

# OUTDOOR SURVIVAL TRAINING

F O R A L A S K A ' S Y O U T H

## Student Manual



ALASKA SEA GRANT COLLEGE PROGRAM

# **OUTDOOR SURVIVAL TRAINING**

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## **Student Manual** **Dolly Garza**



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## About This Book

*This student manual accompanies an instructor manual for a course on outdoor survival training for Alaska's youth. It is written based on experiences in the Gulf of Alaska, but it can be used in other geographic regions too.*

*This is your own copy. After you use it for the survival class, take it home and share it with your family and friends.*

## **About the Author**

Dolly Garza, associate professor with the University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, has worked for the Sea Grant Marine Advisory Program for ten years. Garza is an instructor and board member for the Alaska Marine Safety Education Association. She has been teaching outdoor survival and water safety skills to southeast Alaska students since 1985.

Garza has a B.S. in fisheries from the University of Alaska and an M.S. in fisheries from the University of Washington, and she is a Ph.D. candidate at the University of Delaware.

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## **Thanks to Curriculum Reviewers**

The curriculum in this book is based on the Alaska Marine Safety Education Association's *Marine Safety Instructor Training Manual*. The curriculum manuscript was reviewed by the Curriculum Review Committee, who made significant improvements to the content and form, and made additions to the materials to ensure it is relevant to students in grade schools and high schools.

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—Dolly Garza



If you spend a lot of time outdoors, you can find yourself in an emergency at any time. Which of these outdoor activities are you involved in—fishing, hiking, boating, berry-picking, hunting, camping, wildlife watching, and playing?

It is important to think “it can happen to me.” You should prepare for an emergency before leaving home or you may not have the right equipment or skills to face an emergency situation.

Someone who is lost, or tossed into an emergency, may panic. Fear, cold, and being tired, hungry, or thirsty are all normal feelings in an emergency situation. You must learn to overcome these feelings. Develop the attitude that you will survive.

Don't go out adventuring in the woods or on the water if you are not in good health. If you find yourself in an emergency, your poor health may work against you.

### **How to increase your chances of surviving an emergency:**

- Think positive
- WANT to survive
- Be in good health
- Learn survival skills
- Take along survival equipment

### **How to get ready for a trip:**

1. Check the weather forecast. Ask elders and other experienced adults what they think the weather will be like.
2. Know the following:
  - Where you are going
  - The route you are taking
  - How long it will take to get there
  - How and when you will be coming back
3. Tell at least one adult your plans and let them know at what time they should call for help.
4. Never travel alone, especially if you don't know the area well. It is best to travel in groups of three or four. If someone has an accident, the second person can go for help and the third person can stay with the injured one.
5. Take the right clothes and gear. Take long underwear, rain pants, rain jacket, extra mittens, socks, a hat, and a survival kit. Dress in layers. Wool and polypropylene are the best insulative materials. Cotton is a poor insulating material, even though cotton jeans are what most people wear. Insulation traps the body's heat next to the body.



**✓ It is very important to prepare for an emergency BEFORE leaving home.**

*Read the following stories about Jeffrey Young. Think about what Jeffrey had going for him. What should he have done to make it easier for his rescuers to find him?*

# The Daily Sentinel

Sitka, Alaska

Monday August 24, 1987

## Lost Boy Rescued After 5 Days

Searcher Finds 9-Year-Old In Good Shape On Gavan Hill

By **Allen Sykora**

*Sentinel Staff Writer*

"Hey, my name is Jeff." The child's voice from a wooded ravine led Dave Caldwell to nine-year-old Jeffrey Young Sunday morning. The boy was rescued safe and sound after five nights in the woods without shelter and only berries to eat.

Since Wednesday morning, the boy had been the subject of one of the most intensive missing person searches in Sitka history.

Rescuers and a doctor at Mt. Edgecumbe Hospital all described the boy as in remarkably good condition for his ordeal. He was found by a member of a volunteer search team high on Gavan Hill at about 11 a.m. Sunday.

Because of the rugged terrain, it took a couple of hours for rescuers to administer first aid and carry him to the nearest road, where an ambulance was waiting to take him to Mt. Edgecumbe Hospital.

"He's doing remarkably well," said Dr. Thomas Krahn, who said the boy suffered only some swelling of the feet and some bruises.

"He's one of the healthiest people I've seen today," said the Mt. Edgecumbe hospital staff physician. After the examination, Jeffrey was taken to a room to rest and recover.

The news of the rescue came as a team of bloodhounds and their handlers, expenses covered by volun-

teers, were being flown to Sitka for another attempt to solve the mystery of the disappearance of the boy, on a hillside in direct view of most Sitka residents. Jeffrey had last been seen Tuesday morning by his brother Tom, from whom he had become separated as Tom was hunting deer on the hill.

Joyous family members and friends lined the hospital hallway outside the emergency room Sunday afternoon while the boy was being examined upon arrival by ambulance. He raised his head and flashed them a big smile as he was wheeled out to a hospital room.

Dave Caldwell, who found the boy, was in a team with Rod Lowe and Kevin Kambak. They borrowed a two-way radio from the fire hall and headed up Gavan Hill early Sunday morning, following a trail that begins behind the city landfill.

They made their way to some cliffs, which seemed a likely spot for a closer look. Caldwell walked above the cliffs, while the other two men were below.

They were calling out to each other to keep track of the whereabouts of their own team members in the nearby brush, Caldwell said. At one time he was out of earshot of the others, so when they got back within hearing distance they shouted that they would continue their respective courses until they could meet back on the trail.

"I went along for a while and lost vocal contact again," said Caldwell, "so instead of calling Rod's name, I called Jeff's name."

Caldwell said he had not been calling the boy's name all day, but the third time he called out the boy's name, a child's voice answered.

"He said, 'Hey, my name is Jeff,'" said Caldwell.

Caldwell said he was stunned to hear the young voice from nearby, and scarcely believed his ears. But he quickly followed the voice to a gully, where he spotted the boy.

Jeffrey was standing, but said he had a hurt leg. His clothes were wet from the waist down.

"He sure was glad to see somebody," said Caldwell. Caldwell happened to be the carrier of the two-way radio carried by his party. He called in the news that the town had been praying for: Jeffrey Young had been found alive and well.

Caldwell fired two shots to summon his companions, but they were unable to find him until helicopter pilot Arnie Johnson directed them to the spot.

Don Kluting, a member of the fire department's search and rescue team, was with a group beating through brush behind the Public Safety Academy, when he heard Caldwell's broadcast. The message had not been picked up at the fire hall, so Kluting relayed the news.

## Lost boy

*Continued from page 2*

"Then we ran up the hill," he said.

"The kid was in really high spirits," said Kluting. "He was happy, he was able to get up and walk." Nevertheless, the rescuers brought Jeffrey down the mountain on a stretcher that had been lowered by the helicopter.

Johnson was unable to find any clearing in the vicinity big enough to land the helicopter, which would have been necessary to get him aboard.

The professional search and rescue personnel who first reached Jeffrey sent a radio message to the fire hall that the boy complained of an injured leg, but that his vital signs were in the range of normal. As a precaution, they placed him in a hypothermia warming bag and strapped him to the stretcher.

News of the rescue quickly spread through town. Throughout the community, the yellow and white helicopter was clearly visible hovering above the hillside, marking the progress of the recovery party. In at least one church the news was received only moments after the congregation had prayed for Jeffrey's safe return.

A large crowd gathered at the base of the main Gavan Hill trail, which begins at the end of Baranof Street. Jeffrey's parents, family members, friends, and curious onlookers had walked up the path a couple hundred yards to the first open muskeg area, and cheered and hugged one another as rescuers emerged from the woods carrying the boy, wrapped from head to toe in the rescue blanket. Without pausing, the litter bearers placed Jeffrey into the waiting ambulance. Family hugged and shook hands with Kambak, Caldwell, and Lowe.

"I think I was happier than he was," said Caldwell about his feel-

ings when first coming across the boy. "And he was pretty happy. If it wasn't for Jehova looking out for everyone, we wouldn't have found him. God is the one who led us through. That's who I've got to credit."

Two factors that worked in Jeffrey's favor were the unusually warm and sunny weather of recent days, and the nearby trickle of water that flowed through the gully in which he was located. Dr. Krahn and rescue personnel agreed that if it had been as rainy as usual in Sitka, without shelter the boy would have been at risk of life-threatening hypothermia.

And Kluting observed that while a person can survive for long periods without food, he can't last more than a couple of days without water.

Caldwell said Jeffrey told him he was able to see the Coast Guard and privately owned helicopters overhead during the five days of searching, but that he had not been able to signal them. However, said Caldwell, the boy told him he had not heard the voices of any of the scores of searchers on the ground until the final day. It was not immediately clear how long Young had been at the spot he was found.

Caldwell said the boy told him he had eaten some berries early in the ordeal, but that he had eaten nothing for the last couple of days before his rescue, because there were no berry bushes in the gully. From the gully, the boy could see the town and airport, Caldwell said.

"I've got to hand it to Jeffrey," said Caldwell. "He's a strong boy." Caldwell said the boy told him that he and his older brother had often gone into the woods. "He said his brother was top of the world," said

*Story continues on page 4*

**...in Jeffrey's favor were the unusually warm and sunny weather of recent days, and the nearby trickle of water that flowed through the gully in which he was located.**

**...while a person can survive for long periods without food, he can't last more than a couple of days without water.**



## Lost boy

*Continued from page 3*

Caldwell.

Authorities had suspended the official search Friday night after the intensive effort of the previous three days had not located the boy. Up to that time, said a fire department spokesman, "official" search parties had spent more than 3,000 search hours on the ground in the woods, and an undetermined hundreds of additional hours had been put in by others, including family members who went out on their own.

Helicopters spent 32 hours in the air during the search, including 15.6 hours of flight time in which the Coast Guard was using infrared body heat detectors, said the fire department spokesman. He added that three dogs and their handlers from Juneau had spent 100 hours in the woods.

Although the "official" search was suspended, some 80 volunteers, including members of the fire department, used the fire hall as a starting point for their efforts on Saturday and Sunday. And, as on previous days, an undetermined number went into the woods to search without checking in.

Early Thursday night searchers' hopes had been buoyed when a team headed by Kluting discovered a site on the hillside where they believed the boy had spent a night.

Under the fallen tree someone had lined up sticks to form a wall. There were a child's footprints, where dirt was kicked against the side. Caldwell said the boy, when rescued, confirmed he had spent one night under a log.

Friday's search from the log shelter went down into the Indian River Valley, which seemed to be the direction the small footprints led. Searchers formed a long line, spaced about 10 yards apart, and plowed through devil's club, blueberry bushes, and

deadfalls for the rest of the day.

Kluting said it now appears that Jeffrey went around the side of Gavan Hill and actually climbed higher, to within about 500 feet from the top. At one point, continued Kluting, the boy must have actually crossed the main Gavan Hill trail, apparently without recognizing it, in order to have reached the spot where he was found.

Many Sitkans took off from work and gave up leisure time to beat through the brush, and many others donated food and beverages for the search teams.

Searchers ranged from teenagers to men over 60, who lugged backpacks through the woods all day. Many commented that they were motivated by visions of how they would feel if it were their own child lost in the woods.

Jim and Nancy Hope used their own credit card to advance the expenses of the three bloodhounds and their trainers Sunday.

Said Caldwell, also a father, when the search was ended, "I kept thinking how his folks must feel. A couple dark nights, it really bothered me. I knew he was still out there somewhere. I had a gut feeling."



**...if it had been as rainy as usual in Sitka, without shelter the boy would have been at risk of life-threatening hypothermia.**

# The Daily Sentinel

Sitka, Alaska

Tuesday August 25, 1987

## Boy Bounces Back After 5 Days On Hill

By Allen Sykora

*Sentinel Staff Writer*

Nine-year-old Jeffrey Young says he "wasn't ever scared" during his five days and nights alone on Gavan Hill, but adds he'd rather see people than trees."

The boy spoke about his adventure this morning in his Mt. Edgecumbe Hospital room as he opened a model airplane, one of the many gifts from the steady stream of family and friends who have visited him.

Jeffrey was reported missing one week ago today, when he became separated while following his older brother Tom on a hunting trip. The brother reported that he left Jeffrey on the trail to rest, but that Jeffrey was no longer there when he returned.

Jeffrey said he waited for some time, and then decided to walk back to town, and got lost. He said he spent one night underneath a log, forming a wall on one side by arranging sticks. Searchers found this place Thursday night, and the discovery spurred new hope for finding the boy.

Jeffrey said he left that shelter and wandered on, until he ended up in the steep gully where he was finally located by a volunteer searcher Sunday morning.

"I was trying to come back to town and my leg started to get sore," he said today. "I decided to stay there and wait for someone to find me. That's the only way I'd make it."

The examining doctor said Jeffrey was in generally good condition. He suffered some bruises and

swollen feet.

"I wasn't ever scared at all," said Jeffrey. However, he said, when searcher Dave Caldwell walked nearby shouting his name, "I was pretty happy to hear a voice. It's better to see people than it is to see trees."

Jeffrey said he made a bargain with God while on the hill.

"I asked him if I could go home, then I wouldn't fight with my mom any more. I was thinking about getting home and stuff, and riding my bike. Only now I can't," due to his swollen feet, he said.

Dr. Thomas Krahn said no decision had been made on when the youth would be discharged from the hospital. The Mt. Edgecumbe staff physician said Jeffrey was being held for observation due to the swollen feet.

Jeffrey said he didn't get hungry the first couple of days because of an abundance of berries. "There was a bunch of salmonberries up there," he said.

But he ended up in a gully he couldn't get out of and during his last two days on the hillside he had access only to water, he said.

Jeffrey will enter the third grade in the fall. He said he had never hiked up Gavan Hill before, although he had been on top of nearby Harbor Mountain. The story of the search and subsequent rescue of Jeffrey has received national attention. His mother, Jennifer Young, said today that she has received telephone calls from the International News Service and NBC News.

Beginning Wednesday, Sitka res-

cue personnel and volunteers spent thousands of hours combing Gavan Hill and the Indian River Valley. In addition, Coast Guard and private helicopters spent 32 hours searching for the youth.

In addition, more than 100 dog-hours were logged by official search parties, and preparations were under way to bring in bloodhounds when Jeffrey was found on Sunday.

SEADOGS, a Juneau-based group that makes their trained tracking dogs available for searches, brought two golden retrievers and one German shepherd into the search. A golden retriever owned by Sitka Volunteer Fire Department member Karen Royce was also on Gavan Hill.

Some volunteers brought their own dogs to help search at various times, authorities said.

The SEADOGS (Southeast Alaska Dogs) are trained to follow the airborne scent of a search subject, explained coordinator Bruce Bowler. The dogs run freely and follow voice and hand commands.

On the other hand, he said, bloodhounds are generally deployed on a leash and follow the scent trail on the ground. Experienced bloodhounds can also follow an airborne scent, he said.

Besides "trailing," SEADOGS are trained to sniff out victims in cave-ins, earthquakes and avalanches, said Bowler. The handlers also undergo intensive training, not only in trailing with the dogs, but in use of compass and maps, first aid, and wilderness survival, so they are prepared to enter unfamiliar wilderness terrain, said Bowler.



The Seven Steps to Survival will help improve your survival skills and positive thinking. These seven steps came from people who survived emergencies.

## 1. Recognition “Oh no—I’m in trouble!”

The most important step is recognizing that you are in an emergency. If you don't recognize when you're in an emergency, you can die.

Most people don't admit they are in trouble until they are in the middle of an emergency. Here are some situations that could be emergencies:

- If you are out berry picking with your brother and you separate from each other, are you in danger? What if it is getting dark and you're not sure where you are or how to get back home?
- If you are out boating and your outboard starts sputtering, are you in an emergency? What if your engine dies and you start drifting toward a big rock?

If you're not sure that you are lost or in trouble, assume you are. Many people fail to recognize that they are in trouble. Many have died because they were too “tough” to accept this fact.

## 2. Inventory “What do I have with me? What should I do?”

You must think about what you have going for you and what you have going against you.

**S** - Sit  
**T** - Think  
**O** - Observe  
**P** - Plan

An inventory has three parts:

① First, treat anyone who is seriously injured or has hypothermia.

If you are with someone who is hypothermic, you can warm him or her with your own body heat inside jackets or sleeping bags.





② Second, find a nearby spot that is protected from cold, wind, and rain.

If you are along the shore, you should go into the woods to protect yourself from the rain and wind.

③ The third part of inventory is to find what you can use that will help you stay alive.

See what you have on you (such as a knife or a mirror) and what you can use from the land (such as driftwood or plastic jugs) to improve your situation. It is very important to have a survival kit on your body—NOT left on a boat or somewhere else.

### 3. Shelter “I need to stay warm.”

People who die in survival situations generally die from one of two causes—drowning or hypothermia.

Hypothermia happens when the body's temperature gets lower. The symptoms are shivering, feeling depressed, slurred speech, and lack of coordination.

Protect yourself from hypothermia by staying dry and warm.

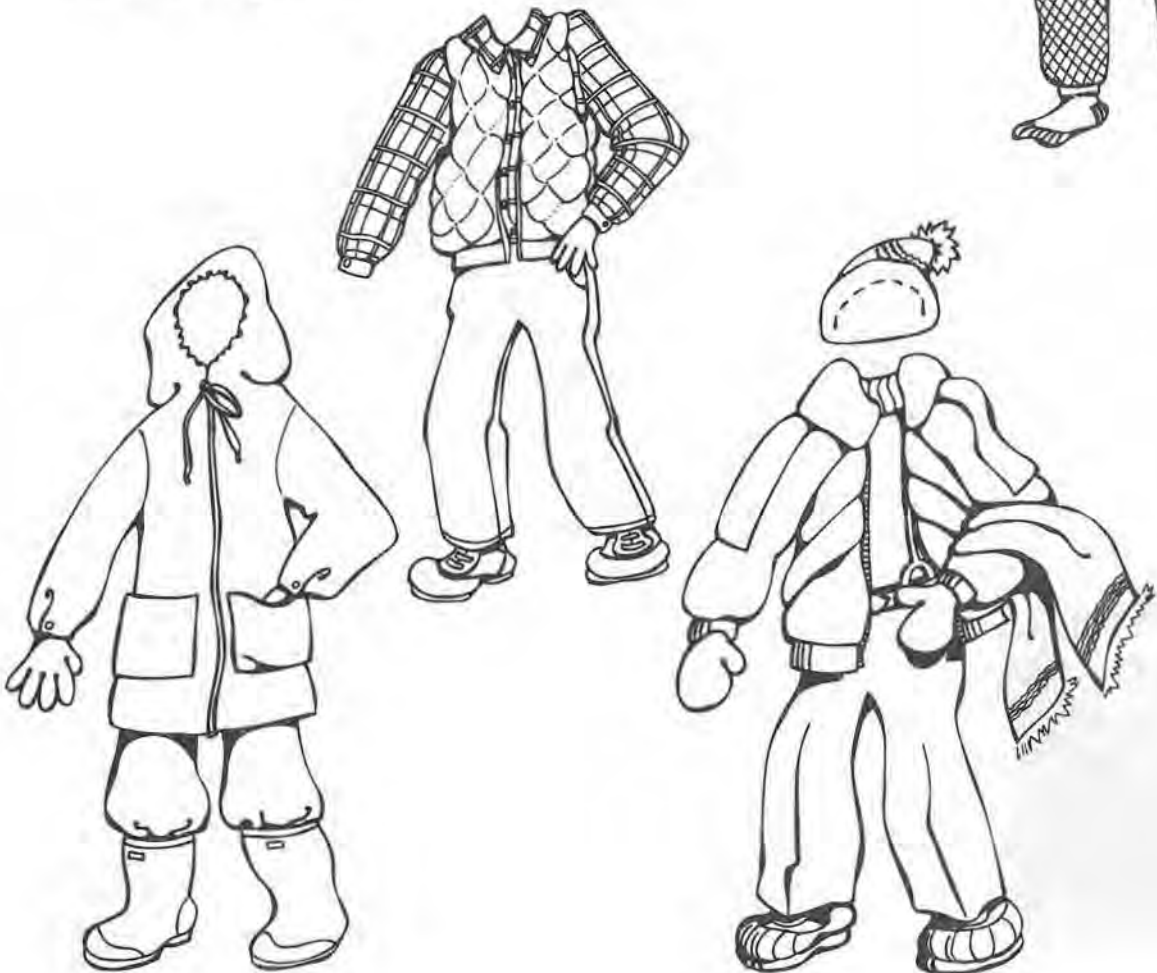
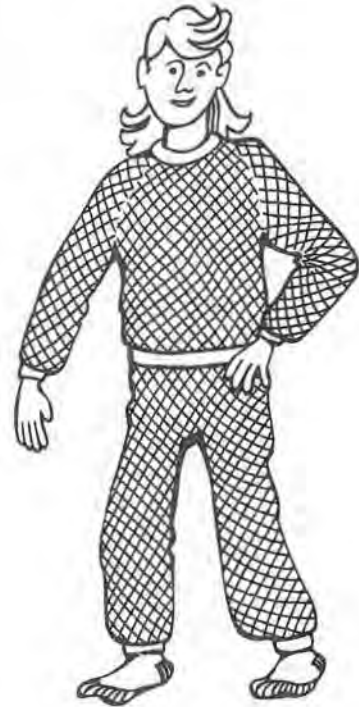


Clothing is your primary shelter. When you get ready to go on an outing, dress for the worst weather.

## Clothing

Always dress for an emergency or take warm clothes along. Always take a hat. 50% to 75% of the body's heat can be lost from the head.

*The best way to dress for an outing is in layers. Wool and polypropylene are better than cotton because they are warmer and they insulate even when they are wet.*



# Emergency Shelter

You can build an emergency shelter to protect yourself from the wet and cold.

A good shelter must be:

- Small
- Insulative
- Windproof and rainproof

A shelter traps heat next to your body. The shelter must be small, since your body will be the only heater. The insulation helps keep the heat in, and plastic or branches help keep it dry.

When selecting a place to build your shelter, look for a place out of the wind and rain. Be sure your site has good drainage.

You could build three kinds of emergency shelters:

- Garbage sleeping bag
- Debris bed
- Debris hut

You can make a garbage sleeping bag or a debris bed in a hurry, in an emergency situation:

- If someone is hypothermic and needs help right away
- If it's getting dark and you need to build something fast
- If you don't have the equipment or energy to build something better

It will take more time to build the debris hut shelter. If you have the time to build it, the debris hut shelter will last longer and will do a much better job of protecting you.



# Garbage Sleeping Bag

The garbage sleeping bag is just the right size for small kids (five or six years old).

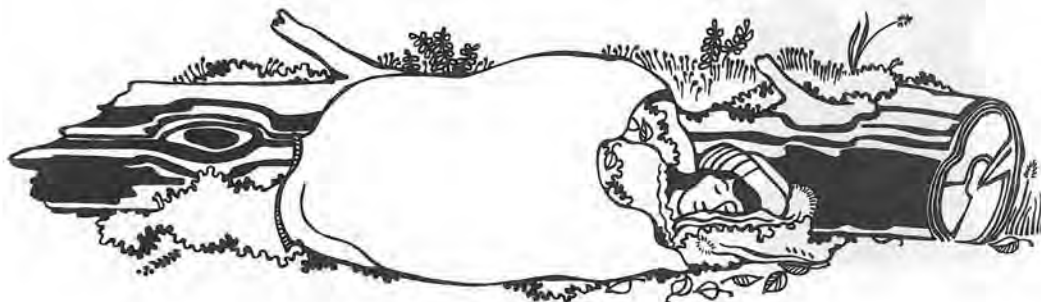
Start with one garbage bag and fill it with moss, leaves, grass, or twigs.

Then hollow out the center and put another garbage bag in it. Now you have a garbage sleeping bag. Is it small, insulative, and windproof and rainproof? Yes, but the insulation is not the best.

When you are inside a garbage sleeping bag, you should wear a wool hat. Your head should stick out of the bag. Why? If you breathe in the bag, water from your breath will get inside the bag. Will the garbage sleeping bag fit a big person? No.



*Put the garbage sleeping bag next to a log or tree, to help keep you out of the wind or rain.*





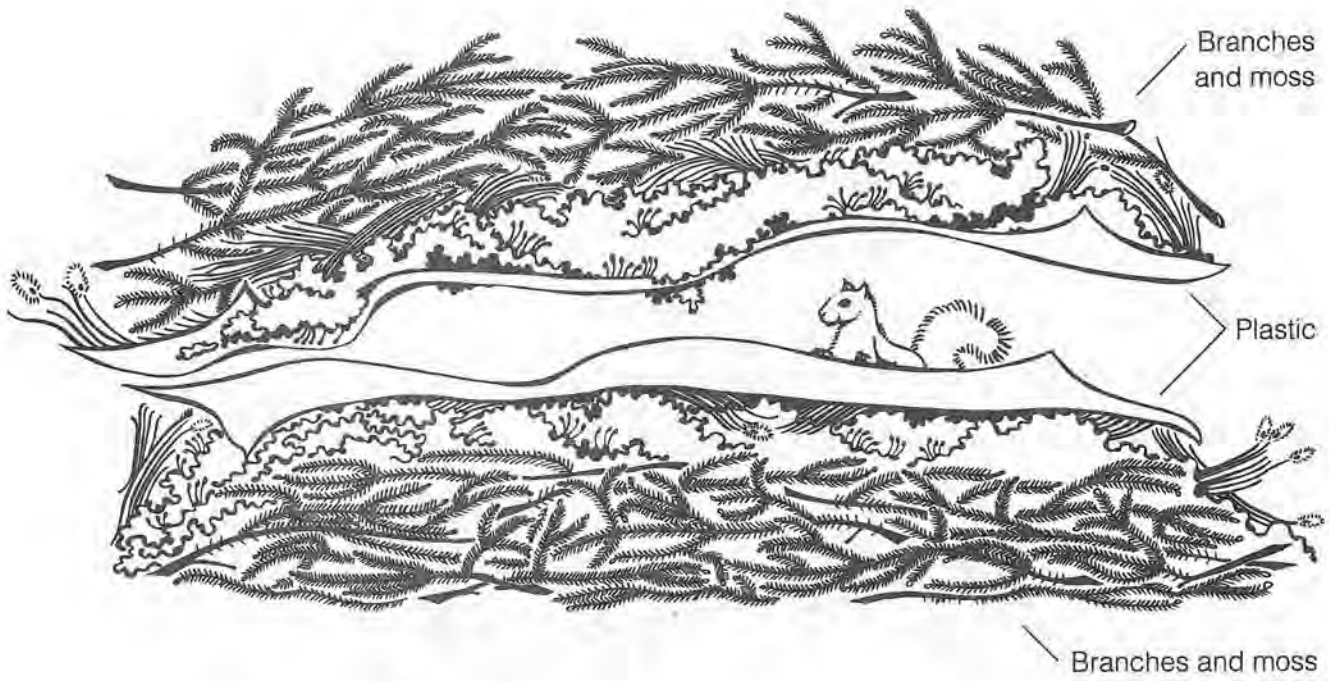
## Debris Bed

If you are in immediate danger and are too big to sleep in a garbage sleeping bag, you can build this debris bed.

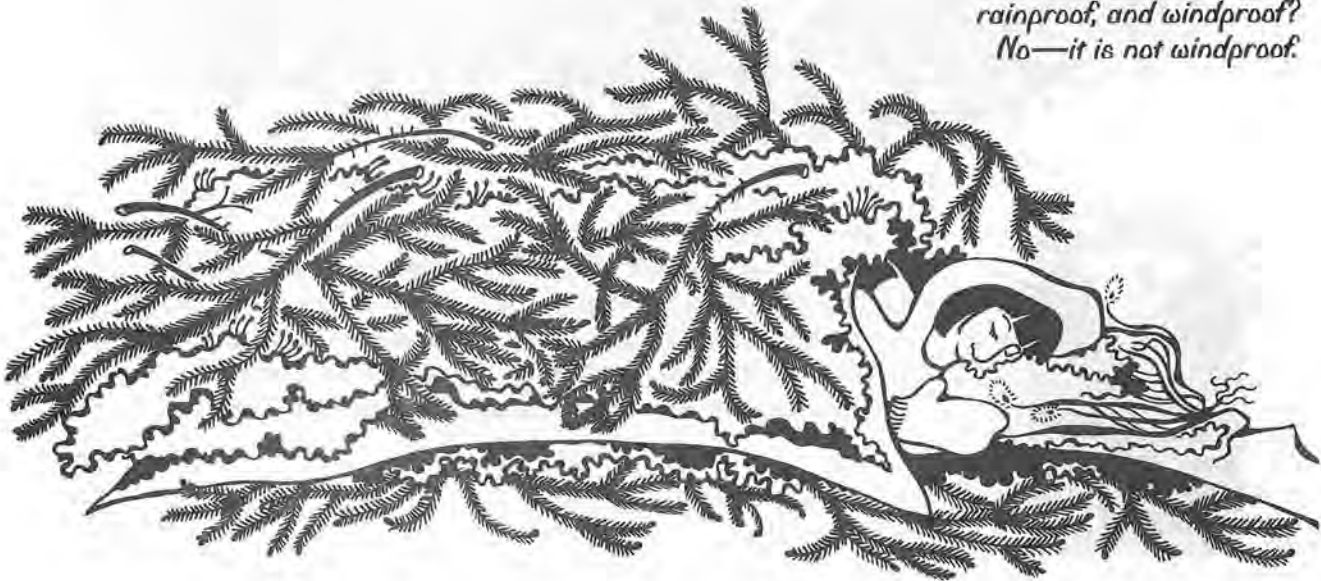
To make the debris bed:

- 1 Start the bed with a layer of branches 1 or 2 feet deep.
- 2 Cover with 1 or 2 feet of moss. Make the layers thick, because when you lie down the bed will flatten.
- 3 Cover the moss with a plastic sheet or a garbage bag cut open.
- 4 To make the blanket, top the bed with another layer of plastic (plastic to plastic).
- 5 Cover the second layer of plastic with moss, twigs, or branches.





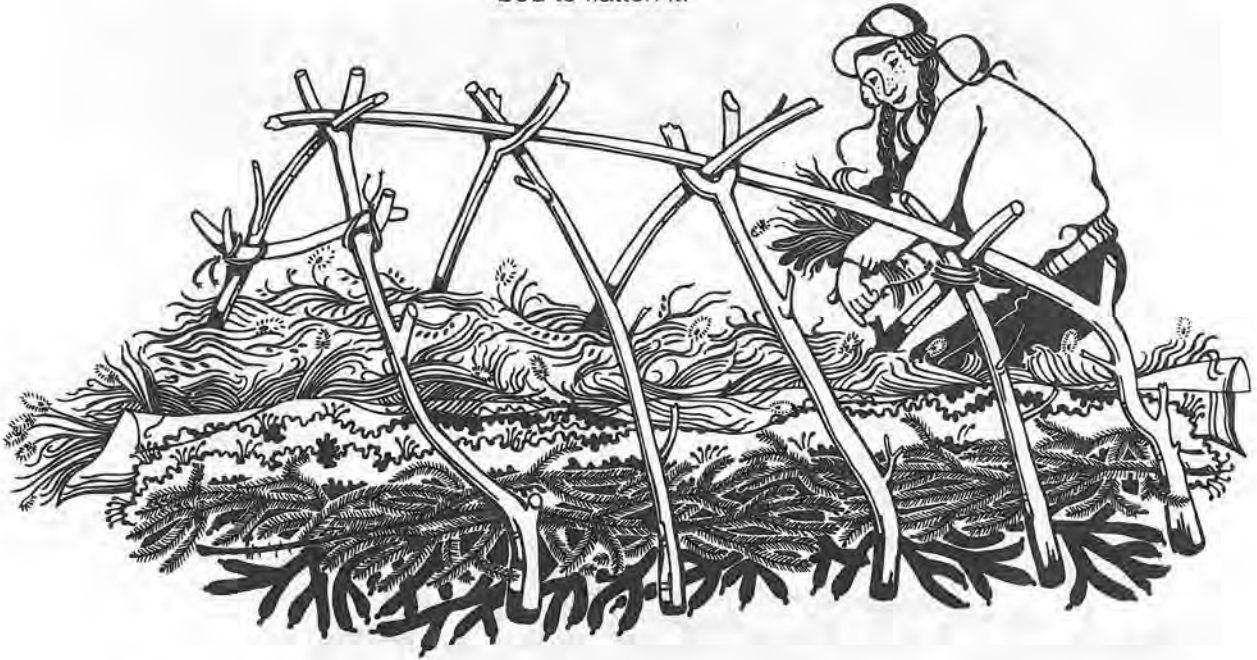
*To get into the debris bed, crawl between the plastic sheets. Is this shelter small, insulative, rainproof, and windproof? No—it is not windproof.*



## Debris Hut Shelter

A debris hut shelter is made with an A-frame or a lean-to against a log. It has walls and a front door.

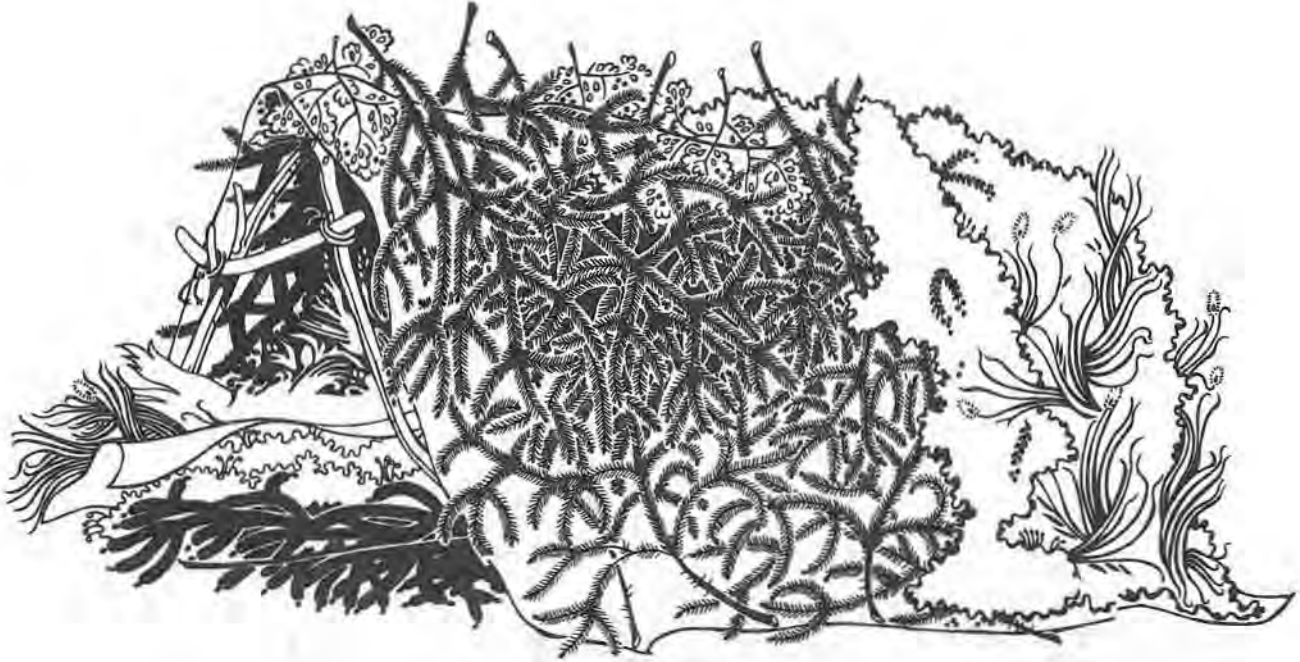
- 1 Start the bed with a layer of branches 2 to 3 feet deep.
- 2 Cover the branches with 1 to 2 feet of moss.
- 3 Cover the moss with plastic, such as an opened garbage bag. Lie down on the bed to flatten it.
- 4 Use three poles for the frame. Tie with rope, roots, etc.
- 5 Strengthen frame with additional poles.



A good debris hut shelter looks big from the outside, but inside it should be just big enough to fit you. When you are inside, it should be only six inches from you to the top and to each of the sides. Six inches is about equal to the distance between your thumb and little finger when they are outstretched. When you lie in your shelter with the door closed, you should not be able to see any light.

- 6 Cover frame with plastic, or big leaves.
- 7 Put boughs on top of the plastic.
- 8 Cover boughs with small branches.

- 9 Place a thick layer of moss on top of the branches, so you can't see any light from the inside.



- 10 Make a flap door with tree branches, or a stuff door with plastic and moss.





*The more signals you  
have, the better!*



## 4. Signals “Hey! I need help over here!”

You can help search parties find you by putting up signals. To be effective, signals must:

- attract attention
- send a message of distress

Some signals can be carried with you in your survival kit:

- Signal mirrors
- Whistles
- Flares
- Reflectors (aluminum foil)
- Lights
- EPIRBS (Emergency Position Indicating Radio Beacon)
- VHF radio

Some signals can be constructed using things that you find:

- Hanging clumps of trash
- SOS of driftwood, seaweed, or grass. Build it above the high tide mark.
- Fires and smoke

Rules to remember when setting up signals:

- The more signals you have, the better.
- You need signals that are visible from **air, land, and sea.**
- Signals must be large! Each letter of an SOS should be 18 feet x 3 feet.
- **Three** signals mean distress. An SOS has **three** letters. Hang **three** clumps of trash from trees or drift logs. Use **three** fires in a line.
- Use colors that contrast with the background: hang life preservers or bright bandanas.
- Moving signals catch the searcher's eye.
- If you are using a fire, you must have someone on watch at all times to keep the fire burning and to make sure it doesn't spread.

Use the right signal in the right place:

- Forest: whistles, bright colors, something reflective
- Coastline: SOS, hanging trash, something reflective
- From a boat: mirrors, bright colors, water dyes



## 5. Water "I need to avoid dehydration."

You need 6 to 8 pints (3 to 4 quarts) of water every day. How much is 6 pints? Lots! 6 pints = 8 pop cans = 12 cups.

If you don't get enough water, you can become dehydrated. What are the symptoms?

- Craving for cold or wet foods
- Dark urine
- Headache
- Chapped lips
- Feeling tired or dizzy
- Depression



When you are dehydrated your body and mind don't work as well as usual. If you become severely dehydrated you can die. If you don't have any water in an emergency situation you should:

- Avoid a lot of activity such as hiking.
- Eat very little, because digestion requires water.

Water that is safe to drink:

- Rainwater collected in a clean container
- Water that you brought with you
- Water that has been boiled for 20 minutes

All other sources of water are not safe to drink. River or lake water should be boiled for 20 minutes. Never drink seawater or urine.

To collect rainwater you can use plastic containers, ziploc bags, bark, clamshells.



## 6. Food “Eat safe foods.”

There are three rules for foods in a survival situation:

- If you don't know it—don't eat it.
- If you don't have water—eat very little.
- Try to eat several kinds of food, rather than a lot of just one kind.

If you are lost along the shore it is easy to find food. You can eat almost all seaweeds, plus limpets, crabs, and small snails.

**Don't eat clams, cockles, mussels, oysters, scallops, barnacles, or moon snails.** They may have Paralytic Shellfish Poisoning (PSP), also called red tide. Even if you eat them at home, never eat them in a survival situation! At home you can go to the hospital if you get PSP. Out in the wilderness you could die.

**Don't eat starfish, jellyfish, sponges, sea anemones, sand dollars, or the hairy triton. They are all unsafe to eat.**

Mink, marten, squirrels, rabbits, birds, and mice are all small game animals that are safe to eat. But they take much more time and energy to get than sealife. For that reason it makes more sense to collect sealife for food in an emergency situation, if it is available.

Try to balance your diet by eating plants also. Eat leaves in the spring, eat berries in the summer, and eat roots in the fall and winter. It is very important to learn which plants are safe to eat. Alaska has some poisonous berries, leaves, and roots.

*Remember: If you don't know it—don't eat it!  
You can live for weeks without food.*



## 7. Play “Think positive.”

Play is important to avoid depression. You can keep yourself busy and happier by doing these things:

- Improve the shelter
- Build more signals
- Collect water
- Collect food (try fishing)
- Talk and tell stories
- Play games

If you are alone, think about what you will do when you get home. If you are sitting around feeling sorry for yourself, get up and do something!

If you are with other people, watch them to make sure they are not depressed or scared. Remember that inactivity can be a sign of depression or fear. So keep everyone busy and talking.

**Try to think like a survivor, not like a victim.**





## HOW TO BUILD A FIRE

For the survival course, your fire should burn for 10 minutes. This tells you how to build a fire that will burn for longer than 10 minutes.

**Air, fuel, and heat are needed to start a fire and to keep it going.**

**Fuel** is anything that burns well such as logs, twigs, pitch from trees, plastic, or paper. Fuel includes tinder (small dry twigs, pitch, or grass), kindling (small branches or wood, no bigger around than your finger), and large fuel (driftwood or logs).

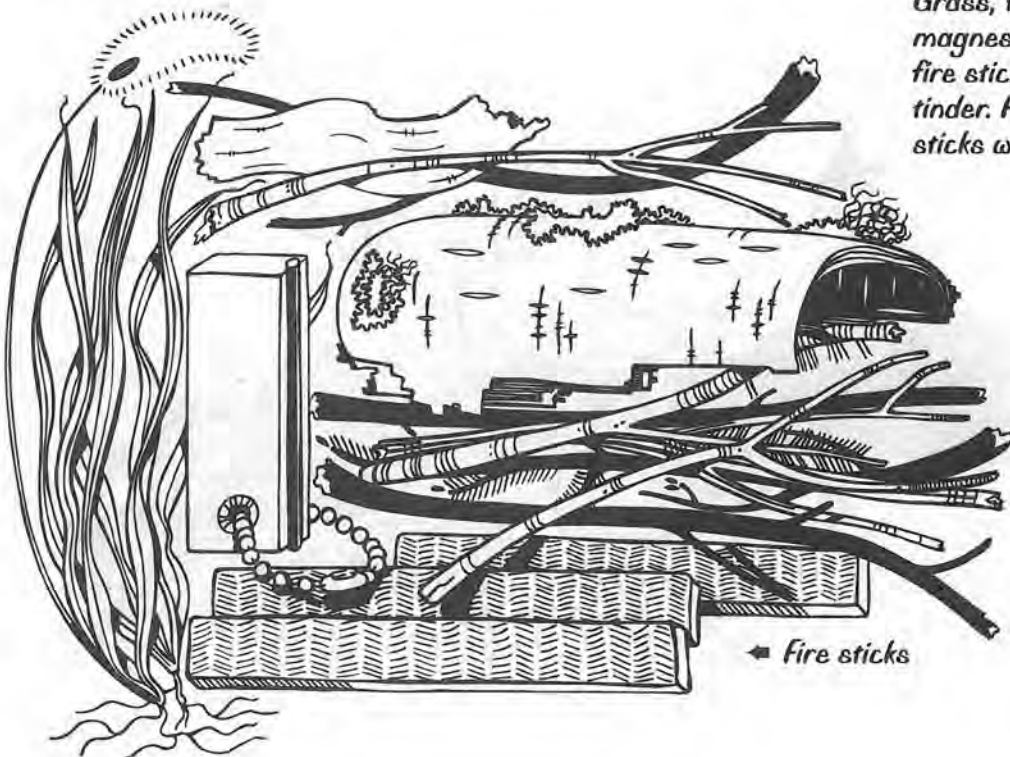
**Air** or oxygen is necessary to ignite a fire and to keep it burning.

**Heat** is supplied from the spark of a flint or by a match.

First locate a site sheltered from wind and rain. Collect enough tinder and kindling to supply a fire for at least 20 minutes and enough large fuel for the day.

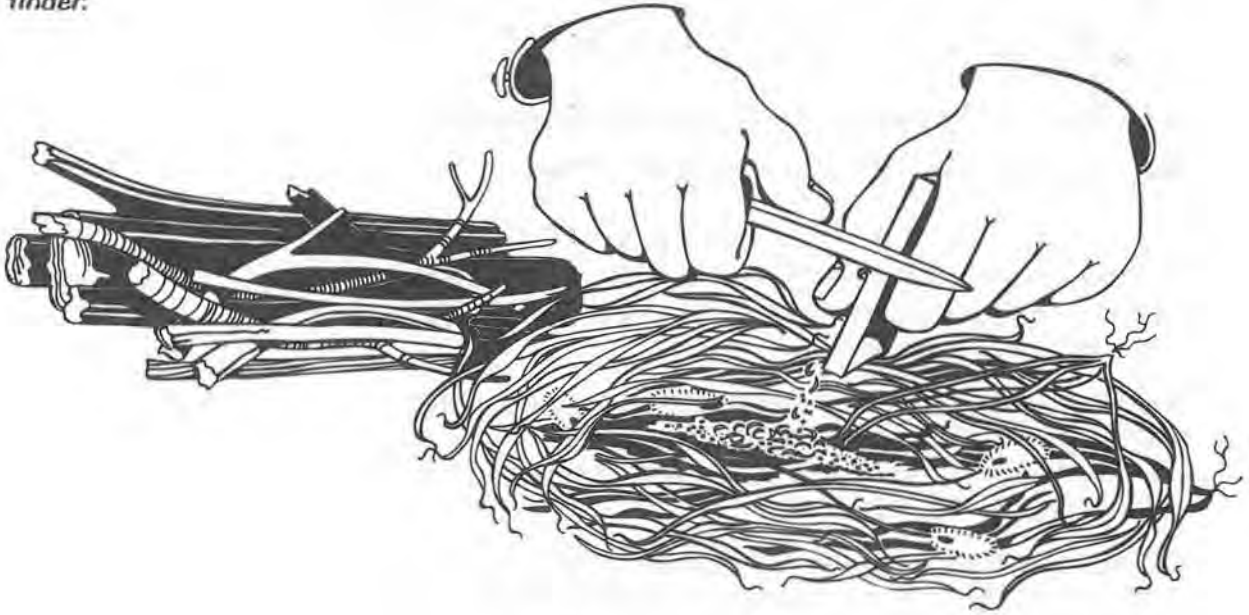
Arrange tinder to allow room for oxygen. Kindling can be cross-hatched on top of tinder or stacked in a teepee shape. If a magnesium fire starter or other flint material are being used, add kindling sparingly after starting a flame.

Kindling should burn for several minutes before adding larger fuel. Do not smother the fire by adding too much fuel at one time. Larger fuel should also be added sparingly. A small fire is adequate to boil water or cook food.

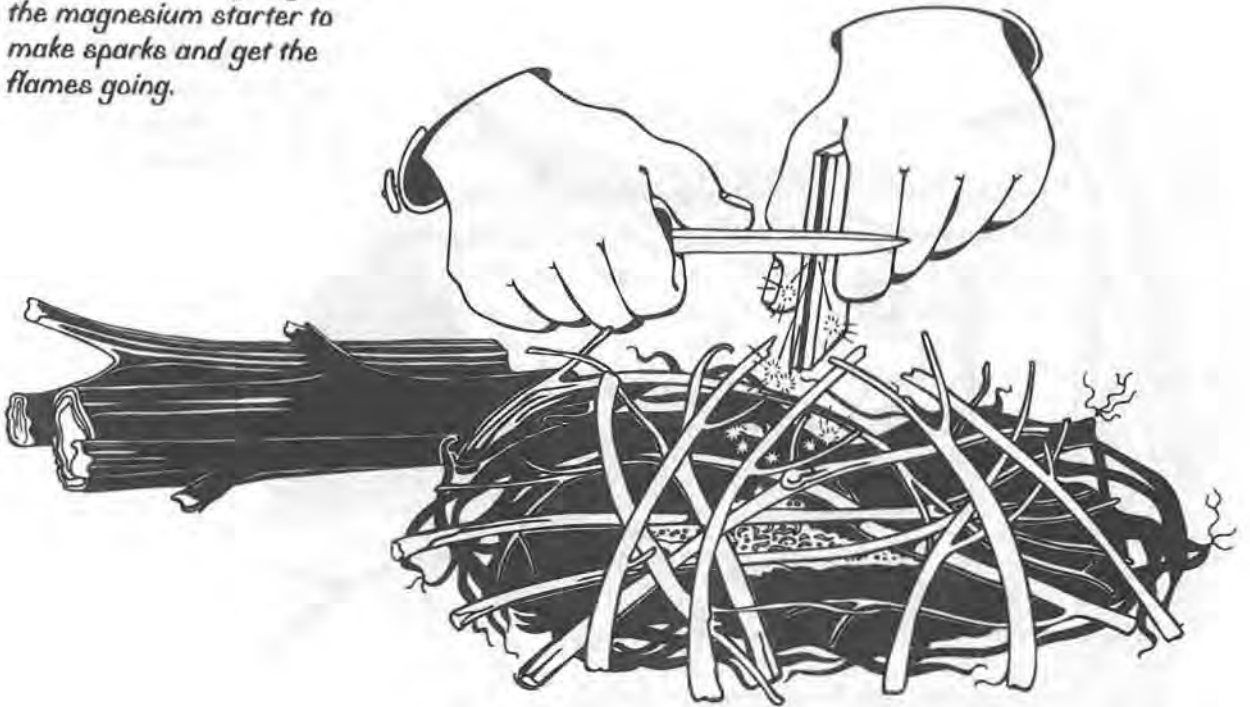


*Grass, twigs, birch bark, magnesium fire starter, and fire sticks can be used for tinder. Fire sticks are wood sticks with paraffin.*

*Using a knife, shave pieces of magnesium starter onto tinder.*



*Strike the sparking edge of the magnesium starter to make sparks and get the flames going.*



1. A \_\_\_\_\_ is anything that protects you from the environment.
2. Your primary shelter is your \_\_\_\_\_.
3. The way to dress for an outing is in \_\_\_\_\_. (long underwear, under wool clothes, covered by rain gear)
4. A wool \_\_\_\_\_ is essential, because you can lose up to \_\_\_\_\_ percent of your body heat without one.
5. An emergency shelter is something you can build to protect yourself from hypothermia. The three "musts" to a good shelter are:
  - a.
  - b.
  - c.
6. How do you build a good debris hut shelter?
  - a. Start with the \_\_\_\_\_. Use a layer of \_\_\_\_\_ 2-3 feet thick.
  - b. On top of this, put at least one foot of \_\_\_\_\_.
  - c. Next add a garbage bag or plastic sheeting.
  - d. Then work on the top. Start with the frame, put three small poles over the \_\_\_\_\_. Tie the poles together with rope found along the beach, tree roots, bull kelp, plastic strips, or other material.
  - e. Cover the frame with a cut open garbage \_\_\_\_\_ or other plastic.
  - f. \_\_\_\_\_ goes on top of the frame.
  - g. \_\_\_\_\_ goes on top of the branches.
7. How big should you make your shelter?
8. If you look inside the shelter and see \_\_\_\_\_ your shelter is not weatherproof and you need more \_\_\_\_\_.
9. What can you use for a door?

10. Draw a picture of what your shelter might look like and label the parts.

1. To help search parties find you, you can use a \_\_\_\_\_, which is the fourth step to survival.
2. What two things must signals do to be effective?
  - a. \_\_\_\_\_ (let someone know where you are)
  - b. \_\_\_\_\_ (let them know you want to be rescued)
3. What are some possible items you can use to make signals?
4. What are some rules to remember when setting up your signals?
5. What signals are best for use in each of the situations listed below?

Forest:

Coastline:

In the water:

6. To signal distress, \_\_\_\_\_ is the magic number.
7. Each letter in an SOS must be \_\_\_\_\_ feet high and \_\_\_\_\_ feet wide.



1. List two edible plants in your region that you can find in:

Spring \_\_\_\_\_

\_\_\_\_\_

Summer \_\_\_\_\_

\_\_\_\_\_

Fall \_\_\_\_\_

\_\_\_\_\_

Winter \_\_\_\_\_

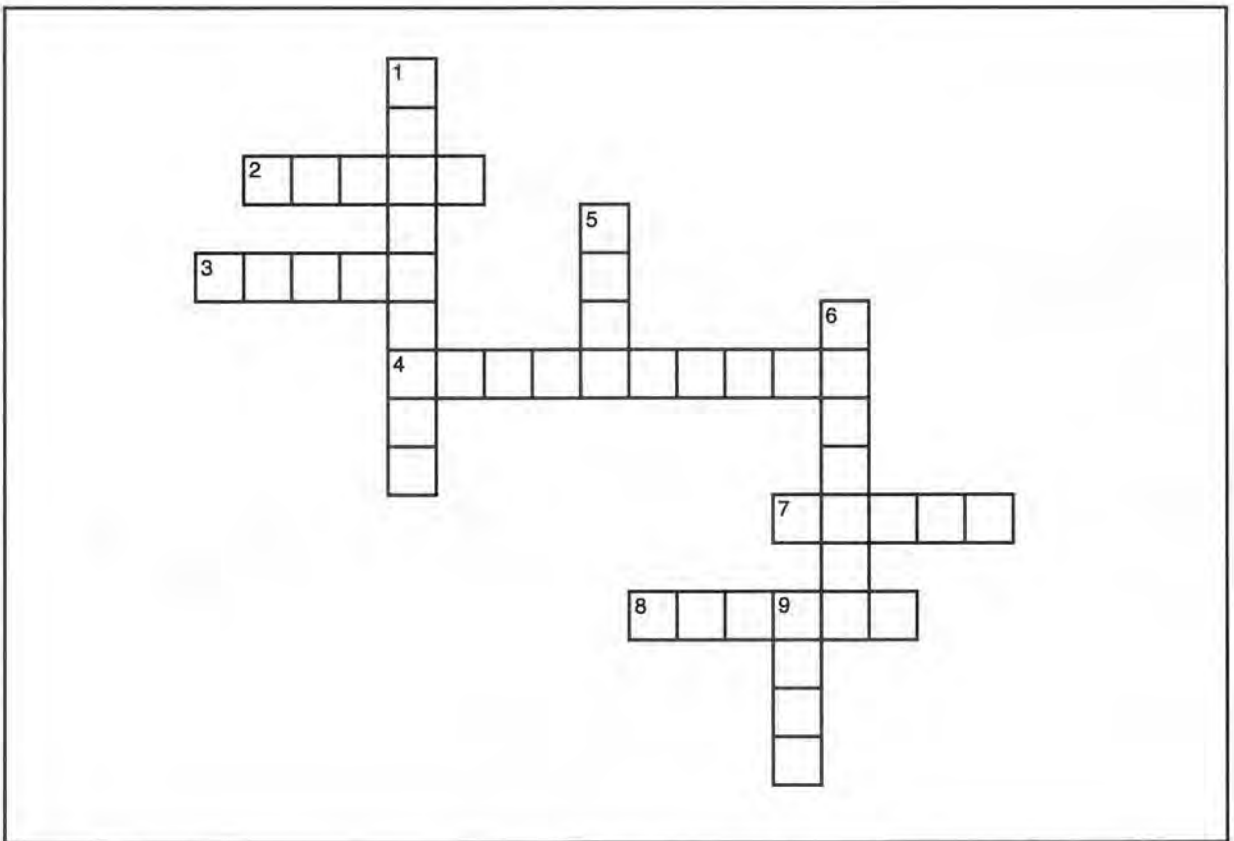
\_\_\_\_\_

2. List two poisonous plants found in your region.
3. Your body needs at least \_\_\_\_\_ pints of water every day.
4. To make creek water safe to drink, it must be \_\_\_\_\_  
for \_\_\_\_\_ minutes.
5. If we do not get enough water to drink, our body will start to \_\_\_\_\_.
6. If you eat clams, cockles, or barnacles picked from Alaska's beaches you could die from \_\_\_\_\_.

1. The last step in the seven steps to survival is \_\_\_\_\_.
2. Name two reasons why play is important.
3. What kinds of things can you do for play?
4. Describe a game you could play if you were in a survival situation all by yourself, or one you could play if there were other people.

# SURVIVAL CROSSWORD PUZZLE

1. A first sign of hypothermia
2. Best survival tool
3. \_\_\_\_\_ (number) of anything will signal for help
4. A shelter must be small, \_\_\_\_\_, and weatherproof
5. A fabric that keeps you warm even when it is wet \_\_\_\_\_
6. A signal must attract attention and send a \_\_\_\_\_
7. You can go without \_\_\_\_\_ for 3-4 days
8. An edible sea animal with one shell
9. Depression can be avoided by \_\_\_\_\_



# What Is a Survival Kit?

A survival kit has things in it you can use to survive an emergency.

You should keep it in your pocket, around your neck, or attached to your belt. Use a ziploc freezer bag for a container.

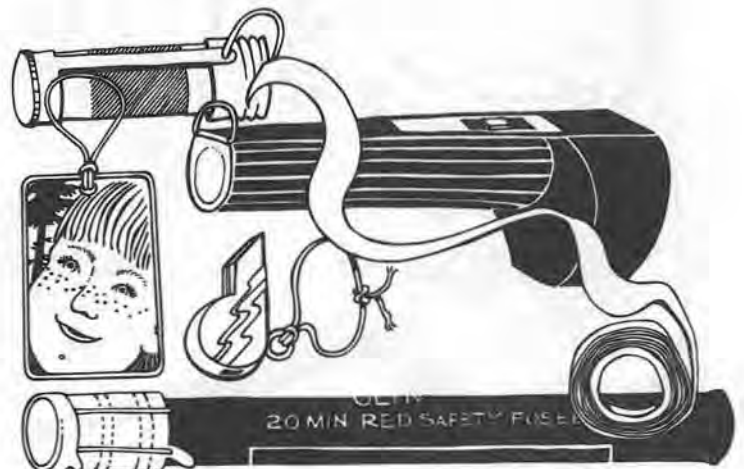
## Building a Survival Kit

### These things should go into your survival kit:

- **Shelter**
  - Large plastic garbage bags or tube tent
  - Nylon parachute cord or strong twine (20 feet)
- **Signals**
  - Signal mirror
  - Whistle
  - Surveyor tape
  - Magnesium fire starter
  - Matches (waterproof and windproof)
  - Fire starting materials (waxed wood)
  - Heavy duty aluminum foil
- **Tools**
  - Sturdy pocket knife or hunting knife
- **Personal Health**
  - Prescription drugs if you need them

### Other things you may want to take along:

- **Shelter**
  - Wool hat
  - Thermal foil blanket (space blanket)
  - Rain suit (jacket and pants)
  - Plastic sheeting
  - Extra clothes
- **Signals**
  - Brightly colored cloth
  - Cyalume chemical light sticks
  - Extra aluminum foil, heavy duty
  - Battery powered EPIRBs (Emergency Position Indicating Radio Beacons)
  - Emergency strobe lights
  - Fluorescent water dyes



- **Health**
  - Band-aids
  - Compresses (for bleeding)
  - Triangular bandage
  - Chapstick
  - Aspirin
  - Disinfectant
  - Insect repellent
  - Personal items: feminine hygiene supplies, vitamins, etc.
- **Food and water**
  - Chocolate bars and hard candies
  - Instant cocoa
  - Packaged water
  - Water purification tablets (iodine or Halazone)
  - Ziploc freezer bags (for holding food and water)
  - Fruit bars
  - Powdered bouillon (salt free)
  - Coffee or herbal tea
- **Fire and light**
  - Flint starter kit
  - Waterproof flashlight
  - Candles
- **Tools**
  - Compact pocket saw
  - Duct tape
  - Cable snares or small gauge wire
  - Fish line
  - Fish hooks
  - Magnetic compass

✓ Remember that a good insulative hat is essential!

## Survival Kit ↓





**Y**ou should watch out for these dangers in Alaska waters, whether you are fishing, hiking, beachcombing, or traveling by air or boat.

- Currents from tides and in rivers
- Weather, such as wind, waves, and rain
- Cold temperatures
- Debris, such as logs, deadheads, and kelp

What can happen to you if you fall in the water?

- You can rescue yourself
- You can be rescued
- You can drown

## **Drownings in Alaska's Waters**

Alaska's drowning rate is ten times the national average. Drowning is a leading cause of accidental death in rural Alaska.

Here are the reasons why many people drown in Alaska.

- People spend more time around water
- They can't swim, because small towns don't have swimming pools to learn in
- They don't have Personal Flotation Devices (PFDs)
- People who have PFDs don't wear them
- Many have been drinking alcohol
- Many don't know water rescue skills
- Cold water causes hypothermia

## **Preventing Drowning**

How can you reduce the drowning rate and increase chances of surviving in cold water?

- Use PFDs around water
- Know rescue and self-rescue skills
- Stay out of the water

How long will you survive in cold water? It depends on two things:

- ① You must keep floating.
- ② You must have insulation to stay warm.



## Self-Rescue

You can help save yourself by wearing a PFD and insulative clothes. If the boat is sinking, let it sink under you. Don't jump overboard. If the boat is going down and you have time, put on a PFD, a warm hat, and warm clothes.

Clothes, including boots, will not drag you down in the water and can help keep you warm. Layers of clothing also trap air, which can help you float. If you take off boots and clothes in the water, you will lose body warmth and energy.



*Rule: When in the water,  
protect high heat-loss areas:  
head, neck, armpits, sides,  
and groin.*

If you have to get into the water, enter slowly to avoid cold water shock. Try to keep as much of your body as possible out of the water.

Stay with the boat as long as you can, because

- ① The boat will help you float.
- ② The boat will be more visible to rescuers.
- ③ Rescuers will search where the boat was going.



## **Huddle Position**

*Rule: Try to float and to minimize heat loss until you are rescued.*

*Rule: Assume the H.E.L.P. or Huddle position depending on the situation.*



## **H.E.L.P. Position**

## Survival Times in Cold Water

Children cool off in cold water much faster than the average adult. A man of average build will be helpless from hypothermia (below normal body temperature) at 41°F after 40 minutes or more if he is wearing thick clothing. Thin men or those dressed in light clothing will become hypothermic more quickly. A woman usually cools off more slowly than a man.

If you go overboard in cold water, you should float quietly in a H.E.L.P. or huddle position, or cling to the boat. You should avoid swimming, because a person swimming in cold water cools off much faster than a still person. When you swim you produce three times as much heat as when you are floating, but the heat doesn't keep you warm. Instead, the heat is lost to the water because of more blood circulation to the arms, legs, and skin.

This chart gives average survival times. The survival times are long because they include periods when the person is unconscious.

*Rule: Don't try to swim to shore. In cold water a person can swim only 1/10 the distance he or she can swim in a nice warm pool. When you swim, you lose heat. Hypothermia can set in and lead to a quicker death.*

<b>Hypothermia Prevention Methods and Equipment Increase Survival Time</b>	
	Predicted Survival Time in 50°F Water
<b>Without flotation device worn</b>	
Treading water	2 hours
<b>With personal flotation device (vest or collar-type PFD)</b>	
Swimming	2 hours
Holding still	2.7 hours
H.E.L.P. position	4 hours
Huddling with others	4 hours
<b>With hypothermia prevention flotation equipment</b>	
Insulated flotation jacket ("float coat")	3 to 9 hours
Survival suit	12 to 36 hours

Adapted from Survival in Cold Water, by Chad Dawson, Minnesota Sea Grant Extension Program

## Personal Flotation Devices (PFDs)

There are five kinds of PFDs:

### Type I.

#### *Offshore Life Jacket.*

It floats very well, and it turns an unconscious person face up. But it is bulky, and not very warm.



### Type II.

#### *Nearshore Buoyant Vest.*

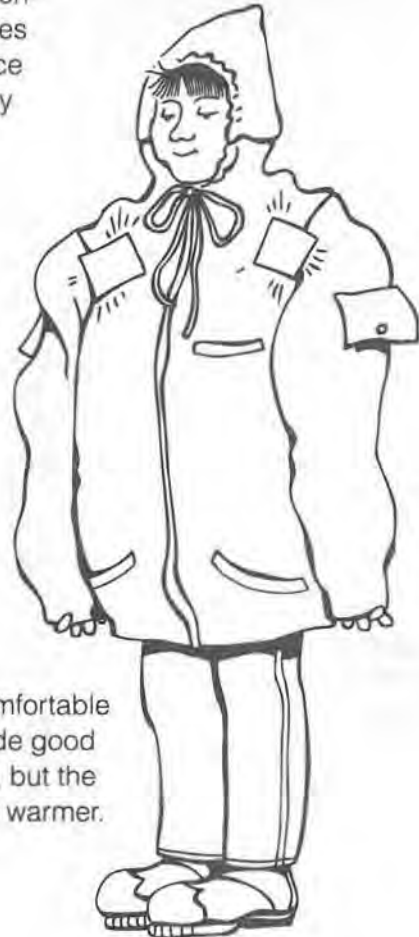
This is a typical life vest. It keeps the head and neck out of the water on unconscious people but it does not always keep the face up. Type IIs are not very warm.



### Type III.

#### *Vest, float coat.*

These are the most comfortable PFDs. They both provide good flotation and insulation, but the float coat will keep you warmer.



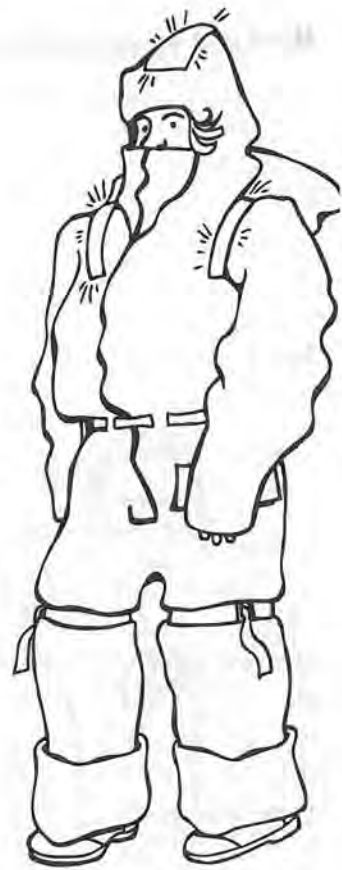




**Type IV.**

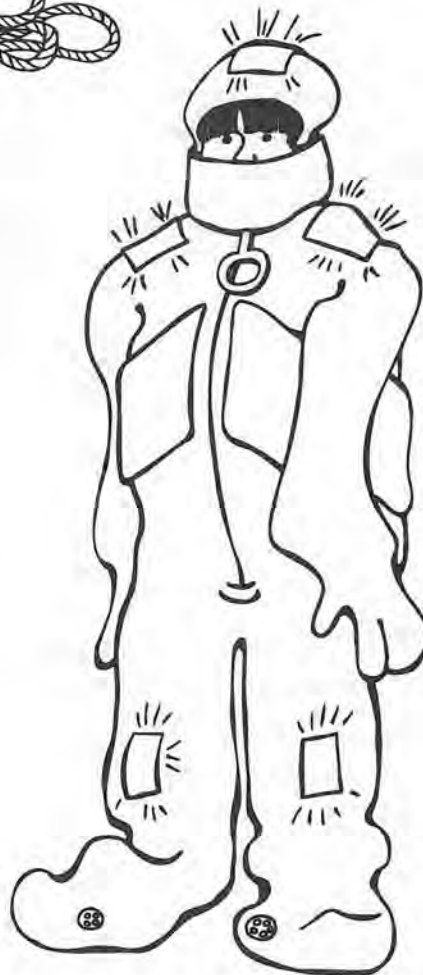
*Ring buoy or seat cushion.*

You can rescue someone in the water by tossing it to him or her.



**Type V. Overalls.**

These are similar to a survival suit but are much more comfortable to work in. They provide excellent flotation and insulation.



**Survival Suit.**

A survival suit helps you float and keeps you warm. A person can survive in cold water for up to 24 hours in a survival suit.

**The best kind of PFD is one that you will wear!**

## How to Put on a Survival Suit Fast

This is a quick way to get into a survival suit in an emergency. It can help you when seconds count. If you have time, put on warm garments and leave shoes on for additional hypothermia protection and use on the shore.

Practice this in a pool or at the dock.

### Step 1

- Lay the suit flat with the zipper side up.
- Sit on the dock and work legs into feet of suit.
- Scoot down into the suit like a sleeping bag.
- Put straps around ankles.
- Stand up.



### Step 2

Put your non-dominant arm into the suit first (your left arm if you are right handed). Pull the hood over your head with your free hand. You can do this while standing, or from a kneeling or sitting position.



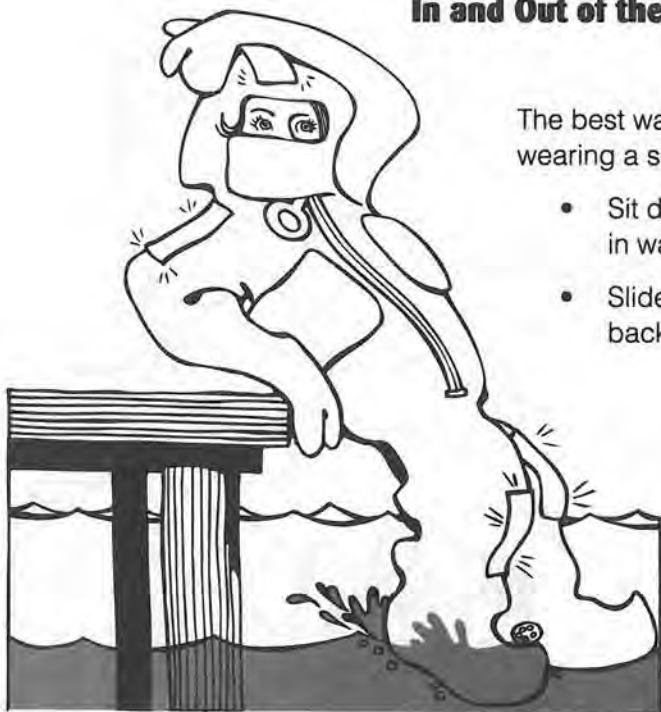
### Step 3

Put your dominant arm in the suit last. Grab lanyard on zipper and pull zipper all the way up. Fasten face flap over face.

### **WARNING!**

*Do not inflate air bladder until you are in the water. This will prevent damage to your neck and the zipper if you must jump into the water.*

## In and Out of the Water with a Survival Suit

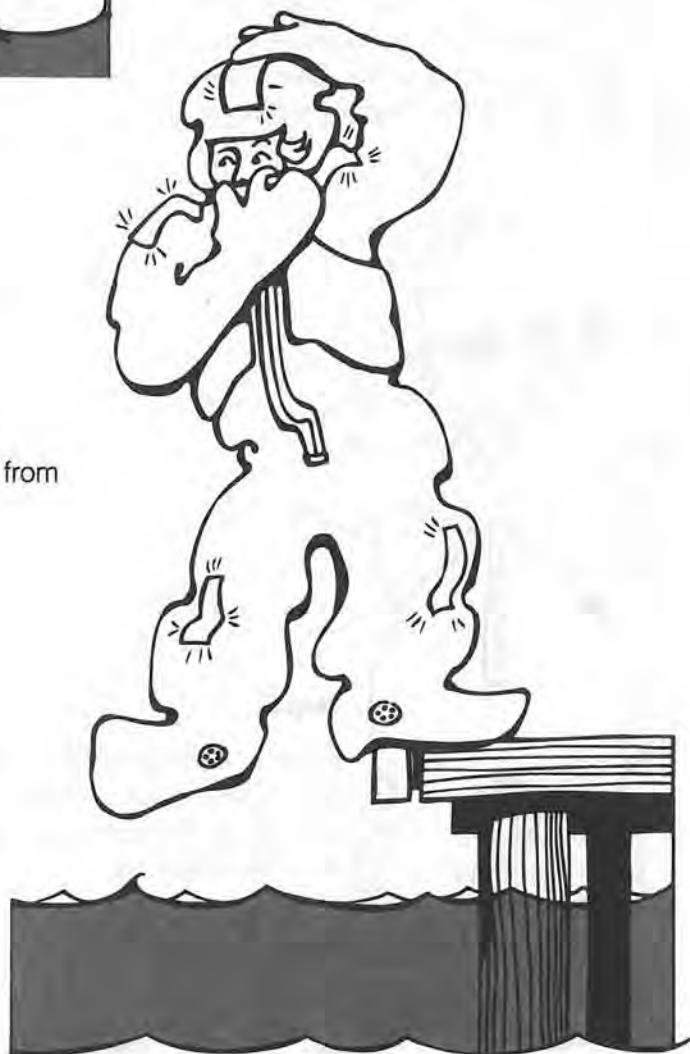


The best way to get into the water while wearing a survival suit is slow entry.

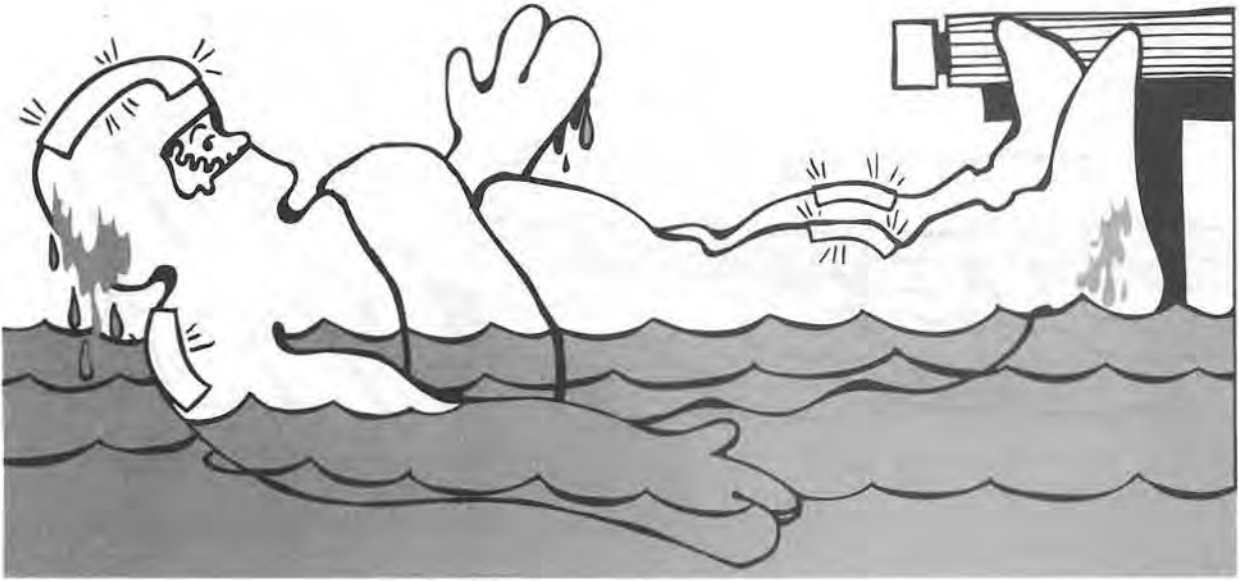
- Sit down on dock with feet dangling in water.
- Slide into water and float on your back.

Or you can step off.

- Face sideways to dock.
- Protect your head with your arm nearest dock.
- With your other hand, hold suit away from the face to let air escape.
- Step out and away, feet first.
- Float on your back.



While you are wearing a survival suit, the best way to swim is on your back. Most of the swimming action is with your arms.



When you're getting out of the water, keep your face toward the dock to avoid back injury.

After you are done using a survival suit (for practice or in an emergency), rinse it in fresh water on the outside and inside and dry it in a cool, dark, dry place. After the suit is dry, coat the zipper with non-petroleum wax. Store suit with zipper open.

## RESCUING OTHERS

Rescue others without getting into the water. Why? It is too easy to become a second victim.

- A panicked victim may cling to you and pull you under.
- You may both die of hypothermia.
- Water dangers may kill both of you.

When rescuing a drowning victim, yell to the victim and let him or her know what you are doing.

**REACH, THROW, and TOW  
BUT DON'T GO!**



Try to **REACH** the victim, using a long pole or even clothes.

Or, **THROW** anything that floats, such as styrofoam, water jug, cushion, etc.

Then **TOW** if you can pull the victim in. Pull the victim toward you with a slow and steady movement.

What if you don't have anything to use for rescue? If there are two people, one should run for help and the other watch the victim. If there is only one person, he or she should mark the location and run for help. Even if the person looks drowned, it is important to try to rescue or go for help. The victim may still be alive, and you should give him or her every chance to be rescued.

## Survival Books to Read

- Bailey, M. 1974. **Staying Alive 117 Days Adrift.** D. McKay Co., New York. A true story of a couple surviving at sea for 117 days.
- Ball, J. 1966. **Arctic Showdown.** Van Rees Press, New York.
- Blades, A. 1977. **A Boy of Tache.** Scribner/Tundra. Fiction set in Canada.
- Budhill, D. 1976. **Snowshoe Trek to Otter River.** Dial. Three short stories about two boys.
- Defoe, D. 1981. **Robinson Crusoe.** Bantam Books, New York.
- East, B. 1980. **Found Alive.** Crestwood House, Mankato, MN. Youth survival fiction.
- Fortier, E. 1978. **One Survived.** Alaska Northwest Publishing Co., Anchorage, AK. A true story of an Eskimo hunting party. Three are lost on ice floes, and one survives for 21 days.
- Gannon, R. 1973. **Great Survival Adventures.** Random House/Knopf, New York.
- Houston, J. 1977. **Frozen Fire.** Atheneum, New York. Youth survival fiction.
- Johnson, A. 1964. **The Grizzly.** Harper and Scholastic Book Services, New York.
- Kavaler, L. 1973. **Life Battles Cold.** John Day Co., New York. Youth-level book on various aspects of living or responding to cold environments.
- Klaben, H. and B. Day. 1964. **Hey, I'm Alive!** Scholastic Book Services, New York. True story of wilderness survival.
- London, J. 1951. **To Build a Fire.** In **The Sun-Dog Trail and Other Stories.** The World Publishing Company, Cleveland, OH.
- Mathieson, D. 1985. **Trial by Wilderness.** Houghton Mifflin Company, Boston.
- Morey, W. 1971. **Deep Trouble.** Duttons Childrens Books, Penguin Books USA, New York. Alaska adventure story.
- Out in the Wilds: How to Look after Yourself.** 1977. McPhee Gribble Publishers. A young person's book on how to react in a lost-in-the-woods experience.
- Paulsen, G. 1987. **Hatchet.** Bradbury Press, New York. Youth survival fiction.
- Politano, C. 1984. **Lost in the Woods.** Porthole Press Ltd., Sidney, British Columbia, Canada. A young person's book on a lost-in-the-woods experience.



Politano, C. 1986. **ADRIFT! Boating Safety for Children.** Porthole Press Ltd. Sidney, British Columbia, Canada. A young person's book on a lost-in-a-dinghy experience.

**Water Safety Coloring and Activity Book.** Minnesota Department of Natural Resources, Box 46, St. Paul, MN 55146.

**Wilderness: A Survival Adventure (computer game).** Peachtree Software, 3445 Peachtree Road N.E., Atlanta, GA 30326-1276. Computer game for Apple II plus, IIe, or IIc; 48 K RAM.

Wortman, E. 1981. **Almost Too Late.** Random House, New York. A true story of a family shipwrecked off southeastern Alaska for three weeks. It serves as a study of what not to do, but provides good discussion for ways to improve a survival situation.