Wilderness Survival Skills

Student Notes

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Nature Skills School

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Class Objectives

1) To give you a solid FOUNDATION of Wilderness Survival.
2) You will understand what to do in a Wilderness Survival Situation, and in what order.
3) You will have an understanding of each priority in a Wilderness Survival Situation.
4) You will be able to build a COMPLETE and organized survival kit with contents you are familiar with, comfortable with and will know how to use.
5) You will be able to look at survival kit lists from others and know if it's a complete kit, and if not, you will know what is missing.
6) You will understand "gear" is not a substitute for knowledge and common sense.
7) Remember, most topics (priorities) covered could span the length of a full day to a several week course. We are covering a foundation upon which to build.

Why Learn Wilderness Survival?

A) Because your "mindset " can be the difference between being a "rescue" or being a "recovery" in a wilderness survival situation.

B) Because, on your outdoor adventures, the lightest thing you can carry with you, that will give you the greatest odds of survival (in a survival situation), is.....Knowledge.

C) Knowing what to do in a wilderness survival situation can help you overcome fear and panic - *Fear and panic are killers. They don't allow you to think clearly. You have to minimize fear to think clearly. Walking around while in a panic can lead to serious injury!*
1) Causes of Fear and Panic: Being alone / Darkness / Animals / Suffering / Death.
2) Controlling Fears: Recognize and admit your situation - Do what you need to do to calm down.
3) Keep yourself busy and keep your mind occupied.
4) Be Prepared, have the will and the knowledge to survive.

Primitive Skills Vs. Modern Methods for Wilderness Survival

A) **Primitive Skills**

1) This requires knowledge and practice that will allow you to live off the land as natives did, and still do in some areas. Most of the time this involved people working together as a community.
2) This can become a hobby, or even a lifestyle for some people.
3) Require a great degree of knowledge and practice of the skills, some being:
    a) Fire by friction (Bow & Drill / Hand Drill).
    b) Construction of primitive shelters.
    c) Tracking & trapping methods, and hunting with primitive weapons.
    d) Use of natural resources (plants and such) for food, medicine and utility.

B) **Modern Wilderness Survival - <u>OUR PRIMARY FOCUS!</u>**

1) Basic knowledge and minimal practice, modern gear that can be purchased at most outdoor stores to address your priorities in a survival situation. Knowing the order of the priorities of survival.
2) This is for the average hiker / backpacker / birder / naturalist who wants to learn to survive if lost or injured on a wilderness outing.
3) The knowledge you gain could save your life in a wilderness survival situation - for some this is enough, others will take it further and learn primitive skills.
4) Just because you know primitive skills does not mean you should depend on them. Modern methods and gear greatly improve your chances of survival.

Trip Preparation

A) **Be Prepared (Scout Motto)**

1) **Tell someone where you are going and when you plan to return.**

a) When can that system fail? - If you get into trouble on your first day of a six day trip.

2) Clothing Selection is your first line of defense against the elements.

3) Gear Selection (all gear should be tested prior to your trip). Practice with all your gear, especially your survival gear.

4) Know the area you will be traveling in. Know the:

a) Hazards / Terrain

b) Forecasted weather for your trip

c) Resources - Water / Plants / Animals

The Actual Trip

A) **Pay Attention to**:

1) Weather Changes / Terrain / Hazards / Landmarks / Plants / Animals

If You Get Lost

A) **If you think you are lost:**

1) S•T•O•P

a) **S**it Down: Don't keep walking (because you can't walk in a straight line). Physically stop, sit down and let yourself calm down (eat a snack, breathe deeply, try to relax). Walking around in a panic can lead to injuries. Remember, panic and fears are killers.

b) **T**hink: Are there any immediate dangers or Life threatening injuries to address? Once calm, you may be able to remember your route and how to get back. Visualize your journey, navigation decisions you made and landmarks you have passed.

c) **O**bserve: Look at your surroundings and relate them to your map. You may notice a feature you recognize and then you will know how to get back.

d) **P**lan: What are your options? What do you have with you? What natural resources are available to you?
Decide if you use navigation techniques to continue on, or possibly backtrack to a known location? Or should you make yourself comfortable and wait for rescue?

Priorities in a Wilderness Survival Situation

A) **What are the priorities of survival?**

1) **PMA:** Positive Mental Attitude.

2) **Safety & First Aid**

3) **Thermoregulation:** Keeping your core temperature at 98.6º. (shelter, fire (warmth), shade).

4) **Signaling & Communication:** Get signals ready so you can signal rescue personnel.*

5) **Water:** 3 days without water is possible. (in desert environment this may be a higher priority).

6) **Sleep**: Sleep deprivation can greatly affect decision making abilities. (an often overlooked priority).*

7) **Navigation**: If no one is searching for you, it may be time to try to navigate out of your situation.*

8) **Food**: A low priority (3 weeks without food is not pleasant but possible).

*These priorities are not part of the "Rule of 3's, however they do fit into the priorities of survival

B) **Why do we approach them in this order? The rule of 3's state:**

You can live.....

3-Seconds without "Hope"

3-Minutes without "Air" (Bodily Function - Blood Loss - Airway compromise)

3-Hours without "Shelter" (Thermoregulation)

3-Days without "Water" (This priority will move up in a Desert Survival Situation)

3-Weeks without "Food"

C) Why might you wind up being in a long-term survival situation...?

D) *Survival environments change, however, our needs don't. The priorities are the same in all environments, although the approach to addressing the priorities may be different. Examples being: Jungle (raised bed shelter) / Arctic (snow cave).*

Your Survival Kit Should Reflect the Priorities Listed Above

A) Building your survival kit on the priorities listed above is a kit based on knowledge rather than lists. There are thousands of lists, and several systems that have been created to facilitate the building of a survival kit. Using the "Priorities of Survival" (rule of 3's + 3) will assure a complete kit with components you are familiar with, as opposed to working off a list created by someone else. More on kits later.

Priority #1 - 3 Seconds Without HOPE (PMA)

A) **The correct mindset** can be the difference between being a "rescue" vs becoming a "recovery." Having a **positive mental attitude** is why some people, with absolutely no survival training, have lasted for several days in a survival situation being successfully rescued. On the other hand, while we have no definite way of knowing, some that have perished, should have survived. This could, in part, have been due to their mindset. Possibly, they did not have the positive attitude and hope needed to get them through the situation. They just gave up.

B) **Carry what you need to give you hope and a PMA**;

1) The confidence that you now have the knowledge to get through the situation.
2) Determination and the will to get through the situation.
3) Visual Aids:
    a) Family photo.
    b) Biblical verses (for religious people).
    c) Survival information cards.

Priority #2 - 3 Minutes Without AIR

There is a misconception among some survival instructors that 3 minutes without air relates only to drowning. It does not. It relates to critical bodily functions. You will only last 3 minutes if you are bleeding out, circulation has stopped or your airway is compromised.

Wilderness First Aid

A) **You must address "Life Threatening Injuries" immediately:**

1) Uncontrolled bleeding.
2) Arterial bleeding.
3) Blocked Airway (choking).
4) Swollen Airway due to Anaphylaxis.
5) Heart Attack (if someone is there to assist).
6) Cardiac Arrest - V-Fib (if someone and proper equipment are there to assist).
7) Cardiac Arrest - Asystole (drugs and trained medical personnel needed).

B) **Why take a Wilderness First Aid Course? Because Wilderness First Aid differs from Urban First Aid.** You can't call 911 when you are days from help.

C) **Things you may need to do in the Wilderness that are not done in urban first aid or by an EMT.**

These are a few of the things taught in a "Quality" Wilderness First Aid class:

1) Put Dislocations back into place.
2) Open Fractures - Bring the bone back into the body (can't leave it exposed).
3) Spinal Assessments - Can the victim walk out?
4) Infections - Need to be addressed if you are days away from help.
5) And More!

D) **What are the signs and symptoms of some <u>conditions</u> you should really be aware of?**

(Things like burns are visually seen, the items below, you need to be able to access)

1) Hypothermia
2) Hyperthermia
3) Dehydration
4) Hyponatremia
5) Heart Attack / Cardiac Arrest
6) HAPE (if going to altitude)
7) HACE (if going to altitude)

Priority #3 - 3 Hours Without SHELTER
"SHELTER AND FIRE"

Thermoregulation Overview:

A) **With ambient temperatures roughly around 75º to 85º**, nothing is needed to regulate body temperature. Outside this range, additional steps are needed to warm or cool our bodies, such as clothing, shelter and shade items in order to avoid:

1) Hypothermia (too cold body core temperature (below 95º))

or

2) Hyperthermia (too hot body core temperature (above 104º)).

B) **Hypothermia or Hyperthermia can have an Acute or Chronic onset.**

1) Acute - Very fast onset.
    a) Hypothermia (Example - Falling through ice or snow).
    b) Hyperthermia (Example - Overactive or overdressed on a very hot day with too much time spent in direct sun).
2) Chronic - Slow onset over time to the point where your body can't regulate itself. It can be hard to notice a slow onset.
    a) Hypothermia (Example - slow fall in body temperature due to exposure to cold and dampness).
    b) Hyperthermia (Example - slow rise in body temperature due to weather not cooling off at night, no breeze or not enough shade).

C) **How do we deal with Hypothermia and Hyperthermia?**

1) Build or set up your shelter.
2) Fire (in addition to shelter for Hypothermia)
    a) sometimes due to weather and location, fire may not be an option.

D) **Shelter Question** (ask yourself these questions before you build or set up your shelter)

1) Do you need to warm up or do you need to cool down?
2) What resources are available?

Thermoregulation Overview Continued

Exposure is the #1 Killer in Wilderness Survival Situations.

Keep your body core temperature at 98.6º. If your body temperature is much higher or lower for an extended period of time, it could be fatal.

REMEMBER: It is easier to maintain, than raise or lower core body temperature!

What is Hypothermia?

Heat loss from you body, resulting in a core temperature of 95º or less.

A) **How is heat lost from you body, and what can you do about it?**

1) **Conduction** - Transfer of heat from a warmer object to a cooler object. Heat travels from hot to cold (examples: touching a hot pot on the stove, heat travels from the pot to your cooler hand. Your warm body sitting on a cool rock, the heat travels from your warm body to the cooler rock and your core temperature drops.
   a) Desert - Your cooler body is absorbing heat from the ambient warmer air. Your temperature is lower than your surroundings, so ***you*** absorb the heat!
   b) Arctic - You are warmer than the ambient cooler air. The colder environment is absorbing your body heat, so ***you*** get cold!

   ***No matter what kind of shelter you create or use, getting yourself insulated from the cold ground is essential. Otherwise conduction will suck away your body heat.**

2) Convection: Movement of cooler air displacing the warm air next to your skin.
3) Radiation: Radiative heat loss from your body.
4) Evaporation: Sweat changes to a vapor. Your body uses up heat to make this change.
5) Respiration: Warm, moist air in our lungs exchanges with the cooler dryer outside air.

B) **What are the signs of Hypothermia?** (Blood is leaving your extremities to your core).

1) Shivering.
2) The "Umbles" (Fumbles - loss of fine motor skills, Stumbles - walking is not normal, Mumbles - slurred speech, Grumbles - "I don't care" attitude).
3) Slurred speech, fatigue, muscle weakness, shivering (in early stages).

C) **Test for Hypothermia**: (Testing for fine motor control)

1) Touch your thumb to each finger on your hand individually.
2) Walk a straight line.

D) **Treatment for Hypothermia:**

1) Warm your body using.....Shelter and Fire!
2) Get out of any wet clothing. Replace with dry clothing.
3) Rewarm your body in a sleeping bag (with another person if necessary).
4) Drink warm fluids, if the person is alert and able to drink.

Thermoregulation Overview Continued

E) **IMPORTANT** - Long before you die of hypothermia, your body will start taking blood from your extremities to keep your core warm, making fine motor skills difficult. This will make it difficult, if not impossible, to do simple things like build your shelter or a fire. So, in a sense, hypothermia will kill you long before you die, since you will not be able to help yourself if you are alone. Forget about things like making plant cordage. You won't have have the fine motor control necessary.

What is Hyperthermia?

Your core temperature is too hot (around 104º or more).

A) **How is body heat gained?**

1) Vigorous activity in warm to hot weather.
2) Overdressing in hot weather.

B) **Signs of Hyperthermia:**

1) Hot sweaty skin
2) Dizziness
3) Nausea
4) Headache
5) Rapid Pulse
6) Disorientation

C) **What can you do about it?**

1) Get into shade (either natural or rig up a tarp shelter).
2) Wet your shirt to provide evaporative cooling.
3) Place cool wet towels or bandanas around the neck, under arms and groin area.
4) If possible, immerse yourself in a cool water source (with help from others).

D) **Stages of Hyperthermia:**

1) Heat Cramps: Muscle cramps in abdomen and legs.
2) Heat Exhaustion: Thirst, nausea, rapid pulse, cold & clammy skin.
3) Heat Stroke: Confusion, fainting, dry/flushed skin, rapid pulse to slow weak pulse. Heat Stroke is a medical emergency!

*REMEMBER - This is not a first aid class. Please take a class, preferably Wilderness First Aid, to really understand how to address the above emergencies!

Fire - Modern Methods

A) **Fire Safety**

1) Weather conditions (strong winds).
2) Fire containment (fire ring).
3) Never leave a fire unattended.
4) Know how to properly put out a fire.

B) **Fire Preparation**

1) Ember / Spark-based fire starting (firesteel / friction fire) vs. open flame (lighter, matches) fire starting.
    a) For Ember & Spark-based fire making, you will need a tinder bundle.
2) Tinder - Natural or Man Made (at least 2x what you think you need).
3) Kindling Size progression: Pencil Lead / Pencil / Thumb (at least 2x what you think you need).
4) Fuel: Wrist size and larger.
5) Natural materials: Fatwood / Birch Bark.

C) **How do you know if the "dead & down" branches are good for fire making?**

1) You will hear and feel a good "snap" when you break them.

D) **Types of Fire Lays:**

1) Tipi
2) Log Cabin
3) Simply criss-cross sticks, from "Pencil Lead" thickness up to "Wrist" thickness.

E) **Types of Fire Making:**

1) Solar: Fresnel Lens / Parabolic Reflector.
2) Electrical: Battery & Steel Wool / Battery & Wire.
3) Open Flame: Matches / Lighters.
4) Spark-Based: Firesteel / Flint & Steel.
5) Friction: Hand Drill / Bow & Drill.
6) Chemical: Potassium Permanganate & Glycerin / Chlorine & Brake Fluid.
7) Compression: Fire Piston.

FIRE CONTINUED

F) **Have 3 sure ways to make a fire** (non-primitive methods).

1) Making a fire with a Fresnel Lens*
2) Ferro Rod w/PJ Cotton Balls*
3) Lighter *
4) Matches - Stormproof matches w/ striker in a waterproof container*
5) Flint & Steel with charcloth and tinder
6) Steel wool and 9V battery (not the best choice, battery could be dead).
7) Friction Fire

* My preferred carry items.

Shelter - Modern Methods

Shelter regulates the "Flow" (Heat Transfer) between you and the environment.

What do you want your shelter to do?

1) Cool you off.
2) Warm you up.
3) Keep you dry.

A) Clothing - It's your first line of defense. It traps dead air space - Close up collars and cuffs so warmed air (warmed by your body) does not escape (bellowing effect). Cover exposed skin, especially your head and insulate yourself from the ground.

B) Personal Shelters (shelters worn on your body)

1) Emergency Mylar Blanket (can also be used as emergency sunglasses)
   You lose the use of your hands because you have to hold it in place.
2) SOL Emergency Mylar Blanket (a tougher version of the basic mylar blanket)
3) Emergency Bivy (only good if you are just laying down in one place)
4) Emergency Poncho by SOL (my favorite because it allows use of your hands)
   (combine with a large plastic bag as a bivy)
5) Trash Bag (55gal Contractor Bag can be used as a poncho) (see other uses below)
   a) Waterproof / Windproof Cover
   b) Insulation below or above (Fill with leaves to make Sleeping Pad or Blanket)
   c) Used to transport leaves to build natural shelters
   d) Fill with leaves for a debris hut plug (Door)
   e) Water Carrier / Water Catcher
   f) Snow Melter (Dark color bags)
   g) Flotation device
   h) As a Tube Tent (two taped together)
   i) As a tarp or lean-too (two taped together)
6) High-Density clear trash bags (Same uses as a 55gal Contractor Bag)
7) Bread Bin Bags - Plastic bags used to cover bread bins in bakeries. (Larger and lighter than the contractor bags - same uses / also can be a tube tent)
8) Military Poncho: Can be used as a personal rain cover or emergency tarp cover.

Shelter Continued

C) <u>Shelters for Cover</u>

Day one: get your basic shelter together.
Day two and forward: continue to improve on your shelter.

1) Trash Bags (55gal Contractor Bag). Tape two together as a tarp or lean-to.
2) Gene Ward High-Density trash Bag. Same uses as the trash bag above.
3) Bread Bin Bags - Same uses as the trash bag above, but larger. Also as a tube tent.
4) Painters Tarp : "A" Frame or Lean-to shelter.
5) Space Blanket (AKA-Military Casualty Blanket)
    a) Know how to attach your ridge line to the trees proper knots.
    b) Cold weather Set-up with a fire (lean-to with an awning)
    c) Cold weather Set-up no fire ("A" frame)
    d) Hot weather Set-up (reflective foil side up)
    e) Plow Style Set-up
    f) Lean-to using toggles on the ridge line
6) 10x10 Free Standing Tarp: no trees needed for hiking pole set-up.
    1) Can be used in the same configurations as a space blanket tarp.
    2) Modify so tarp ends can be used as doors.
    3) Can be used in the "plow" configuration if there are strong winds.
    4) Place second ridge line through tabs for wind protection.
    5) Can use toggles with grommets.
    6) Can be set-up free standing setup with trekking pole.
    7) Many configurations can be achieved, limited only by your imagination.
7) Bread Bin Bag - Use as a Tube Tent w/ridge line and two additional side lines.
8) Super Shelter (winter / snow environments)
9) Natural Shelters: Rock overhangs, large downed trees, caves and alike.
10) Debris Shelter: Primitive Skills.
11) Raised Shelters: More appropriate in the jungle.
12) Cold Weather Shelters: Igloo, Snow Cave, Quinzee, Tree Pit.

Shelter Continued

D) <u>Shelter & Shelter Location Concerns</u>:

1) Insulate yourself from the cold ground (sleeping pad or leaf litter)
2) Avoid: widow makers, game trails, dry creek beds, potential flood areas, windy peaks, cold valley floors, tops of hills, valleys, dead trees, windward side of a hill, below a rocky outcrop, areas with fresh animal sign.
3) Look for: flat ground, windward side of a valley, Leeward side of woodland, 50-100 yards away from water, good drainage.
4) A south facing shelter will maximize your sun exposure and keep you warmer while a north facing exposure will minimize sun exposure and keep you cooler.
5) Try not to move your camp! Often times,Search & Rescue will find your first camp then a day or two later find your second camp, and so on. **Moving camps makes it more difficult for you to be found.**

E) <u>Additional Considerations</u>:

1) In a very warm environment, laying directly on cooler ground may be beneficial in cooling off your body.
2) Dead Air Space below you will help in cold environments by reducing "conductive" heat loss from your body to the ground.
3) Open Air Space below you will help in warm environments by allowing air flow beneath your body, transferring your body heat to the cooler environment and cooling your body.
4) A small, "snug" shelter will help keep you warmer. A spacious shelter will keep you cooler.
5) If you are WARM and want to LOWER your core temperature, put your body in direct contact with something COOLER than you.
   If you are COLD and want to RAISE your core temperature, put your body in direct contact with something that is WARMER than you are.
6) If you are COLD and want to RAISE your core temperature, you need to block the air currents from reaching your body. Create "dead" air space of non-moving air.
   If you are WARM and want to LOWER your core temperature you need to maximize your exposure to moving air currents.
7) Heat waves want to travel away from your body off into space, this is radiative heat loss. To stay warmer, create a barrier that will block their escape and reflect them back to you. To stay cooler, remove barriers and let the radiation escape to space.

Shelter Continued

Shelter - Attachments & Knots Used

Knots used in shelter creation: See my website for links to knot videos.
1) Siberian Hitch
2) Loop in end of cord - pull entire length through.
3) Loop in end of cord - pull a bite through, secure with an upside down “Y” stick.
4) Two half hitches
5) Modified Truckers Hitch
6) Adjustable Grip Hitch
7) Slip Knot (with a “button”) (can also use a larks-head or adjustable grip hitch).
8) Sheet Bend (to attach a tarp to the tie-out line or to attach cordage together to lengthen).
9) Clove Hitch (around a stick as a tie-out anchor).

Carving tent stakes out of branches:
1) Carve an “off center” point for “pithy” branches to avoid tip collapse.
2) Fire harden if time permits.
3) Carve out a notch to help “catch” the cord.

Types of cordage used:
1) 550 / Paracord is very common but has some stretch (harder to get a taught ridgeline)
2) Utility cord (3mm from REI - used in set-up demonstrations)
3) 2mm or 3mm Reflective cordage (from Lawson Equipment)

Priority - SIGNALING
Not Part of "the Rule of 3's

A) **Types of Signaling:**
- 1) Audio
- 2) Visual
- 3) Electronic

B) **Universal Distress:**
- 1) SOS - 3 blasts on a whistle - (SAR will respond with 2-Blasts)
  - a) Whistle should be a "Plastic / Pealess" type
- 2) Things arranged in a Triangle.
- 3) 3 of anything. 3 fires in a row.

C) **Ground to Air** (a whistle won't work)
- 1) Who are we signaling to? Small airplanes and helicopters.
  - a) Signal Mirror
    - aa) Signal mirrors with "Retro-Reflective" grids are recommended as the most accurate for signaling for rescue. A mesh screen coated with spherical beads work like a street sign that reflects the light from your car back toward you.
    - bb) You see a glow (a representation of the sun) on the grid. That's your aiming indicator.
  - b) Flare
  - c) Smoke Grenade
  - d) 3-Fires arranged in a triangle or in a row.
    - aa) Burn green vegetation for a smoky fire.
  - e) Uses of natural materials like rocks laid out in an arrow or triangle that does not look like part of the natural environment, provides contrast.
  - f) Flashlight / Headlamp (one that blinks is best)

D) **Ground to Ground**
- 1) Who are we signaling to? SAR or people passing by.
  - a) Signal Mirrors
  - b) Whistles
    - 1) Aluminum Soda Cans can be made into a whistle.
    - 2) Leaves and acorn caps can used as whistles if you have the practice.
  - c) Flagging Tape (can also be used as a "Breadcrumb" trail if you need to leave base)
  - d) Smoke Grenade
  - e) Flashlight / Headlamp (one that blinks is best)

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E) **Electronic** (Besides the obvious cell phone)

a) PLB (Personal Locator Beacon) I, as well as several people I know in SAR, have found the SPOT unreliable. I personally carry an ACR PLB.

F) **Signaling to aircraft in an open field** - It could take several hours for "boots on the ground" rescue personnel to arrive - your shelter could be far from where you signaled to the aircraft. Leave a "Breadcrumb" trail.

a) Rock Cairns, Markers, Flagging Tape.

Priority - SLEEP
Not Part of "the Rule of 3's)

A) This priority is addressed via your "Thermoregulation" priority. While it may seem sleep is not a necessity in a wilderness survival situation, it can be vital. Sleep deprivation can cause you to make bad decisions. Not sleeping the first night may not be much of an issue. However, two nights of sleep deprivation can cause issues that may make your attempt at survival much more difficult. Some issues may include:

1) Confusion & Memory issues
2) Hallucinations
3) Headaches
4) Blood Pressure issues
5) Irritability
6) General bad decision making

Priority #4 - 3 Days Without WATER

A) **How much water should you carry? Factors to consider:**

1) Time of year.
2) Water availability on your route of travel.
3) Your ability to carry the weight (2.2 pounds per liter (appx 34 ounces))

B) **What types of water containers to carry?**

1) A metal water bottle or metal cup allows you to boil water.
2) You can boil water with hot rocks in a yucca stalk. (you will need fire).
3) You can boil water in a plastic bag with hot rocks. (you will need fire).

C) **There are things in the water that can make you sick.**

1) Giardia
2) Cryptosporidium
3) Bacteria
4) Viruses

D) **Methods of water purification** - Information from the Center for Disease Control (CDC) https://www.cdc.gov/healthywater/pdf/drinking/Backcountry_Water_Treatment.pdf

1) Water Filter
2) Water Purifier
3) Chemical - (Iodine, Chlorine Dioxide) (Chlorine Dioxide is best)
4) Boiling

E) **Natural sources of water in an emergency**

1) Sea Water - Too much salt in the water can kill you. However, sip in very small amounts (no more than 32oz a day) and it could possibly save your life. You will not be healthy when rescued!
2) Sea Water, distill if possible. Can be used in a solar still.
3) Snow, Ice, Rain. Melt ice and filter before drinking. Pollutants are picked up from the air and should be filtered out if you can. Use your tarp to collect rain water.

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F) **How to find water sources**

1) Climb to a high spot and have a look around for water sources.
    a) Notice possible bodies of water.
    b) Look for riparian trees and vegetation.
    c) Just go down hill. Water flows down, so you may find water by going down.
    d) Streams, lakes, rivers, ice, snow, dew (collect morning dew with a cotton cloth. Do not collect from poisonous plants).
    e) Watch the animals. Most go to a water source at least daily.
2) What other resources have you found when you have found a water source?
    a) Plants: Edible & Medicinal plants, and trees to use for friction fire, shelter & weapons.
    b) Animals: Animals can be a food source.

G) **Other ways to collect water**

1) Transpiration Still.
2) Solar Still - Add Vegetation, your own urine - Hard work with little return at times.
3) Morning Dew - Tie bandanas to your legs walk through safe brush (no poison Oak or other unsafe plants) then wring bandanas out into a bottle.
4) Collect rain with plastic sheeting or your tarp.
5) Snow & Ice Melt.

H) **Ration your sweat** - In the desert, travel at night and rest during the day in the shade.

I) **Ration your water** - Two schools of thought:

1) Never ration water - it's better to have it in your body than in your backpack.
2) Ration your water - Your body can only absorb appx .7 quart per hour so drinking more than that is just waste.

Priority - NAVIGATION
Not Part of "the Rule of 3's)

A) You may need to attempt to navigate your way out of your situation (assuming you are lost and not injured and unable to walk) for the following reasons:
   1) You never told anyone where you were going and when you planned to return.
   2) You got lost prior to your "overdue" date (if you did leave a plan with someone).
   3) You changed your route prior to getting lost. You are lost and off your planned route.

B) This priority is best addressed after you have accomplished all the other priorities with the exception of food. This will allow you to:
   1) Have a shelter to return to if you first attempt to find your way out is not successful.
   2) Have signaling methods in place to use as needed.
   3) Have a good supply of water.

C) You should have a compass and map (which you should know how to use) in your pack or survival kit. If not, there are emergency & natural methods of navigation.
   1) Shadow Stick Method - Shown in the class
   2) Spider Webs
   3) Tree Roots
   4) Using the Sun

Priority #5 - 3 Weeks Without FOOD

A) Food is a very low priority in a wilderness survival situation.
   1) Carry extra food in your pack, dedicated to emergency situations.
   2) Chia seeds are a light weight power packed food.
   3) Jerky (Beef or Turkey).
   4) Pemmican - Has a long shelf life.

B) Primitive Hunting Methods. You will need the knowledge and ability to produce these items in the field. You will need the knowledge and ability to process the the animals you kill.
   1) Deadfall Trap
   2) Rabbit stick
   3) Atlatl
   4) Primitive Archery

C) Plants - Learn the plants and trees in your area, and their uses.

Survival Kits

A) On short day hikes, you typically are carrying water (your heaviest item), along with the 10 essentials (which will be discussed in a minute) and your survival kit items in a small daypack. That pack should weigh about 6 to 8 pounds, depending on how much water you are carrying.
In this case, your pack is your survival kit. There should be little occasion where you will be separated from this lightweight pack.

B) On long day hikes or backpacking trips, your gear load may be considerably heavier. In this case, there may be situations where you could be separated from your backpack. In this case, you would want a survival kit that could be easily attached to your body. Although these situations are rare, they have happened and could happen in the following conditions:

1) Fast moving wildfires where you may need to run and won't want to carry a fully loaded backpack.
2) Short day walks from your base camp where there is little possibility of getting lost, however getting lost has happened.
3) Midnight trips, when nature calls. People have gotten lost, not just at night but during a daytime potty run.

CONTINUED

Survival Kits (continued)

A) What are the "10 Essentials" and how do they differ from a Survival Kit?

1) Navigation (Map & Compass)
2) Sun Protection (Sunglasses & Sunscreen)*
3) Insulation (Extra Clothing)
4) Illumination (Headlamp / Flashlight)*
5) First Aid Supplies
6) Fire (Waterproof Matches / Lighter / Candle)
7) Repair Kit (Knife / Multitool / Sewing)*
8) Hydration (Extra Water)
9) Nutrition (Extra Food)**
10) Emergency Shelter (Tube Tent / Tarp / Emergency Blanket / Garbage Bags)

* Not survival items -You won't die if you forget these items. However. a knife or multitool and a light are quite useful.
** Not an immediate need (remember the rule of 3's)

B) Once you understand the survival priorities, it's easy to put together a Kit.
Base your survival kit items on the priorities of survival, then add some tools.

1) PMA - Family Photo or something that will give you the will to live.
2) First Aid- First aid kit (don't forget to keep your Rx medications in your FA kit)
3) Thermoregulation - Space Blanket / Emergency Blanket / Trash Bags / Cordage Matches / Ferro Rod w/ PJ cotton balls / Lighter / Duct Tape
4) Signaling - Signal Mirror / PLB / Whistle / Flagging Tape / Flashlight
5) Sleep - Your shelter items should help facilitate your sleep priority.
6) Water - Emergency water straw / Chlorine Dioxide Tablets / Water Bags
7) Navigation - Map & Small Compass
8) Food - Fish Hooks & Fishing supplies / Snare Wire / Professional Snares
9) Tools - Knife / Saw / Multitool / Sewing Needle & Thread

C) Some examples and ideas for a survival kit.

Hope (PMA):
Family Photo

Air (bodily function / first aid):
Personal Rx Meds (1-Day / 1-Eve)
Aspirin
Benadryl Melt-Aways
Motrin
Immodium
Ibuprofen
Tylenol
Pepto Bismal Tablets
Malox Tablets
Triple Antiboitic
Hydrocortosone
BZK Towelettes
Band-aids
2x2's (2)
Tweezers (from SAK)

Shelter (thermoregulation):
Emergency Space Blanket
Emergency Blanket (poncho & trash bag)
Trash Bags
Cordage
Stakes
Duct Tape
Firesteel
Mini Bic Lighter
PJ Cotton Balls / Tinder Quick
Storm Matches w/Striker
Fresnel Lens
Knife
Saw
Cordage (550 / bankline)

Signaling:
Signal Mirror
PLB
Whistle
Flagging Tape
Headlamp / Flashlight

Water:
Water Bags (2)
Chlorine Dioxide Tablets (6)
Emergency Water Straw
Gallon Ziploc Bags (2)
Metal Cup (to boil water)

Navigation:
Button Compass
Map of the area

Food:
Power Type Bars
Snare Wire
Fishing line, hooks, swivels & sinkers

Misc:
Writing Paper
Pencil
Button Light or Small Headlamp
Bandanna
Reading Glasses

Sewing / Repair Kit:
Heavy Duty Sewing Needles
Strong Polyester Thread
Artificial Sinew
Needle Threader
GaffersTape (wrapped on a card)
Leather Thimble
Fabric Patch
2- Safety Pins

*Of course, not all the contents above should be included in your kit. You pick and choose and even modify according to your likes and desires. Just make sure each priority is covered.

All of my kit contents go into a metal cup which goes into a dry bag with a carry strap inside.