

## Lashings Lesson Plan

When we speak of lashings, what do we mean?

- Basically, it means making something useful out of wood poles and rope (branches, staves, bamboo poles, etc)
- Examples are towers, monkey bridges, camp gadgets, etc

Why lashings?

- Useful to know, as you may have to build something with rope and wood someday
- Fun activity
- Practical use (and practice) for knots -- useful and practical skill

Background on types of **rope** and their usefulness in pioneering:

- Manila – best all around rope
  - Easy to handle
  - Good strength-to-size ratio
  - Does not have objectionable stretch factor
- Polypropylene
  - Lightweight
  - Strength-to-size is good (size for size, twice as strong as Manila, but higher stretch factor)
  - Resists mildew; floats (good for waterfront, wet conditions)
  - Long exposure to sunlight will weaken it
- Nylon
  - Strong for its size
  - 20% stretch factor
  - Tendency to slip
  - Generally not good for lashings
- Polyethylene
  - Inexpensive
  - Not suited to pioneering; holds kinks, slips, stretches
- Sisal
  - Looks like Manila rope, but inferior in strength
  - Not good for lashing or knot tying
  - Breaks down quickly when wet
- Cotton
  - Not sufficiently strong for pioneering or camping
- Binder Twine
  - Made from loosely twisted jute fibers treated with oil
  - Principle use is tying up bales of hay

- Low cost; can throw away after use (or save as a fire starter)
- Limited use in pioneering/lashings
- Good for projects or gadgets that use wood less than 2" in diameter (but not as a substitute for structures that bear weight).

#### Review of knots with particular pioneering applications

- Important terms
  - Running end – the end of the rope that is used to tie the knot (also called the “working end”)
  - Standing part – the rest of the rope
  - Overhand loop – loop is made so running end is over the standing part
  - Underhand loop – loop is made so running end is under the standing part
  - Bight – doubling back on itself to form a “U”
  - Take a turn – wrap a rope around a spar so it continues on in the same direction (a full wrap around)
  - Roundturn – wrap around once then back toward the standing end (1 ½ turns)
  
- Knots (refer to book for detailed instructions on tying each of these)
  - Square Knot
  - Bowline
  - Clove Hitch
  - Sheet Bend
  - Sheep Shank
  - Timber Hitch
  
- Whipping and Fusing

#### Lashings

- Terminology
  - Wrap – a turn made around the two spars to hold them tightly together. For example, 3 wraps are usually made for a square lashing
  - Frap – a turn made between two spars. Usually 2 frapping turns are made. These must be tight, putting strain on the rope
  
- Length of rope – to make a lashing use rope that is at least the length of
  - The total diameter of both spars in inches times 3 feet
  - Example: joining two 1 ½ inch spars would require a rope of  $1\frac{1}{2} + 1\frac{1}{2} = 3$  times 3 feet equals 9 feet of rope.
  - Our spars are generally 1" so the required length would be  $(1+1)*3 = 6$  feet
  
- Diameter of rope
  - Generally ¼ inch manila rope will suffice unless the combined diameter of both spars is over 6 inches
  - If larger, use 3/8 inch diameter rope

- Square lashings
  - Basic lashing – used to join two spars together, usually at a right angle
    - Start with a clove hitch
    - Complete with 3 wrapping turns and 2 frapping turns
    - End with a clove hitch
    - A modification of the lashing would be to leave about a foot extra rope on the running end of the clove hitch. When the last frapping turn is made bring tie the rope at the end to the remaining rope from the original clove hitch with a square knot.
  
- Diagonal lashing
  - Used to connect spars where they cross, particularly when there is some space between the spars
  
- Round Lashing
  - Used to connect spars to increase length, i.e. flag pole.
  
- Tripod Lashing
  - Requires 3 spars