SCOUTS BUSHCRAFT

# THE ART OF SHELTER BUILDING

## A Practical Scout Bushcraft Guide

- Planning & Safety
- Shelter Designs
- Step-by-Step Builds
- Natural Materials
- Insulation & Weatherproofing
- Team Challenges
- Leave No Trace


LEAN-TO


A-FRAME


DEBRIS HUT


TEEPEE

BUSHCRAFT | CAMPCRAFT | OUTDOOR SKILLS | TEAMWORK

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# UNDERSTANDING SHELTER

## Why do we need shelter?

Shelter protects us from wind, rain, cold and heat. It helps us stay safe, comfortable and able to take part in outdoor activities.



## The main purposes of shelter

**Protection from rain**
Keeps us dry and comfortable.

**Protection from wind**
Reduces heat loss and keeps us warmer.

**Insulation**
Traps warm air and helps keep us at a stable temperature.

**Ground protection**
Helps reduce heat loss to the ground.

**Comfort**
A safe, sheltered space improves wellbeing and morale.

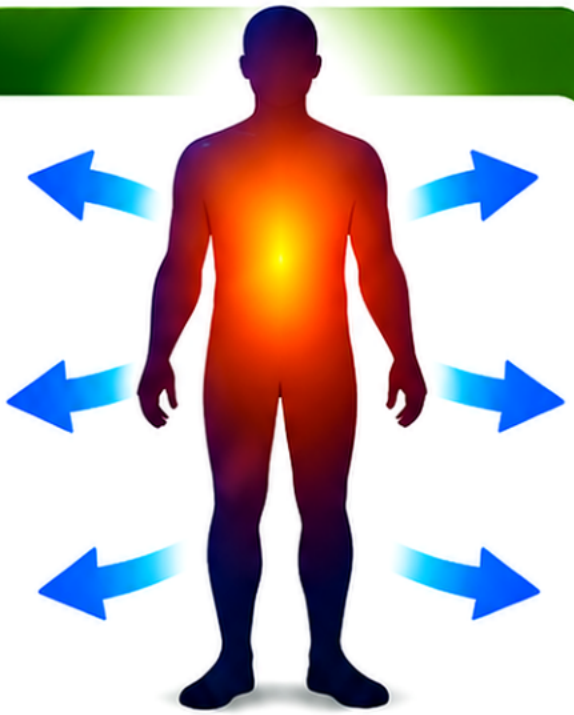
## Understanding heat loss

**Conduction**
Heat loss through direct contact (e.g. cold ground).

**Convection**
Moving air carries heat away from the body.

**Radiation**
Heat lost to cooler surroundings (e.g. the air and nearby objects).

**Evaporation**
Moisture (sweat) turning to vapour removes heat from the body.



**Bushcraft Tip:** A waterproof roof is not enough. A good shelter also needs wind protection, insulation and a ground layer.

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# CHOOSING A SAFE LOCATION

re building, choose the right location. A poorly selected site can be more dangerous than having no shelter.

## What makes a good location?

- ✓ Relatively level ground.
- ✓ Good natural drainage.
- ✓ Protection from prevailing winds.
- ✓ Suitable fallen materials nearby.
- ✓ A clear area without hazards.
- ✓ Away from watercourses and flood areas.



## What should you avoid?

- ✗ Never build under dead or unstable branches.
- ✗ Avoid damaged or leaning trees.
- ✗ Do not build in areas where water collects.
- ✗ Stay clear of animal trails.
- ✗ Avoid wasp or bee nests.
- ✗ Do not build on unstable ground.



## Understanding wind direction

Look at the trees and vegetation to see where the wind is coming from. Position the shelter so the most protected side faces the prevailing wind.




**Scout Activity:** Identify three possible shelter locations and explain which is safest and why.

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# WOODLAND MATERIALS & EQUIPMENT

Natural shelter building teaches us to use available resources responsibly. Only collect fallen materials where permitted and never damage living trees.

## Common Natural Materials



**Large branches** (for ridge poles and main supports)



**Smaller branches** (for framework and sides)



**Flexible sticks** (for curved and dome shelters)



**Dry leaves** (for insulation and covering)



**Grass and vegetation** (for additional coverage)



**Bark** (can be useful when already fallen)

## Equipment Checklist

- ☐ Natural cordage or lashing rope
- ☐ Paracord (supervised use)
- ☐ Gloves
- ☐ First aid kit
- ☐ Suitable outdoor clothing
- ☐ Groundsheet or emergency shelter
- ☐ Water bottle
- ☐ Safety whistle
- ☐ Folding saw (if authorised)
- ☐ Notebook and pencil

**Important:** Check all materials for rot, cracks, splits or damage. Never use a branch that could break unexpectedly.

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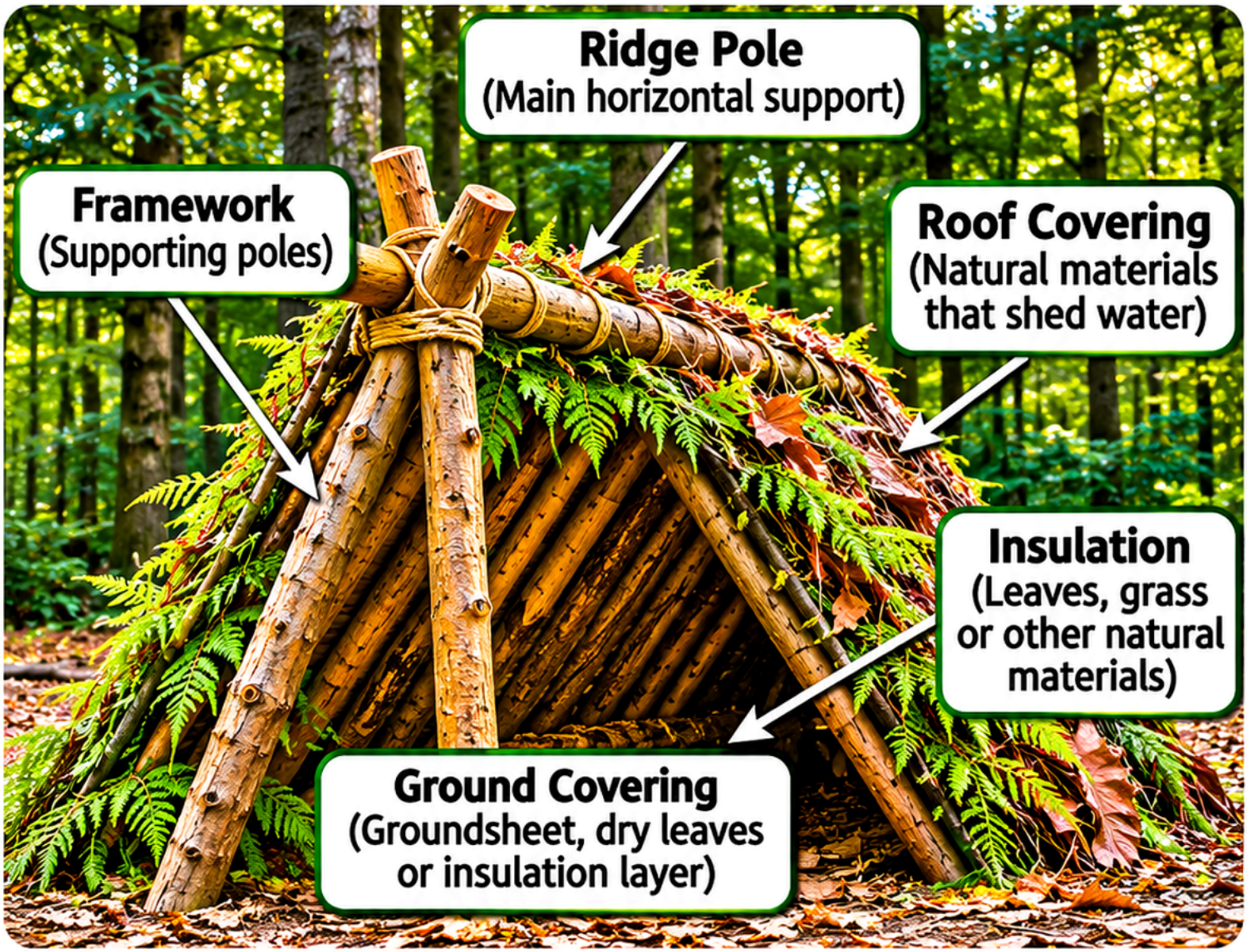
# 4 UNDERSTANDING SHELTER DESIGN

Before building a shelter, it helps to understand the main components and how they work together.




## Key Construction Principles

- ✅ Use a strong, stable framework.
- ✅ Ensure the ridge pole is well supported.
- ✅ Add covering materials in overlapping layers (like roof tilles),
- ✅ Include insulation to help retain heat.
- ✅ Use a ground covering to reduce heat loss.

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# BUILDING A LEAN-TO SHELTER

The lean-to is a simple and effective shelter, ideal for beginners. It uses a sloping framework with one open side.

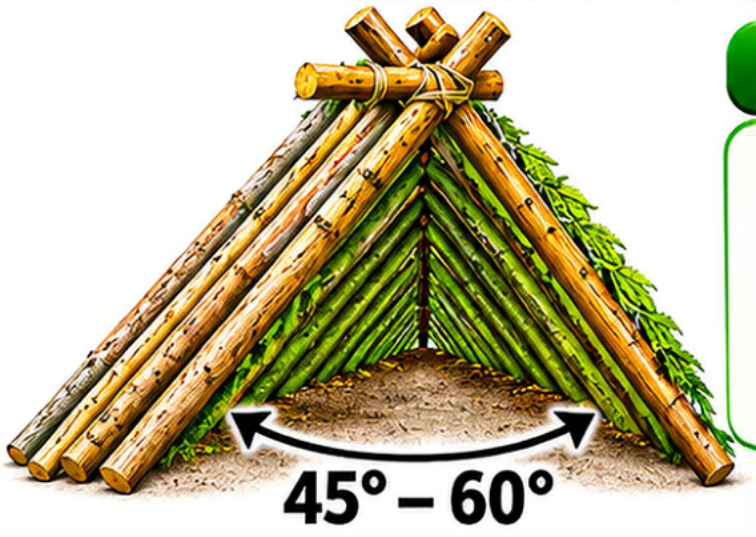


## Materials Required

- ☐ One ridge pole
- ☐ Supporting poles
- ☐ Smaller branches
- ☐ Natural covering (leaves, bracken, grass)
- ☐ Cordage (where required)

## Construction Steps

1. Select a safe, level location.
2. Position the ridge pole.
3. Lean supports against the ridge.
4. Add cross supports (if needed).
5. Add natural covering, overlapping from the bottom upwards.
6. Check the structure and stability.




## Key Points

- ✅ A simple, quick design.
- ✅ Good wind and rain protection.
- ✅ Ideal for short activities and small groups.

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# BUILDING AN A-FRAME SHELTER

A-frame is a popular and versatile shelter. Its triangular shape provides good protection from wind and rain.

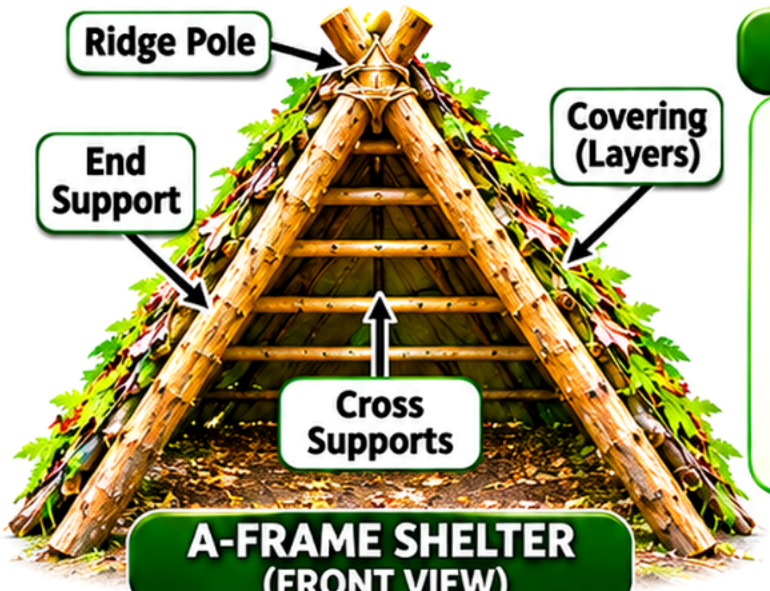


## Materials Required

- ☐ One ridge pole
- ☐ Two end supports (or forked supports)
- ☐ Smaller branches
- ☐ Cross supports
- ☐ Covering materials
- ☐ Cordage

## Construction Steps

1. Prepare two stable end supports.
2. Position the ridge pole.
3. Lean branches against both sides.
4. Add cross supports.
5. Add natural covering, overlapping each layer.
6. Check for gaps and make adjustments.




A-FRAME SHELTER (FRONT VIEW)

## Why Does It Work?

- ✓ A strong, simple triangular shape.
- ✓ Sheds rainwater away from the shelter.
- ✓ Provides good protection from wind.

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# BUILDING A DEBRIS HUT

ris hut is a more advanced shelter that demonstrates excellent natural insulation. It uses a framework covered with a thick layer of natural materials.

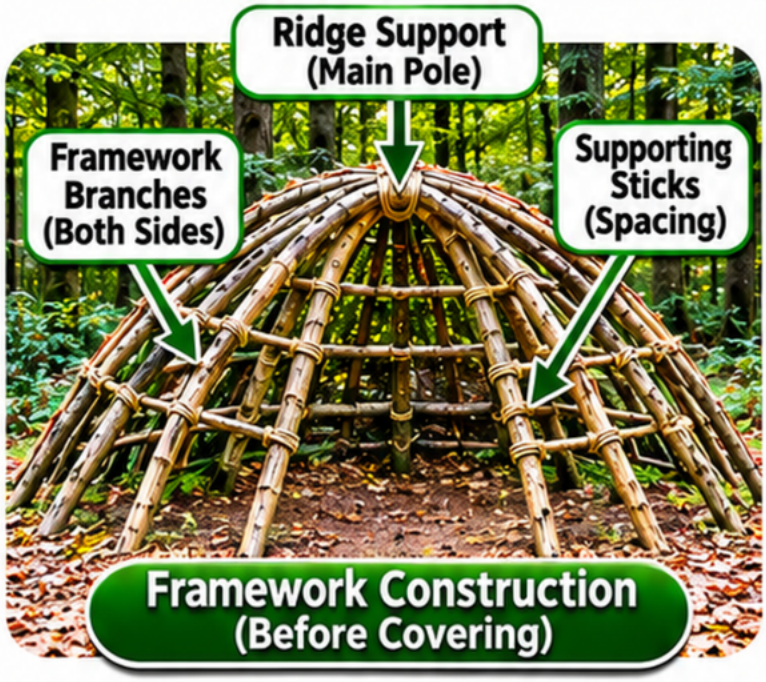


## Materials Required

- [ ] A suitable ridge support
- [ ] Strong framework branches
- [ ] Smaller supporting sticks
- [ ] Fallen leaves and natural debris

## Construction Steps

1. Build the main ridge support.
2. Create the framework along both sides.
3. Add smaller sticks to hold the covering.
4. Apply a thick layer of leaves and debris.
5. Check for gaps and make adjustments.




Framework Construction (Before Covering)

## Understanding Insulation

Insulation works by trapping pockets of still air. The thicker and more even the covering, the better it reduces heat loss.



Leaf Layer (Covering)



Inside View (Insulation Layer)

**Key Point:** A deep, even layer of natural materials provides excellent insulation and weather protection.

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# TEEPEE & DOME SHELTERS

Two popular group shelters that use simple, natural frameworks.

## TEEPEE SHELTER



- Uses long poles in a cone shape.
- Simple and effective design.
- Suits group activities.

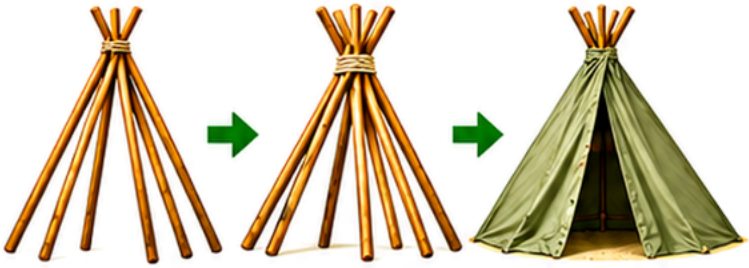
## DOME SHELTER



- Uses flexible poles to form a dome.
- Strong and stable when built well.
- Provides a good enclosed space.

## CONSTRUCTION OVERVIEW

### Teepee (Key Steps)



1. Arrange poles.
2. Lash at the top.
3. Add covering.

### Dome (Key Steps)



1. Create base shape.
2. Bend and join poles.
3. Add covering.

Use suitable materials, check stability, and build only with permission and supervision.

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# NATURAL FEATURES & RAISED SHELTERS

## Using Natural Features

Sometimes the best approach is to use an existing natural feature, such as a fallen tree, to help form part of a shelter. Always check for stability, decay and overhead hazards.



## Raised Shelters

Raised shelters lift the user above the ground and can reduce contact with cold, damp ground. For Scouts, use simple, low designs only and follow a full risk assessment.



## Snow Shelters (Advanced)

Snow shelters include snow trenches, caves and compacted shelters. These are advanced activities and should only be undertaken with appropriate training and snow conditions.



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# THE SHELTER BUILDING CHALLENGE

5-minute woodland challenge for small teams.

## Challenge Rules

- Teams have 60 minutes.
- Use only authorised natural materials.
- No cutting living trees.
- No unsafe lifting or throwing.
- The structure must be stable.
- Every team member must take part.

## Scoring (60 points)

| Category | | Points |
|---|---|---|
| | Teamwork | 10 |
| | Construction | 10 |
| | Stability | 10 |
| | Weather protection | 10 |
| | Use of materials | 10 |
| | Woodland awareness | 10 |
| **Total** | | **60** |

## Team Roles

- **Team leader** – plan and organise the team's approach.
- **Materials collector** – find authorised natural materials in the area.
- **Framework builders** – create a strong and stable structure.
- **Covering team** – add the natural covering (e.g. leaves, bracken, branches).
- **Safety checker** – check stability, safety and look for any hazards.





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# WOODLAND SAFETY

## Main Hazards

- **Falling branches** – check overhead trees for loose or dead branches (known as widow makers) before starting activities.



- **Manual handling** – use sensible-sized branches and get help with heavier materials.



- **Splinters** – wear gloves and check materials before use.



- **Trips and falls** – keep the area tidy, remove unnecessary obstacles and be aware of uneven ground.



- **Tools** – use only when authorised and supervised. Follow safe use and handling procedures.



- **Weather** – stop if conditions become unsafe (e.g. strong wind, heavy rain or thunder and lightning).



- **Wildlife** – do not disturb nests, dens or habitats. Observe wildlife from a distance and be respectful.



- **Fire** – keep away from the shelter construction. Use fires only in a designated and supervised area.



## Instructor Responsibilities

- Complete a risk assessment for the activity.
- Obtain permission to use the site (e.g. landowner, site manager or relevant authority).
- Explain clear boundaries and safety procedures to all participants.
- Maintain suitable supervision at all times (appropriate adult-to-young person ratios).
- Have a first aid kit and an emergency plan readily available (including how to get help if needed).



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# LEAVE NO TRACE

Bushcraft is about understanding and respecting the natural environment. When the activity finishes, leave the woodland as you found it.



## Leave No Trace Principles

- ✔ Use only permitted areas.
- ✔ Use fallen materials.
- ✔ Never damage living trees.
- ✔ Avoid disturbing wildlife.
- ✔ Do not strip moss or bark.
- ✔ Remove all cordage and litter.
- ✔ Carefully dismantle shelters.
- ✔ Leave the woodland as you found it.

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The **Scouts Bushcraft** book series provides practical, easy-to-follow guides to help Scouts, Explorer Scouts, Scout Leaders and other youth groups learn outdoor skills, develop confidence, work as a team and build a greater understanding and respect for the natural world.

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- Useful tips and techniques
- Printable worksheets and resources
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