

## Troop 111 First Class Practical Examination (2021 Version)

### (I) Practical

A) What are the 3 characteristics of a good knot? Correctly tie the 9 following Scout Knots and explain the purpose of each: Square Knot, Clove Hitch, Lark's Head, Two Half-Hitches, Taut-Line Hitch, Timber Hitch, Bowline, Double Figure Eight, and Sheet Bend.

B) Demonstrate or explain how to determine North using: (i) the “stick and shadows” method; (ii) the Big Dipper/North Star/Cassiopeia; (iii) by the sun if you know the general time of day; (iv) by the full moon if you know the general time of night; and (v) by the “horns of the moon” method. Properly orient a map using a compass and the map’s “compass rose”. Also demonstrate how to orient a map by “terrain-matching.”

C) Start a fire using only natural materials, with 3 matches or less, and have it burn for at least 3 minutes. Explain 3 other ways to start a fire without matches or a lighter. Give 4 ways that a fire can be critical in a survival situation.

D) What are the “Four W’s”, and why are they important in setting up your tent. Explain which “W” is the most important, and which is the least important? Explain proper site selection and proper site clearing, when deciding where and how to set up a tent. Completely set up one of the Troop tents, solo, then disassemble it and properly pack it up.

E) Tie a square lashing, a diagonal lashing, and either a tripod or a sheer (flagpole) lashing.

F) Explain 3 methods for sterilizing water, and why it’s important. Demonstrate how to properly “thread” a canteen that has been filled with impure water and then sterilized with a chemical (and) by UV light. Explain why this (threading) is important.

### II) Knowledge:

A) Explain 3 signaling techniques if you are lost or need help while in the woods.

B) Explain proper foot preparation, care, and footwear to prevent blisters while hiking.

C) Explain why you never cut switchbacks on hiking trails.

D) Explain why you never store food or flavored drinks inside your tent while camping.

E) Explain why we never bring liquid fuel or propane fired lanterns, stoves, or heaters into your tent.

F) Explain why we always backpack as complete groups while on wilderness trails, and the danger of splitting up into smaller groups.

G) Explain the 2 primary methods to stop arterial bleeding, and when to use each.

H) Explain what ticks are, why they can be dangerous, and how to protect yourself from them.

I) Explain what “Reach/Throw/Row/Go” mean when trying to rescue a swimmer. Explain why it is critically important to NOT allow a drowning person to touch you.

## Answer Key

**A) What are the 3 characteristics of a good knot? Correctly tie the 9 following Scout Knots and explain the purpose of each: Square Knot, Clove Hitch, Lark's Head, Two Half-Hitches, Taut-Line Hitch, Timber Hitch, Bowline, Double Figure Eight, and Sheet Bend.**

3 characteristics of a good knot: Easy to tie; performs a specific type of holding task with the least amount of strain on the rope; easy to untie.

Square Knot - Joins two ropes of equal diameter

Clove Hitch - "Post" hitching knot - for tying ropes to tarp poles, for starting square, sheer, or tripod lashings, and for ending all four basic lashings.

Lark's Head - Constriction knot, for attaching ropes to tarp or tent grommets, and (very important) for hoisting bear bags

Two Half-Hitches - Slip knot, very good for tying clothes-lines and similar lines to trees. Note that two half-hitches is just a clove hitch tied around its own tail!

Taut-Line Hitch - Slip knot that holds under tension; used primarily for setting up tarps (for attaching to stakes)

Timber Hitch - Slip knot used to start diagonal lashings

Bowline - Fast tying rescue knot (can be tied one handed if necessary); also a good "loop" knot to create a temporary or semi-permanent loop.

Double Figure Eight - Mountaineering knot for rock climbing; also an absolutely secure rescue knot that cannot untie itself through slippage (like a bowline can).

Sheet Bend - Joins two ropes of UNEqual diameter. Note that a sheet-bend turned over looks the same as a bowline knot!

**B) Demonstrate or explain how to determine North using: (i) the "stick and shadows" method; (ii) the Big Dipper/North Star/Cassiopeia; (iii) by the sun if you know the general time of day; (iv) by the full moon if you know the general time of night; and (v) by the "horns of the moon" method. Properly orient a map using a compass or any one of the above methods and the map's compass rose. Also demonstrate how to orient a map by "terrain-matching."**

The Troop has white boards that show these and other methods.

(i) The "stick and shadows" method - Place a tall, straight stick into level ground, so it stands straight up. Mark the end of the shadow with a rock, stick, or a tent stake (get it exactly right). Wait 20 - 30 minutes, and place a second rock, stick, or tent stake on the new end of the shadow (again, get it exactly right). Since the sun moves from east to west, the tip of the shadow moves from west to east. The line between the two rocks is the east/west line, so the first rock you placed is west, and the second rock you placed is east. Note that you can use any moon that is bright enough to cast a shadow to do this exact same determination.

(ii) Big Dipper – Number the 7 stars in the big dipper starting on the end of the handle. Stars 6 to 7 point at the North Star. Measure the distance between 6 and 7 with your fingers, and measure out 5

lengths from Star 7 along the Stars 6-to-7 line to find the North Star. Note that the North Star is a relatively dim star. Cassiopeia – “The Big W” is almost the same distance from the North Star as the Big Dipper, but is on the opposite side (this is useful because one or the other – and sometimes both – will be visible on any clear night). Draw a line from the end Stars (1 (dim) and 5 (bright)) on the “top” of the “W”, then draw a perpendicular line from that first line, starting at Star 1, away from the top of the “W” – that line ROUGHLY (not perfectly) points towards the North Star. If you measure the distance between Stars 1 and 5, the North Star is about 2 of those distances along the perpendicular line. Since there are no other bright stars near the North Star, you can figure out which star is the right one. Remember, if you can see the Big Dipper or Cassiopeia at all, you’re ALREADY looking NNE to NNW!

(iii) Sun/General Time of Day - Because we live in the northern hemisphere above the Tropic of Cancer (we’re at 39 degrees; the Tropic is 23.5 degrees North latitude), the sun is NEVER directly overhead, even on the first day of summer. The sun rises in the east, at midmorning is southeast, at noon is south, at mid-afternoon is southwest, and sets in the west. So, if you know the approximate time of day, you know approximately where (what direction) the sun is located. Don’t forget that the times are shifted one hour during Daylight Savings Time.

(iv) Full Moon/General Time of Night – Is exactly the same as the sun, but offset by 12 hours - the full moon rises in the east at dusk, at mid-evening is southeast, at midnight is south, at late night is southwest, and at dawn sets in the west. So, if you know the approximate time of night, you know approximately where (what direction) the full moon is located. Again, the times are shifted one hour during Daylight Savings Time.

(v) “Horns of the Moon” – Draw a line between the two tips of the moon down to the horizon; where the line intersects the horizon, that point is roughly (not perfectly) south. The higher in the sky the moon is, the more accurate this method.

Orient a map with a compass – Find North. Find the compass rose on the map. Turn the MAP until the north arrow on the compass rose points north (that is, matches the needle on your compass!)

Orient a map by terrain matching – Look for prominent features around you (natural or man-made); find those same features on your map, and turn the map so that it matches what you see (that is, if something you see is to your right front, it is also on your right front when you look down at the map. Confirm by looking for something else in a different direction, and see if that is also in the correct spot on your map.

**C) Start a fire using only natural materials, with 3 matches or less, and have it burn for at least 3 minutes. Explain 3 other ways to start a fire without matches or a lighter. Give 4 ways that a fire can be critical in a survival situation.**

Start a fire – Remember you need three hatfuls of very fine materials (*anything thicker than a matchstick is too thick*). Leaves, pine needles, dead grass, and anything else found laying on the ground are bad choices! Pine cones (esp from white pines), very fine twigs (almost hair thin), and dead grasses and weeds that are still up in the air when collected are much better choices. If a twig doesn’t “snap” when bent, it’s not useful.

Three Other Ways – 1) Strong magnifying glass in bright sun; 2) Flint and Steel (same as a “spark stick”; difficult to do with a rock, but possible); 3) 9-volt battery and steel wool (other batteries also work, like car batteries, or 3 - 4 flashlight batteries placed end to end in series); 4) Stick and bow method (rubbing sticks together – this is difficult to do, even for people who know how).

Four Ways a Fire can be Critical in a Survival Situation – Signal for help; Keep warm in hypothermic conditions (also dry soaking wet or frozen clothing); Cook food; Purify Water; Keep aggressive wild animals (like bears or feral hogs) at bay; Sterilize bandages; Harden wooden spear-tips; and more....

**D) What are the “Four W’s”, and why are they important in setting up your tent? Explain which “W” is the most important, and which is the least important? Explain proper site selection and proper site clearing, when deciding where and how to set up a tent. Completely set up one of the Troop tents, solo, then disassemble it and properly pack it up.**

Wind, Wash (or Water), Widowmakers, and Wildlife - Wind - the back end of the tent should be faced into the wind, if possible. The sides of the tent are usually the weakest part, but also the largest surface area. If open, the front of a tent can be “parachuted” open by a strong breeze, ripping it out of the ground. Wash/Water - Avoid camping in the flood plains of even small creeks, or in the lowest point of a field or meadow - a heavy rain storm can easily flood you out – and a flash-flood can kill you. Widowmakers - look up and around when setting up a tent - avoid areas where dead branches or even a dead tree can fall on you. Rocks coming down from steep hills or cliffs are also potential widowmakers. Low hanging power lines can be deadly if touched with a tall, metal pole. ALWAYS LOOK UP BEFORE SETTING UP. Wildlife – Avoid animal dens, insect nests, swampy areas where alligators may reside (southern U.S.), rocky areas where snakes and scorpions may reside, etc. **Wash/Water is the most important** – More people die in floods than in any other natural disaster. Wind is the least important – except that it greatly increases the danger from widowmakers. Ground – Ideal is flat with a slight incline (comfortable but allows water to run off). Clear sticks and rocks, if any. Check for widowmakers, prevailing wind, and any signs of water running through the site (even old signs!) You should always move your tent if you’re in a bad spot.

**E) Tie a square lashing, a diagonal lashing, and either a tripod or a sheer (flagpole) lashing.**

Refer to the Scout Handbook on how to tie these lashings. Remember that a diagonal lashing is considered to be stronger and less likely to slip compared to a square lashing, but also requires more rope.

**F) Explain 3 methods for sterilizing water, and why it’s important. Demonstrate how to properly “thread” a canteen that has been filled with impure water and then sterilized with a chemical (and) by UV light. Explain why this (threading) is important.**

A) By chemical disinfectant (iodine or chlorine tablets or solutions, etc.); B) By hand-pump filters or purifiers; C) By UV light (SteriPen); D) By boiling it for 10 minutes (the last method is not a good one due to fuel consumption and lengthy time requirements, but it does work).

Threading – Refer to FCPE teachings or to the White Boards that illustrate this technique. Be aware of the difference between threading a canteen that has been purified using a chemical versus using UV light. Threading a canteen ensures that the threads of the cap and on the canteen itself do not retain unpurified water – this is where your mouth will touch, so it's critical to do this properly.

-----

## **II) Knowledge:**

### **A) Explain 3 signaling techniques if you are lost or need help while in the woods.**

A) 3 smoky fires in a straight line row, each separated by enough distance that it's obviously three separate fires (not just one huge one), but close enough together that you can control them; B) Spell out "HELP" in VERY LARGE LETTERS in nearby open fields in the snow or on frozen lakes with rocks or dark branches; C) Signal low-flying planes or helicopters with a mirror or other reflective, flat surface (tough to do! - use the "Bob-trick" with your fingers to aim your reflected beam!)

### **B) Explain proper foot preparation, care, and footwear to prevent blisters while hiking.**

A) Keep your feet dry (use foot-powder); B) Wear proper socks (thin polypropylene "wicking sock" followed by a thick cotton/wool blend or similar); C) Wear good boots which are broken in on YOUR feet; and D) Change your socks as needed.

### **C) Explain why you never cut switchbacks on hiking trails.**

A) Causes trail erosion; B) Much greater chance of injury (steep downhill!); C) Much greater chance of getting poison ivy, snakebitten, ticks, etc.; D) Chance of getting lost – the trail you see below you may not be the same trail as the one you're on!

### **D) Explain why you never store food or flavored drinks inside your tent while camping.**

Animals will come into your tent for food! Even trash smells like food! Bears, raccoons, skunks, possums, squirrels, mice, etc., will all invade your tent for food or trash.

### **E) Explain why we never bring liquid fuel or propane fired lanterns, stoves, or heaters into your tent.**

A) In closed tents, can easily consume all the oxygen, causing you to asphyxiate from carbon dioxide/carbon monoxide poisoning – MANY PEOPLE HAVE DIED DOING THIS!!! B) Rarely, can cause a fire (most tents and most pieces of clothing are at least somewhat flammable!!!)

### **F) Explain why we always hike as complete groups while on wilderness trails.**

A) Only the group has EVERYTHING, including critical survival gear (first aid, food, tents, etc); small split-off groups may not have even basic health and safety equipment with them – THIS IS VERY

IMPORTANT!; B) In case of injury, everyone available to assist, and usually people are available to go get help.

**G) Explain the 2 primary methods to stop arterial bleeding, and when to use them.**

A) Direct Pressure right on the wound if possible (wound is clean); B) Pressure Point between the wound and the body if it is not possible to apply direct pressure on the wound (debris in wound).

Note: A tourniquet is (still) considered to be a bad idea, and should be used only as a last resort!

**H) Explain what are ticks, why they can be dangerous, and how to protect yourself from them.**

Ticks are very small parasitic insects that live throughout our area. About 5% of all ticks carry a disease – and there are now about 14 known diseases that ticks can carry. All of these are easily treated if caught early, but can lead to lifelong health problems if not recognized. Except in the dead of winter, Scouts are always at risk of ticks when in the woods or fields. Ticks are also as close as your backyard garden or your dog or cat. Fortunately, they have to be attached for about 48 hours in order to transmit a disease, if they have one (19 out of 20 ticks are disease free). Beware of unexplained rashes anywhere on your body! (especially circular rashes around a small bite mark). PREVENTION: Use insect repellent wherever clothing or hair covers exposed skin (socks, pants, shirtsleeves, hair at the back of your neck). Tuck long pants into socks, long-sleeve shirts into gloves. Change out of clothing as soon as you come indoors; take hot showers. Perform tick checks to look for ticks; remember, the most dangerous type of ticks (“deer ticks”) are very small!

**I) Explain what “Reach/Throw/Row/Go” mean when trying to rescue a swimmer. Explain why it is critically important to NOT allow a drowning person to touch you.**

Reach - with a long pole or long stick; something the swimmer can grab while you drag them in.

Throw - a life buoy or anything that floats - preferably on a rope so you can drag them in.

Row - Row out on a rowboat, or a canoe, or even a surfboard or air mattress - something that floats that can support both of you. If a canoe or kayak or any other “tippy” floatation device, be careful not to allow the swimmer to capsize you – it is best in all cases to have a rope for the swimmer to grab while you tow them in.

Go - Swim out to get the swimmer. Avoid at all costs having the swimmer try to grab you! Instead, bring a rope, a towel, a stick, a piece of clothing, or something else for the swimmer to grab while you tow them in. If they start coming up the towing item, let it go and swim away until they get too tired or too drowned to grab you. If they get ahold of you while they are still panicked and fighting, you will almost certainly both drown! Even a small child can drag you down! This is why “Go!” is always the last resort! Note – If a drowning victim DOES grab you, poke them hard in both eyes – this “may” buy you a second to get away from them (but only a second!)

**This Exam May Be Tested and Passed only by a qualified Scout leader or authorized JASM.**