

## Camp Kitchens, Fires and Stoves

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**Introduction** This SCOUTS New Zealand resource document lists some of the current ways SCOUTS set up camp kitchens, water heaters and cookers. A simple bread recipe is included as well as links to a website specialising in camp ovens. The information has been based on recent experience and current practice of a variety of leaders.



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**Gas Cooking appliances** Most campsites in New Zealand will no longer permit open fires, particularly in summer when the risk of an open fire spreading is so high and lighting open fires is illegal.

This of course means that cooking at Scout camps is now generally done on gas barbeques, hot plates and gas rings. These are commercially produced to meet the NZ standards for gas appliances and as such, are relatively safe and easy to use.

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**Alternate cookers** The only open fire type of cookers other than gas that may be used in summer is a charcoal barbeque, a hobo stove, or a rocket stove.

The Rocket stove is distributed widely by the United Nations for use in refugee camps and is a relatively safe and highly efficient cooker. More information about Hobo Stoves and Rocket Stoves is detailed later in this document. Information about building and using open fires is also found in this document.

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**Fire risk** Fire is an ever present risk at every Scout camp, so Groups should have a fire extinguisher in the kitchen area. It should be at least 2 metres from the stoves and be readily visible.

In addition, the cooking and dining tent where the gas cookers are located must be situated at least 3 metres from the nearest flammable object such as a tent, tree, trailer or vehicle.



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**Handwashing** Washing hands before touching food is critical if sickness is to be avoided in camp. A commercial hand sanitizer (dry wash type) should be used by all people in camp before cooking and eating food, or pouring drinks. A pump pot should be kept on the serving table.

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## Camp Kitchens, Fires and Stoves, Continued

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### Gas Leaks

Leaders must check all gas connections and hoses for leaks once the kitchen and gas cooker has been set up. This is done as follows:

- Squirt dishwashing fluid into a bowl and add water to make a solution that bubbles readily when stirred.
  - Turn the gas bottle on.
  - Using your hand, splash the soapy mixture over all the gas line connections from the top of the bottle to the gas cooker.
  - If spluttering or bubbles appear you have a gas leak. Tighten the connection and test it again. Repeat the process until the gas stops leaking.
  - If there are no leaks the gas cooker is ready to use.
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### Training users

All youth members who are to use the cookers must be trained in the correct use of all gas appliances. This includes:

- Connecting the bottles to the gas cooker correctly.
- Testing all the gas connections for leaks.
- Lighting the appliance.
- Turning it off at the gas bottle when cooking is finished.

**Note:** Only open the tap or valve on top of the gas cylinder two turns. Fully opened taps being turned off the wrong way and forced, can jamb open and become a major problem when it's time to pack up.

**Keas and Cubs are not permitted to light or connect gas appliances to gas bottles.**

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### Gas cookers

This document does not discuss how to use these appliances due to the variety of gas cookers on the market and the fact the each is supplied with a user's manual. The importance of cleaning the appliances with hot soapy water after each use and leaving them hygienic and ready for the next meal cannot be overstated.

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### Hot water heaters

Large hot water heaters suitable for Scout camps are not readily available commercially. This means that each Group may need to create their own water heater or use several smaller appliances to get enough hot water at a camp.

There are a variety of ways water can be heated at camp, ranging from:

- A camper's flat bottomed kettle on the cooker.
- A large saucepan on the cooker.
- A large aluminium boiler on the cooker.
- Or a custom built heater using a separate gas ring.

Having a good supply of hot water available in camp is essential if top quality hygiene standards are to be maintained.

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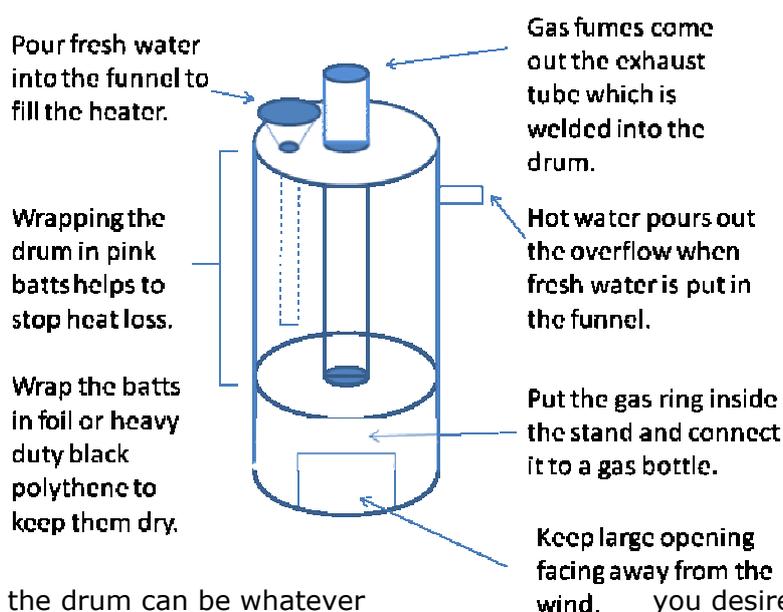


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## Camp Kitchens, Fires and Stoves, Continued

### Hot water heaters, continued

Here is a diagram of a heater constructed out of a stainless steel or copper cylinder or drum and heated by a large gas ring. The notable feature is that you have to pour cold water into the water heater in order to get hot water out. The cold water goes down the pipe to the bottom of the heater, forcing the hot water to rise and pour out the overflow. This is a safety feature, as well as making sure the heater is not emptied by a lazy user.



The size of the drum can be whatever you desire, but keep in mind that the more water used to fill it, the longer it will take to heat. A 20 litre drum would provide about 15 litres of hot water.

- The exhaust or chimney flue or tube could be made out of a section of a domestic log fire chimney flue.
- The base stand or circle that contains the gas ring could be made of galvanised flat iron curved to match the diameter of the drum. It should be joined to the drum or be a very snug fit to stop the heat and flames escaping and damaging the insulation. If you don't intend insulating the drum then the fit is not so critical.
- If you run out of gas, you can light a small fire in the base stand and feed it with dry twigs and small branches as you would for a small cooking fire.

### Kitchen and dining shelters

Most Groups separate the kitchen from the dining shelter although this is not necessary. A largish tent or shelter can usually accommodate a kitchen one end, and the dining area the other. Such tent or shelter is a worthwhile investment and can be used for other events such as fairs, mudslide, promotion days and Group picnics.

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## Camp Kitchens, Fires and Stoves, Continued

### Kitchen and dining shelters (continued)

Avoid pergola type shelters with plastic joiners connecting the pipe frame work together. NZ summers are frequently windy and such shelters will not survive. They generally let you down in windy and wet weather when you really need them the most.



*The kitchen is set up at the far end of the tent.*

A large heavy duty polythene sheet with eyelets inserted where needed, stretched over a custom built portable timber or strong pipe frame will serve the group well for many years.

If you can, avoid inserting eyelets on the ridge and tops of the walls.

The wind can make the roof and wall thrash and lift off the 'spikes'. When the roof thrashes down, the spikes on the poles rip the roof, weaken it, and cause a lot of expensive damage.



Here is an example of storage boxes used to transport gear to camp being used as kitchen cupboards while in camp.

There are many different ways of configuring the boxes to suit the Group's needs. Assess the needs of your Group and then make some to your own design.

A word of warning. Make sure that the boxes are constructed out of construction plywood. It will not disintegrate if they get seriously wet.

An alternative shelter is two conventional centre pole tents (10 x 15 and a 15 x15) side by side. The smaller tent is the kitchen, the larger the dining room.

- These tents do have an advantage in that the sides can be rolled up during the day.
- If the wind gets up, some sides can be lowered to protect people from the wind.
- Storm lashings can be easily applied if needed in windy weather.
- These tents are stronger than most frame tents and can be half poled if the weather is stormy. Half poled means to lower the tent by 1m by removing the lower half of all the tent poles and lessening the wind resistance .



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## Camp Kitchens, Fires and Stoves, Continued

### A traditional camp kitchen

The time honoured SCOUTS tradition for preparing meals and washing dishes is to lash together a table out of timber lying around (if any), build a small tripod out of branches lashed together and then precariously balance a plastic basin on the top of it. You then fill this with hot water and wash the dishes, or yourself in it.

It's a real back to basics approach and suitable for 3 to 4 campers staying for a weekend and assuming they have 3 or 4 hours to build the tables and tripod.

But we are not supposed to cut down trees and cut up branches you say! Life gets difficult doesn't it? Time and conservation issues really mean this is where you need to start using your scrounging and innovation skills.



### Setting up a troop camp kitchen

Say you have 18 to 24 youth members in camp, even for a weekend. You need to get set up reasonably quickly and start on the camp programme. And you need to set up bench and dish washing arrangements that are easy to erect, easy to use and easy to keep clean. Here is one solution.

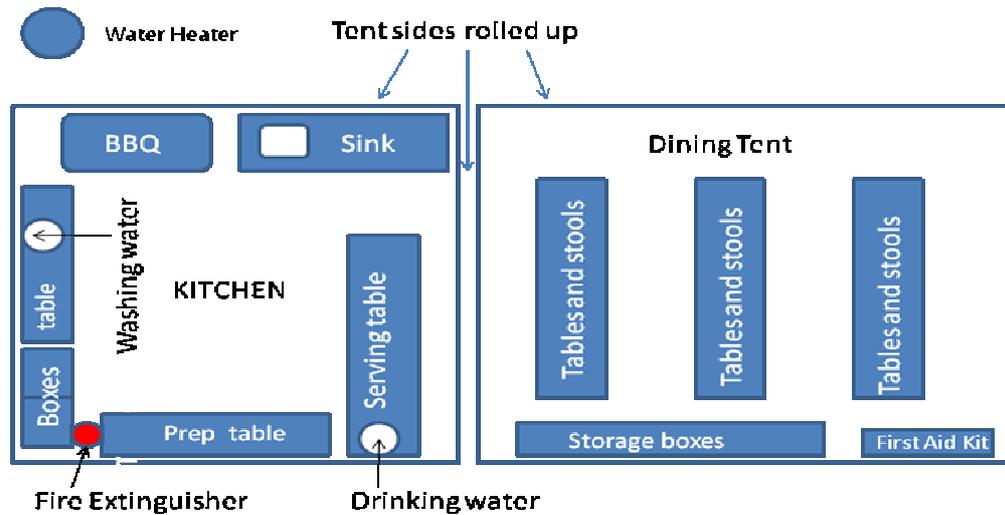
1. Acquire a 2 metre stainless steel bench top and basin, or old Formica bench top and basin. (Stainless steel is best), add some folding legs to the bench top so it's free standing.
2. Acquire a 10 or 20 litre plastic pail with a lid to sit under the drainpipe from the basin to catch the waste water.
3. Acquire a sheet or two of Construction Ply and build a couple of tables with folding legs. Varnish them and use them as extra bench space for preparing meals.
4. Acquire a clean 10 or 20 litre container with a tap for holding clean water and sit it over the legs on one of the tables close to the bench top.
5. On an outside wall of the Kitchen shelter, (with the wall rolled up), set up the BBQ or gas cooker so that in fine weather you can move it outside while cooking yet still be next to the benches etc.
6. Build three equipment boxes that can be used to bring the food to camp. Once in camp, tip them on their sides and place them three high in the kitchen area. If you have built shelves in them, you will have closable cupboards for the food and utensils.
7. It would pay to have another box handy to store cleaning liquids and gear.
8. Use good quality chilly bins to store perishables and remember to bring ice.
9. Set up the hot water heater outside the kitchen tent where it's handy but not close enough to be a hazard.
10. Hang a largish gas lantern above the benches and you are ready to cook.

Overleaf is a drawing of what your camp kitchen might look like.

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## Camp Kitchens, Fires and Stoves, Continued

**A possible Kitchen / Dining tent layout**

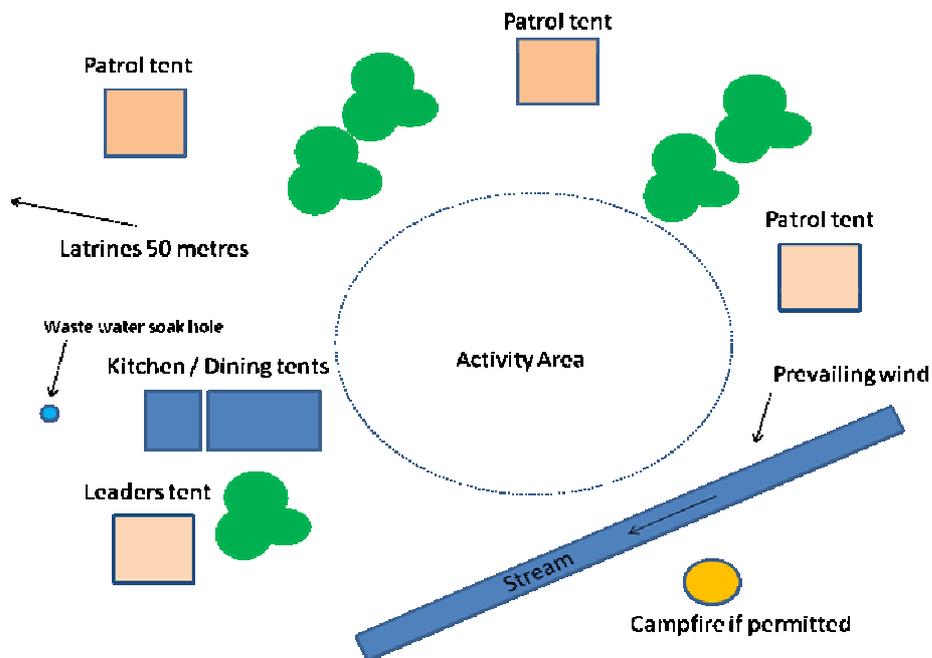


The sink needs to be near the dining tent so it is easily accessible when people need to come and wash their plates and cutlery.

**Where to put the kitchen**

Here is a possible campsite lay out for a Scout camp. Note that the Patrol tents are some distance away from each other in order to give them some independence and allow the Patrol Leaders to take charge without a leader nearby.

A Cub camp usually has the 'Six' tents about 3 metres apart so that the leaders can monitor the Cubs more easily.



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## Camp Kitchens, Fires and Stoves, Continued

### Waste water issues

The effective disposal of waste water such as washing up water is critical in terms of hygiene in camp. Throwing it out on the grass will attract flies and vermin and it will start to smell as well.

There is also the issue of fat in the washing up water that will attract flies etc when it sets. If you tip fatty waste water down a soak hole in the ground, it is only hours before the hole is coated with fat and will not allow further water to soak through it. Food scraps also coat the bottom of the hole and begin to rot.

### Waste water disposal

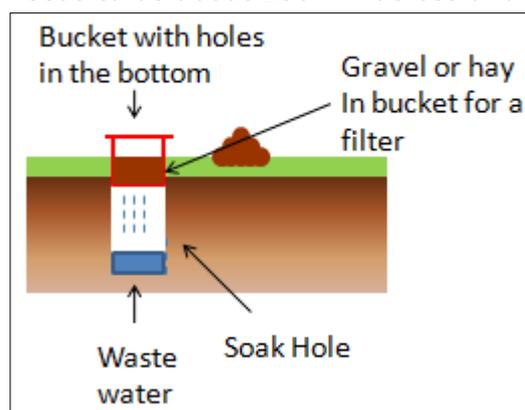
An effective way of dealing with waste water is as follows.

#### In a commercial camp ground:

Tip all waste water down the gully trap provided for the campers.

#### In a farmers field or a Scout camp site:

- Use a spade or a post hole borer to dig a soak hole at least 10 metres from the food preparation area. The hole needs to be about 200mm across and at least 600mm deep. It may need to go deeper to get down to soil that will allow water to soak away.
- Bore ten or more 6mm holes in the bottom of a plastic bucket and insert the bucket into the top of the soak hole.
- Half fill the bucket with gravel and coarse sand if possible. If not half fill it with hay or brush and coarse grasses which will act as a filter, trapping both the fat and food scraps.
- Pour the waste water into the bucket and let the water soak through the filter and into the soak hole.
- After every meal, scoop off the top 50mm of gravel and place it in the garbage disposal sack. If using grasses and brush, scoop it out and also place it in the garbage sack. Replace the gravel or grasses with a fresh lot to stop flies and insects infesting the soak hole.



### Garbage disposal

All solid waste including food scraps should be placed in garbage sacks and taken home for disposal, unless the owner of the land has a suitable dump on site and permits Scouts to use it to dispose of their rubbish. Do not "bash, burn and bury" such rubbish as it is not an environmentally acceptable practice.

## Camp Kitchens, Fires and Stoves, Continued

**Cooking fires** We need to practice building and lighting open fires, then cooking on them so that we are prepared if we ever have to. e.g. after a severe earthquake, tsunami, or cyclone etc.

Because of fire bans in summer, these practices will have to take place in winter or early spring. These types of cooking fires can be used as stated:

1. Open fire (cannot be used during a fire ban).
2. Rocket fire (may be used with care during a fire ban).
3. Hobo Stove (may be used with care during a fire ban).
4. Charcoal fired barbeque.

### Open fire

This fire is the most appealing for youth members. It doesn't need to be very big but even so, it can spread quite quickly in windy conditions if not watched carefully. Make sure there is no dry grass or undergrowth within several metres of the fire and keep a bucket of water handy.

### Gathering the materials.

Step	Illustration	Comment
1		Gather about two or three handfuls of dry fine twigs and grass. This very fine firewood is called 'tinder.'
2		Gather some bigger sticks, about the size of a finger in thickness and some a bit thinner. You will need about 10 or more handfuls of this firewood.
3		Now gather some split or round logs about 75mm thick. They will line the fire pit and also make a stand for the cooking pot, pan or billy to stand on. As these logs burn through you will have to lift the pot off, put new logs in their place and then replace the pot.

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## Camp Kitchens, Fires and Stoves, Continued

### Open fire (continued)

### Lighting the fire

Step	Illustration	Comment
1		Dig a shallow pit about 100mm deep and clear any other dry materials that are likely to catch fire, away from the pit. Aim to have a circle clear of flammable material about 2 metres across. If the ground is damp, put a layer of tinfoil on the ground where the tinder is to go. Gather the 'tinder' and place it in the centre of the shallow pit.
2		Now take the thinnest of the sticks in the second pile of firewood and build a 'teepee' over the tinder. Keep on adding the thinnest pieces until the tinder is all covered. Make sure that you can get a match through the sticks to light the tinder.
3		Check to see which way the wind is blowing or likely to blow. Once you know that, place two of the biggest logs either side of the fire, so the wind will blow between them and help the fire burn brightly. Make sure the edges of the pot, pan or billy you are cooking the food in will just sit on top of the logs. If you have some dry rocks handy, you can put a rock on either side instead and sit the pot on top of them.
4		Now light the tinder with a match or a lighter and as the sticks start to burn, keep adding thicker pieces until you start to get a pile of embers. You can add some of the thinner pieces of the split logs as the fire gets hotter. Once the fire dies down and you have a good pile of embers, you can start cooking. Add a few of the remaining thin sticks from time to time to keep the fire drawing and the embers hot. Need to use two pans for cooking? Just add more wood one end and extend the fire.

## Camp Kitchens, Fires and Stoves, Continued

### Make your own 'Firelighters'

If the only wood you have is a bit damp, you can increase the chances of the fire lighting first time by using pieces of bicycle tube about 3 cm square and lighting that. A short piece of candle will also work well.

You can also take some cotton wool balls and smear them with Vaseline, working it well into the balls and then store them in your pack in a small plastic jar with a lid. Another option is to carry a small bundle of ice block sticks with you and use them to start a fire.

### Rocket Stoves

A Rocket Stove is a modern development of a very old cooking fire. It has three main attributes.

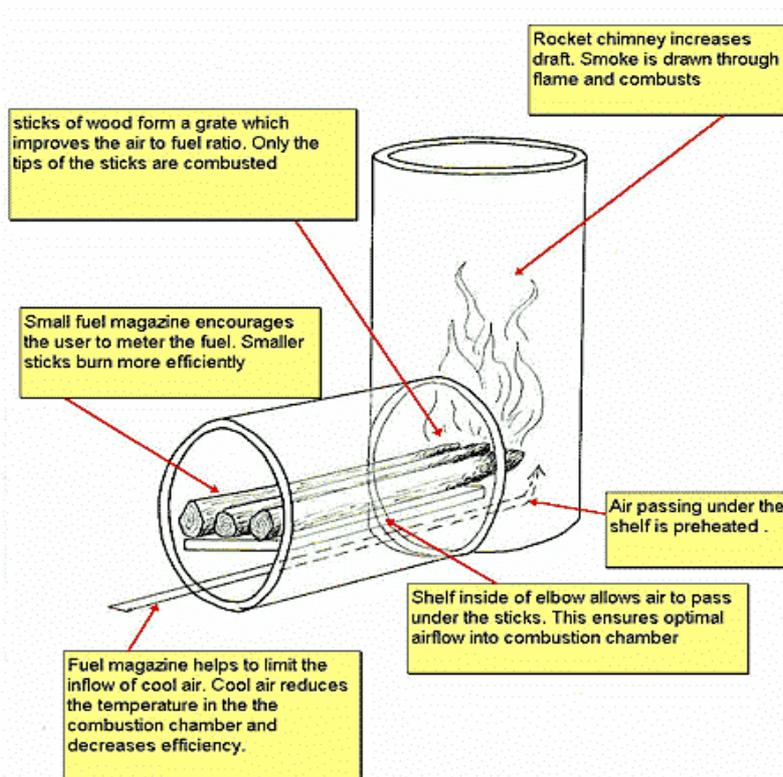
1. It uses very little fuel. The three sticks in the drawing below would boil a litre of water in about 5 mins.
2. When constructed with insulation and a heat shield for the pot, it's super efficient.
3. It is excellent for one-pot cooking at a Patrol or Six camp.



You can see a video on how to build Rocket stove at:

<http://rocketstoves.org/>

The illustrations below and on the next page show the various part of the stove.

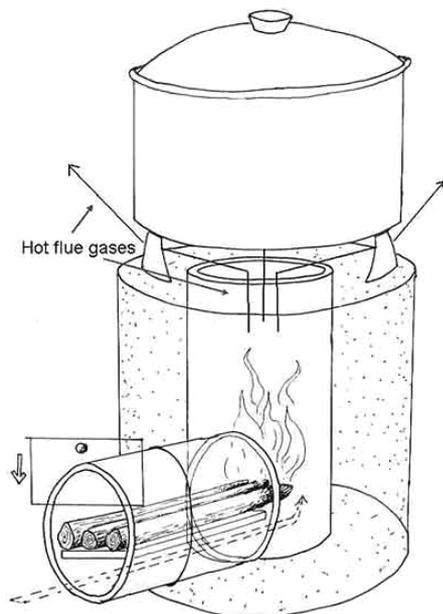


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## Camp Kitchens, Fires and Stoves, Continued

### Rocket Stoves, continued

This illustration shows the Rocket Fire inserted in an insulating can.



The elbow is placed inside of a container that is filled with insulation . The container can be made from almost any material. E.g. 20 litre (5 gallon) drums, brick, clay, cement.

For insulation we suggest using wood ash, perlite, or pumice. Do not use earth, sand, or cement. These will rob heat from the stove and reduce your combustion efficiency.

For optimal use we recommend a 220 mm (9") chimney and a 100mm (4") fuel feed magazine.

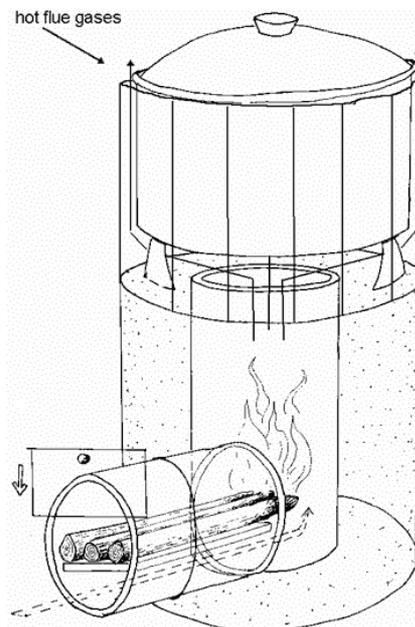
This illustration shows the Rocket Fire with a wind shield around the cooking pot that directs the hot gases up the sides of the pot. It really saves fuel wood and maximizes the heat transfer to the pot.

This picture shows a thin piece of metal (a skirt) wrapped around the pot. This skirt forces the hot flue gases to rub against the bottom and the sides of the pot.

The gap between the pot and the skirt should be about 1cm (assuming you are using an average-sized pot).

In tests, this simple heat exchanger (an old coffee can works well!) almost doubles the efficiency of the rocket stove.

Control the heat by partially blocking off the air feed through the fuel pipe.



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## Camp Kitchens, Fires and Stoves, Continued

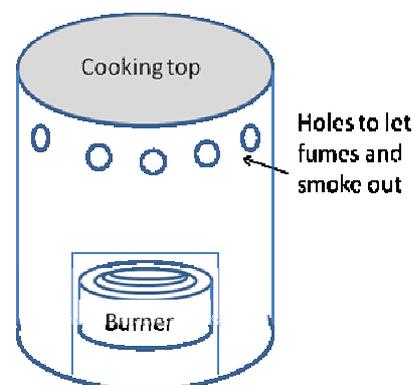
### Hobo Stove

This is a really basic cooker that can be made by the Scouts and used by the Cubs.

Hobo stoves ***MUST NOT*** be used by Keas. Too many Keas have been burned by these stoves.

#### You need the following materials:

1. An empty catering sized soup or fruit tin from a local rest home or hospital.
2. An empty small shallow salmon or tuna tin.
3. The end or side of a cardboard box made of corrugated cardboard.
4. One domestic candle.
5. An electric stove and an old pot. (Do not use a gas stove to melt the candle.)



#### The tools needed are:

1. A pair of tin snips.
2. A punch type of can opener that makes triangular holes in the can, or an electric drill with a 12mm bit.

#### The construction process:

1. Cut a 100mm wide by 60mm high hatch in the side of the large can at the open end of the can. This is to let the air in so the burner will work. This is now the bottom of the stove.
2. Use the drill or the can opener punch to create eight holes in the side of the can just below the end of the can which is now the top of the stove where the food is cooked.
3. Cut a strip of corrugated cardboard slightly less than the height of the wall of the small can.
4. Roll the cardboard into a wheel and insert it into the small can so it fills the can and sits just below the rim.
5. Put the pot on an electric stove top set at low to medium heat and melt half the candle.
6. Once melted, carefully pour the wax onto the cardboard in the small can and let it cool and set. This is now the burner for the hobo stove.

#### Using the Hobo Stove:

1. Place the burner (small can) on the ground away from flammable materials and light the cardboard.
2. Place the large can which is now the stove top, over the burner with the air hatch facing away from the wind.
3. Lightly oil the top of the can and proceed to cook your food. You can toast bread or buns, cook a hamburger pattie, sausage or an egg, or banana in tinfoil etc.
4. Sit an aluminium or stainless steel mug on the stove to make a hot drink.

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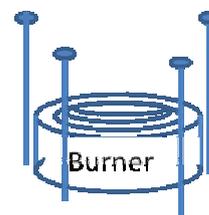
## Camp Kitchens, Fires and Stoves, Continued

### Alternative Hobo Stove

This version of a Hobo stove doesn't require the big can, but it does require a small billy, pot or a pan. It's a great lightweight emergency cooker that should burn for about 4 hours or more. This version is for adults, and definitely not for Cubs to use

#### Your need these materials:

4 each 150mm galvanised nails.  
The small burner as for the standard Hobo Stove.  
A small billy, pot or pan.



#### To use the stove, do this:

1. Place the burner tin full of wax and cardboard on the ground, away from flammable materials such as dry grass.
2. Press the four nails into the ground to make a stand for the cooking pan.
3. Light the burner, sit the pan on the nails and cook your food.

You will need to create some form of windbreak to make sure the fire doesn't blow out, or the heat gets blown away from under the pan. A few rocks would do the job adequately.

When you have finished cooking, let the nails and the burner cool right down, pop them in a plastic bag and into a pocket in your parka or pack.

### Camp Ovens

Camp Ovens are also known as Dutch Ovens and are very useful for cooking a wide variety of foods at camp. Examples are:

- Bread
- Pizza
- Scones
- Casseroles
- Stews and Hot Pots
- Roast meats



Camp Ovens are primarily designed for sitting on hot embers and then putting more hot embers on the lid so that the heat source is both above and below the oven itself.

You can use a camp oven on:

- A gas ring – use as if it's a pot.
- A charcoal barbeque – put some of the charcoal embers on the lid.
- In a pit where a fire has been lit and is full of hot embers – put some of the embers on the lid.

Camp ovens are available in cast iron (rare) and aluminium. Iron is best, but aluminium will do, providing you don't go overboard in the heat dept as they will melt. For information about seasoning and preparing the ovens plus a few recipes, go to the internet site <http://www.dutchovendude.com/>. The illustrations shown are from this website.

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## Camp Kitchens, Fires and Stoves, Continued

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### Cooking

Most food at camp is cooked as you would at home. You are just using a different heat source to cook it.

However, being at camp means you don't have the speed of an electric range, or a corner dairy handy for fresh bread etc so we have included a few ideas to help you get started.

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### Slow cooking with a camp oven

The main advantage with a camp oven is you can 'slow cook' stews etc by putting the oven on some hot embers, shelter it from the wind, go off on an activity while cooking occurs and come back several hours later to a steaming hot and tender meal.

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### Camp oven on a charcoal BBQ

For baking and roasting you really need to have hot embers on top of the lid as well as underneath, so using an old fashioned charcoal barbeque is the best option if lighting a fire in a pit is not possible.

Carefully shovel some of the charcoal out of the barbeque and put them on the lid of the oven. Then place the oven back on the barbeque and wait for the food to cook.

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### Camp Oven in a pit

This is a good option if it is winter and you have a supply of firewood. Alternatively, a bag of charcoal will do just as well, in fact it's probably better for the environment and definitely easier.

- Dig a pit about 75mm wider all round and 100mm deeper than the camp oven.
  - Light a fire (or the charcoal) in the pit and build up a good pile of embers.
  - When the embers are ready, lift out a shovel full.
  - Place the oven with the food in it, into the pit and place embers on the lid.
  - Cooking time will be similar to cooking in an oven at home.
  - Don't leave the oven unattended. You need to make sure the wind doesn't blow the embers off the lid and cause a fire elsewhere. The smell of the cooking is delicious, so it's not too onerous for the person on duty.
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### Camp Oven lid cooking

The lid of a camp oven makes a great frying pan. Just place it upside down on a bed of embers and get cooking.

<http://www.dutchovendude.com/dutch-oven-cooking.shtml>



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## Camp Kitchens, Fires and Stoves, Continued

### Overnight Cooking

Do you fancy getting up to a steaming hot breakfast on a cold frosty morning in camp. Want to just roll out of bed, wash and then start eating? Here's how you do this.

You need a good quality chilly bin, some newspapers to scrunch up and some food for a hot breakfast. It could be porridge, baked beans, spaghetti and sausages, or savoury mince etc.



1. At supper time prepare the food for breakfast and bring it to the boil, but don't cook it.
2. Scrunch up several sheets of newspaper and put in the bottom of the chilly bin.
3. Place the still boiling pot with its lid on top of the scrunched up paper.
4. Scrunch up more paper and pack it firmly but not tightly, around the pot and over the top.
5. Put the lid on the chilly bin and get off to bed.
6. In the morning, unpack the meal and serve it.

This used to be known as 'Hay Box' cooking and was popular in Europe during the world wars. In those days there was no such thing as chilly bins so they had to pack cartons with hay to insulate the pots.

### Great recipes and hints

This website is well worth a look at for practical hints and recipes for use with camp ovens.

**Important hint** – Never, ever, wash a cast iron camp oven with soapy and water. It will rust. Use a damp rag to wipe it out and then let it dry.



### Great Recipes for Camping



- Home
- Recipes To Try
- Getting Started
- Choosing a D.O.
- Iron/Aluminum
- D.O. Care
- Seasoning
- Cleaning
- Storing
- Fixing
- Cooking Advice
- Heat Setting
- Measurements
- Other Tips
- Tools & Stuff
- Dutch Oven Links
- About Me
- Other Dudes
- Ads by Google
- Kids Cooking Recipes

Here it is - my dutch oven cook book with all the dutch oven recipes I could find. Everything from chicken recipes to dessert recipes for you to have a go at on your next camping trip. Dutch ovens let you get away with easy cooking so give these a try. I'd love to hear back from you on your results or if you have questions about any of these dutch oven recipes. I'm always looking for more to add, so drop me a recipe if you have one to share.

<a href="#">2 hour Chili</a>	<a href="#">Apple Crisp</a>
<a href="#">Armadillo Eggs</a>	<a href="#">Au Gratin Ham and Potatoes</a>
<a href="#">Bacon Spuds</a>	<a href="#">Baked Beans</a>
<a href="#">Baked Salmon</a>	<a href="#">Baking Powder Biscuits</a>
<a href="#">Banana Coffee Cake</a>	<a href="#">Barbeque Hamburger</a>
<a href="#">Beef Burgundy</a>	<a href="#">Beef Goulash</a>
<a href="#">Beef Pot Roast</a>	<a href="#">Black Forest Cobbler</a>
<a href="#">Breakfast Casserole</a>	<a href="#">Breakfast Sausage Balls</a>
<a href="#">BRV Soup</a>	<a href="#">Burrito Ranchero</a>

<http://www.dutchovendude.com/dutch-oven-recipes.asp>

## Making bread, rolls and pizza at camp

**Introduction** Here is a recipe and some hints on making bread in camp, adapted from an article by Hans Willems in a New Zealand hunting magazine.

Few things are as mouth watering and appetising as the smell of baking wafting through a camp. There's hardly a better way of making friends in camp or livening up a rainy day. What's more you'll be surprised how simple it really is.

If by chance you have a camp oven handy, so much the better. If not, use a billy or even two billies which is much better. A single billy is very thin and will burn the bread. A small billy inside a bigger billy is much better and almost eliminates the risk of burning the loaf. Use the lids on both billies.

**Constructing an oven out of two billies:** Put a layer of small pebbles in the bottom of the big billy. Grease or oil the inside of the smaller billy and insert it inside the bigger billy and sit it on the pebbles.



**Constructing an oven out of a single billy** Put a scattered layer of pebbles in the bottom of the billy. Grease a sheet of aluminium foil with butter or oil and fold it into the billy as a lining that sits on the pebbles. This keeps the bottom of the bread from burning

**Using a camp oven** Put a scattered layer of pebbles in the bottom of the oven. Grease a sheet of aluminium foil with butter or oil and fold it into the camp oven as a lining that sits on the pebbles

**What if the bread burns?** Take it out of the "oven" and cut or scrape any burnt parts from the loaf while it is still hot. Don't wait for it to become cold as the burnt taste will get into the whole loaf.

**How do we know when the bread is cooked?** After 45 mins on the embers, press a knife into the loaf and withdraw it. If it comes out clean, the loaf is cooked. If it comes out with dough sticking to it, remove the loaf from the billy or oven, turn the loaf up side down and insert it back in the billy or oven for another 10 or 15 minutes. Then test it again.

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## Making bread, rolls and pizza at camp, Continued

### How hot should the fire be?

#### The fire test is:

If you can hold your hand palm 30 cm above the fire for 10 seconds, the fire is perfect.

If you can hold your hand palm down for 12 seconds the fire is not hot enough.

### A few hints about the ingredients for the loaf

- If you are using yeast, both the flour and the yeast must be really fresh. It has to be left to rise, kneaded again and left a second time before it can be cooked.
- If the flour is weeks or months old, best use baking powder as the rising agent and **cook it immediately** it has been kneaded.
- Add one heaped teaspoon of baking powder to each cup of flour.
- If you run out of flour use rolled oats or crushed Weetbix to dry up the mix.
- Two hands full of Rolled Oats per cup of flour will also make the bread rise if you don't have baking powder.

### Mixing the dough

Here are five simple steps for mixing and cooking camp bread dough.

#### Step 1: Dry ingredients

- Put three cups of flour in a basin. Add three heaped teaspoons of baking powder, (or two handfuls of rolled oats) and 1 level teaspoon of table salt.

#### Step 2 - add liquid

- Break an egg into the mix and stir it into the flour.
- Drip water in a little at a time while stirring until the mix is sticky.
- Keep stirring until it becomes doughy.

#### Step 3 – knead it

- Flour your hands and then press the mix with the heel of your hands for 3 or 4 minutes. If it is still sticky, add a little flour and keep kneading it until it's pliable and not sticky.



#### Step 4 - Put it in the Billy or oven

- Use foil or baking paper to line the bottom of the 'oven'.
- Make the dough into the shape of a small basket ball and place it in the centre of the billy or oven leaving at least 2 cm between the billy sides and the dough.
- Place the lids on the billy, both billies or camp oven.



#### Step 5 – Cook the loaf

- Test the fire heat and if OK, place the "oven" on the embers and note the time.

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## Making bread, rolls and pizza at camp, Continued

### Cooking time

- Allow 45 to 60 minutes for the loaf to cook. For a small loaf like this, it may take less than that.
- For a bigger loaf, just increase the quantities to say 4 or five cups of flour and scale up the other quantities.
- **Hint:** Serve hot with butter, honey or jam.



### What materials will you need?

- An egg
- Baking powder
- Flour
- Yeast or rolled oats
- Oil or butter for greasing inside the billy or foil.
- Salt
- Aluminium foil
- Billies or camp oven
- Pebbles
- Fire embers
- Baking paper

### Bread rolls

Use the bread mix, but roll it into small balls or ovals and then cook three or four at once placing them side by side but not touching.

They will cook much more quickly so watch the time and check them frequently until you have worked out the correct amount of time for them and the best size to make.

### Making a Scout Pizza

The cooking process is the same as for bread but is much quicker to cook.

- The difference is the flour mix **doesn't** have baking powder in it.
- The dough is spread and pressed out thinly in the billy. It's a good idea to use baking paper or foil to sit the dough on.
- Cooking takes 10 minutes or so.
- Remove the pizza base from the billy or oven, smear the top side with tomato sauce and grated cheese and put it back in the billy or oven for 5 minutes to melt the cheese.
- Experiment and see how you get on. Add chopped up bacon or slices of left over sausages as well and taste them.



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