



Information Note: Shelters and Dens

This information note aims to provide tips and tricks for a safe and successful shelter building experience.

Pre-shelter building

This can be a classroom based pre- activity task or discussed on site before shelter construction.

Ask your learners to think about the criteria to build an effective shelter.

Consider the best location for building a shelter.

For example:

- What part of the site might make the best location for a shelter and why?
- Will the shelter be free standing or built against a tree?

- What natural resources could be used to build with?
- Which direction might the wind be coming from and should this effect where the entrance is located?
- What will be needed to keep the shelter warm and comfortable?
- How strong will the shelter need to be?

- What could be used to make it water/wind proof?
- Will it need to be camouflaged and why?
- What materials could be sourced to make the shelter comfortable?
- How will the group organise themselves during the build? Will they appoint roles, share responsibilities, etc.

If there is sufficient time divide your learners into their shelter building groups and ask them to sketch how their shelter might look or build a small-scale model. Discuss the various shelter construction ideas and allow the groups time to adapt and refine their initial plans.

Sustainable Use of Materials

Natural Resources Wales' purpose is to pursue the sustainable management of natural resources in all of its work. This means looking after air, land, water, wildlife, plants and soil to improve Wales' well-being, and provide a better future for everyone.

It is important to ensure that your activities are sustainably resourced and have minimal impact on the natural environment. You will also require permission from the land owner to erect temporary shelters, harvest materials and will need to comply with land owner's site based policies and procedures.

An example of a sustainably managing and harvesting wood for shelter building:

Coppicing is a traditional method of sustainable woodland management, in which young tree stems are cut down to a low level. In subsequent growth years, many new shoots will emerge and after several years (e.g. approximately 15 years for Hazel) the cycle begins again with the coppiced tree or stool ready to be harvested.

Typically, coppice woodland is harvested in sections, on a rotation. In this way a crop is available every year. This has the positive side effect of providing of providing a rich variety of habitats, as the woodland always has a range of different aged stools growing in it. This is beneficial for biodiversity. The cycle length depends upon the species cut, the local custom, and the use to which the product is put.

Most broadleaf trees are suitable for coppice. However, some of the better species are Hazel, Sycamore, Ash and Willow as they are readily available and often in coppice rotation in private woodlands/community woodlands or school grounds. Birch can be coppiced for faggots on a 3- or 4-year cycle, whereas Oak can be coppiced over a 50-year cycle for poles or firewood.



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Shelter building session

Experience and knowledge of group management, health and safety equipment, policies and procedures are recommended for teaching tool use for shelter building activities, e.g. level 3 Forest School qualification. **Please note: shelters can be built without the use of tools.**

Leaners should:

- ✓ use dead wood found on the ground
- ✓ drag larger pieces of wood by their side or carry with a partner
- ✓ only construct shelters on the ground
- ✓ ensure the widest end of wood is placed on the floor and “walked up” if needed in vertical position
- ✓ be aware of the positions of other members of the group
- ✓ use tools safely and with consideration to others
- ✓ check shelter stability before entering

During the session learners should not:

- break wood off dead or living trees
- “thatch” with living plants, e.g. bracken
- break or throw any wood
- climb onto large logs or shelters
- enter shelters if any members of the group are building
- carry any large branches by themselves
- leave the construction site
- demolish their shelters



Types of Shelter

The type of shelter is dictated by the type of site (i.e. broadleaf or conifer), the amount of space available and the size of the group.

Guidelines can be found in the table below.

Finding sturdy, long poles for large lean-to structures to accommodate large groups is far more practical than attempting to build large A-frame structures or bender shelters. One possible solution is to combine lean-to with bender designs if possible.

Shelter Type	Group size 1-12	Group size 12+	Broadleaf / Conifer
Lean-to	✓	✓	Both
A-frame	✓		Both
Bender shelter	✓		Broadleaf only
Combined	✓	✓	Mixed species
Wig Wam	✓		Both
Tent shelter	✓		Both
Wall-less shelter	✓		Both



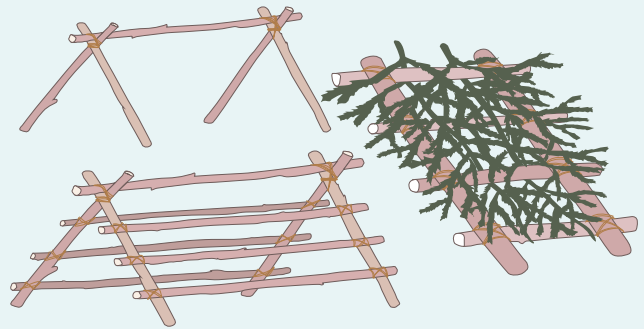


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Wig Wam Shelter

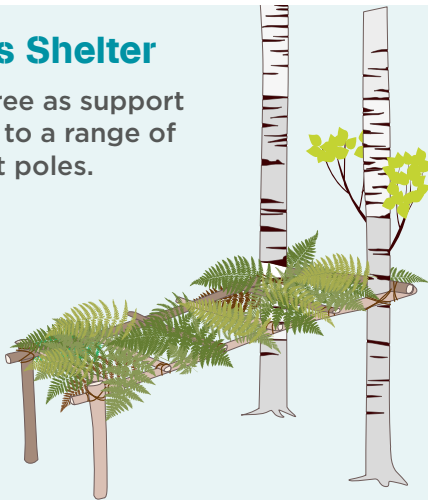


Tent Shelter



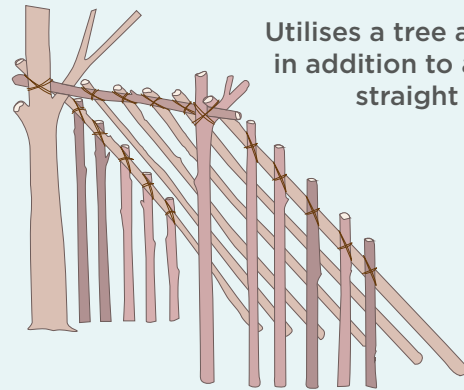
Wall-less Shelter

Utilises a tree as support in addition to a range of straight cut poles.



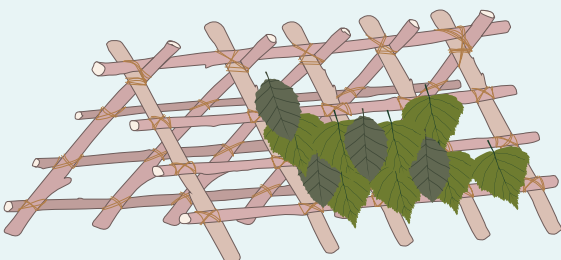
Lean to Shelter

Utilises a tree as support in addition to a range of straight cut poles.



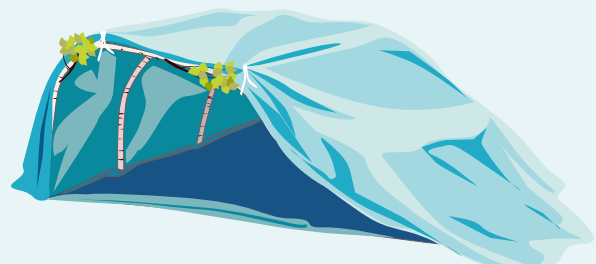
A Frame Shelter

A framework which is assembled using square lashings and a range of straight coppiced poles.



Bender Shelter

A shelter built from flexible coppiced Hazel poles and placed into the ground, bent and tied together.





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Knots

There are several simple knots which are useful to know for the construction and strengthening of a shelter. The two knots described are relatively easy to learn and valuable to this activity.

Learn the knots prior to a session and find a way that you feel comfortable teaching them. For example, give out sticks and string to pairs of learners and ask them to teach each other using the diagrams below. Allow time to practise these knots.

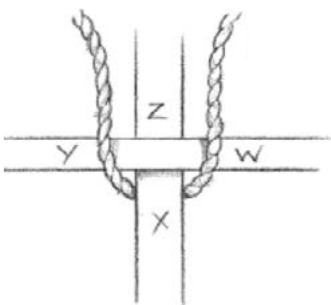
Square Lashing

Square lashing is a useful knot for shelter building. It is a very secure knot for holding two branches together which adds strength to the frame of a shelter.

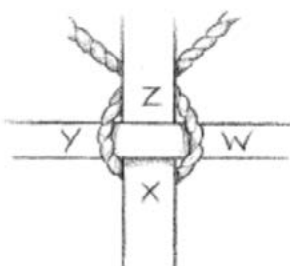
Reef Knot

A reef knot is a binding knot used as a standard double shoelace knot minus the loops. Hold both ends of the cord, apply equal pressure and place left over right, then right over left. Then pull on both ends to tighten.

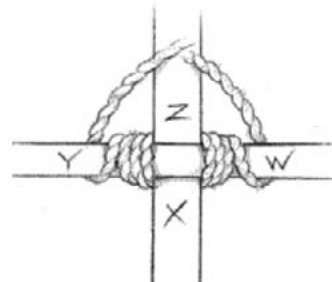
- 1 Place the horizontal pole on top of the verticle pole to form a cross. Pass the cord behind 'X' and over the top of 'Y' and 'W'.



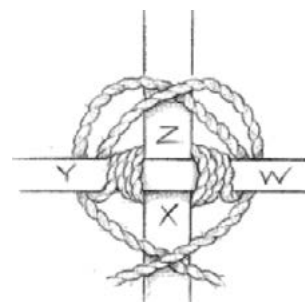
- 2 Pass the cords behind 'Z' so that they cross.



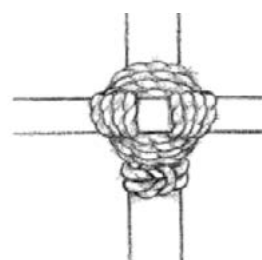
- 3 Follow the paths of the cord for three further turns, pulling the cord tight after each turn.



- 4 Frap using both ends of the cord to secure the lashing. Frap by crossing the cord over 'Z', then bring one cord under 'W', one under 'Y' and cross the cords over 'X'. Repeat this three or four times.



- 5 Tie a Reef Knot to finish and tuck in the ends.





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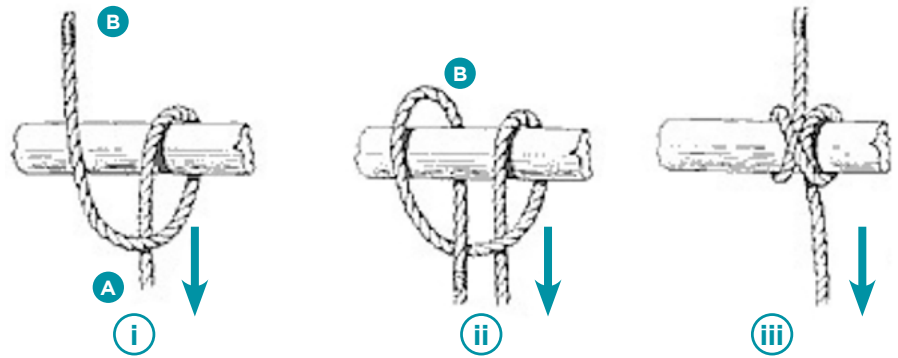
Clove Hitch Knot

The clove hitch is a simple knot to teach. It is a good starting knot to attach your string to the shelter before you start the square lashing. It is also used for 'hitching' a rope to a post for creating things such as a washing line.

There are several ways to tie a clove hitch. These two are the most commonly used.

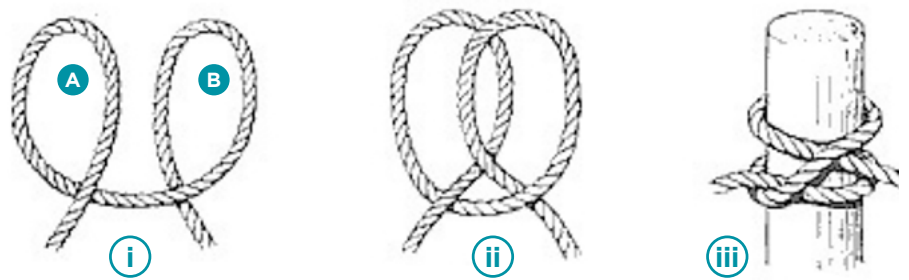
Technique ①

- i) Drape the string over the stick keeping the back end (B) longer. Bring B in front and over A.
- ii) Drape B over the pole a second time and loop it back through itself.
- iii) Pull both cords in opposite directions to tighten the hitch.



Technique ②

- i) Form 2 loops - see picture.
- ii) Slide loop A behind loop B.
- iii) Slip the loops onto the stick and pull ends in opposite directions to tighten.



*Ref: directions and diagrams
- The Knot Book, Girl Guiding UK*



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Post activity

The group leader should ensure the safe demolition of shelters as soon as possible after completion of the activity.

The final product can be reviewed and evaluated by your learners and a retrospective plan/picture produced. The features of the design can be annotated on the plan and their function/use can be discussed.

Discuss the finished product, relate its end use to the quality of the workmanship and the materials used i.e. Fresh coppice poles versus dead wood from the floor.

Revisit the theories behind coppicing and other sustainable timber management practices, tree species and the wider ecosystem.

Investigate shelters from around the globe.



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