rules involved in fire lighting.

### Time

You should allow about one hour. This may seem a great length of time but fire lighting is one of those activities that can take longer than anticipated, as it can often be dependent on the weather. The time allowed is to cover all aspects of the session.

### Equipment

- Punk or tinder - dead leaves, paper, bark, birch, wood chippings, tumble dryer fluff;
- Kindling - thin twigs and sticks;
- Larger twigs, sticks, and wood of different sizes;
- Logs or stones (optional);
- Matches (kept in a plastic bag or waxed in case of wet weather);
- Knife or spade if turf needs lifting;
- Bucket of water, sand or fine soil;
- Games equipment for training activities, as required;
- Visual aid showing the three essential elements for a fire: fuel, oxygen and heat.

### Training method

Details on lighting fires for the session are contained in the other sections. Essentially this is, of course, a practical activity but it will require some introduction about principles and the safety elements involved.

There are several ways that it might be approached:

- Introductory talk followed by a demonstration.
- Demonstration with explanation as you go along as to what you are doing and why, and highlighting what not to do, for example, piling on too much wood at once and suffocating the fire.
- Explanation as to what to do first and then put participants into pairs to light a fire and to report on what happens. The session leader will need to keep a close eye on what is happening.
- Follow up any of these methods with one or more of the training activities outlined below.

### General points

The following may seem very obvious and straight forward common sense, but all too often, they are neglected in the rush to light a match!

They need to be included in any explanation given to participants.

1. The necessity to prepare the area and how this is done.
2. Stress the elements needed to make a fire - fuel, oxygen, heat.
3. Having everything ready before the match is lit.
4. Being aware of and following the safety rules.
5. Remember that fire lighting is a different experience in wet and windy weather.

### Training activities

1. Set a task to light a fire within a given time.
2. Set a task to light a fire and boil one pint of water against the clock.
3. Make a visual aid to show others the steps in lighting a fire.
4. Play a safety game - arrange two teams opposite each other, each member numbered off. Place a chair at each end between the two teams, one for 'yes' and one for 'no'. Read out a statement, call a number and the relevant person has to run to the correct chair. For example:

*Number 6* - 'It is a good idea to have some paraffin or meths. In case the fire won't light.'

[NO]

*Number 1* -'You should pile on as much wood as possible once there is a reasonable flame.'  
[NO]

*Number 3* -'There are three elements needed to light a fire: fuel, oxygen and heat.'  
[YES]

*Number 4* -'It is a good idea to light your fire under overhanging trees in case it rains.' [NO]

... and so on.

5. In bad weather, challenge groups of participants to light a fire against the clock.

This can be extended by changing places and the other person puts the fire out and clears up.

6. Participants, in small groups, and after suitable training, are given one log of wood, a hand-axe, one match, and the components required for brewing a cup of tea. The first team to make a cup of (hot!) tea are the winners.

### **Useful hints and tips**

- Practise fire lighting in different weathers and conditions. How would you cope with one foot of snow on the ground?
- Keep your kindling dry overnight at a weekend or longer camp.
- Be prepared - if you are going to camp, take fire lighters, or if necessary, dry materials in a plastic bag to start the fire should all else fail!
- If on a hike or expedition, it is worth 'waxing' some matches so that even if the rest of your kit gets wet, your matches will still light.
- If the fire you are preparing is for cooking, remember to start it long before you need to start cooking. It won't be like turning the oven on.
- Dried orange peel also makes excellent kindling!

### **Checking their progress**

Ask participants whether they feel happy with their ability to:

1. Prepare an area for lighting a fire.
2. Lay and light a fire in:
  - a) Dry weather;
  - b) Windy weather;
  - c) Wet weather.
2. Put out a fire and clear the area correctly.
3. State the safety rules involved in fire lighting.

### **So they want to know more?**

- Find out about how to prepare and use different types of fire.
- Learn to build and light a camp fire.
- Find out about the requirements for backwoods cooking and have a go.
- Investigate the burning properties of different wood.