

Using Ropes, Knots & Lashings at Forest School

Introduction

Facilitating high quality and challenging outdoor play for children and young people is a rewarding but sometimes tricky job. As practitioners we need to develop our practical skills to best support the children/young people we work with. Outdoor play should provide learners with opened ended resources which can be adapted to fulfil different roles within their play. Providing rope, strings and natural resources, and scaffolding learners repertoire of different knots and lashings, can inspire numerous play activities.



There are literally hundreds of different knots in existence; some have functional uses in activities such as climbing, sailing, fishing, bushcraft or scouting. Some are purely decorative and complex to tie and some we use every day without thinking; like tying a shoelace, neck tie or string around a parcel.

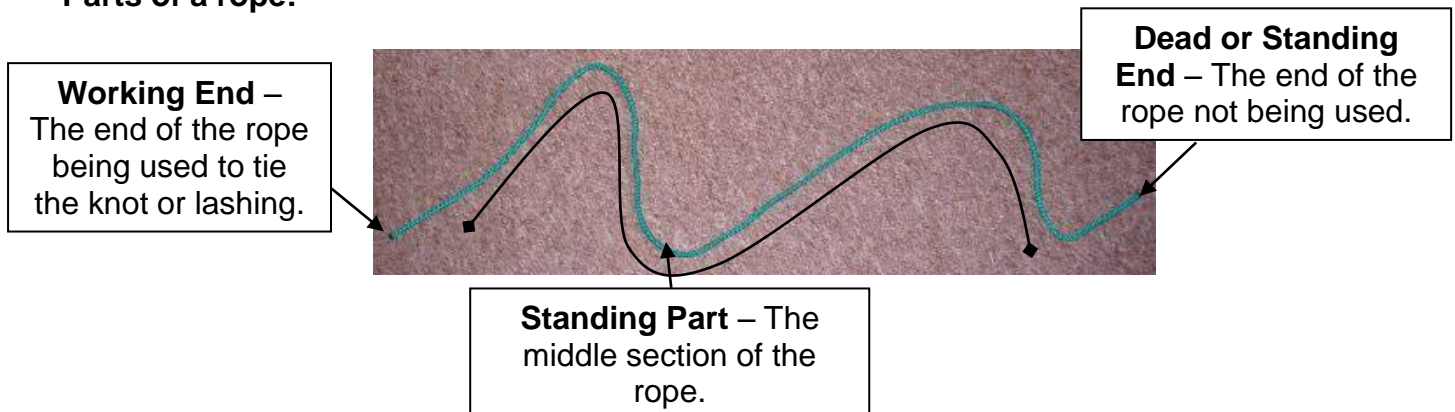
When a Knot isn't a Knot – Vocabulary & Terms

We will often use the word 'knot' to refer generically to all bindings involving rope, cord or string. However, technically this is not accurate as there are knots, hitches and bends.

- Knot – an intertwining or looping of a rope on itself to form a shape or lump.
- Hitch – a fastening of a rope to a fixed point (like a post or stick).
- Bend – an attachment of an end of a rope to another end of a rope.

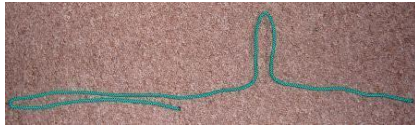
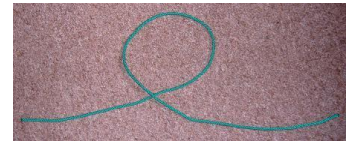
There are also 'lashings' which are bindings to secure two or more items (such as poles or sticks) together tightly, and are used in constructing structures or items.

Parts of a rope:



Shapes in the rope:

Loop - When the rope is curled and crosses itself. It also can be referred to as a 'half hitch' when looped around something.



Bight – When the rope is pulled parallel to itself

Turn – When the rope is cast over something (post, stick etc)



Cordage

We also often use the term 'rope' as a generic name for any type of cordage. This is not really accurate as there are strings, cords and ropes. Also in some activities (such as sailing) different ropes will have a name eg. Sheet, Line, Halyard, Lanyard etc.

Cordage can be made in different materials (natural and man-made fibres) and in different weaves. Each rope will have a breaking strain which describes the load it can bear without snapping. However tying knots will weaken a rope, please see safety section below.

Rope Safety

Ropes under load can be dangerous and could injure people. Some tips:

- Know the breaking strain of your rope (this will vary depending on the diameter of the rope, the material it is made from and the weave).
- Tying knots weakens its breaking strength, assume that your rope will be working at 50% of its breaking strength.
- It is recommended to lift non-critical loads that the breaking strain should be a minimum of 7 times the weight of the load. For critical loads (e.g people) this should increase to 15 times the weight of the load.
- Load bearing ropes should be replaced regularly.
- Ropes should be regularly checked for damage. Ropes that have been moving under load (like in a pulley system or tree swing) should be checked very frequently – the friction of movement can cause ropes to fray or even melt (if synthetic fibres).
- Ropes should be cleaned and stored correctly to prolong their working life.
- Ensure you are aware of the benefits and limitations of knots used, and select an appropriate knot for the task.
- Many knots can come undone if exposed to prolonged or intermittent strain. Tying a stopper knot on loose ends, or adding half hitches can add security.
- Ropes bearing a load can burn hands, use gloves with a good grip and if necessary wrap the rope around a post or winch to gain stability.

Rope Maintenance Tips

- Keep ropes away from heat, chemicals, and abrasive surfaces.
- If ropes get wet ensure they are dried before storing (ropes made from natural fibres will start to rot if left out in the wet).
- Store ropes appropriately coiled, at room temperature ideally in a bag.
- It is a good habit to get into to check the condition of your ropes whilst coiling them (as you can feel any frayed patches or melts as it passes through your hands).
- Clean dirty ropes by washing with cold water and soap and rinsing well.
- To prevent the fraying of the ends of ropes; melt the end fibres of synthetic ropes, natural fibres will need whipping with twine or wrapping in tape.
- For ropes holding critical loads (i.e. people) - Decide on a lifespan for your ropes (based on type of activity and frequency of use) and ensure they are replaced when due.

Environmental Impact

Natural fibres will eventually biodegrade if lost in the environment, however synthetic cord will not. Use brightly coloured synthetic cordage that is easily seen to ensure that it is not lost and remove all ropes after use. Ropes should not be left indefinitely attached to living trees or branches as they can damage the bark and tissues of the tree over time.

Tips for Teaching Knot Tying

- Ensure you are confident at tying the knot yourself and know the application and limitations of it, so you can pick the best knot for the task and the learner's ability level.
- Think about the language you will use to teach knot tying and make it appropriate for the learners (e.g younger children may better visualise the rope as a snake or worm and think about the working end as the snakes head etc).
- Consider the learners motor skills and dexterity – younger children may first need to use large ropes on the ground and use their whole body to move them into shapes.
- Learn how to demonstrate tying knots with both your right hand and left hand being dominant, so that you can support all learners.
- Braided synthetic ropes behave much better and are softer on hands, compared to twisted rough natural fibres. Set learners up to achieve by giving them an easier material to work with when first learning knots.
- Some learners like stories and/or songs to help them remember how to tie the knots – so get creative with it!
- Some learners like pictures – so why not have a set of cards as visual prompts. It will also enable children to self-check their own knots.

