



SCOUTMASTER BUCKY

Pioneering Merit Badge

SCOUTS PARTICIPATING IN A SCOUTMASTER BUCKY MERIT BADGE OPPORTUNITY (ONLINE OR IN PERSON), PLEASE CONSIDER ALSO USING THE PIONEERING MERIT BADGE CLASS PREPARATION PAGE FOR CLARIFICATIONS, INSIGHTS, AND EXPECTATIONS.

<https://scoutmasterbucky.com/merit-badges/pioneering/pioneering-cpp.pdf>

PIONEERING MERIT BADGE WORKBOOK

REQUIREMENT 1a: Explain to your counselor the most likely hazards you might encounter while participating in pioneering activities and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.

HAZARD #1

Description:

Anticipate:

Help Prevent:

Mitigate:

Respond:



HAZARD #2

Description:

Anticipate:

Help Prevent:

Mitigate:

Respond:



HAZARD #3

Description:

Anticipate:

Help Prevent:

Mitigate:

Respond:



HAZARD #4

Description:

Anticipate:

Help Prevent:

Mitigate:

Respond:



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HAZARD #5

Description:

Anticipate:

Help Prevent:

Mitigate:

Respond:



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REQUIREMENT 1b: Discuss the prevention of, and first-aid treatment for, injuries and conditions that could occur while working on pioneering projects, including rope splinters, rope burns, cuts, scratches, insect bites and stings, hypothermia, dehydration, heat exhaustion, heatstroke, sunburn, and falls.

Notes:

ROPE SPLINTERS

Prevention:

First Aid Treatment:

ROPE BURNS

Prevention:

First Aid Treatment:



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CUTS

Prevention:

First Aid Treatment:

SCRATCHES

Prevention:

First Aid Treatment:

INSECT BITES and STINGS

Prevention:

First Aid Treatment:



HYPOTHERMIA

Prevention:

First Aid Treatment:

DEHYDRATION

Prevention:

First Aid Treatment:

HEAT EXHAUSTION

Prevention:

First Aid Treatment:



HEATSTROKE

Prevention:

First Aid Treatment:

SUNBURN

Prevention:

First Aid Treatment:

FALLS

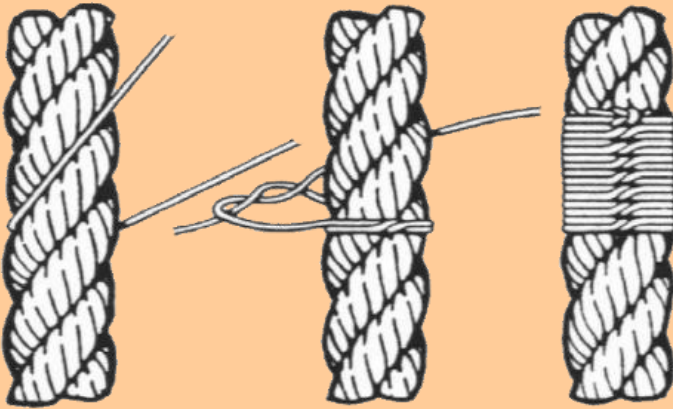
Prevention:

First Aid Treatment:

REQUIREMENT 2a: Demonstrate the West Country method of whipping a rope.

Be sure to review the merit badge pamphlet for preparation information on this requirement.

This requirement must be reviewed with your merit badge counselor.



A group of countries west of Bristol, England, which has long been a seafaring area, is referred to as West Country.

To make a West Country Whipping on a 1/4-inch diameter rope, start with a 14-inch length of waxed flax cord. Wrap the cord around the end of the rope about 1/2 to 3/4 of an inch from the end, and tie a half knot (like you're starting to tie a square knot). If the rope is badly frayed, it can be pulled together with a clove hitch or constrictor knot to begin the whipping.

Continue by taking the two ends of the whipping cord around the back of the rope (away from you), and tie another half knot. Keep repeating half knots, front and back until the whipping has been formed. A good rule of thumb to follow when making this kind of whipping is to make the whipping as long as the diameter of the rope.

Always tie each half knot right over left of left over right so that the knots lay neatly together and snug against the previous knot to form a smooth finished whipping. The West Country Whipping is finished with a square knot and the excess cord is trimmed.

REQUIREMENT 2b: Demonstrate how to tie a rope tackle

Be sure to review the merit badge pamphlet for preparation information on this requirement.

This requirement must be reviewed with your merit badge counselor.

A rope tackle, (also known as the Trucker's Hitch, Lineman's Hitch, Load Binder, and Harvester Hitch) can be applied where the guylines meet the anchors for most all pioneering projects. For safety reasons, Taut-Line Hitches should never be used in any pioneering work, because if the tension is eased the knot can slip.

The rope tackle is one of the many skills learned for pioneering that can be used in a variety of situations for years to come. Frequently, it's used when creating a ridge line between two trees for dining flies and tarps, and used whenever there's an appropriate need to hold the strain on a line being tightened. When you want to lift or pull more than your own strength will permit, or when you want to make a heavy lifting job a little easier, the rope tackle is a device that can be used.



The idea behind a rope tackle is similar to that of a tackle using blocks and pulleys. In a rope tackle, one lead (end) of the rope has to be fixed. That is, it has to be anchored around a spar or tied through a ring or other piece of hardware that doesn't move.

Loop knot. Then a loop knot is tied along the standing part of the rope. The **butterfly knot** is most suitable for making a loop knot because it can be tied in the standing part of the rope and is both easy to tie and fairly easy to untie even after being put under a strain. If you have no other reason to become proficient in tying this knot, the rope tackle should convince you.

Connect with the load. After you've tied the loop knot, it forms a fixed loop that acts as the wheel in a block. If you're using the rope tackle to lift or pull an object, pass the running end through a ring or other hardware that's attached to the object (load). The ring (or other hardware) is used so that the rope is free to slide as you pull on the hauling end of the rope as the tackle takes effect. If you want to use the rope tackle to tighten a line, pass the running end around a fixed object such as a spar, a stake, or a tree.

Finally, the running end of the rope is passed through the fixed loop in the loop knot. The running end becomes the hauling line which is pulled to make the tackle work.



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Principles. The rope tackle works on the same principles as any other tackle using mechanical blocks or pulleys. The rigging method shown on the left develops twice the lifting or pulling power that's applied to the hauling end. In other words, you can lift a fifty-pound weight using only twenty-five pounds of force on the hauling end.

To determine how much force is needed to lift a weight, the general rule is that you count the number of ropes passing through the ring where the object (load) is. In this case there are two ropes passing through the ring that's attached to the load. Then divide the number into the weight being lifted. Let's assume that the weight being lifted is fifty pounds. The answer is twenty-five pounds, which is the amount of pull required to lift the fifty pounds with the rope tackle.

When you take into consideration the friction of the ropes rubbing together, you will have to apply a bit more than the twenty-five pounds to make the lift. But even with the loss caused by friction, the rope tackle is quite effective.

Sometimes it is better to actually experience the effect of how the rope tackle works than it is to understand the technical explanation of the process. Setting up a rope tackle will convince you.

Tying off. When using a rope tackle, if you want to hold the position of a load being lifted or pulled, or if you want to hold the strain of a line being tightened, form a bight in the hauling end of the rope and tie it off with a tight Half Hitch below the fixed loop in the Butterfly Knot.

Types of rope. The type of rope you choose for a rope tackle should have a low stretch factor, such as pure manila rope. Ropes that stretch like polypropylene and nylon, even though they are strong, require that you pull the stretch out of the rope before your tackle takes effect.

Note: When in use, the rope tackle can put considerable strain on the fibers of the rope. Therefore, repeated use of the same section of the rope for this purpose should be avoided. The ropes used to make the tackle should be inspected for damaged fibers on a regular basis.

Uses of the rope tackle. The wide range of uses for a rope tackle by a number of different craftsmen speaks for its effectiveness. Each craft seems to use a slightly different knot or hitch to form the loop that makes a rope tackle. The Lorryman's Hitch, the Lineman's Hitch, the Stagehand's Hitch, are all samples of different knots or hitches used to form the loop. The only difference between these hitches is that in some of them the type of knot used to make the loop is more easily untied than others after a hard pull. But they all do essentially the same thing. That is, they form a fixed loop for the rope to be used as a tackle.



The extent to which the rope tackle has been used by craftsmen and tradesmen in their daily work can be better understood from the following list of uses and by the various names by which it is called:

- The Linesman's Hitch is used to put strain on a line in the process of stringing electric or telephone lines. It was used as far back as the building of the telegraph lines that opened up the western states during the 1800s.
- The Stagehand's Hitch is used to adjust the height of the curtains on a theater stage.
- The Wagoneer's Hitch is an English reference to the hitch used to secure the load on a wagon or lorry.
- The Load Binder is what the farmer called the hitch he used to tie down a load of hay on his wagon.

Pulling a log. One of the uses of a rope tackle is to pull a heavy load such as a log. To do this, you need two ropes. Tie a short (6 to 8-foot) length of rope to the end of the log with a timber hitch. Then tie a bowline at the other end of this rope.

To pull the log, tie a long line to a tree or other anchor point using a roundturn with two half hitches. Then tie a butterfly knot in the long line to form the loop for a rope tackle. Run the end of the long line through the bowline and back through the fixed loop in the butterfly knot. Then pull on the end of the long line to pull the log.



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REQUIREMENT 2b: Demonstrate how to tie a clove hitch formed as two half hitches

Be sure to review the merit badge pamphlet for preparation information on this requirement.

This requirement must be reviewed with your merit badge counselor.

CLOVE HITCH FORMED WITH TWO HALF HITCHES

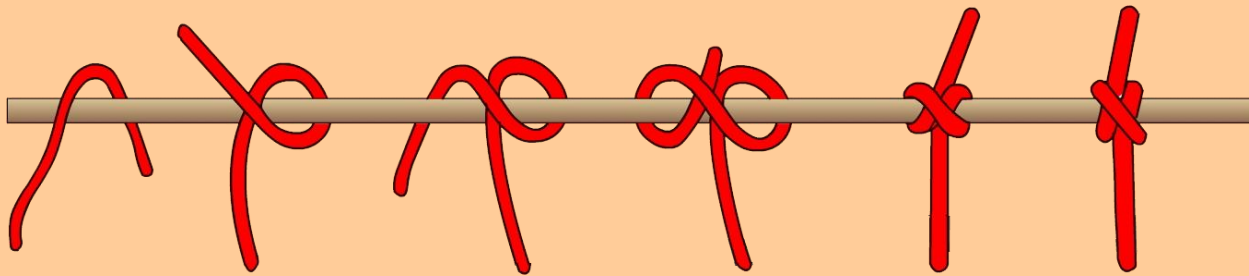


REQUIREMENT 2b: Demonstrate how to tie a clove hitch on a bight

Be sure to review the merit badge pamphlet for preparation information on this requirement.

This requirement must be reviewed with your merit badge counselor.

CLOVE HITCH ON A BIGHT

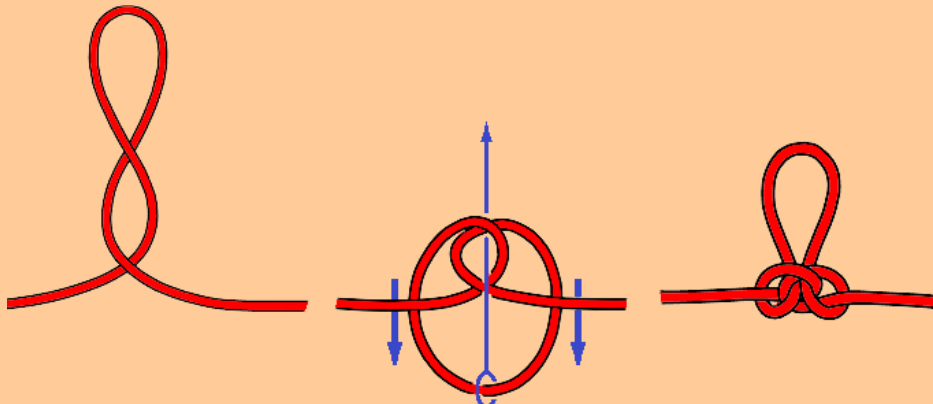


REQUIREMENT 2b: Demonstrate how to tie butterfly knot

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BUTTERFLY KNOT





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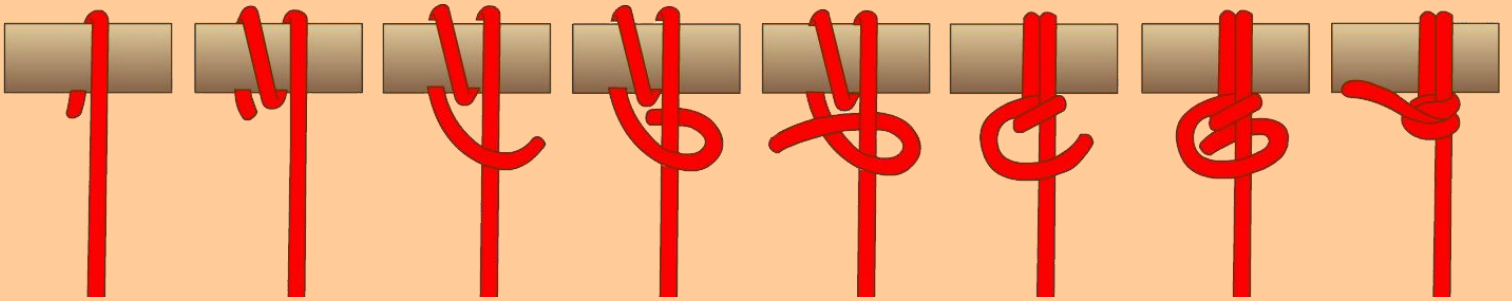
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REQUIREMENT 2b: Demonstrate how to tie a roundturn with two half hitches

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ROUNDTURN WITH TWO HALF HITCHES

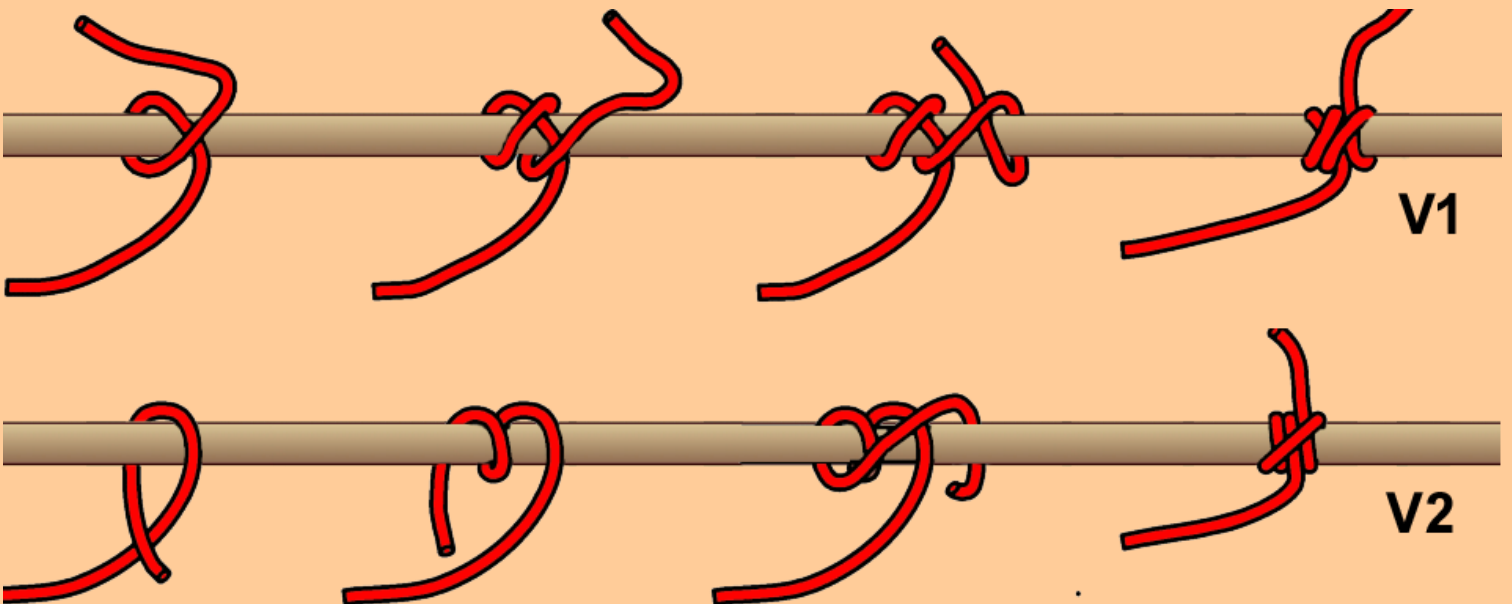


REQUIREMENT 2b: Demonstrate how to tie a rolling hitch.

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ROLLING HITCH





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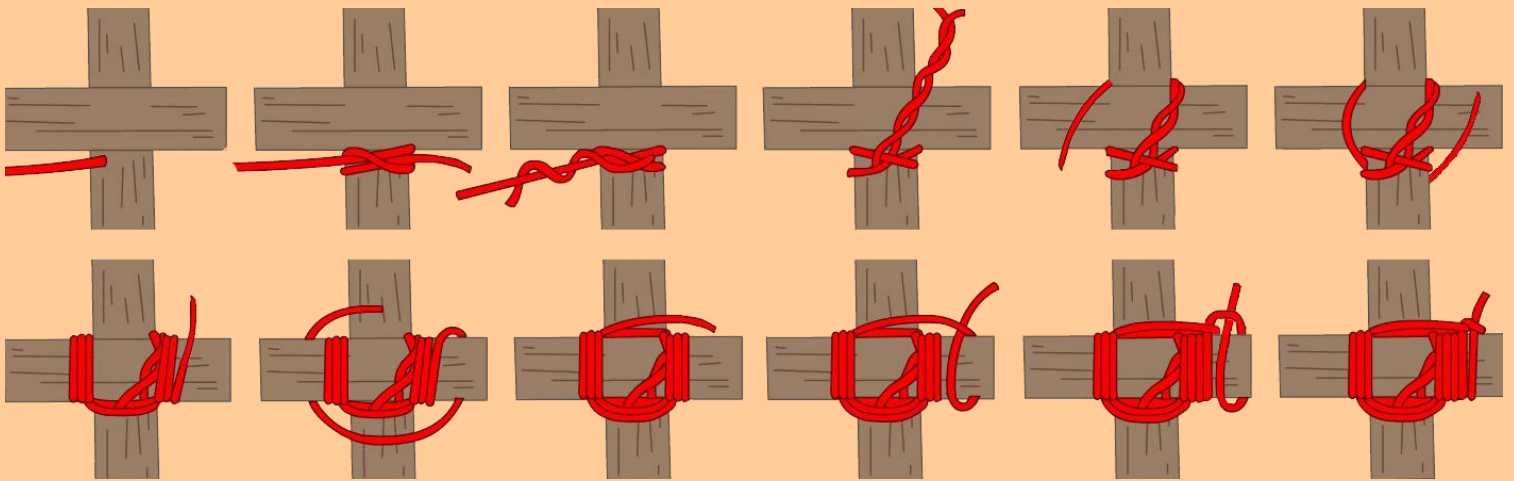
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REQUIREMENT 2c: Demonstrate and explain when to use the following lashings: square, diagonal, round, shear, tripod, and floor lashing.

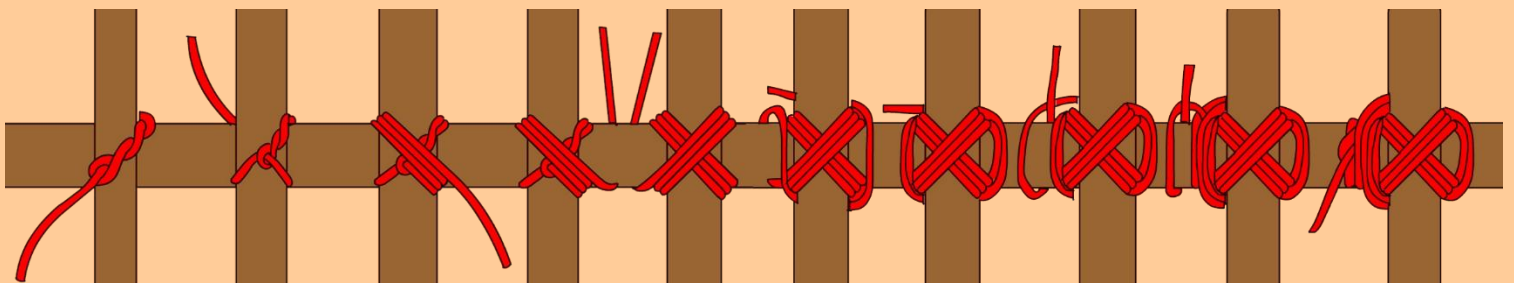
Be sure to review the merit badge pamphlet for preparation information on this requirement.

This requirement must be reviewed with your merit badge counselor.

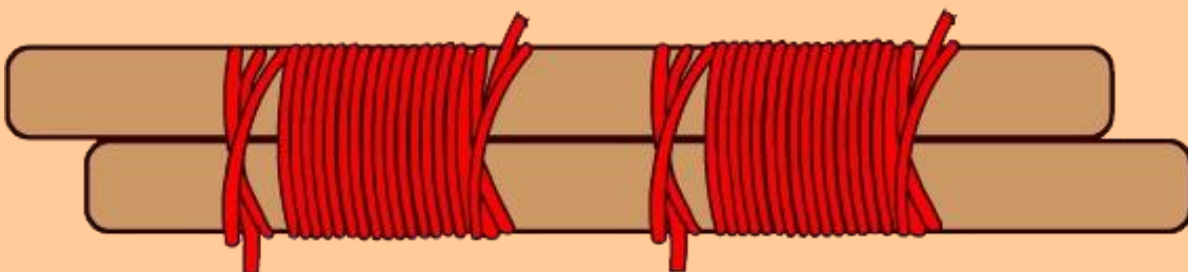
SQUARE LASHING



DIAGONAL LASHING



ROUND LASHING



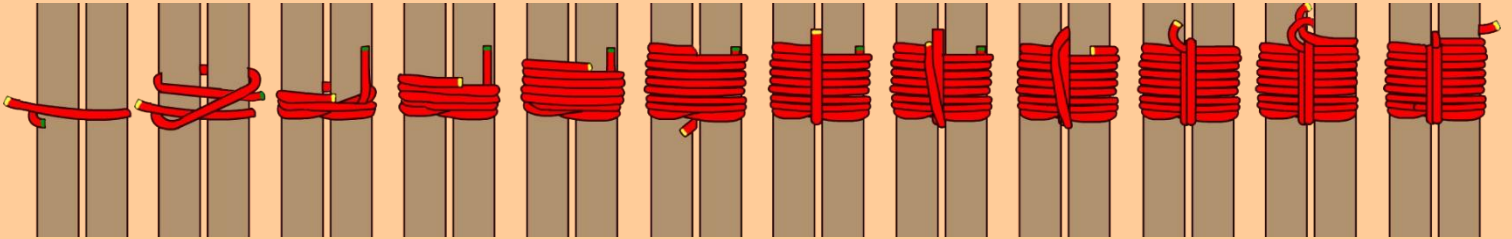


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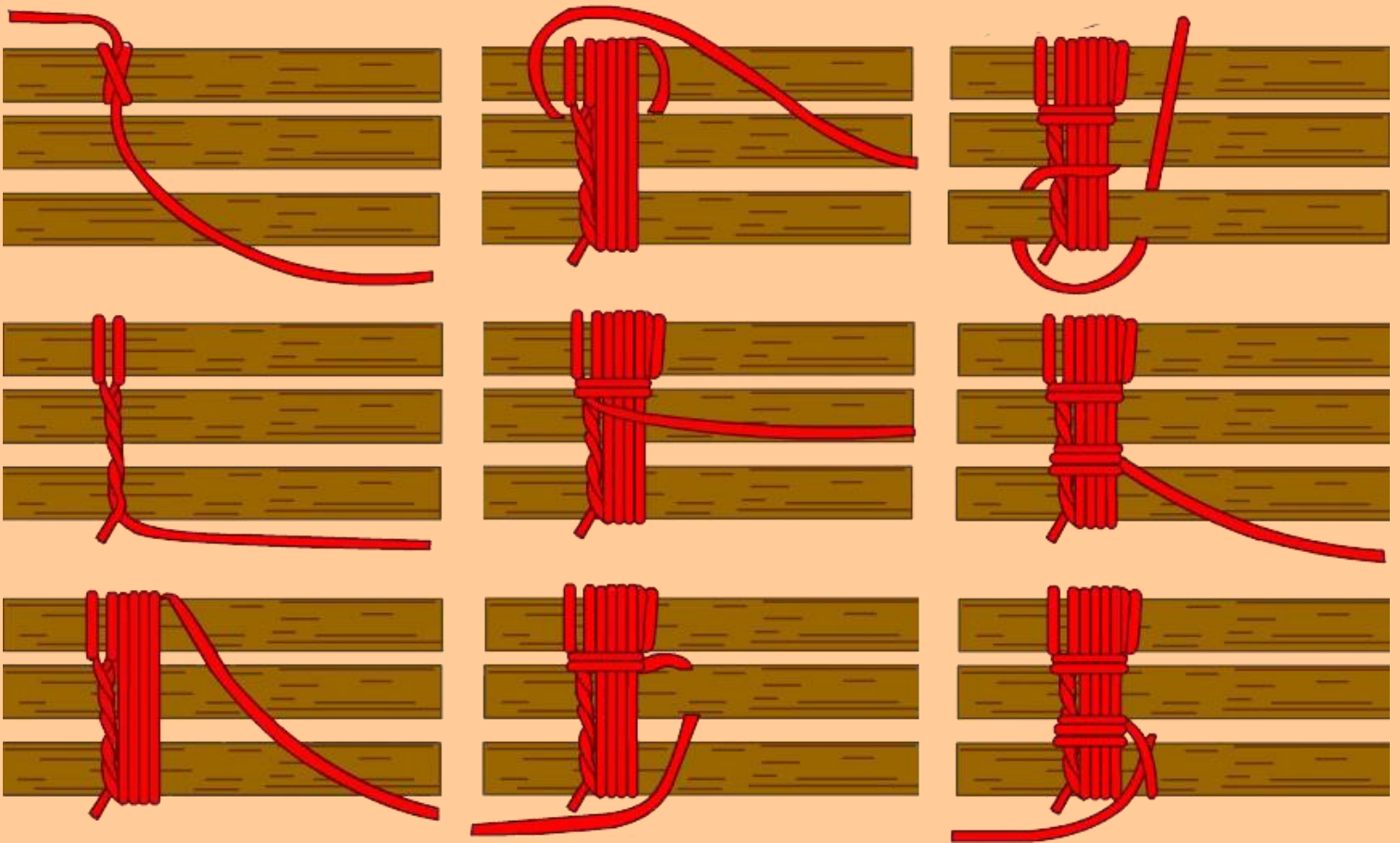
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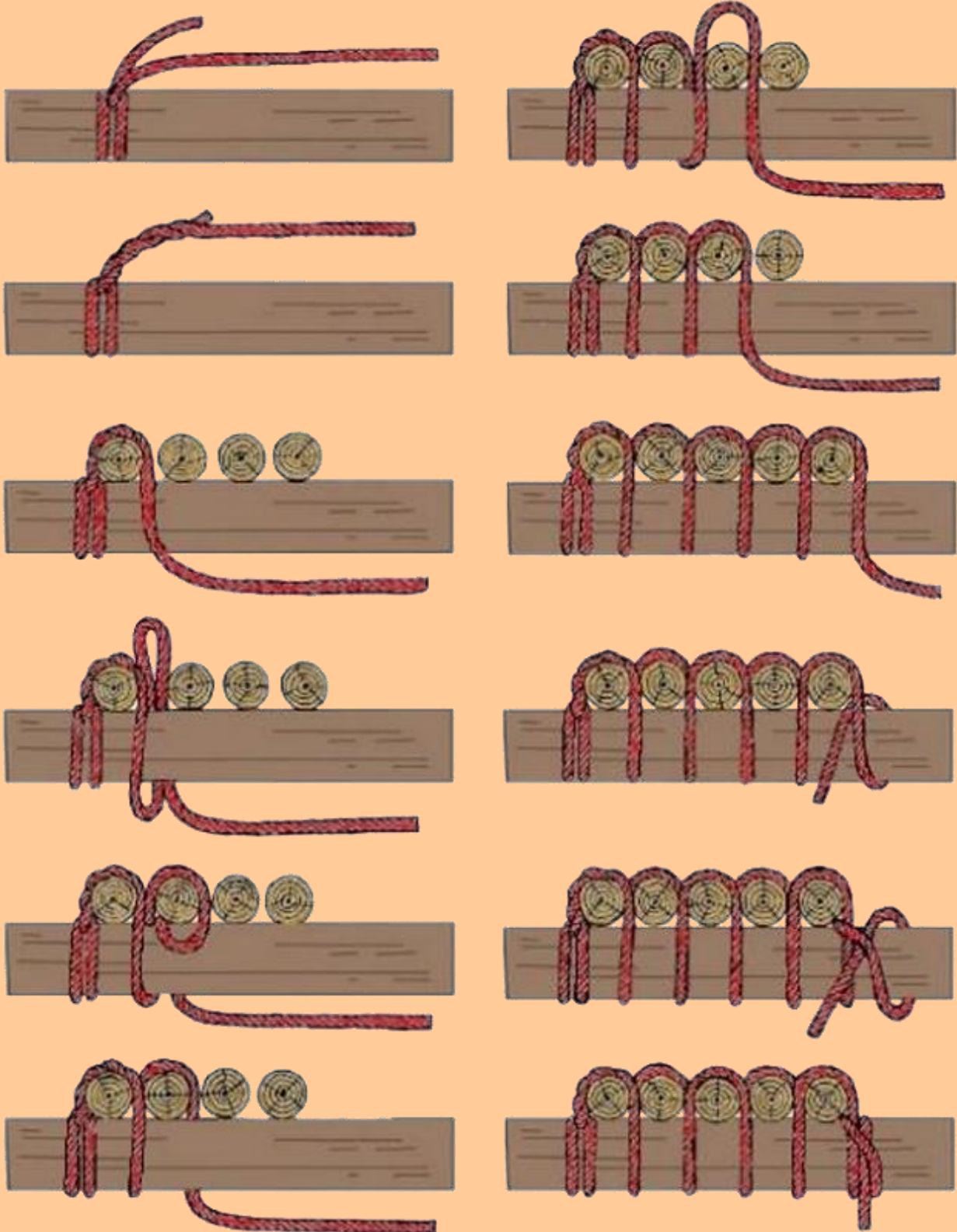
SHEAR LASHING



TRIPOD LASHING



FLOOR LASHING





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REQUIREMENT 3a: Using square and tripod lashings from requirement 2c, build a Tripod Wash Station (or with your counselor's permission, another camp gadget of your own design).

Be sure to review the merit badge pamphlet for preparation information on this requirement.

This requirement must be reviewed with your merit badge counselor and will be done as a part of the class.

REQUIREMENT 3b: Using rolling hitches or roundturns with two half hitches, and round lashings from requirements 2b and 2c, build a 15-foot Scout Stave Flagpole (or with your counselor's permission, another camp gadget of your own design).

Be sure to review the merit badge pamphlet for preparation information on this requirement.

This requirement must be reviewed with your merit badge counselor and will be done as a part of the class.

REQUIREMENT 3c: Using shear, square, and floor lashings, clove hitches on a bight, and rope tackles from requirements 2b and 2c, build a Simple Camp Table (or with your counselor's permission, another camp gadget of your own design).

Be sure to review the merit badge pamphlet for preparation information on this requirement.

This requirement must be reviewed with your merit badge counselor and will be done as a part of the class.

REQUIREMENT 4: Explain the differences between synthetic ropes and natural fiber ropes.

Synthetic Ropes:

Natural Fiber Ropes:



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REQUIREMENT 4:

Discuss which types of rope are suitable for pioneering work and why. Include the following in your discussion: breaking strength, safe working loads, and the care and storage of rope.

Notes:

REQUIREMENT 5: Explain the uses for the back splice, eye splice, and short splice. View a demonstration on forming each splice.

Be sure to review the information below prior to the class and prepare for explanation of each splices use.

The demonstration portion of this requirement will be done during the class

BACK SPLICE



Explain the Back Splice Use:

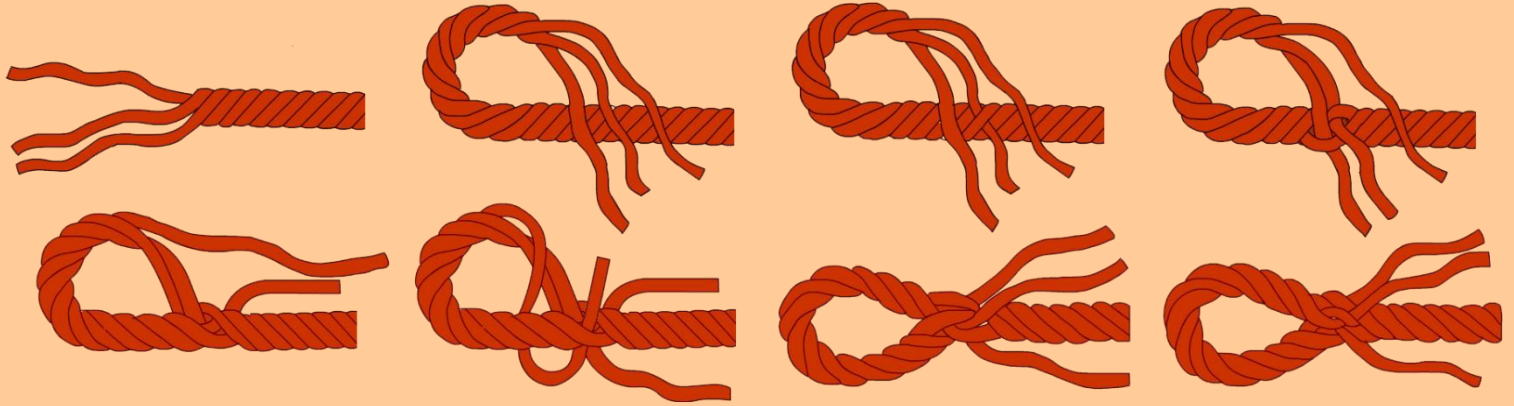


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EYE SPLICE



Explain the Eye Splice Use:



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SHORT SPLICE



Explain the Short Splice Use:



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REQUIREMENT 6: Using a rope-making device or machine, make a rope at least 6 feet long consisting of three strands, each having three yarns. Whip the ends.

Be sure to review the merit badge pamphlet for preparation information on this requirement.

This requirement will be done as a part of the class.

REQUIREMENT 7: Explain the importance of effectively anchoring a pioneering project.

Notes:

REQUIREMENT 7: Describe to your counselor the 3-2-1 anchoring system.

Notes:



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REQUIREMENT 7: Describe to your counselor the log-and-stake anchoring system.

Notes:

REQUIREMENT 8: Describe the lashings that are used when building a trestle.

Notes:



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REQUIREMENT 8: Describe how the poles are positioned when building a trestle.

Notes:

REQUIREMENT 8: Describe how X braces contribute to the overall structural integrity of a pioneering project.

Notes:



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REQUIREMENT 9:

Working in a group, (or individually with the help of your counselor) build a full size pioneering structure, using one of the following designs in the merit badge pamphlet.

Double A-Frame Monkey Bridge
Single A-Frame Bridge
Single Trestle Bridge
Single Lock Bridge
4x4 Square Climbing Tower
Four Flag Gateway Tower
Double Tripod Chippewa Kitchen
Another type of structure approved in advance by your counselor.

Carefully plan the project, assembling and organizing all the materials, referring to the points under Safe Pioneering, and complying with the height restrictions in the Guide to Safe Scouting.

Be sure to review the merit badge pamphlet for preparation information on this requirement.

This requirement must be reviewed with your merit badge counselor and will be done as a part of the class.

Basic Pioneering Structures



A-Frame



Trestle



Tripod