



State of California – Military Department
California Cadet Corps

CURRICULUM ON MILITARY KNOWLEDGE

Strand M10: Field Skills

Level 11

This Strand is composed of the following components:

- A. **Bivouac**
- B. Outdoor Team-Building Activities
- C. Outdoor Skill-Building Activities



“Rock the Bivouac!”

Updated: 09 April 2019

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A. Bivouac

Standard #1: Students gain identity and belonging as a Cadet while developing self-control, respect, discipline and confidence.

OBJECTIVES

DESIRED OUTCOME (Self-Mastery)

Unit conducts one bivouac per year that meets the parameters of the Annual General Inspection (AGI) to achieve a Superior rating and Cadets earn a bivouac ribbon.

Plan of Action:

1. Leadership develops goals (in compliance with district guidelines), staff assignments, mission statement, risk assessment, logistical needs, OPCODE (CR 3-14, Appendix C), AAR, and training schedule.
2. Demonstrate the ability to tie each of the eight knots listed and give the purpose each knot is used for.
3. Demonstrate safe ways to use a knife in a field environment, and identify the rules associated with knife safety.
4. Discuss the options for individual Cadet meals and snacks at a bivouac.
5. Identify equipment needed to cook in the field.
6. Name the three types of material needed to start a fire; identify advantages to each of the named methods of building a fire.
7. Discuss where to put your tent or shelter, hazards to look for and avoid, and how to avoid having rainwater pool in your shelter.
8. Describe how to keep clean while in on a bivouac, what to do for a blister, and how to remove a tick
9. Use a compass to determine magnetic direction and how to proceed along a given azimuth in a compass course, plus establish the individual's pace count.
10. Discuss the contingency plans a unit must have for medical care, Cadet safety (Rule of Three), and bivouac hazards.
11. Explain why a unit might have Cadets pull guard duty/fire watch during a bivouac and generally how it works.
12. Develop a packing list for a bivouac.

Supplies Suggested (by lesson section):

A2 – 12” lengths of rope for Cadets to practice knot tying

A3 – “Knife” props (pens and pencils will work fine)

A6 – “Wood” props (dowel rods, pieces of wood/bamboo, etc.) to demonstrate fire building

A9 – Compasses (Silva and/or Lensatic); props to designate a 100-meter distance on the ground;
Refer to the “*Constructing the Course*” supplemental (online) document for the list of
supplies needed for the Practicum at the end of section A9

A1. Introduction to/Planning Bivouacs

A bivouac is like a camping trip but with a military theme. In Cadet Corps, bivouacs are an opportunity to go to the field overnight, learn basic field skills, and practice leadership in an environment that encourages independence, initiative, teamwork, and adherence to our core values of selfless service, integrity, and respect.

We have a regulation that gives us guidelines for bivouacs: [CR 3-2](#), Chapter 2. CR 3-2 lists some of the activities that you might find at a bivouac as:

1. Map reading
2. Compass use
3. Orienteering
4. First Aid
5. Cardiopulmonary Resuscitation (CPR)
6. Marksmanship
7. Hunter safety
8. Disaster preparedness
9. Mountaineering
10. Leadership Reaction Courses
11. Survival
12. Guard duty
13. Field hygiene and sanitation
14. Team building

biv•ou•ac

(ˈbɪv u,æk, ˈbɪv wæk)

n., *v.* **-acked**, **-ack•ing**. *n.*

1. a military encampment made with tents.

2. the place used for such an encampment.

v.i.

3. to assemble in a bivouac.

[1700–10; < French < Swiss German *bīwacht* auxiliary patrol = *bī-* **by-** + *wacht* patrol, [watch](#)] (Dictionary, 2010)

We do all of these things at bivouacs, and many more. Each unit or brigade has its own traditional bivouac activities. If your unit or brigade hasn't sponsored a bivouac in the past, it's never too late to start. Bivouacs don't need to be complicated! They just need to present the opportunity to practice the many military skills that the California Cadet Corps offers.

Commandants and Brigade Advisors are responsible for ensuring the safety of Cadets in attendance at local field training. In addition, Commandants ensure that instruction during field training is of high quality, and whenever practical, delivered by knowledgeable Cadets. Further, Commandants and Brigade Advisors work with senior Cadet leaders to plan field training and allow Cadet leaders the opportunity to experience important responsibilities of command and staff operations, to include:

1. Command and Control
2. Accountability and Risk Assessment
3. Morale activities
4. Personnel management
5. Formations and foot movement of personnel
6. Supply & Logistics management
7. Radio Communications
8. Public relations
9. Lesson planning
10. Supervision of Cadet instruction
11. Development of Training Schedules and Operations Orders/Plans



Cadet Commanders are responsible for developing mission statements for bivouacs, establishing goals that support that mission, and developing measurable objectives and assessment systems to determine the extent to which the Cadet Commander's mission has been successfully achieved. Refer to [CR 3-14](#) for more guidance on this process.

Cadet staff members are responsible for developing an operations order (see [CR 3-14](#)) in response to the Cadet Commander's stated mission and implementing that plan with support from subordinate Cadets. In addition, Cadet staff members assist the Cadet Commander in evaluating the success or failure of the stated mission, goals, and objectives.

Use these lessons to get ideas for what you want to do at your own bivouac, and to help prepare yourself for the training you will receive when you go on a bivouac.

A2. Knots

When you're engaged in outdoor activities, at some point you'll need to tie a knot. Knot-tying is practiced by sailors and fishermen, outdoorsmen, scouts, and survivalists. Knowing how to tie a few basic knots, and what knot to use for each contingency, could save your life!

Here are some rope characteristics and definitions. Use these when you're learning to tie knots!

Some knot-related terms:

Derived, with some changes, from (Green, 2013)

Bend: knots used to join two ropes.

Bight: is a curve in the rope created by folding your rope in half so the working end and standing end are parallel to each other. Not to be confused with a loop!

Binding Knot: used to hold an item in place or bundle several items together. Not to be confused with lashing, whipping, or seizing as these are technically not knots.

Breaking Strain: or breaking load indicates how much strain a rope theoretically can handle before it breaks.

Capsizing: a knot that has deformed into a different structure, sometimes the result of incorrect tying or misuse.

Dressing (a knot): Finishing off a knot by tightening it while arranging the different parts into the right place to create a strong, tight and neat looking knot.

Flake: Coil. "Flaking a line" is the term used for coiling a rope.

Hitch: used to tie a rope to another object such as a pole. As opposed to a knot where you tie two ropes to each other or the rope to itself.

Jamming Knot: a knot that is very difficult to untie. Avoid using these knots on any ropes that carry tension.

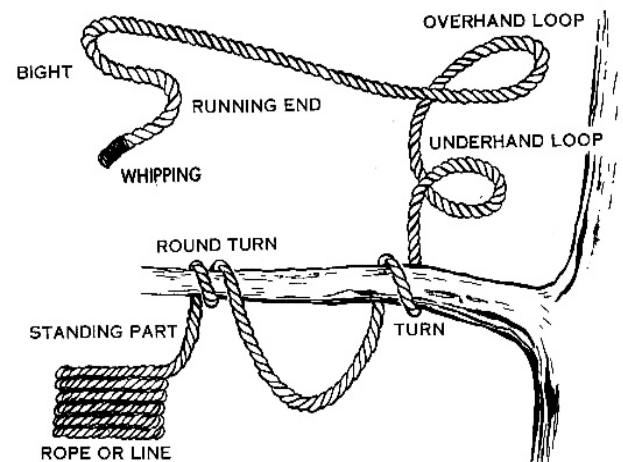
Lanyard: Short length of rope, typically used to create a handle.

Lay: the direction in which a rope twists.

Loop: forming a circle in the rope. When the ends cross, it's called a crossing turn.

Noose: Any sliding loop in which the loop tightens when pulled.

Overhand loop: formed when a loop is made so that the running end of the rope is on top of the standing part.



Round Turn: passing the rope around an object twice to create 1½ circles.

Running End: the end of the rope that is used to tie the knot.

Setting: the process of tightening a knot.

Slipped Knot: a knot that is easily untied by pulling the tail.

Standing End: the inactive part of a rope while tying a knot.

Stopper Knot: a knot tied at the end of a rope used to prevent the rope from slipping through pulleys or holes. Can also be used to temporarily stop the rope from fraying until it can be whipped.

Strands: each individual length of fibers in a braided or twisted rope.

Take a turn: to wrap a rope around a spar or stake so it continues off in the same direction.

Tail: short end of the rope, or the part of rope that carries no pressure.

Turn: the rope passed over one side of an object.

Underhand loop: formed when the running end of the rope is placed under the standing part.

Whipping: a binding knot round the end of a rope to prevent the rope from unraveling.

Working End: the active end of a rope while tying a knot.

The Square Knot: Our first knot is a square knot which is used to tie together two pieces of rope of the same diameter. It's an easy-to-tie knot that is used:

- In first aid to tie bandages
- For shelter building
- To tie boot laces to keep boots from becoming untied and pulled off by mud

You can use a square knot to tie the two ends of a rope together, but not when using nylon rope. The square knot will likely "jam" or untie itself if one of the ends is pulled. Don't use it when you absolutely need to secure your load. If you tie a square knot incorrectly, you'll likely end up with a granny knot, which is even less secure and dangerous. The square knot is also known as a reef knot.

To tie a square knot, loop the right end over the left, and under; then the left end over the right, and under, and pull.



The Bowline: The bowline is a useful knot for forming a loop. It is easy to untie, even after putting it under stress. It will never slip or jam if properly tied. Bowlines make great handles because they'll never slip. If you need to rescue someone, throw them a bowline. They have secure loop to grab, step in or put their arms through. A bowline is incredibly quick and simple to tie, even with cold, wet, shaking hands.



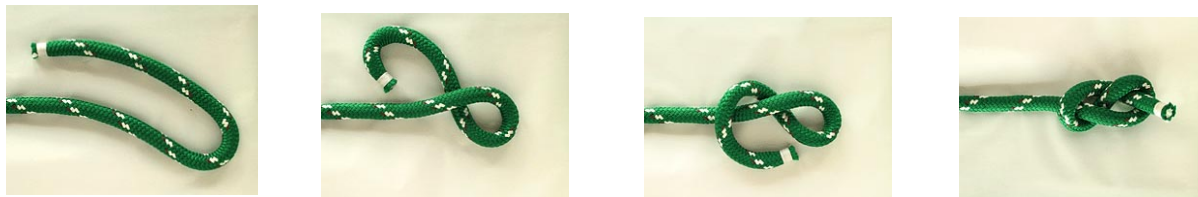
Create a loop by passing the working end of the line over the top of its body. Remember this knot by the story: *“The rabbit comes out of the hole, runs around the back of the tree, then jumps back down.”* Pull it tight at your desired size for the loop and you're done.



Figure Eight: The Figure Eight is an easy way to tie a ‘stopper knot’ at the end of a line. A benefit is that it always unties easily, even after being under heavy tension. The Figure Eight is a great way to tie a rope onto a carabiner and is used in climbing because it works so well.



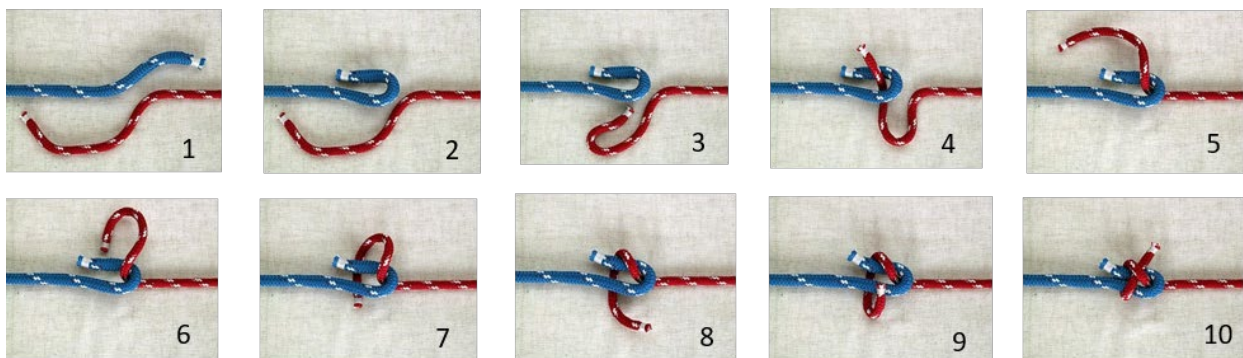
In the rope end, form a loop by twisting a **bight** of the rope. Then pass the rope end round the rope, i.e., take the longest journey, not the shortest, and through the loop to make the Figure Eight.



Sheet Bend: The Sheet Bend is a great knot to use to tie two ropes together, especially if they are different types/sizes of rope.



Form a loop in the thicker rope and hold it in one hand. Pass the thinner piece of rope through the loop then around the loop. Take care to go around the short end first then around the long end. Finally, tuck the smaller rope back under itself to finish the Sheet Bend.



The Clove Hitch: The Clove Hitch is an easy knot to tie, and it secures a line to a tree or post quickly, but it does slip when used alone, without any other knots as a backup. The Clove Hitch can be tied with two

different methods; one for all situations (normal clove hitch) and a slightly quicker one that can only be used on open ended poles when the rope is not under pressure (quick clove hitch).

Throw the rope over the pole. Pass it back over the pole, crossing the working end over the standing end. Tuck the working end through underneath itself so that it's parallel to the standing end, pointing away from each other. Pull the standing end (if this is not under pressure already) and working end in opposite directions until knot is tight. (HandyMariner.com, 2014)



For a quicker clove hitch on an open ended pole, create a crossing turn by passing the working end underneath the standing end. Make a second crossing turn by passing the working end underneath itself. Slide the right loop on top of the left loop. Slide both loops over a pole and pull each end in opposite directions. (HandyMariner.com, 2014)



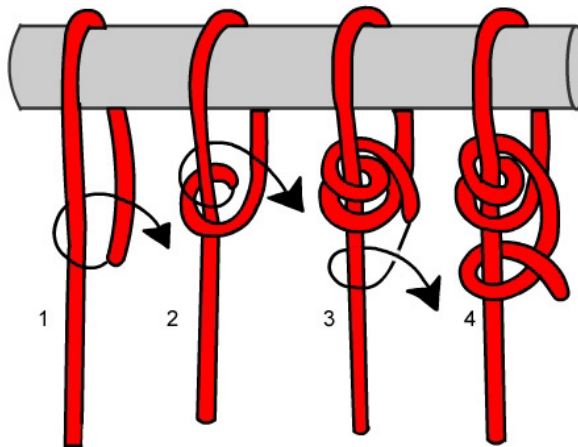
Rolling Hitch: A rolling hitch is a clove hitch with a half hitch added to make it more secure (in one direction). To make it secure in both directions, you'd need to add yet another half hitch.

Start by making a round turn around the object you want to attach your line to, crossing the working end over top of the standing end. Create another round turn next to the previous one, again crossing the working end over top of the standing end. Create a Half Hitch by making a third turn, but this time tucking the working end through the turn itself so the working end lays on the bottom. Make this half hitch without crossing over the standing end. Dress the knot by pulling the standing end and the working end in opposite directions. (HandyMariner.com, 2014)



Tautline Hitch: If you want a knot that you can loosen and tighten, the tautline hitch works well. It's great to attach tent stakes to a tent. It will hold taut, but will loosen when you want it to.

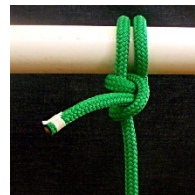
Create a loop by wrapping around something like a tree or tent stake. With the free end of the rope, wrap towards the stake twice. Then wrap the free end of the rope over everything, towards you one time around the rope and cinch these wraps down tight. Pull on the standing line and the taut line hitch should grip the loaded line. (MacWelch, 2017)

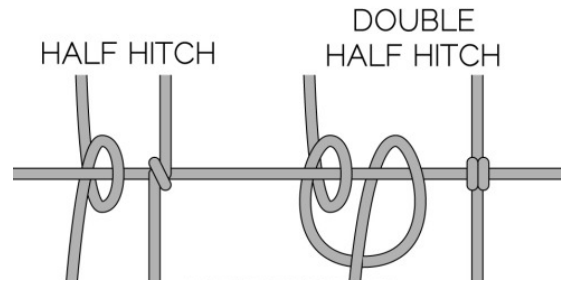


(Jadenl, 2016)

Double Half Hitch (may also be called Two Half Hitches): This is a very simple knot, and useful. The double half hitch secures a line to trees or poles, (or to itself in the case of the Trucker's Hitch).

Once you have wrapped around the standing end to make the first Half Hitch, then you'll wrap around the line in the same direction again to make the second Half Hitch. Pull it tight and you are done with Two Half Hitches. If you feel like you want a little insurance, you can tie an Overhand knot in the free end of the line to keep the Two Half Hitches from slipping. (MacWelch, 2017)





A3. Knife Safety and Operation

A knife is an essential tool in an outdoors or survival situation. It can make the difference in being able to succeed in your environment and failure. But it can also be very dangerous, and can lead to serious injury or death - so you need to respect your knife and know how to properly use it.

In most situations in the Cadet Corps, you are not allowed to have anything like a knife. Most schools do not allow knives on the premises, and most Cadet Corps activities do not either. The exception to that is an approved Knife Safety class, bivouac, or survival training. Even those instances need special permission from your school administration and parents before you are allowed to work with knives. Don't break these rules! They're in place for a reason and can lead to suspension or expulsion from school (and Cadet Corps) if you break them.

Knife Safety (video is 1m, 23s)



Knife Safety covers the following areas:

Type of knife to have

How to store your knife

How to hold a knife

How to sharpen your knife

How to cut with your knife

And some Rules:

- Work with the knife moving away from you, not toward you
- Don't point a knife blade or tip toward yourself or anyone else
- Use your knife directly in front of you when possible
- No running with an open knife!
- Be aware of your surroundings, especially within the arc of the knife
- Don't try to catch your knife if it drops
- Don't play with your knife – it's a tool, not a toy!

Let's start with the rules, and expand on them a bit. (Life, The Cutting Edge - Everyday Knife Safety Tips, 2018) (WikiHow, 2018)

Work with the knife moving away from you, not toward you and Don't point a knife blade or tip toward yourself or anyone else:

Whether you're whittling, skinning an animal, or any number of tasks, make sure the movement of the knife blade is away from you, not toward you. And don't point the tip of the blade toward anyone, either. You think you'll keep complete control of the knife, but it just takes one slip to cut yourself. If you're an expert woodcarver with a lot of experience, you may use techniques that involve bringing the blade toward you. But we're not - so push it, don't pull it!



Use your knife directly in front of you when possible. For the same reasons, keep your project square in front of you when you're working with a knife. If you're working at an awkward angle, or too high or low, there's much more chance that you'll slip and hurt yourself. Don't put yourself in that situation!



No running with an open knife! Just like scissors, don't run with an open knife! It's very easy to trip, and as you lose control, the knife could go anywhere. Don't chance that!

Be aware of your surroundings, especially within the arc of the knife. Situational awareness should be at the front of your mind when you're working with a knife or any potentially dangerous tool. Be aware of what's around you, who might walk up to you, or things that might get in your way while you're working. Recognize hazardous situations before they happen.

Don't try to catch your knife if it drops. It seems like common sense, but if you don't give yourself a safety briefing reminding yourself of these rules, it could happen. It's natural to try to catch something you drop. Don't do it with a knife!

Don't play with your knife – it's a tool, not a toy! Lots of people like to play with knives. You may like to repeatedly open and close your knife, throw it at the ground or a tree to get it to embed, or any number of dangerous activities. Treat your knife with respect for the potentially dangerous tool that it is, and use it as a tool, not a toy.

What's the best type of knife to have? It depends on what you plan to use it for. In our lesson on knife safety, we're focused on situations when you're out in the field, like on a bivouac or in a survival situation. You're also in a controlled environment within the school or Cadet Corps setting, so you will need to understand the limitations put on the type and size of knife by authorities.

If you have a fixed blade knife, ensure you keep it secured in a sheath when you are not using it. Be careful when you are retrieving and replacing it in the sheath because it is the most likely time you will cut yourself unless you are diligent. Do not put the knife down without putting it in the sheath (or for a folding knife, fold it when you put it down!).

A pocket knife of some type is the more likely type of knife you'll be allowed to use in the Cadet Corps or school environment. It may be a plain pocketknife or part of a multitool. You can get switchblades or knives that offer special methods of opening, but we recommend you do not. Keep to a blade that is more controllable, hopefully with its own safety features, like a release catch. Blades that lock open are safer than blades that do not (folding blades without a lock can get inadvertently closed on a finger or hand, causing serious injury). Finally, the length of the blade needs to be within the limits of the authorities allowing you to have the knife.

Store your knife safely. It is a tool, and you want it to be available when you need it. Again, always keep a fixed blade knife in a sheath. Ensure your knife is clean before you put it in the sheath or fold it into its case.

Know how to properly hold your knife. That may depend on the type of knife it is. You want to hold it securely so you don't inadvertently drop it or fling it away from you. You want to make sure your fingers are not in the way of the blade. You may want to have your thumb on the back of the base of the knife to provide pressure, but be careful about doing this. Especially with a folding blade, you do not want to put yourself in a position where the blade collapses, or where you push the blade somewhere you didn't intend for it to go. Keep the blade and tip of the knife pointing away from you.

Know how to sharpen your knife, and keep it sharp! (WikiHow, 2018) We don't want you to fixate over this, but a sharp blade is safer than a dull blade. That seems backward, but a dull blade makes you work much harder at cutting things, and puts you in a position to put too much pressure on the knife. You can lose control and have the knife go where it's not supposed to much easier with a dull blade.

To sharpen your knife, you can use a sharpening stone or a honing rod (steel). If your knife comes with sharpening instructions, read and use them!

A sharpening stone, also called a whetstone or diamond stone, grinds the dull steel of your blade so that the edge is thinner and sharper. It best to start by oiling your stone with a small amount of mineral oil (honing oil—a light kind of mineral oil—is made for this). It helps the blade pass over the stone smoothly and keeps the steel shavings from clogging the stone's pores. If your stone is a carborundum stone, it doesn't need oiling.

Grind the knife steel on the rough grit of the stone first. Grind in only one direction, pulling the blade toward you (blade facing away). Do this evenly (unless your blade is one-sided), grinding roughly halfway through the steel. After you've ground both sides, flip the stone over and use the finer grit to sharpen the blade.

Use a honing rod in between sharpening to keep your blade from degrading. It is not likely you'll take your honing rod out to the field, but you should use it at home to ensure your blade is sharp before you take it with you to the field.

A honing rod realigns the metal in a blade, taking small nicks, indentations, and flat spots away. It's not the same as grinding the blade, and doesn't remove metal from the blade.

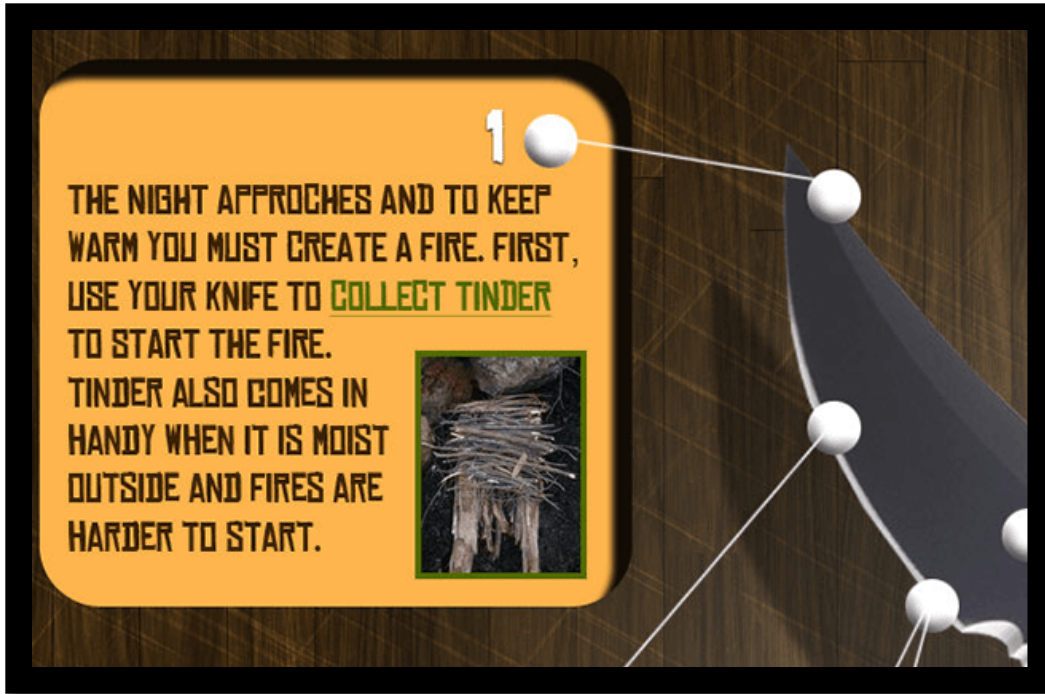
A field expedient method of blade sharpening uses a coffee mug! Take a ceramic coffee mug, and place it upside down, with the rough ceramic exposed to the air. You can use this in place of a sharpening stone. Run the blade across the rough ceramic several times, then switch to the opposite side of the blade. Repeat this pattern several times. Finish by using a honing rod.

Here's a way to sharpen a knife with just rocks (*video is 3m, 59s*):



What are some of the uses for a knife in a survival (or even just a bivouac) situation? See below! (Life, Top Ten Uses for a Survival Knife, 2018)


1. **Warmth.** Keeping warm is vital in survival situations. Learning the skills to use your knife for tinder gathering and fire starting could be the key to your survival.



1

THE NIGHT APPROACHES AND TO KEEP WARM YOU MUST CREATE A FIRE. FIRST, USE YOUR KNIFE TO **COLLECT TINDER** TO START THE FIRE.

TINDER ALSO COMES IN HANDY WHEN IT IS MOIST OUTSIDE AND FIRES ARE HARDER TO START.



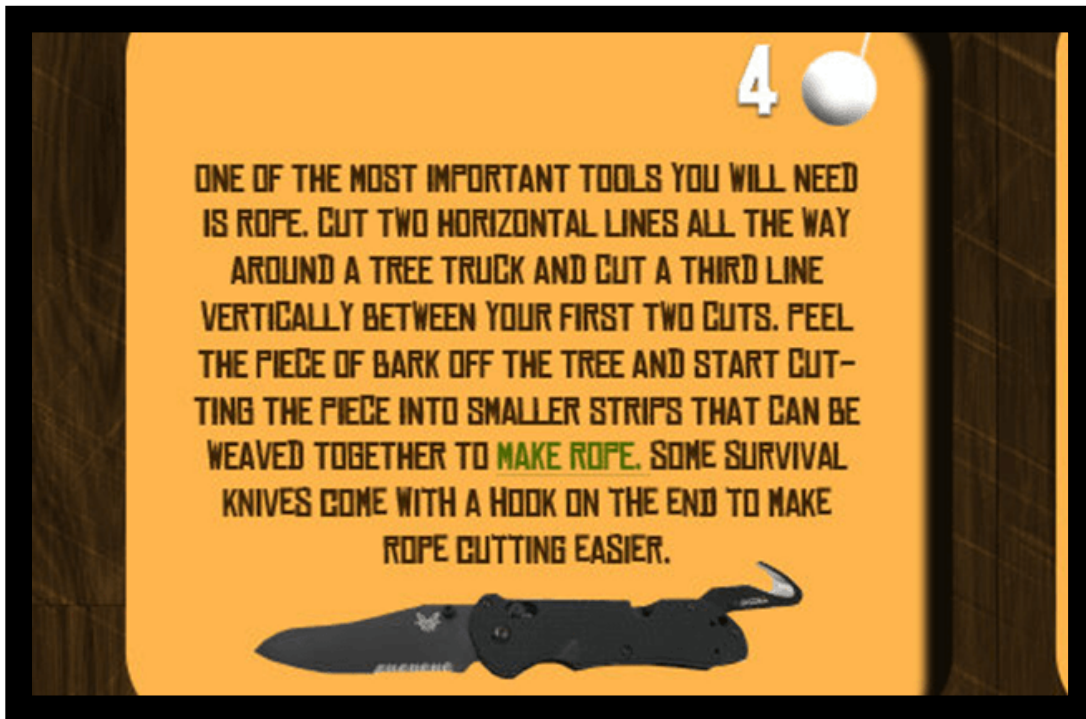
2. **Bow Drill Fire Starter.** Creating a bow drill is made much easier with a good survival knife and some know how. You'll have a fire going in no time if you master this technique.



3. **Shelter.** Using your knife to cut down materials to create a shelter will keep you out of the elements.



4. **Rope Making.** Rope is invaluable in a survival situation and having a knife that aids in you making your own would make your survival all the simpler.



5. **Carving Tools.** In a situation where hunting is necessary, fashioning a tool would be vital. A survival knife could be used to carve many tools in a survival situation.

5




YOUR STOMACHE RUMBLES. IT'S TIME TO EAT. BUT BEFORE YOU HUNT YOU WILL NEED TO USE YOUR KNIFE TO **CARVE HUNTING TOOLS.** GROOVES ALONG THE BLADE MAKE CARVING EASIER.

6. **Preparing Game.** Knives can be very useful in the preparation of game.

6

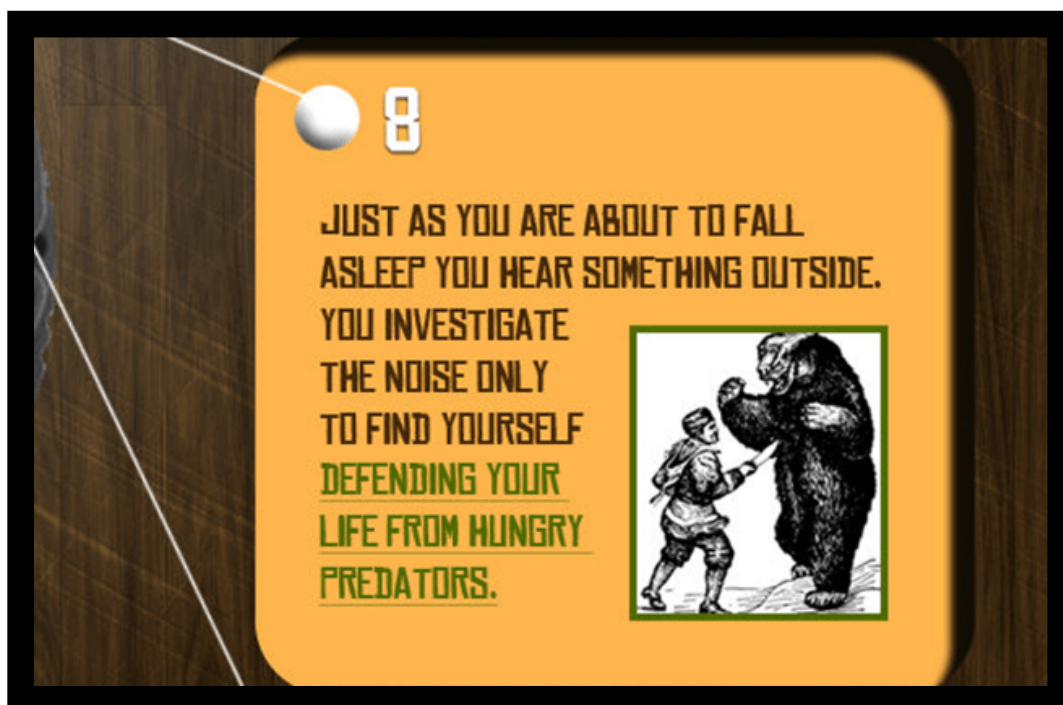
YOU'VE HUNTED DOWN YOUR DINNER AND ARE READY TO MAKE THE KILL. GRIP YOUR FINGERS AROUND THE CONVENIENTLY SHAPED HANDLE TO MAKE SURE YOU DO NOT LOSE YOUR KNIFE DURING THE TAKE-DOWN. WHEN THE TIME IS RIGHT **ATTACK YOUR PREY.**



7. **Cleaning Game.** Preparing your game to cook is made much easier with a good survival knife.



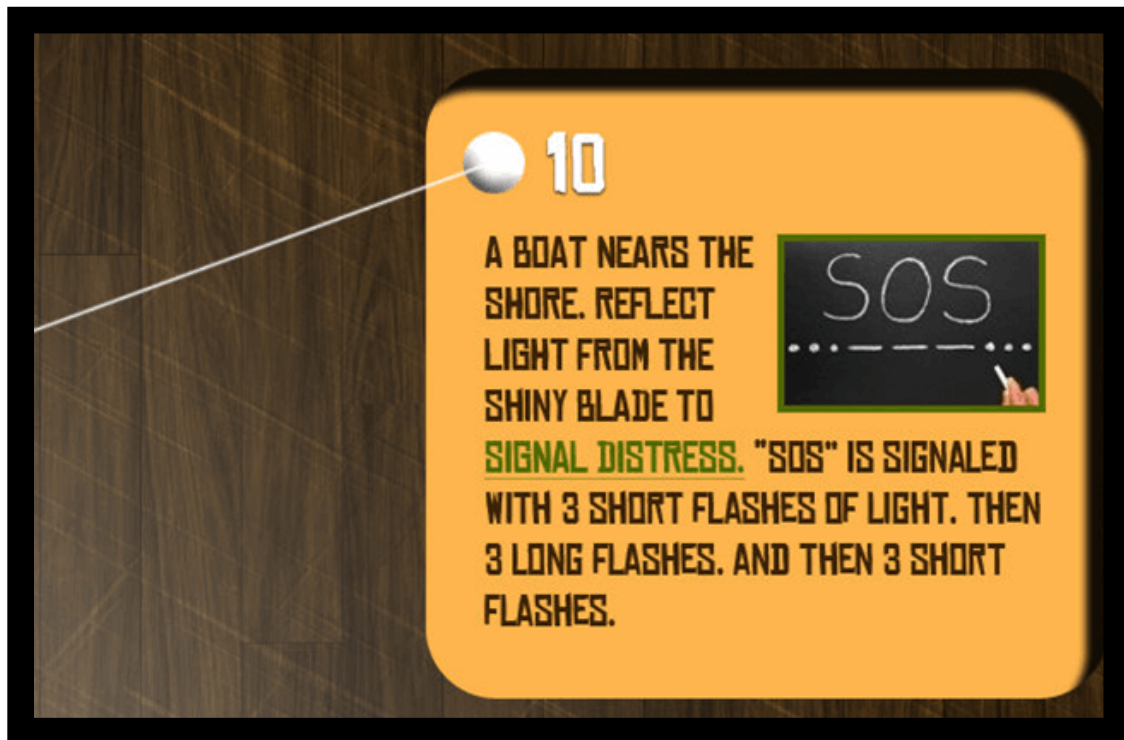
8. **Defense.** Having a weapon on hand when encountering predators could save your life.



9. **Preparedness.** Never leave home without your survival knife!



10. **SOS.** Knowing how to use your reflective surface to signal your distress could be your way to safety.



A4. Food Planning and Menus

What do you eat when you go on a bivouac? Some schools have Cadets bring their own food, sometimes bivouacs are practicing survival situations, and sometimes bivouacs are like military camping trips.

What should you eat when you're out in the field conducting training? If you're preparing food, what are your options? Do you have a camping stove, or a barbeque? Can you have a fire, and do you have the ability to cook using it? What's the weather like? How much activity are you participating in? Are you hunting or trapping animals or catching fish? Are there edible plants and berries available? How long are you going to be in the field? Are you in a static position (campsite, etc.), or will you be continually moving (like a backpacking trip)? How much equipment do you have for cooking (stoves, pots, etc.)? Are you feeding yourself, or everybody? All these have an effect on the food you might eat.

Let's move from the simple to the complex.

You will probably be burning a lot of calories if you're actively training outdoors, so you will need to take in a lot of calories to keep going. You will need a mix of proteins, carbohydrates, fats, fiber, and electrolytes. If you're packing it with you, you'll want to keep it lightweight and compact. Try to prioritize food that provides a lot of calories per weight. Find foods that do not take extra effort (cooking pots, dishes, etc.) Or have one pot you can cook in and eat out of—the Army used to use the canteen cup for everything.

Many stores catering to backpackers sell packaged meals that are easy to prepare and provide what you need, but they can be expensive. You can do a lot on your own, or if you have the cash, you can do things the easy way.

For breakfast, oatmeal or grits can be easily prepared, and fills you up for the morning. Add some dried fruit, nuts, and seeds, either with breakfast or as a mid-morning snack. If you want to cook, powdered eggs, though not the most delicious meal in the world, are popular. Add powdered milk to your oatmeal to make it creamier.

Lunches are pretty easy. We are used to getting food for lunch that is quick and easy. Certainly, beef jerky and prepared meats such as beef sticks, salami, tuna, or chicken packages, and cheese all make a satisfying lunch, and there are lots of lunch kits available when you are shopping for your camping trip. Tortillas are a good replacement for bread, which doesn't pack well. Bagels can work, too. Peanut butter is quick and easy. Crackers, if you can pack them so they don't get crushed, are good to eat with the meat, cheese, peanut butter, etc.

For dinner, a good base to start with is packaged noodles, instant rice, couscous, or instant potatoes. You can add in dried vegetables for a nice healthy meal. Of course, you can always get freeze dried meals. And some of the same proteins from lunch work well (tuna, chicken salad, salami). For a weekend bivouac, even canned meals are possible to carry with you and easy to heat or even eat cold. For some people, hot sauce or catsup makes anything taste good!

When you are out in the field, it is nice to have snacks to pick up your energy throughout the day. Granola bars, beef jerky, crackers, nuts, chocolate (if the weather is not so hot that it might melt). Try to keep toward the healthy end of the spectrum and away from straight sugar, but a little sugar is okay too.

Weekend Bivouac Food Packing List

- Small camp stove (or Sterno folding stove & small pot or metal canteen cup)
- Packets of hot chocolate mix
- Packets of oatmeal mix
- Crackers
- Cheese
- Peanut butter
- Tuna/Chicken lunch meal kits
- Beef Jerky
- Packaged seasoned rice
- Dried Fruit & Nuts
- Granola bars



If you're doing your bivouac at a campground, you may be able to be a little fancier. Do they have a barbeque grill? You may be able to bring ice chests and camping stoves and actually prepare meals. That gets harder logistically if you have a lot of Cadets, but you can organize a whole mess operation as part of your activity! It's not too hard to cook for 25 or 30, but 75 or 100 may be more than you want to handle. You may be able to break your party into smaller groups, though, and still provide hot meals.

Cooking for large groups takes planning and organization, and the right equipment. That is why the military has food service sections! You need stoves and/or grills, pots, utensils, and probably a way to keep some of the food cold, like ice chests. Keep the menu simple; hot dogs or hamburgers or even chicken on the grill are easy to cook and less to clean up afterwards. Large cans of pork & beans, tubs of potato or macaroni salad, and maybe brownies for dessert round out your BBQ. If you have that capability, then oatmeal or grits, bacon and scrambled eggs (maybe with cheese mixed in) is a fairly simple and satisfying breakfast.

If your bivouac is on a military base, an option is always to get to-go food from the dining facility. And if you can afford it, Meals-Ready-to-Eat (MREs) may be an option as well.

Bivouacs are not like family camping trips. The emphasis is going to be on training, not hanging around the campsite fixing meals, so it is more likely you will be doing food the simple way. You can find lots of prepared food made for backpacking, but you can easily make your own meals with some very simple equipment. It's cheaper too!

If you are going the survival route, check out our lessons on survival in *M11 Survival/Resilience*. [Lessons C5 and C6](#) talk about procuring food in a survival situation, and trapping animals using traps and snares. [C8](#) discusses edible plants.

A5. Field Cooking

We talked a little bit about cooking in Lesson A3. Let's talk now about equipment recommended and how to go about it.

Again, everything will depend on your situation. If you are going car-camping and can bring along a lot of equipment, the cooking is easy. You will want some type of camp stove, a couple pots, an ice chest for cold storage, a water container, and dishes of some type to eat on.



If you are cooking for yourself, the equipment is similar, but simpler. You need something to cook in, which if you are by yourself, you can also eat out of. If you are sharing you will need an extra dish. There are many types of compact cook sets sold in outdoor stores or surplus stores, including the US Army mess kit and/or canteen cup, or similar items from other places. You'll need something to heat water in and something to cook in—ideally separate so you can do both. But if you keep it simple, just the one container will do.





If you have access to MREs (Meal - Ready to Eat), they come with everything you need, including a chemical heating pouch for your entrée. Just follow the instructions!



If you do not have a camp stove or individual meal-heater or even a can of Sterno type of fuel, then you can always go back to the old way, which is to cook over an open fire. (See Lesson A4 about fires.) To cook, you'll need to be able to put the food in the fire somehow, either in a pot or pan, a field expedient container like palm leaves or corn husks, or use heated rocks (clean the rocks, put them in the fire, and once they are hot, put them in water to heat it and the contents of your pot.

You can put your pot in or right next to the fire or rig a tripod or something that you can hang the pot off of (make sure it is sturdy enough to bear the weight of the pot and its contents and will not catch fire itself).



(Panda, 2017)

A6. Fire

It's likely you'll have a fire at your bivouac, though this isn't always the case. It will depend on where you are, what the fire danger is, the rules in place to prevent wildfires, and whether it fits in with your training. But often we will have a campfire or the opportunity for small cooking fires. It is important that you are aware of fire safety measures needed to keep your fire from getting out of control.



If you are in a campground, usually there are fire pits and rules that allow you to have fires only in designated fire pits. If you are in a wooded or brush-covered area and fires are allowed, clear a circle at least one meter in diameter so there is little chance of the fire spreading.

FIRE MATERIAL SELECTION

You need three types of materials to build a fire: tinder, kindling, and fuel.

Tinder is dry material that ignites with little heat—a spark starts a fire. The tinder must be absolutely dry to be sure just a spark will ignite it. If you only have a device that generates sparks, charred cloth will be almost essential. It holds a spark for long periods, allowing you to put tinder on the hot area to generate a small flame. Charred cloth can be made by heating cotton cloth until it turns black but does not burn. Once it is black, you must keep it in an airtight container to keep it dry. Prepare this cloth well in advance of any survival situation. Add it to your individual survival kit.

Kindling is readily combustible material that is added to the burning tinder. Again, this material should be absolutely dry to ensure rapid burning. Kindling increases the fire's temperature so that it will ignite less combustible material.

Fuel is less combustible material that burns slowly and steadily once ignited.

(video is 7m, 17s)



Materials for Building Fires:

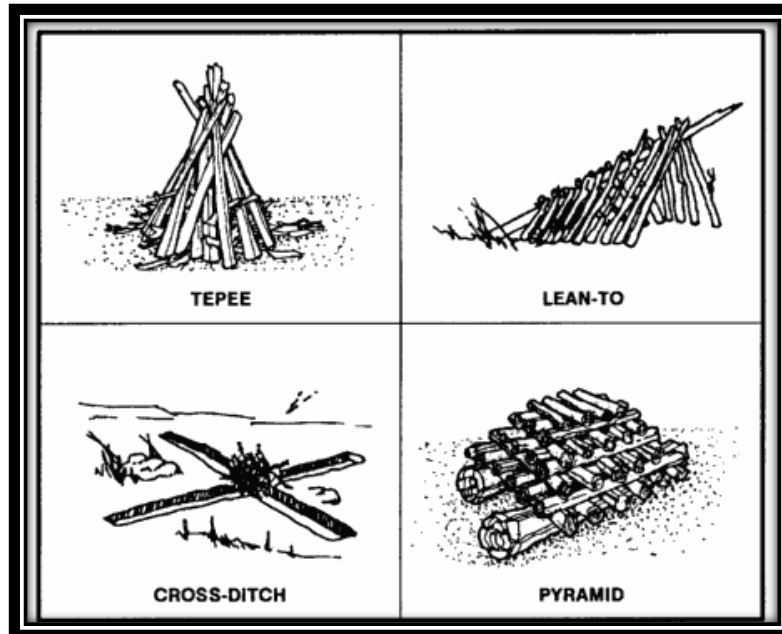
| Tinder | Kindling | Fuel |
|---|---|---|
| <ul style="list-style-type: none"> • Birch bark • Shredded inner bark from cedar, chestnut, red elm trees • Fine wood shavings • Dead grass, ferns, moss, fungi • Straw • Sawdust • Very fine pitchwood scrapings • Dead evergreen needles • Punk (the completely rotted portions of dead logs or trees) • Evergreen tree knots • Bird down (fine feathers) • Down seed heads (milkweed, dry cattails, bulrush, or thistle) • Fine, dried vegetable fibers • Spongy threads of dead puffball • Dead palm leaves • Skinlike membrane lining bamboo • Lint from pocket and seams • Charred cloth • Waxed paper • Outer bamboo shavings • Gunpowder • Cotton • Lint | <ul style="list-style-type: none"> • Small twigs • Small strips of wood • Split wood • Heavy cardboard • Pieces of wood removed from the inside of larger pieces • Wood that has been doused with highly flammable materials, such as gasoline, oil, or wax | <ul style="list-style-type: none"> • Dry, standing wood and dry, dead branches • Dry inside (heart) of fallen tree trunks and large branches • Green wood that is finely split • Dry grasses twisted into bunches • Peat dry enough to burn (this may be found at the top of undercut banks) • Dried animal dung • Animal fats • Coal, oil shale, or oil lying on the surface |

HOW TO BUILD A FIRE

There are several methods for laying a fire, each of which has advantages. The situation you find yourself in will determine which fire to use.

TEPEE

1. To make this fire, arrange the tinder and a few sticks of kindling in the shape of a tepee or cone. Make a larger teepee structure around this using your fuel wood. Light the center. As the tepee burns, the outside logs will fall inward, feeding the fire. This type of fire burns well even with wet wood.



LEAN-TO

To lay this fire, push a green stick into the ground at a 30-degree angle. Point the end of the stick in the direction of the wind. Place some tinder deep under this lean-to stick. Lean pieces of kindling against the lean-to stick. Light the tinder. As the kindling catches fire from the tinder, add more kindling. This method advantages in high winds because the green stick/log acts as a windbreak.

Green wood

- Recently cut down
- Has not dried out yet

CROSS-DITCH

To use this method, scratch a cross about 30 centimeters (12") in size in the ground. Dig the cross 7.5 cm (3") deep. Put a large wad of tinder in the middle of the cross. Build a kindling pyramid above the tinder. The shallow ditch allows air to sweep under the tinder to provide a draft. This fire is useful in open areas and/or in areas where very little breeze is blowing.

PYRAMID

To lay this fire, place two small logs or branches parallel on the ground. Place a solid layer of small logs across the parallel logs. Add three or four more layers of logs or branches, each layer smaller than and at a right angle to the layer below it. Make a starter fire on top of the pyramid. As the starter fire burns, it will ignite the logs below it. This gives you a fire that burns downward, requiring no attention during the night.

There are several other ways to lay a fire that are quite effective. Your situation and the material available in the area may make another method more suitable.

HOW TO LIGHT A FIRE

Always light your fire from the upwind side. Make sure to lay your tinder, kindling, and fuel so that your fire will burn as long as you need it. Igniters provide the initial heat required to start the tinder burning. They fall into two categories: modern methods and primitive methods.

MODERN AND PRIMITIVE METHODS

Modern igniters use modern devices—items we normally think of to start a fire. These include matches and lighters. There are also several other methods that you should be aware of to start a fire. Survival situations will always require you to use what is available.

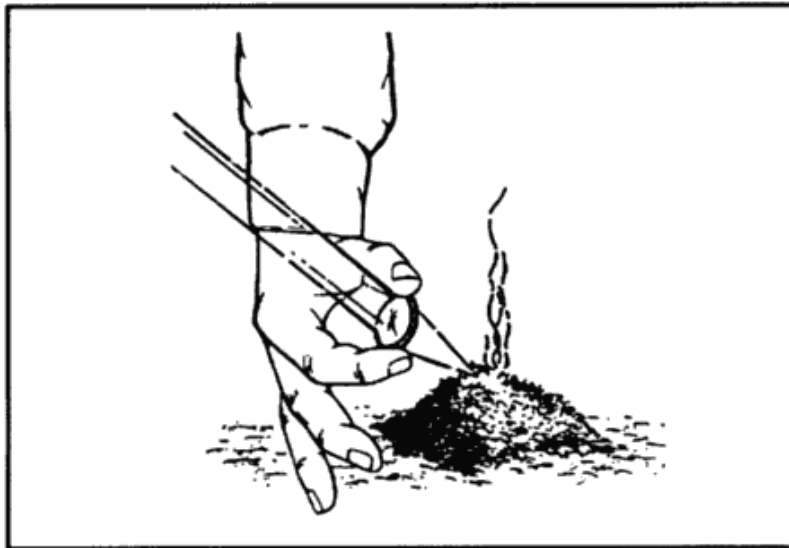
Primitive methods are usually friction based, are very difficult to learn, and require a large output of calories. They are covered in the Advanced Survival section of Strand M11. Before resorting to them, try to use easier methods covered in this section first.

MATCHES / LIGHTER

If you have a survival kit, include waterproof matches in a waterproof container. This is not a major issue at a bivouac unless it's raining. You should be able to start a fire with one match every time. Even if there is no more fuel in a lighter, the ignitor may produce enough spark to light your tinder.

CONVEX LENS / FRESNEL LENS

Use this method only on bright, sunny days. The lens can come from binoculars, camera, telescopic sights, magnifying glasses, Fresnel lens, plastic water bottle, Ziploc® style bag filled with water, and even the bottom of a polished coke can. Angle the lens to concentrate the sun's rays on the tinder. Hold the lens over the same spot until the tinder begins to smolder. Note: dark colored tinder or paper are best for absorbing the sun's rays and will ignite much faster than light or white coloring. Gently blow or fan the tinder into flame and apply it to the fire lay.

**METAL MATCH**

Place a flat, dry leaf under your tinder with a portion exposed. Place the tip of the metal match on the dry leaf, holding the metal match in one hand and a knife in the other. Scrape your knife against the metal match to produce sparks. The sparks will hit the tinder. When the tinder starts to smolder, proceed as above.





(video is 1m, 17s)

BATTERY

Use a battery to generate a spark. Use of this method depends on the type of battery available. Attach a wire to each terminal. Touch the ends of the bare wires together next to the tinder so the sparks will ignite the tinder. This can also be done with steel wool connected to a 9-volt battery or a gum wrapper connected to an AA battery.

GUNPOWDER

If you have ammunition, carefully extract the bullet from the shell casing, and use the gunpowder as tinder. A spark will ignite the powder. Be extremely careful when extracting the bullet from the case.

A7. Tent Shelters

Part of going on a bivouac often involves sleeping in a tent. There are many extremely cheap tents available, so you have many options to choose from.

Your school may have old Army tents (shelter halves), but that is not likely. Most likely, you will sleep in a

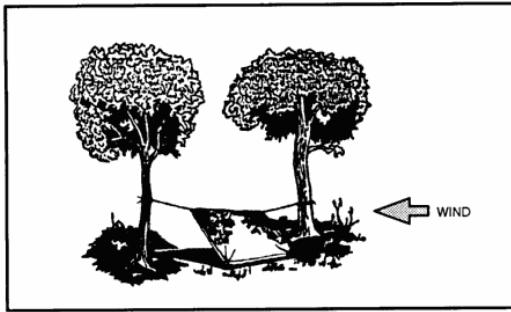
modern pup tent like those shown in the photo above, or sleep 'under the stars' with no tent at all. Modern tents are very easy to put up. Just follow the instructions! It usually involves a collapsible rod that bends to give the tent its shape; insert that into the sleeve on the tent, and secure it in the pocket at the bottom.



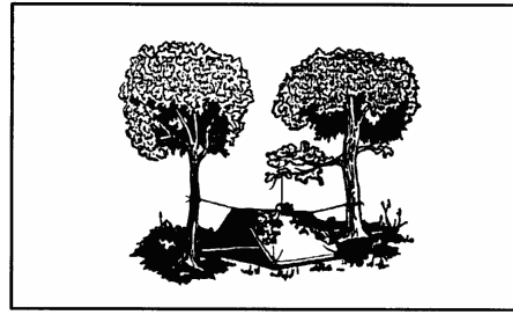
There may be times where you construct your own shelter. You do this in Survival training but can use the skill if you are camping without a tent and encounter poor weather.

The easiest type of shelter you can build needs a tarp or blanket or poncho—anything that is big enough to provide some partial shelter. Use your rope-tying skills from Lesson A1 to tie it off to a couple of trees (or poles, or something convenient. Depending on the size of your material, it can be a one-sided 'lean-to' or could make both sides of your 'tent top'. It's easy to pack a poncho so you have this option when needed.

Lean-To



Tent Top



Depending on your need for shelter, you may consider natural shelters such as caves, space next to large rocks, underneath overhanging trees (some types of tree are great for this), overhanging limbs, etc. Be careful, though! Caves may have critters already living there. Stay away from low ground such as ravines, narrow valleys, or creek beds. Lower ground is colder than surrounding high ground. And more than one camper has gone to sleep in a dry creek bed only to wake up in a flash flood! Also, be wary and check for snakes, ticks, mites, scorpions, and stinging ants when you are picking your spot. Look for loose rocks, dead limbs, coconuts, or natural growth that could fall on your shelter.

If it might rain during your bivouac, dig a shallow trench all the way around your tent and leading off downhill if possible. This will channel water away from your tent during the night. And if it is at all windy, make sure you stake down your tent so it does not blow away.

On a bivouac or regular camping trip, you are probably not going to build a survival shelter. If that's part of your training, you can check out some of the options in [Strand M11 Survival, Lesson C3](#).

A8. Hygiene

Cleanliness is an important factor in preventing infection and disease. It is easy to get dirty when you're camping on a bivouac, but personal hygiene is just as important in the field as it is at home. Maybe even more so. You can stay clean without shower facilities, but you have to pay attention and allocate some time to your own cleanliness. All that is needed is a washcloth and soapy water. Baby wipes can be convenient too.

At least once a day, get your washcloth and some soapy water (or clean water and a bar of soap), go to a private place, and wash yourself. Pay special attention to your feet, armpits, crotch, hands, and hair, as these are prime areas for infestation and infection. If water is scarce, take an "air" bath: remove as much of your clothing as practical and expose your body to the sun and air for at least one hour. Be careful not to sunburn. Change your T-shirt, underwear, and socks daily.



Keep your hands clean. Germs on your hands can infect food and wounds. Wash your hands after handling any material that is likely to carry germs, after visiting the latrine, after caring for the sick, and before handling any food, food utensils, or drinking water. Keep your fingernails closely trimmed and clean and keep your fingers out of your mouth. If you can't wash your hands, use hand sanitizer or baby wipes.



Thoroughly clean your mouth and teeth with a toothbrush at least once each day.

Keep your hair clean. Your hair can become a haven for bacteria or fleas, lice, and other parasites. Keeping your hair clean, combed, and trimmed helps you avoid this danger.

To prevent serious foot problems, break in your shoes before wearing them for long periods (like during a bivouac or Cadet activity). Wash and massage your feet daily. Trim your toenails straight across. Wear an insole and the proper size of dry socks. Powder and check your feet daily for blisters.

Blisters: If you use moleskin to pad a hot spot or blister, do not put it directly over a blister! When it comes off, you will tear the blister off with it, and that will cause a much bigger problem than the blister was. If you can identify hot spots where your shoes or socks rub, apply moleskin, or even just a band aid, to the area before a blister forms. This should prevent a blister from forming. Quick first aid once you have a blister is to put a band aid over the blister, then moleskin over the band aid.

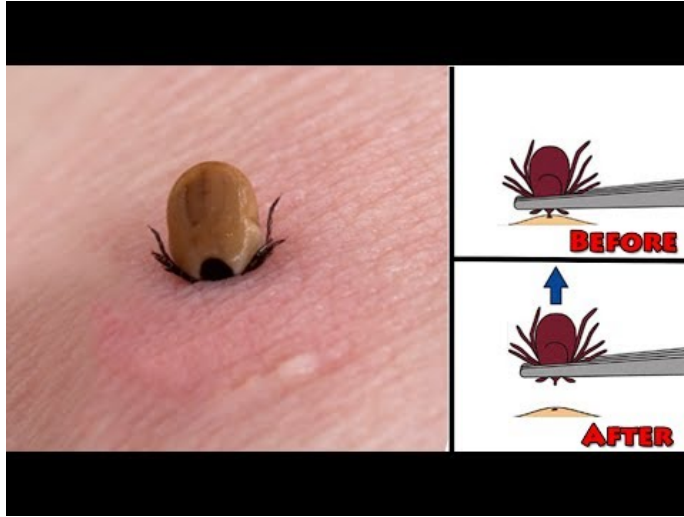
If you get a small blister, do not open it. An intact blister is safe from infection. Apply a padding material around the blister to relieve pressure and reduce friction. If the blister bursts, treat it as an open wound. Clean and dress it daily and pad around it. Leave large blisters intact. To avoid having the blister burst or tear under pressure and cause a painful and open sore, do the following:

- Obtain a sewing-type needle and a clean or sterilized thread.
- Run the needle and thread through the blister after cleaning the blister.
- Detach the needle and leave both ends of the thread hanging out of the blister. The thread will absorb the liquid inside. This reduces the size of the hole and ensures that the hole does not close up.
- Pad around the blister.

Get Sufficient Rest

You need a certain amount of rest to keep going. Plan for regular rest periods of at least 10 minutes per hour during your daily activities. Learn to make yourself comfortable under less than ideal conditions. A change from mental to physical activity or vice versa can be refreshing when time or situation does not permit total relaxation.

Keep your clothing and bedding as clean as possible to reduce the chance of skin infection as well as to decrease the danger of parasitic infestation. Clean your outer clothing whenever it becomes soiled. Wear clean underclothing and socks each day. If water is scarce, "air" clean your clothing by shaking, airing, and sunning it for 2 hours. If you are using a sleeping bag, turn it inside out after each use, fluff it, and air it.



Video 1 How to Remove a Tick (video is 2m, 8s)

Ticks are common pests in the wilderness. They can carry several diseases including Lyme Disease, Rocky Mountain Spotted Fever, Colorado Tick Fever, Tularemia, and Tick Paralysis. Quick tick removal is important to reduce the chances of disease transmission. You may have heard about burning ticks out or smothering them with petroleum jelly, gasoline, or nail polish, but these methods actually increase the likelihood of disease transmission from the tick to you. The simplest removal method is to use a pair of tweezers, grasp the tick near its head, and gently, slowly pull straight out without twisting. If tweezers are not available, grasp the tick with your fingers and trying not to squeeze it, pull it straight out.

Ticks crawl and generally get on you when you brush up against greenery. They will then crawl upwards until they find skin to lodge into. For this reason, it's better to keep your pants bloused into your boots (tucked in) and your shirt tucked in when possible. Ticks are often found in hard-to-find areas of your body and rarely do you feel them bite, so it is important to do a good check, especially after moving through brush or laying down. Use the buddy system to check each other, especially in the hair and on the back.

Waste Disposal and Keeping the Camp Site Clean

Do not soil the ground in the camp site area with urine or feces. Cat Holes and trenches must be used to bury feces and cleaning materials (Toilet paper, smooth rocks, and soft pine cones). Cat holes and trenches must be located at least 200' (about 70 adult paces) from camp and at least 200' from the nearest water source. In hilly terrain, it is better to locate the site uphill. Choose an elevated site where water would not normally go during run-off or rain storms. Urine has little direct effect on vegetation or soil. Ideally, bivouacs will have established latrines or porta-potties. But if you are camping in places that do not, know and follow these simple rules. If there are more than just a few people, dig a trench and put a privacy screen around it. A lot of people cannot stay in a campsite together without some form of organized waste disposal. Do not leave it to each individual.



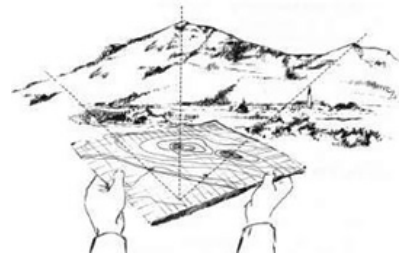
Cat Hole: For most wilderness settings, *cat holes* are the preferred method of human waste disposal. A cat hole is a 6- to 8-inch hole dug in the ground with a small digging tool. A cat hole should be dug in soft bacteria rich soil which will help break down the waste. If remaining in an area for more than one night, cat holes should be widely dispersed to aid in hygiene, smell, and decomposition. When finished, the cat hole should be finished with the original dirt and re-covered with native materials. The cat hole can be marked with an X with two small sticks to identify previous cat hole locations.

Latrine/Trench. If camping in a group, rather than individual cat holes, a group latrine may be used. This does not mean the campers go together at the same time, but it does mean they share a common location. This typically involves digging one long trench. Each person uses one end of the trench and buries it, leaving the remainder of the trench for others. The downside to this approach is that rather than scattering the impact over a broad area (as with individual cat holes) it concentrates the human waste. As a result, it's even more important to locate the trench correctly. A good way to speed decomposition and maintain hygiene is to toss in a handful of dirt after each use.

A9. Map Reading / Direction Finding

Map Reading has a whole Strand in the Cadet Corps curriculum—there is a lot to it. This lesson just goes over some basics that you might use during a bivouac if you have not yet studied Strand M6 *Maps and Navigation*.

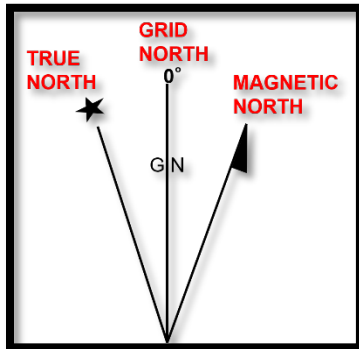
If you have some type of map of the area you are using for your bivouac, you should have the basic skills to read it properly, whatever type of map it is. Use the legend to determine the symbols the map uses. This will help you identify major features on the map that can be found on the ground, like hills, roads, buildings, rivers/streams, campsites, etc. Orient your map so that you can see where you are and what direction other places on the map are from you.



If you have a compass, you can better orient and use your map, but you need to understand and take into account the difference between Magnetic and Grid North, unless your map's orientation is to Magnetic North. Find the Declination Diagram on your map, if it has one; this will tell you how to convert from Magnetic to Grid and back.

Compass Course. If you are going to run a compass course during your bivouac, you need to master the skills of shooting an azimuth (a direction on the compass) and estimating distance on the ground using a pace count. Here's a summary of the lessons from Strand M6 that cover this:

Direction – a course along which someone or something moves – is usually expressed in map reading as a **degree** or **azimuth**, or as a variant of **North, South, East, and West**. From any point on a plane (a surface) there are 360 degrees leading out from it in a circle. In almost all coordinate systems, north is portrayed at 0 degrees.

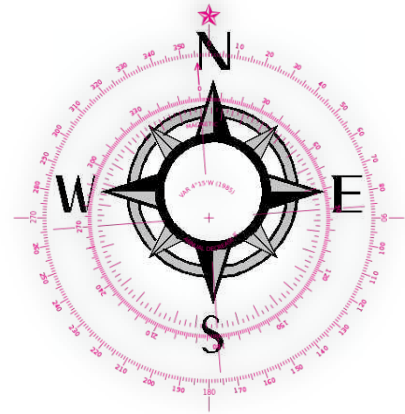


True North is a line from any point on the earth's surface to the North Pole. All lines of longitude are True North lines. True North is usually symbolized in marginal information with a **star**.

Magnetic North, as shown by the compass needle, points to the north magnetic pole, which is not the same as the geographic North Pole. It is shown in marginal information as a **half-arrow**.

Grid North is the north that mapmakers put on a map, based on the map projection used. It is shown in the marginal information by the

letters **GN** on a vertical line.

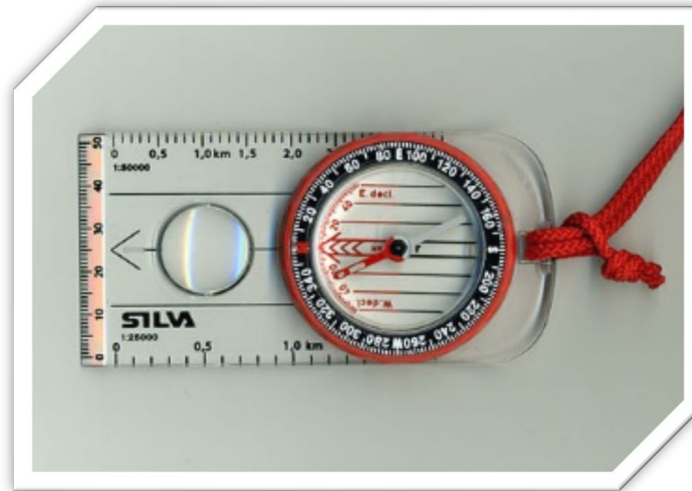


The Compass. We generally use one of two types of compass in the Cadet Corps: the lensatic compass or the Silva compass, and sometimes both depending on what we are doing. There are many styles and types of compass, but they all share one thing: they point you to Magnetic North. In this lesson, we'll use a Silva Compass, but we'll cover the use of the lensatic compass later on.



The lensatic compass is the compass used by the military in field operations. It is simple to use and more accurate than most other simple compasses. It includes a sight, sighting wire, and lens to more easily focus on the target and read the dial, a thumb ring to hold it steady, and a straight edge for measuring distance on 1:50,000 maps. Some lensatic compasses have luminous features for use in the dark. It folds up to protect the compass, and the rear sight locks the needle, which extends the compass life. The movable bezel ring can be used to preset an azimuth.

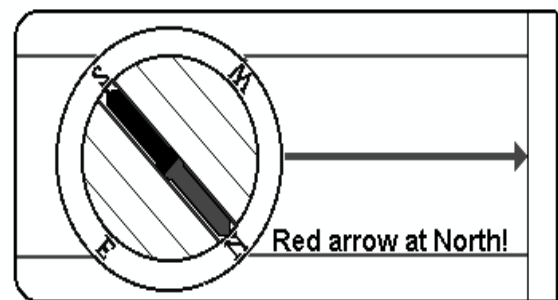
The Silva Compass, or models like it, is a simple, inexpensive compass that's great for map reading and orienteering. Some have an adjustable baseplate that allows you to adjust for declination, so you can ignore converting grid to magnetic azimuths and back. The compass has direction lines that help align the compass on your map and assist in pointing along your route. It is not as accurate as a lensatic compass, but works well in an orienteering environment where terrain association is your primary method of finding your way.



The key thing to know about a compass is that it points toward Magnetic North. On a Silva Compass, it's the red part of the compass needle that points north.

You've got a dial that turns on your compass. We call it the *compass housing* (it may also be referred to as a *bezel ring*). On the edge of the compass housing, you will probably have a scale from 0 to 360. Those are the degrees or the *azimuth* (or you may also call it the bearing in some contexts). And you might have the letters N, S, W and E for North, South, West and East. If you want to go in a direction between two of these, you would combine them. If you would like to go in a direction just between North and West, you simply say, "I would like to go Northwest."

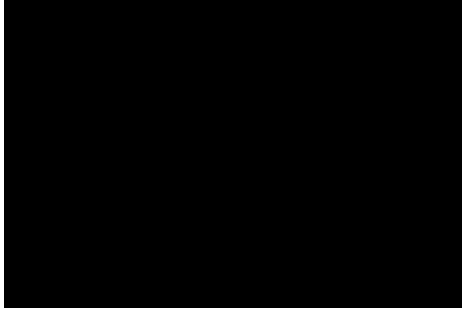
Turn the compass housing so that northwest on the housing comes exactly where the large *direction-of-travel arrow* meets the housing. Hold the compass in your hand. You will have to hold it quite flat so that the compass needle can turn. Then turn yourself, your hand, or the entire compass—just make sure the compass housing doesn't turn—and turn it until the compass needle is aligned with the lines inside the compass housing.



You can do this with directions ("I want to go North") or with specific degrees. If your compass course directions are to go 300 meters at 65 degrees, then put the 65-degree mark at the direction-of-travel arrow.

Now, time to **be careful!** It is *extremely* important that the **red**, north part of the compass needle points at **north (N)** in the compass housing. If the south end of the arrow points at north, you would walk off in the exact opposite direction of what you want! And it's a very common mistake among beginners. So always take a second look to make sure you did it right!

A second problem might be local magnetic attractions. If you are carrying something of iron or something like that, it might disturb the arrow. Even a staple in your map might be a problem. Make sure there is nothing of the sort around.



Video: "How to Shoot an Azimuth with a Lensatic Compass"
(3 minutes, 1 second)

When you are sure you've got it right, walk off in the direction the direction-of-travel arrow is pointing. To avoid getting off the course, make sure to look at the compass every hundred steps or so. Once you have the direction, aim on some point in the distance and go there without staring down at the compass.

If you are out there without a map and you don't know exactly where you are, but you know from your experience in the area that there is a road, trail, stream, river or something long and big you can't miss if you go in the right direction...

Then all you need to do is to turn the compass housing so that the direction you want to go in is where the direction-of-travel arrow meets the housing. And follow the steps you were just shown.

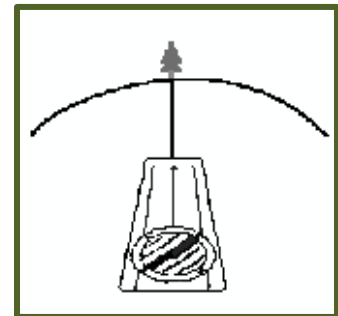
But why isn't this sufficient? First, it is not very accurate. You are going in the right direction, and you won't go around in circles, but you're very lucky if you hit a small spot this way.

And, this requires you to have a mental image of the area you are in and what direction those landmarks might be in.

That's why using the compass with a map is much, much better.

How to "shoot an azimuth" in three easy steps:

1. Turn the dial of the compass to the given azimuth
2. Keep the compass flat in front of you with the "Direction of Travel Arrow" pointing straight ahead
3. Turn your body so the red (north pointing) needle of the compass lines up inside the red housing (pointing toward North) on the base of the compass.



You can use this method with a lensatic compass, but it's not as easy, since there's no direction-of-travel arrow. Turn the bezel ring to the desired azimuth, have the compass fully open, and use the straight edge of the compass as your direction of travel, keeping the red compass needle lined up with 0 degrees. Another method is to sight the lensatic compass at the desired direction (i.e. 65-degrees), select an object you can see that falls in that line (i.e. a tree, significant rock, etc.), and proceed to that object. Repeat your sighting from that object to another observable object, and proceed, keeping your pace count.

Magnetic Declination – "Magnetic declination, sometimes called magnetic variation, is the angle between magnetic north and true north. Declination is positive east of true north and negative when west. Magnetic declination changes over time and with location. As the compass points with local magnetic fields, declination value is needed to obtain true north." (NOAA National Centers for Environmental Information, n.d.)

Remember we said the Silva compass let's you adjust for the declination of your map? All you have to do is move the bezel ring so that the North Arrow points at the adjusted declination direction. If you do this, you can put your compass on the map and easily orient the map. For example, if the declination diagram says the declination in your area is 19 degrees West, adjust the ring 19-degrees counterclockwise. Align the compass so the North Arrow points to 0-degrees. This takes the declination into account, and you can lay your compass along the North-South grid lines on your map and get accurate direction readings or quickly orient your map to the world around you.

Distance. The best way to somewhat accurately estimate distance on the ground (e.g., during a Compass Course) is using your **Pace Count**. A Pace Count is the number of paces you naturally take walking for a set distance, usually 100 meters. People have different pace counts because they take longer or shorter steps, so you have to know your own. Usually, you count a pace as two steps; in other words, you've gone one pace each time your left foot strikes the ground.

To get your pace count, you need to walk naturally (try not to think about your walking, but let your legs take your natural pace) along a flat surface for 100 meters, counting every left step. When you get to the end, start over and do it again. If the count was different, average them. To make your pace count even more accurate, do the same thing walking up a hill, then walking down (we take shorter paces going uphill, and longer paces going downhill). You could even take a pace count on grassy, uneven terrain if that's the type of terrain you will be walking on. The better you measure, the more accurate your pace count will be. It's important that both when you are measuring your pace count, and when you are pacing distance on a compass course, that you walk naturally. If you try to speed up, you'll take longer than your average pace. Once you determine your pace count, write it down so you don't forget what it is.

When you're pacing off a long distance (say you had directions during a compass course to go 600 meters), it's best to make a note of milestones as you walk. You might get distracted and forget where you were in your count. You would then have to go back to the beginning and start over! You can make entries in your notebook or have a system like putting small pebbles in a pocket or moving 'ranger beads' on a string every 100 meters. Whatever works for you, don't lose track of your pace!

There's a lot more to map reading, which is all covered in Strand M6. This includes map colors and symbols, elevation and terrain features, grid coordinates, and polar coordinates (plotting an unknown position from a known point). But a good knowledge of distance and direction will allow you to be successful on a Compass Course. Once you fully understand the rest of map reading, you can try a Land Navigation Course!

Try the Compass/Land Nav practicum that's on the next page. It's a basic course to get you started.

Practicum

Do a Compass Course:

- Each Cadet determines his/her own pace count
- Each Cadet uses a compass to determine magnetic direction
- As a team, proceed along a given azimuth

****Use the four supplemental documents in the M10/A online curriculum to do this practicum: *Constructing the Course, Land Nav Work Sheet, Order of Events, & Practicum Map*****

A10. Bivouac Safety

[IAW CR 2-1, a risk management worksheet](#) must be completed prior to all field training. The safety of Cadets must be of paramount concern to Cadet Commanders, Brigade Advisors, Commandants and adult chaperones during the conduct of all Cadet activities. All elements of [CR 2-1](#), including Cadet protection policies, must be reviewed and complied with when planning and executing field training. The training we do isn't worth Cadets being seriously hurt. But we don't exist in a bubble, either. The purpose of the Risk Assessment is to identify hazards and mitigate (reduce) them so that the risk (likelihood of something happening versus the severity of the hazard when it happens) is low. We have to chance that bad things might happen, as long as we limit the hazard to a low-level incident.

Emergency Medical Services Contact Information and Transport. The person in charge needs to know the contact information and location of Emergency Medical Service providers closest to the bivouac site. This includes the location of the nearest trauma center. There must be an adequate plan on how you will transport injured Cadets from the field site to medical facilities. This plan must address access of vehicles to remote areas, if applicable.



Medical Personnel. A qualified medical service provider must accompany Cadets on field training. This individual must, at minimum, maintain first aid and CPR certification from a nationally recognized agency such as the American Heart Association or American Red Cross. As the numbers of Cadets in attendance at a bivouac increase, the need for increasingly advanced levels of medical services also increase. As a general rule, field training with between 100-250 Cadets in attendance should have an individual with the skillset equivalent to an



Emergency Medical Technician (EMT-1) or military Field Medic in attendance throughout the encampment. Events with between 250-600 Cadets should have a Paramedic (EMT-P) or similarly skilled individual in attendance throughout the event. Events with greater than 600 Cadets should have two or more Paramedic-level health care providers in attendance throughout the event. The number of participants in an event is not the only consideration for the level of medical care that is necessary. The type of training and risk analysis must be used to assess requirements. A qualified Cadet Medic may be sufficient for Land Navigation training, but you should have an adult medic (EMT or higher) present if the training involves rappelling, rock climbing, or weapons firing. Often the facilities used will set a minimum standard for medical provider to be present during training.

Medical Equipment. Adequate first aid supplies and basic life support equipment must be on hand at all Cadet field training.

Medical Histories. Cadets in attendance at field training should have on file with the Commandant a current medical history form (*CACC Form 203*) to be used by medical personnel in the event of an injury or illness requiring medical treatment beyond first aid (see [CR 2-1](#)).

Communications. Two forms of communication must be available at all field training activities. Those forms of communication must be capable of summoning emergency assistance. Examples include cell phone and radio, or two separate cell phones from two different carriers whose cell coverage/service availability has been confirmed prior to the event.



Supervision. Individual school district regulations will dictate the ratio of required adults to Cadets at overnight events; however, in no case shall a ratio greater than 20 Cadets per adult be permitted at any overnight bivouac. Adequate distribution of chaperones to reflect the gender ratio must also be considered.

Nighttime supervision. It is critical at overnight events, especially in the field, that adequate adult supervision be provided during nighttime hours to ensure that fraternization and horseplay do not occur. This includes the need for adults to be vigilant about supervising Cadet guard duty, if guard duty is conducted.

Separation by Gender. When in the field, male and female Cadets will have separate camping areas. We have rules and policies prohibiting inappropriate contact with individuals of the opposite gender. All participating Cadets must know and follow the rules!

Adult sleeping arrangements. Adults must be situated in such a position as to properly supervise Cadets during overnight events. Adults should in no case sleep in areas alone with a single Cadet of either gender.



The Rule of Three. Cadets must not have the opportunity to wander off. The Rule of Three ensures that if something happens to a Cadet, the second Cadet can stay with them while the third Cadet goes for help. It also ensures the safety of all Cadets from each other by providing a witness. Two Cadets of opposite gender will not be alone in a building/room/tent/enclosed space.



Personal Hygiene. Adequate facilities for hand washing and restroom use shall be made available to all participants in the field. Care must be taken to ensure adequate time for personal hygiene before and after meals. If hand washing and latrine facilities are not available, leaders will put focus on field sanitation and hygiene practices in an austere [severe/harsh] environment, particularly the use of cat holes or trenches for latrines. There will be enough shovels available to ensure these are constructed and used. Have hand sanitizer and baby wipes on hand for all personnel.

Risk Assessment and Hazard Mitigation. Leaders need to conduct a risk assessment for each field training event. [CR 2-1 \(Risk Management\)](#) provides an excellent guide for this important safety precaution. Some hazards that need to be considered are:

1. Insects (bees, wasps, hornets), snakes, and similar animals
2. Wild animals
3. Unsafe terrain
4. Vehicle traffic
5. Dead tree limbs
6. Electrical wires
7. Glass and sharp objects
8. Flooding
9. Winds
10. Poison ivy and other poisonous plants
11. Camp fires
12. Forest fires
13. Unsafe tent placement (i.e., near power poles or under branches that are precarious)
14. Safe storage and use of propane
15. Safe latrine placement
16. Safe locations to prepare and store food
17. Locations to perform personal hygiene

Evacuation Plan. You need an adequate evacuation plan to safely get all Cadets and adults out of the field into a safe zone within a reasonable amount of time. Considerations for the evacuation plan include:

1. Transportation of Cadets and equipment
2. Communication with parents
3. Pick up of Cadets by parents
4. Emergency food, water, and shelter
5. Protection from fire, flood, and other natural disaster

Weather extremes. Adequate protection from weather extremes should be planned in advance of the field training event. This includes consideration of bringing items such as sunscreen, lip balm, hats, ponchos, warm clothing, canteens or other water sources, blankets, sleeping bags, and tents.

A11. Guard Duty / Fire Watch

Some units practice the Army tradition of Guard Duty during bivouacs. We use guards, when necessary, to protect equipment and areas which require protection and care. There are two types of guard duty: Exterior and Interior. Guard duty during a bivouac would be exterior (since it's outside).

There is a chain of command for guard duty, usually on a temporary basis. The unit puts all participating Cadets on a duty roster, broken into categories based on rank, position, or experience. Junior Cadets serve as guards, NCOs serve as Commander of the Relief (COR), senior NCOs serve as Commander of the Guard (COG), and officers serve as Officer of the Day (OOD). This system is set up (in the Army) to go through the roster and dole out the duty evenly and fairly, every day. It doesn't work as well on a bivouac that lasts two days or with a unit that has no officers and few NCOs.



Guard duty is not as common in the military as it used to be, especially at home. But when a unit is deployed or in the field, soldiers still do guard duty much as their predecessors did. In many cases, there isn't a formal OOD, COG, or COR; the unit's chain of command performs those functions. But the guards do their duty! In the Cadet Corps, it's up to the commandant and Cadet commander whether they think guard duty is necessary or something they want Cadets to experience.

Guards are assigned to a specific post or shift. A guard shift should last no more than two hours. It usually starts when training is over for the day, and continues through the night on a series of shifts until the encampment is awake again. If necessary and there is concern about securing valuable equipment, guard duty might be a 24-hour operation. They work in teams of at least 3 Cadets. Cadets follow the Three General Orders:

First General Order:

I will guard everything within the limits of my post and quit my post only when properly relieved

Second General Order:

I will obey my special orders and perform all my duties in a military manner

Third General Order:

I will report all emergencies, violations of my special orders, and anything not covered in my instructions to the Commander of the Relief.

Duties of a Guard:

- Never leave your post until you are relieved.
- The guard is responsible for everything within the limits of the post.
- The guard must stop persons who have no authority to be in the area. These individuals are reported to the Commander of the Relief.
- The guard on duty has full control. A higher-ranking Cadet not assigned to guard duty has no authority to give orders to a guard.
- If a guard becomes sick, a relief must be assigned by the Commander of the Relief.
- Guards will pass on their instructions to the Cadets who relieve them.
- During overnight guard duty, or if given instructions to do so, the guard must challenge all people entering their assigned limits. If the guard does not recognize an individual, the guard

should ask the individual to identify him/herself. If the individual is not authorized in the area, the intruder is reported to the Commander of the Relief.

- A guard must report all violations or emergencies to the Commander of the Relief.
- Guards should work in teams, and not allow each other to fall asleep. They should patrol the area looking for unsafe situations.
- Guards should be careful not to disturb their unit unnecessarily. Guard duty is not the time for conversations that might wake up sleeping Cadets!

A12. Packing Lists

If you're going on a bivouac, it's important to have and follow a Packing List. This will ensure you bring the things you need to be successful at the bivouac and that you don't load yourself down with excess equipment that won't be necessary. Of course, this assumes that whoever made the packing list knows what you'll need!

If you're a Cadet staff member who's developing the packing list for the bivouac you're planning, how do you go about it? The best way is to carefully go through the training schedule and determine what critical equipment or supplies are needed for each event (training or life support) that's planned. Be thorough, but weigh the likelihood of whether a piece of equipment will really be needed. You don't want to be so thorough that everybody is lugging around a heavy pack full of stuff they don't really need. Know your audience: have they participated in this activity or something similar before? If so, they don't need as much input from you. You may want to identify those things that you need only one of, or a few of, and assign individuals the responsibility of carrying those items for the good of the whole unit.

Practical Exercise

On your own, or in small groups, develop a list of items needed for one of the following bivouac events. This is just the start of your overall list, so list everything!

- 6-mile Hike
- Compass Course
- Dinner (at your bivouac, Cadets bring all their own food)

What did you come up with? Did you consider uniform items needed? Equipment like a backpack, load-bearing gear, or fanny pack? Who's providing the map and compasses needed? Did you think about personal items like moleskin and band aids for blisters? Sunscreen? If you considered the dinner requirements, did you think of utensils, food, what to eat it out of (unless it's all straight from a package), whether you'll need hot water and how to heat it, what to do with the garbage? Do you have to pack in water, or is it available to you where you're bivouacking? If you included some type of pocket knife, did you address whether you'll need the school administration's permission to bring such an item on a school activity?

We try to keep our packing lists fairly simple. Cadets need to learn to think on their own and determine what they'll need (definitely a useful skill later in life!). But you need to assess how much experience your Cadets have with the type of activity they're packing for and determine if there are special circumstances or limitations they need to know about. For example, when Cadets are packing to attend Survival Training at a Cadet Corps Summer Encampment, there are only certain things they're allowed to bring.

Finally, you should think about the ramifications of Cadets not bringing things they need if you don't list them on the packing list. What will happen if a Cadet shows up to your bivouac without food? Or without a jacket or sleeping bag? If it's important to have, it should definitely be listed. If they could do without it, maybe not.

Here's a packing list that was put out for a Summer Encampment. It's pretty long. But they'll be at the activity for a week. Can you think of ways to compress this? Are there things you think don't need to be listed? Are there items that should be listed but aren't?

Summer Encampment Packing List

We recommend packing all uniforms in a garment bag, or bag of similar purpose, and packing the remainder of items in a single military style duffel bag for ease of transportation. These bags are generally available at military surplus stores and online.

- Complete Class B uniform (prepared on a hanger) including:
 - Black Dress Shoes or Black Boots
 - Pants (Skirts Optional for Female Cadets)
 - Shirt
 - White Crew Neck T-shirt
 - Awards and decorations
 - Insignia (CAL, CORPS, Rank, DUI) where appropriate
 - Belt and buckle (brass)
- Complete Class C uniform, including:
 - Boots (black or tan)
 - Pants
 - Blouse
 - White Crew Neck T-shirt
 - Belt and buckle (black)
 - Insignia (Rank)
- Complete P.T. Uniform
 - Black P.T. Crew Neck
 - Black P.T. Shorts
 - Over the ankle white P.T. Socks
 - Tennis Shoes/ Running Shoes
- Headgear
 - Black Beret, Red Beret, Garrison Cap, and/or Utility Cap
 - Note; All Cadets will be given a cap corresponding with their respective units
- Undergarments
- Long Socks (7 pairs, Black)
- Undergarments (7 Pairs)

- White Crew Neck Undershirt (5 recommended)
- Hygiene
 - Shampoo/Conditioner
 - Soap (Bar)
 - Deodorant
 - Razor and Shaving Cream (As needed)
 - Nail Clipper (Optional)
 - Female Hygiene Products
 - Towel
- Miscellaneous
 - Sleeping Bag
 - Pillow
 - Boot Bands/ Rubber Bands
 - Laundry Detergent (Optional)
 - Trash Bags (3 Recommended)
 - Notebook
 - Black Pen (2 Recommended)
 - Mechanical Pencil (2 recommended)
 - Mole Skin (Recommended)
 - Backpack (Recommended)
- DO NOT BRING**
 - Weapons of any kind (knives, guns, etc.)
 - Drugs, alcohol, tobacco products (including e-cigarettes)
 - Anything that would not be allowed on a school field trip or campus

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