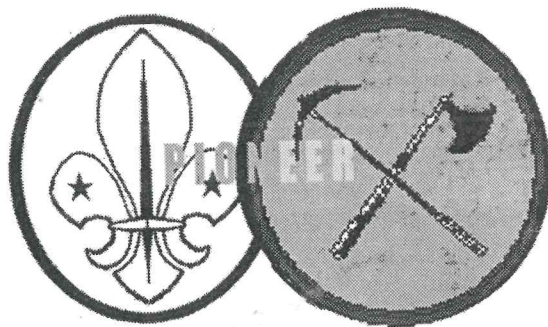


PIONEER

PROFICIENCY



BADGE

A BOSCOUTS PUBLICATION



PIONEER

1. Show extra efficiency in the following :

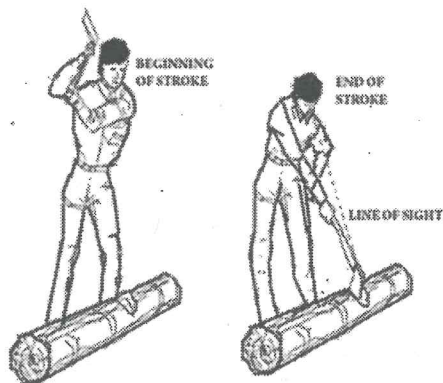
Fell a 22.5 cms (9 inch) scaffolding pole of not less than 12.5 cm (5 inch) diameter neatly and quickly

2. Have a basic knowledge of various ropes, their lay, size, storing and care.

3. Tie the following knots and understand their uses thoroughly in addition to Pratham Sopan and Dwitiya Sopan test knots: Bowline on bight, Catspaw, Double sheet bend, Manharness Knot, Marline or Lever hitch, Draw or Highway man's hitch, Fisherman's bend or hitch.
4. Use Figure of eight lashing , lash a block to spar and prepare any two types of holdfasts for different types of soil.
5. Build a model bridge or derrick and ladder
6. Make a Camp kitchen or a raft that will carry himself.
7. Build a Camp shelter or a Hut suitable for three occupants.
8. Pass or repass Pioneer tests of Pratham and Dwitiya Sopan badges
9. Know how to make a block and tackle using single and double sheave pulleys

1. Show extra efficiency in the following :

Fell a 22.5 cms (9 inch) scaffolding pole of not less than 12.5 cm (5 inch) diameter neatly and quickly



2. Have a basic knowledge of various ropes, their lay, size, storing and care.

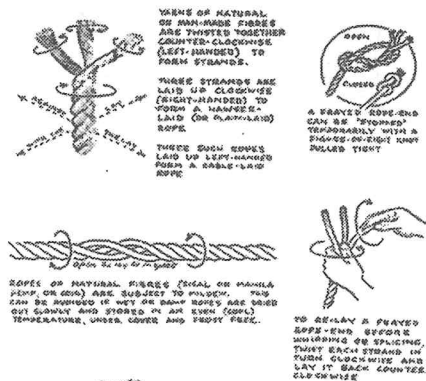
Rope may be constructed of any long, stringy, fibrous material, but generally is constructed of certain natural or synthetic fibres. Synthetic fibre ropes are significantly stronger than their natural fibre counterparts, but also possess certain disadvantages, including slipperiness.

Common natural fibres for rope are hemp, linen, cotton, coir, jute, straw, and sisal. Synthetic fibres in use for rope-making are polypropylene and nylon.

Polyesters include (e.g. PET, LCP, HDPE, Vectran), polyethylene (e.g. Dyneema and Spectra),

Aramids (e.g. Twaron, Technora and Kevlar) and acrylics (e.g. Dralon).

Some ropes are constructed of mixtures of several fibres or use copolymer fibres. Rope can also be made out of metal. Ropes have been constructed of other fibrous materials such as silk, wool, and hair, but such ropes are not generally available. Rayon is a regenerated fibre used to make decorative rope.



Vegetable or synthetic fibres when right twisted form YARNS. When yarns are left twisted they form STRANDS. When strands are twisted right together they are said to be 'laid up' into a Rope.

Large right hand twisted (right laid) ropes of 5" diameter or more are called Hawasers. When two or three Hawasers are twisted left they form a CABLE

Laid rope, also called twisted rope, is historically the prevalent form of rope, at least in modern western history. Common twisted rope generally consists of three strands and is normally right-laid, or given a final right-handed twist. The ISO 2 standard uses the uppercase letters S and Z to indicate the two possible directions of twist, as suggested by the direction of slant of the central portions of these two letters. The handedness of the twist is the direction of the twists as they progress away from an observer. Thus Z-twist rope is said to be right-handed, and S-twist to be left-handed.

Twisted ropes are built up in three steps. First, fibres are gathered and spun into yarns. A number of these yarns are then formed into strands by twisting. The strands are then twisted together to lay the rope. The twist of the yarn is opposite to that of the strand, and that in turn is opposite to that of the rope. It is this counter-twist, introduced with each successive operation, which holds the final rope together as a stable, unified object.

Traditionally, a three strand laid rope is called a plain- or hawser-laid, a four strand rope is called shroud-laid, and a larger rope formed by counter-twisting three or more multi-strand ropes together is called cable-laid.

There are many hundreds of fibres that can be twisted into ropes, but they are not often used.

The most common fibres are:

- | | | |
|----------------|----------------|-----------|
| 1. Manila Hemp | 2. Common hemp | 3. Jute |
| 4. Coir | 5. Sisal | 6. Flax |
| 7. Nylon | 8. Terylene | 9. cotton |

A scout knows the strength of his ropes and how much weight it can safely carry and what is its breaking point. The strength of the rope depends on the material it has been made and the age of the rope.

A good quality rope's strength can be calculated in this manner: 1. Find the circumference of the rope (3 times its diameter) 2. Take the square of the circumference and multiply it by 50 K.Gs.

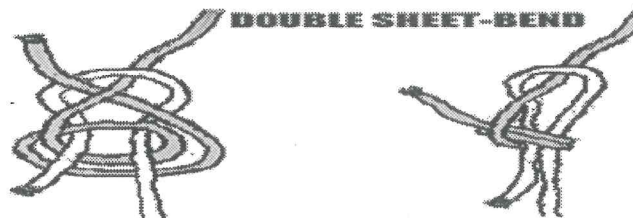
For E.g, If the circumference is 3" then the square of it is $3 \times 3 = 9$. Multiply 9 by 50 KGs you will get 450 KGs. This is not the breaking point of the rope which is about $5/6$ times more than the safe weight, i.e. about 2500 KGs.

Take good care of your ropes. They are expensive and often life will depend on it. Never store ropes when they are wet. A wet rope must be loosely coiled and hanged in the shade to dry. When dry they must be coiled clockwise and hanged on pegs. Make sure there are no kinks in the rope that is stored.

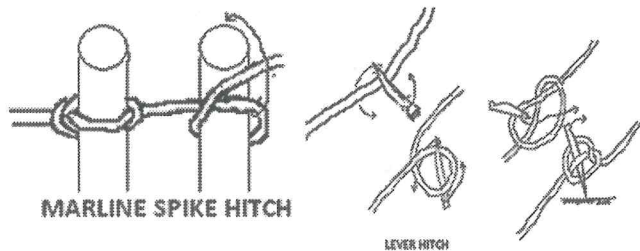
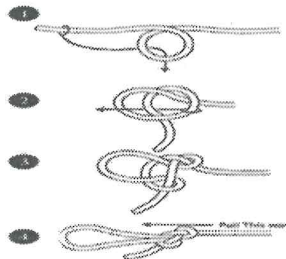
Do not use frayed and damaged ropes where safety is important.

3. Tie the following knots and understand their uses thoroughly in addition to Pratham Sapan and Dwitiya Sapan test knots:

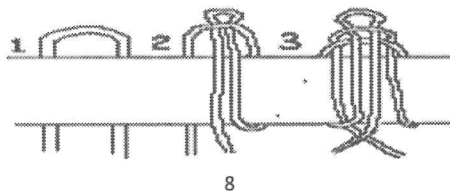
4. Bowline on bight, Catspaw



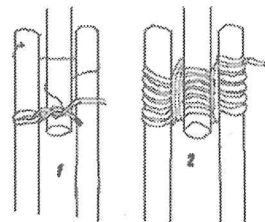
Manharness Knot



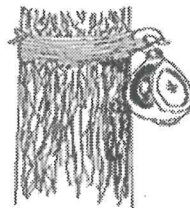
5. Highway man's hitch



6. Use figure of eight lashing

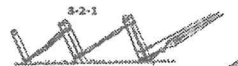
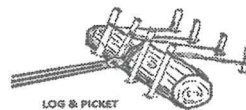


7. Lash a block to spar and prepare any two types of holdfasts for different types of soil.

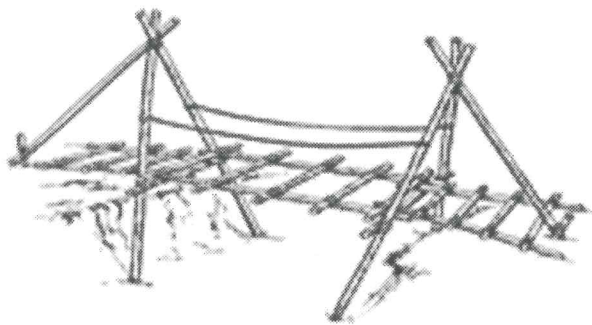
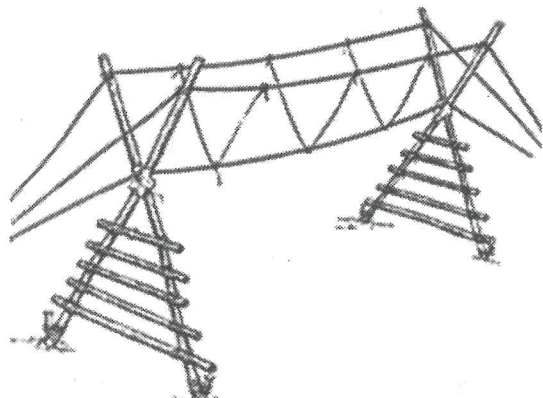


Lashing a block to a Spar or tree

HOLD FASTS & ANCHORAGES

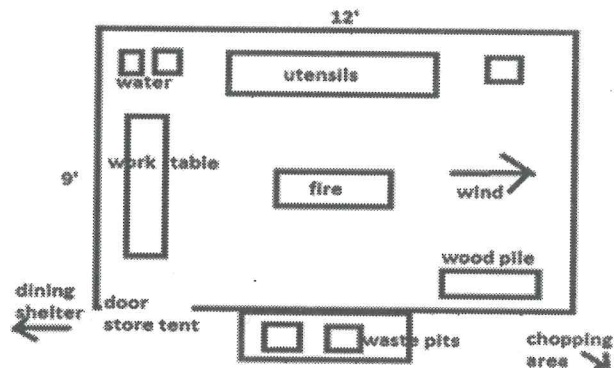


8. Build a model bridge or derrick and ladder



10

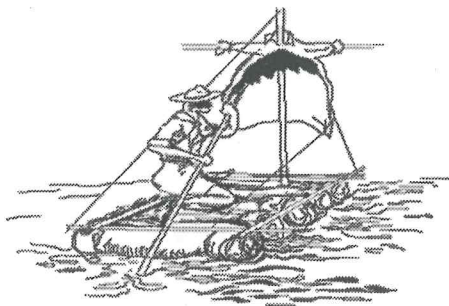
9. Make a Camp kitchen or a raft that will carry himself.



'The cooking fire is made to leeward, or down wind of the camp, so that the smoke and sparks from the fire don't blow into the tents.'

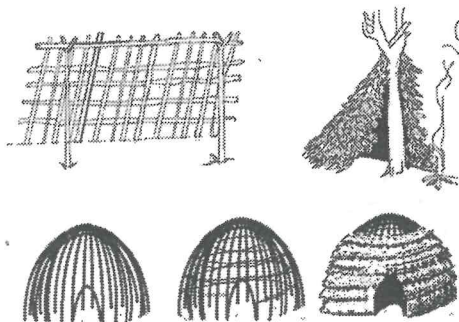
Keep the camp kitchen and the ground around it very clean at all times. To do this you will want a wet and a dry pit. Wet pit is for collecting all the greasy waste water and dry pit for everything that will not burn like cans.

11



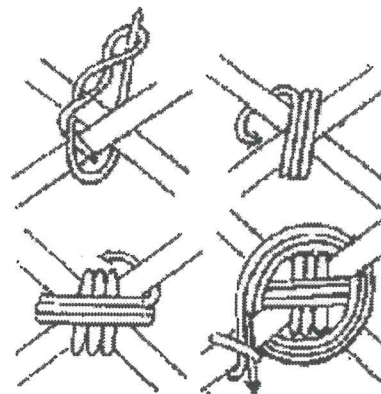
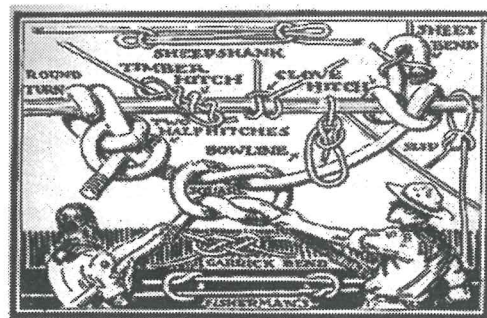
"You can make a simple raft from 'sausages'-waterproof covers filled with straw and dry leaves. Lash them to a frame of Scout staves." -BP

10. Build a Camp shelter or a Hut suitable for three occupants.

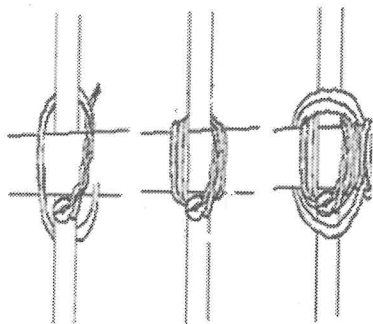


"A Patrol hut may be made by placing slender trees together, and by covering the framework with sods."- BP

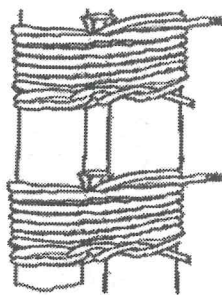
11. Pass or repass Pioneer tests of Pratham and Dwitiya Sopan badges



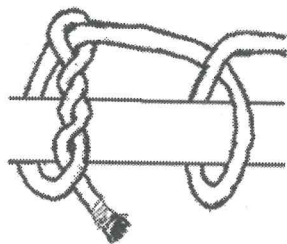
Diagonal lashing



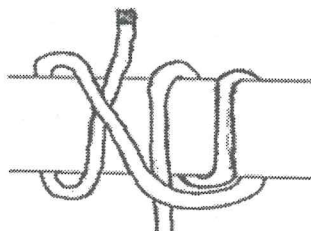
The Square lashing



Sheer lashing



Timber Hitch



Rolling Hitch

12. Know how to make a block and tackle using single and double sheave pulleys



This picture is that of a Reversed *Single Whip*- a block and tackle using a single sheave block that is attached to a load that need to be moved. The one end of the tackle is fixed to the end opposite to the load. The power gained is double that of pulley less pulling.



This picture is that of a *luff tackle* which is a Block & Tackle comprising of two blocks, one single sheave and the other double sheaves. The power gained is FOUR to ONE