CHAPTER 3
SURVIVAL KITS

GOAL
To impress upon students the value of survival kits and the need to carry them.

OBJECTIVES
The students will be able to:

1. Tell where a survival kit should be located.
2. Tell the differences between a personal survival kit and a comfort kit.
3. List the three requirements for the contents of a personal survival kit.

MATERIALS AND EQUIPMENT
Instructor should have a variety of survival kits and survival kit items on display. The Supplies to Buy list shows materials needed for student kit assembly. A magic marker or other means of labeling the kits with the students' names is also needed.

PRESENTATION PLAN
This is a hands-on lesson. First show some kits and contents and hold a brief discussion on survival kits (vs. comfort kits). Then ask students to assemble personal survival kits.

WHAT IS A SURVIVAL KIT?
Display survival kit items.

A personal survival kit is a set of items that a person uses to survive an emergency. A personal survival kit IS NOT A SURVIVAL KIT UNLESS IT IS ON YOU! It must be small enough to fit in a pocket. Small children, who do not have pockets big enough to hold a survival kit, can use a waterproof pouch with a string attached to it so the kit goes around the neck. The survival kit container should be as waterproof as possible.
A comfort kit is a set of items that can assist in an emergency. Some people call it a survival kit but it is not located on the body. A comfort kit may be in a backpack or on a boat, and can easily be lost in the woods or go down with the boat (where it will not be of any help).

The contents of a survival kit are very important. It is impossible to include every item that may be needed in a survival situation, hence decisions have to be made. The Survival Kit Items list includes things from which to choose. Care must be taken in deciding which items to include. Ask students to guess the three essential ingredients in a survival kit:

1. Shelter: garbage bags, emergency space blankets, nylon cord or twine.
2. Signals: mirror, whistle, surveyor tape, flares, cyalume lightstick.

The items in a survival kit vary depending on personal needs, the season, and where it will be used. Everyone's survival kit will be different. Discuss how a hiker's survival kit might differ from a boater's survival kit. Discuss how survival kit items could be used.
SURVIVAL KIT CONTAINERS

Survival kit containers vary but should meet two criteria:

- Small
- Waterproof (or semi-waterproof)

Discuss various options—ziploc freezer bags, plastic soap containers, waterproof pouches, bandage boxes, etc.

BUILDING A SURVIVAL KIT

While discussing survival kit items and containers, hand out the survival kit items for the student kits. Begin with the pint size ziploc bags. Have each student put his or her name on the bag with a magic marker (the kits will all look similar out in the field).

Have students work together to dispense items. Working together will be a little chaotic but fun for the students. Two students can cut lengths of twine 2 times their outstretched arm. Let them know that they may add other items to their kit as long as they fit in the kit. Also tell them about any restrictions against items such as knives.

In addition to a survival kit, a wool or polypropylene hat is essential. An eight-inch hunting knife is nice to have but may not be appropriate for younger children.

Survival Kit
SURVIVAL KIT ITEMS

These things are essential for the survival kit.

• Shelter
  - Two large plastic garbage bags or tube tent
  - Nylon parachute cord or strong twine (20 feet)

• Signals
  - Signal mirror
  - Whistle
  - Surveyor tape
  - Heavy duty aluminum foil
  - Magnesium fire starter
  - Matches (waterproof and windproof)
  - Fire starting materials (waxed wood)

• Tools
  - Sturdy pocket knife or hunting knife

• Personal Health
  - Prescription drugs if necessary

Remember that a good insulative hat is essential!

Consider taking these things along, either in your survival kit or somewhere on your body.

• Shelter
  - Wool hat
  - Thermal foil blanket (space blanket)
  - Rain suit (jacket and pants)
  - Plastic sheeting
  - Extra clothes
  - Brightly colored cloth

• Signals
  - Cyalume chemical light sticks
  - Extra aluminum foil, heavy duty
  - Battery powered EPIRBs (Emergency Position Indicating Radio Beacons)
  - Emergency strobe lights
  - Fluorescent water dyes

• Health
  - Bandaids
  - 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
SUPPLIES TO BUY

The instructor or students should buy these supplies for making survival kits. Prices are included. Items are available at variety stores such as Fred Meyer.

- **Container**
  - Ziploc bags, one-pint freezer bags, one per student $2.59 for a box of 25

- **Shelter**
  - Heavy weight garbage bags, two per student $4.50 for a box of 20
  - Nylon parachute cord, three to six feet per student $1.95 for 50 feet

- **Signals**
  - Whistle, one per student $2.00 each
  - Surveyor tape, yellow or orange, two to four feet per student $3.00 per roll
  - Aluminum foil $4.00 per box

- **Food**
  - Hard candy, one or two pieces per student $2.59 per package

- **Fire**
  - Magnesium fire starter or flint starter, one for each group of four for the outdoor practical $4.00-7.00 each, OR
  - Waterproof matches, one box per student $1.50 per package of four
  - Fire starting materials (waxed wood, such as "fire sticks") $1.50 per package

The following materials are nice to have but are not essential for this class.

- Signal mirror, small plastic (hard to find) or glass, one per student $3.00-10.00 each
- First aid supplies cost variable
- High energy food cost variable
- Candles (can be shared) $2.00 for six
- Flint box (fire starter) $4.00
- Cyalume chemical light sticks (for night signals) $2.00
- Pocket knife $10.00
- Compact pocket saw $2.50
- Fishing line and hooks cost variable
SURVIVAL KIT QUIZ

After raining and blowing for the last two weeks it has finally cleared up. You, your brother, and your dad have decided to head out and hunt for the day. You tell mom where you are going but once out on your boat you all decide to go to another bay.

You’ve been hunting the low muskegs all morning with no luck. Your brother and you decide to hike up the mountainside. Dad decides to stick around the muskeg. You agree to rendezvous in three hours, and leave your backpacks at your temporary camp because you don’t want to pack them up the mountain.

Halfway up the mountain you spot a deer. Your brother shoots and injures it and the two of you begin following the trail of blood. After several hours you give up on finding the deer. You look around and realize that you are not sure where you are. It is getting late and you are overdue for your rendezvous with your dad. You do not know which direction to go to get back. Your hand-held radio is in your backpack back at camp. It is now too dark to hike out.

You and your brother recognize that you are lost and must survive the night in the woods. You inventory your situation and the equipment and resources you have.

Listed below are 15 items. You can have only 10 of them between the two of you. You must decide which 10 would be the best to have and prioritize the items.

<table>
<thead>
<tr>
<th>Necessary (mark 10 items)</th>
<th>Priority Rating (rate top 10; 1 highest rating, 10 lowest rating)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space blanket</td>
<td></td>
</tr>
<tr>
<td>Cigarette lighter</td>
<td></td>
</tr>
<tr>
<td>2 garbage bags</td>
<td></td>
</tr>
<tr>
<td>Extra wool socks</td>
<td></td>
</tr>
<tr>
<td>Deer call</td>
<td></td>
</tr>
<tr>
<td>Aluminum foil</td>
<td></td>
</tr>
<tr>
<td>Jerky</td>
<td></td>
</tr>
<tr>
<td>Flashlight</td>
<td></td>
</tr>
<tr>
<td>Cigarettes</td>
<td></td>
</tr>
<tr>
<td>2 wool hats</td>
<td></td>
</tr>
<tr>
<td>Flask of koolaid</td>
<td></td>
</tr>
<tr>
<td>Surveyor tape</td>
<td></td>
</tr>
<tr>
<td>Compact saw or 8&quot; hunting knife</td>
<td></td>
</tr>
<tr>
<td>Set of keys</td>
<td></td>
</tr>
<tr>
<td>Magnesium fire starter</td>
<td></td>
</tr>
<tr>
<td>Steel wool</td>
<td></td>
</tr>
</tbody>
</table>
SURVIVAL KIT QUIZ: WITH ANSWERS

After raining and blowing for the last two weeks it has finally cleared up. You, your brother, and your dad have decided to head out and hunt for the day. You tell mom where you are going but once out on your boat you all decide to go to another bay.

You’ve been hunting the low muskegs all morning with no luck. Your brother and you decide to hike up the mountainside. Dad decides to stick around the muskeg. You agree to rendezvous in three hours, and leave your backpacks at your temporary camp because you don’t want to pack them up the mountain.

Halfway up the mountain you spot a deer. Your brother shoots and injures it and the two of you begin following the trail of blood. After several hours you give up on finding the deer. You look around and realize that you are not sure where you are. It is getting late and you are overdue for your rendezvous with your dad. You do not know which direction to go to get back. Your hand-held radio is in your backpack back at camp. It is now too dark to hike out.

You and your brother recognize that you are lost and must survive the night in the woods. You inventory your situation and the equipment and resources you have.

Listed below are 15 items. You can have only 10 of them between the two of you. You must decide which 10 would be the best to have and prioritize the items.

<table>
<thead>
<tr>
<th>Item</th>
<th>Necessary</th>
<th>Priority Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space blanket</td>
<td>X</td>
<td>2, 3, 4</td>
</tr>
<tr>
<td>Cigarette lighter</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2 garbage bags</td>
<td>X</td>
<td>2, 3, 4</td>
</tr>
<tr>
<td>Extra wool socks</td>
<td>X</td>
<td>2, 3, 4</td>
</tr>
<tr>
<td>Deer call</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Aluminum foil</td>
<td>X</td>
<td>5, 6, 7, 8, 9</td>
</tr>
<tr>
<td>Jerky</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Flashlight</td>
<td>X</td>
<td>5, 6, 7, 8, 9</td>
</tr>
<tr>
<td>Cigarettes</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2 wool hats</td>
<td>X</td>
<td>1</td>
</tr>
<tr>
<td>Flask of koolaid</td>
<td>X</td>
<td>5, 6, 7, 8, 9</td>
</tr>
<tr>
<td>Surveyor tape</td>
<td>X</td>
<td>5, 6, 7, 8, 9</td>
</tr>
<tr>
<td>Compact saw or 8&quot; hunting knife</td>
<td>X</td>
<td>5, 6, 7, 8, 9</td>
</tr>
<tr>
<td>Set of keys</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Magnesium fire starter</td>
<td>X</td>
<td>10</td>
</tr>
<tr>
<td>Steel wool</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Priority ratings may vary from person to person, and ratings can be debated. Getting the 10 necessary items and the top four priority items are most important. To protect the body from further heat loss, a wool hat, insulative socks, and plastic bag or space blanket for shelter are the four priority items. A knife or compact saw is necessary for building a shelter. Putting up signals, and collecting food and water come after establishing a good shelter. The priority rating for the non-essential items depends on the situation and location. Note that fire starting material is nice to have, but survival is possible without fires.
CHAPTER 4
COLD WATER SURVIVAL SKILLS
CLASSROOM SESSION

GOAL
To understand the effects of accidental immersions in cold water, and how to survive a cold water emergency.

OBJECTIVES
The students will be able to:

1. List the two factors that determine how long a person will survive in water.
2. Explain why it's best not to try swimming to shore.
3. Explain why it's best to stay with the boat.
4. Demonstrate how to put on and use all PFDs.
5. Tell why it's important never to attempt a swim rescue on a drowning victim.

MATERIALS AND EQUIPMENT

1. Video: *It Could Have Been Prevented*, and videocassette recorder and TV. Videos can be purchased or borrowed from the University of Alaska Marine Advisory Program or the Alaska Sea Grant College Program (see Reference section for addresses).

2. Optional videos: *Hypothermia* and *Cold Water Near Drowning*.

3. Type I, II, III, IV, and V Personal Flotation Devices (PFDs).


5. Reading: *Hypothermia*
PRESENTATION PLAN

This section includes a classroom lecture and discussion, *It Could Have Been Prevented* video, a demonstration of personal flotation devices and an opportunity for the students to put on the PFDs, and the Cold Water Survival Skills quiz.

This lesson should be followed with the in-water pool PFD practical or the harbor survival suit practical (Chapters 5 and 6). The optional videos can be reviewed later.

TEACHING TIP

Instructor should be familiar with water safety flotation equipment and feel comfortable discussing the advantages and disadvantages of each PFD type.

INTRODUCTION

Alaskans spend a lot of time on or around the water either fishing, hiking, beachcombing, or traveling by air or boat. Ask students if they can swim, and ask those who can swim how often they swim in a pool and in local waters.

Hazards of local waters include:

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

Ask how many have accidentally fallen into the water near where they live. Ask how it felt. Answers will include: it is cold, you panic or are scared, you're gasping for air, etc.

Discuss how they end up in the water. Answers include: fall off the dock, fall off the boat, boat overturns.

Ask students what their options are when they end up in the water. (Write these on the board.)

- **Rescue yourself**
- **Be rescued**
- **Drown**

DROWNINGS IN ALASKA'S WATERS

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

Alaska drowning statistics:
• 45% occur during recreational outings (not just big fishing boats).
• 50% of the involved boats are skiffs.

Many people drown in Alaska because they:
• Spend more time on or around water.
• Can’t swim, because most small towns don’t have swimming pools to learn in.
• Cold water causes hypothermia.
• No PFDs, responsible for half of recorded deaths.
• People with PFDs do not wear them.
• Approximately 50% have been drinking alcohol.
• Don’t know water rescue skills.

**PREVENTING DROWNING**

How can we reduce the drowning rate and increase chances of survival in cold water?

• Use proper PFDs whenever on or around water.
• Know rescue and self-rescue skills.
• Prevention: stay out of the water.

What are the two factors that determine how long you will survive in cold water?

1. Flotation. This is best provided by Personal Flotation Devices (PFDs). Several types are covered in this lesson.

2. Insulation. Any water below 80° can cause hypothermia (almost all waters in Alaska). Thermal protection is provided by PFDs, clothes, rain gear, etc.

**SELF-RESCUE**

We can help save ourselves by wearing proper flotation and insulative clothes.

Tell the students that if the boat is sinking, they should let it sink under them. If the boat is going down and there is time, put on a PFD, a warm hat, and warm clothes.

Clothes, including boots, will not drag a person down in the water and can provide valuable insulation. Layers of clothing also trap air, which can provide more buoyancy. Body warmth and energy are lost when boots and clothes are taken off in the water, and susceptibility to hypothermia is increased. Search and Rescue Divers often find dead bodies in the water by fol-
lowing the trail of discarded clothes. The water in boots or clothes does not weigh more than the surrounding water.

When it is necessary to enter the water, enter slowly to avoid cold water shock. Try to keep as much of the body as possible out of the water to minimize heat loss.

If a boat is overturned or partially under water, stay with it. Ask students why this is true:

1. It will help you float.
2. It will be more visible to rescuers.
3. Rescuers will search the course the boat was taking.

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

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

Have students demonstrate the H.E.L.P. or Huddle positions while wearing PFDs.

**Rule:** *Attempt to float and to minimize heat loss until rescue.*

---

**Huddle Position**
H.E.L.P. Position

SURVIVAL TIMES IN COLD WATER

Discuss survival times in relation to water temperature and the types of flotation used.

Children, who have less fat and higher surface area to body mass ratios than adults, cool off much more quickly than adults. A man of average build will be helpless from hypothermia (subnormal body temperature) at 41°F (5°C) after 40 to 60 minutes if he is wearing thick conventional clothing. Thin men or those dressed in light clothing will become hypothermic more quickly. A woman of comparable size will usually cool at a slower rate than a man.

Although a body swimming in cold water produces almost three times as much heat as an immobile body, this additional heat is lost to the water because of increased blood circulation to the arms, legs, and skin. Because a swimming person cools 35% faster than when still, it is better to float quietly in a H.E.L.P. or huddle position or cling to the boat or flotsam.

The chart to the right gives average survival times. Individuals vary greatly in response to cold water. The survival times in the chart include long time periods during which the individuals are unconscious and unable to help themselves.

Ask students if they should try to swim to shore. The answer is in most cases NO. In cold water a person can swim only 1/10 the distance he or she can swim in a nice warm pool. For example, a person who can swim 10 laps in a pool can swim only the one lap length in 35° water. Swimming activity results in a loss of heat, and hypothermia will set in and lead to a quicker death.

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

Adapted from Survival In Cold Water, by Chad Davison, Minnesota Sea Grant Extension Program.
PERSONAL FLOTATION DEVICES (PFDs)

Demonstrate the different kinds of PFDs by putting them on. Have students put on the PFDs also.

PFDs approved by the U.S. Coast Guard:

**Type I. Offshore Life Jacket.** It provides great buoyancy, and tends to turn an unconscious victim face up. But it is bulky, and has very little insulation. Because of the bulkiness people usually don’t wear them.

**Type II. Nearshore Buoyant Vest.** This is a typical life vest. It will keep the head and neck out of the water on unconscious people. The Type II has very little insulation.

**Type III. Vest or Float Coat.** These are generally the most comfortable, and they are buoyant. Of the two, the float coat has more buoyancy and more insulation. There are many different styles to choose from.

**Type IV. Ring Buoy or Seat Cushions.** They are used to toss to someone for rescue.

**Type V. Overalls.** These are similar to a survival suit but much more comfortable to work in. They provide excellent insulation and buoyancy, although they are not as insulative as a survival suit.

**Survival suit.** This provides buoyancy and insulation. A person can survive in cold water for up to 24 hours (maybe more) in a survival suit.

In addition to the Coast Guard-approved PFDs, there are inflatable devices not approved by the Coast Guard. These include the inflatable suspenders or the Stormy Seas jackets, which are used by many seafarers who do not like the bulkiness of Coast Guard-approved PFDs. Remember: These devices do not replace Coast Guard-approved PFDs—they only supplement them.

Discuss the different types of PFDs and have students demonstrate how to put them on correctly. The best PFD is the one a person wears—a PFD will not do any good if a person goes into the water without it.

**Questions to ask about your PFD**

- Is it Coast Guard approved?
- Does it still fit?
- Does it still work? (Old PFDs lose their floatability.)
- Have you tried it out in the water?

Survival items that can be put into or attached to PFD include a survival kit, whistle, mirror, strobe light, signals, etc.
Type I.
Offshore Life Jacket

Type II.
Nearshore Buoyant Vest

Type III.
Float Coat

Type IV.
Ring Buoy and Seat Cushions
RESCUING OTHERS

(Write on board)

Reach, Throw, and Tow

BUT DON'T GO!

Never attempt a water rescue on a drowning victim. Attempt a rescue without getting into the water.

Why? It is too easy to become the second victim.

- A panicked victim may cling to you and pull you under, resulting in a double drowning.
- You may both die of hypothermia.
- Water dangers may kill both of you (such as currents).

A drowning victim may not be able to hear, see, or respond.

- Hands are going up and down.
- His head may be going in and out of the water, so he may not be able to see.
- If he goes into shock or hyperventilates, he may not be able to scream.
First, attempt to REACH the victim. Discuss items that can be used in different circumstances.

- Long pole
- Oar
- Gaff hook
- Clothing
- Fishing pole
- Fishing buoy with line

Or, THROW anything that provides flotation, such as styrofoam, water jug, cushion, etc.

Then TOW if you can pull the victim in. While centering your weight on your back foot, pull the victim toward you with a slow and steady movement. Demonstrate with student as victim, and teacher as rescuer.

Remember: To provide reassurance, yell to the victim and let him or her know what you are doing.

Ask students what they should do if they don't have anything to throw and can't get to the victim.

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. It is important to attempt a rescue or go for help. A cold-water-near-drowning victim may look drowned, but could be resuscitated successfully.
Hypothermia:
Surviving In Cold Water

Reprinted from University of Wisconsin Sea Grant Advisory Services

Pennants W15-SG-85-428-2, by James F. Lubner,
University of Wisconsin Sea Grant Advisory Services, 1800 University Avenue, Madison, WI 53705, phone (608) 262-0645.

Have you ever thought what it's like to suddenly plunge into cold water? Sudden immersion in cold water causes a severe shock to your body. The first reaction is often an involuntary gasping for breath—which can result in drowning if your head is under water at the time.

If you avoid drowning, hypothermia is your next concern. Very simply, hypothermia is a lower-than-normal body temperature. Cold water can conduct heat away from your body 25 times faster than cold air. Within 10-15 minutes, the temperature in your body's core—the brain, heart, lungs and other vital organs—begins to cool.

Your body responds by trying to keep as much heat as possible in the core. The flow of blood to the arms and legs is dramatically reduced. Your body tries to generate more heat by shivering and other involuntary muscle movements. In a very short time, you lose the ability to move your arms and legs.

Shivering is unlikely to produce enough heat to balance the heat lost to the cold water. Your body has only limited, readily available energy reserves, and survival depends on making those reserves last as long as possible. If its core continues to cool, your body gives up its attempt to produce heat. Shivering stops. As the brain cools, its functions become impaired. You will probably become very confused; you may even resist efforts by others to assist you. Your muscles will become increasingly rigid. You will be almost completely unable to help yourself.

If your body continues to cool, you will lapse into unconsciousness. You may appear already dead; there may be no signs of heartbeat or breathing, because these functions slow dramatically. Death actually occurs after your heart cools to about 77°F and stops beating, although there are cases where people with body core temperatures less than 77°F have survived.

H.E.L.P.
(Heat Escape Lessening Posture)

Hold your arms and knees to your chest to protect the trunk of your body from heat loss.

Illustrations adapted from original.

HUDDLE

Huddle together with two or more people. This will extend your survival time 50% longer than swimming or treading water.

How fast does all of this occur? The answer depends on many factors, such as water temperature, your age and physical condition, how you behave while in the water, the amount of insulation provided by your clothing and your mental attitude. Under the worst circumstances, you may lapse into unconsciousness in 30 minutes or less; you could be dead in less than an hour.

However, you can take certain steps to extend your survival time and increase your chances of being rescued. Many of these steps will help your body to conserve energy and retain heat in the core area.

- Even the very best PFD is ineffective if it doesn't accompany you into the water. The only way to be sure that you will have it when you need it is to wear it at all times while on or near the water.
- Keep as much of your body out of the water as possible. This is especially true of your head and neck. As much as 50 percent of your body's heat loss occurs in these areas. A hat or hood can help protect these critical areas.
- Climbing onto a capsized boat or floating debris is better than remaining in cold water. Otherwise, huddling together with others in the water helps everyone conserve heat.
- Some PFDs provide better insulation from cold water than others. Generally, a vest provides more insulation than a collar-type device. Full PFD jackets, especially those equipped with a hood, can extend your survival time by protecting most of the core area of your body. Fully insulated flotation suits or coveralls offer the best protection.

- Use some means of flotation so you don't have to use energy to keep yourself afloat. Treading water and swimming can increase your body's heat loss by as much as 35 percent. The best means of staying afloat is a personal flotation device (PFD). You should test it in a nonemergency situation to be sure that it fits properly and comfortably.
Hypothermia Chart

<table>
<thead>
<tr>
<th>Temperature of Water (°F)</th>
<th>Exhaustion or Unconsciousness</th>
<th>Expected Survival Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.5</td>
<td>Under 15 minutes</td>
<td>Under 15 - 45 minutes</td>
</tr>
<tr>
<td>32.5 - 40</td>
<td>15 - 30 minutes</td>
<td>30 - 90 minutes</td>
</tr>
<tr>
<td>40 - 50</td>
<td>30 - 60 minutes</td>
<td>1 - 3 hours</td>
</tr>
<tr>
<td>50 - 60</td>
<td>1 - 2 hours</td>
<td>1 - 6 hours</td>
</tr>
<tr>
<td>60 - 70</td>
<td>2 - 7 hours</td>
<td>2 - 40 hours</td>
</tr>
<tr>
<td>70 - 80</td>
<td>3 - 12 hours</td>
<td>3 hours - indefinite</td>
</tr>
<tr>
<td>Over 80</td>
<td>Indefinite</td>
<td></td>
</tr>
</tbody>
</table>

so that you can use them. Remember that in cold water you will quickly lose the use of your hands and fingers so get these items out and prepared for use soon after you enter the water.

If you have taken these precautions—you can—and indeed must—assume that you will survive. Maintaining a positive attitude can often make the difference between life and death in such situations.

Hypothermia Symptoms and First Aid Procedures

MILD SYMPTOMS
(Body core temperature 97-93°F)
- Shivering; cold hands and feet.
- Still alert and able to help self.
- Numbness in limbs, loss of dexterity, clumsiness.
- Pain from cold.

First Aid
- Primary task is to prevent further heat loss and enable the body to rewarm itself.
- Give warm, sweet drinks—no alcohol!
- Apply gentle heat source to stabilize body temperature.
- Exercise victim to generate heat.
- Keep victim warm for several hours, keep head and neck covered.

MODERATE SYMPTOMS
(Body core temperature 93-90°F)
- Shivering may decrease or stop.

First Aid
- Same as above, except limit exercise.
- Offer sips of warm, sweet liquids only if victim is fully conscious, has begun to re-warm, and is able to swallow. No alcohol!
- Have victim checked by doctor.

SEVERE SYMPTOMS
(Body core temperature 90-82°F)
- Shivering has decreased or stopped.
- Confusion, abnormal behavior, loss of reasoning and recall.
- Victim appears drunk; very clumsy, slurs speech, denies problem and may resist help.
- Victim semiconscious to unconscious.
- Noticeable muscular rigidity.

First Aid
- Victim is in serious trouble—keep continuous watch over victim.
- Obtain medical assistance or advice as soon as possible.
- Treat as for shock—lay victim down, elevate feet slightly, keep immobile.
- Apply external mild heat to head, neck, chest and groin; keep temperature from dropping, but avoid too rapid a temperature rise.
- No food or drink—no alcohol!
- Transport soon, but gently, to hospital.

CRITICAL SYMPTOMS
(Body core temperature below 82°F)
- Victim is unconscious and may appear dead.
- Little or no apparent breathing.
- Pulse slow and weak, or no pulse found.
- Skin cold, may be bluish-gray in color.
- Eyes may be dilated.
- Body is very rigid.

First Aid
- Don’t give up! Always assume patient is revivable.
- Handle with extreme care.
- Tilt the head back to open the airway—look, listen, and feel for breathing and pulse for one to two full minutes.
- If there is any breathing or pulse, no matter how faint or slow, do not give CPR, but keep close watch on vital sign changes.
- Stabilize temperature with external heat sources; try skin-to-skin, chest-to-back warming (leave legs alone) and/or exhale in victim’s face and in unison with his/her breathing.
- If no breathing or no pulse is detected for one to two minutes, begin CPR immediately.
- Medical help is imperative—hospitalization is needed.

Adapted from the University of Rhode Island’s Ski-Emergency Program and the United States Navy’s First Aid Manual.
COLD WATER SURVIVAL SKILLS QUIZ

Student Name: 

1. What are the two factors that determine how long you will survive in cold water?
   __________
   __________

2. If your boat goes down and you can barely see the shore you should try to swim to shore.
   True or False (circle correct answer)

3. If you can swim you should swim out to a drowning victim to try to save him or her.
   True or False (circle correct answer)

4. If you are by yourself in the water, use the __________ position.
   (H.E.L.P., Huddle)

5. A float coat is a type III Personal Flotation Device.
   True or False (circle correct answer)

6. If your skiff overturns and is still floating you should (check the correct answer):
   ____ swim to shore
   ____ stay with the boat

7. List four reasons why Alaska has so many drowning victims.
   1.
   2.
   3.
   4.

8. All waters in Alaska are so cold that being in any Alaska water for a while can lead to
   ___________________________
COLD WATER SURVIVAL SKILLS QUIZ

9. You can reduce the number of drownings in Alaska and increase your chance of survival in cold water by (check all correct answers)
   ____ knowing how to rescue someone
   ____ staying out of the water
   ____ swimming to shore when you fall in
   ____ assuming the H.E.L.P. or Huddle position
   ____ swimming out to save a drowning victim

10. If you accidentally end up in the water, you have three options:
    a. rescue yourself
    b. get rescued, or
    c. ________________

11. List the five areas on your body where a lot of heat is lost:
    ________________, ________________,
    ________________, ________________, and
    ________________

12. A ________________ (a type of PFD) provides the most amount of insulation and flotation and can keep you alive for up to 24 hours in the water.

13. The best PFD for you is the one you will ________________.

14. In attempting a rescue:
    ________________, ________________, and ________________ but never ________________.

15. List five items that can assist you in an attempted rescue:
   1. ________________
   2. ________________
   3. ________________
   4. ________________
   5. ________________
1. What are the two factors that determine how long you will survive in cold water?
   - Flotation
   - Insulation

2. If your boat goes down and you can barely see the shore you should try to swim to shore.
   True or False (circle correct answer)

3. If you can swim you should swim out to a drowning victim to try to save him or her.
   True or False (circle correct answer)

4. If you are by yourself in the water, use the___________ position.
   (H.E.L.P., Huddle)

5. A float coat is a type III Personal Flotation Device.
   True or False (circle correct answer)

6. If your skiff overturns and is still floating you should (check the correct answer):
   ____ swim to shore
   ___X___ stay with the boat

7. List four reasons why Alaska has so many drowning victims.
   1. They don't wear PFDs
   2. Water is cold
   3. Alaskans spend more time around water
   4. Many were drinking alcohol
   5. Many can't swim
   6. Many don't know water rescue skills

8. All waters in Alaska are so cold that being in any Alaska water for a while can lead to hypothermia.
9. You can reduce the number of drownings in Alaska and increase your chance of survival in cold water by (check all correct answers)

- X knowing how to rescue someone
- X staying out of the water
- _____ swimming to shore when you fall in
- X assuming the H.E.L.P. or Huddle position
- _____ swimming out to save a drowning victim.

10. If you accidentally end up in the water, you have three options:

a. rescue yourself
b. get rescued, or
c. die

11. List the five areas on your body where a lot of heat is lost:

Head, Back, Sides, Groin, and Armpits.

12. A survival suit (a type of PFD) provides the most insulation and flotation and can keep you alive for up to 24 hours in the water.

13. The best PFD for you is the one you will wear.

14. In attempting a rescue:

Reach, throw, and tow but never go.

15. List five items that can assist you in an attempted rescue:

(Answers can vary)

1. Oar
2. Rope
3. Clothing
4. Branch
5. PFD
6. Other people