Land Safety and Survival: Volume 3

Surviving Outdoor Adventures

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More lesson plans and additional teaching resources can be found on AMSEA's Web site: www.amsea.org

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Welcome to Surviving Outdoor Adventures!

Surviving Outdoor Adventures is a K-12 curriculum designed to be used in its entirety or in parts to help you prepare children and young adults to play and work safely in the outdoors and around cold water. This curriculum consists of four volumes:

1. *Survivor!* (for Kindergarten-second grade)
2. *Cold Water Safety and Survival* (for third-twelfth grades)
3. *Small Boat Safety and Survival* (for third-twelfth grades)
4. *Land Safety and Survival* (for third-twelfth grades)

Each volume contains:

- Instructional units—each with objectives, an activities guide, background information, a variety of student activities, and content standards
- Overhead masters (except in *Survivor!*)
- Resources

Each instructional unit has an introduction page that summarizes the unit's purpose and its goal. Used with the unit's activities guide, it provides a tool for you to choose the topics and activities that will be most relevant to your students and their outdoor safety and survival. Activities are approached in a variety of ways and incorporate the following Content Standards subjects: Language Arts, Mathematics, Science, Geography, Government and Citizenship, History, Skills for a Healthy Life, Arts, World Languages, Technology, Library/Information Literacy, and Cultural Standards (*Alaska Content Standards,* 2000 edition).

Acknowledgments

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Volume 3: Land Safety and Survival

Hiking, backpacking, berry picking, skiing, skating, using snowmachines, and hunting are just a few of the outdoor activities many families enjoy. They are all more enjoyable when everyone participating is well-prepared and has learned basic outdoor skills. Using the information and activities in this volume, you can help children prepare for land-based activities, make important decisions about alcohol and drugs, learn to use maps, and increase their chances of survival in a land-based emergency. The skills and attitudes they learn when young will stay with them throughout their lives.

How to Use Volume 3: Land Safety and Survival

Land Safety and Survival contains three units presenting the latest information on:

1. Preparing for a Land Adventure
2. Maps and Compasses
3. Emergencies on Land

Whether you are teaching one lesson, a semester, or a year-long program, this volume provides information and activities needed to cover land safety and survival. Although Land Safety and Survival can stand alone from the other volumes, information and activities within it are sequential, and each unit assumes knowledge of the material in the preceding unit.

Getting around Volume 3: Land Safety and Survival

Each of the three units in this volume contains:

- Overview—the unit rationale and goal.
- Teacher Information—in-depth background information presented in outline form to provide teachers with the latest information on land safety and survival. Icons appear in the margin to indicate where overhead masters may be used to reinforce content and concepts. Teachers are advised to use their judgment when presenting this material; some concepts and activities may not be suitable for younger children.
- Activities Guide—a teacher's planning guide with a list of activities, a brief summary of each activity, its objectives, Alaska Content Standards, and page numbers. Activities coincide with the major topics in the Teacher Information.
- Activities—stand-alone lessons that include an overview, objectives, materials list, procedures, Alaska Content Standards, plus student handouts, answer keys, and templates.

Permission Forms and Waivers

Any hands-on activity carries risk of injury to participants. AMSEA is not responsible for injuries resulting from the activities in this publication. Teachers are strongly encouraged to follow the safety guidelines in the activities and provide proper supervision and organization. This is especially critical for in-water activities. Instructors are encouraged to co-teach and report to AMSEA safety problems or concerns that arise.

It is strongly suggested that instructors get signed permission forms for each student participating in hands-on activities. It is especially important that students' parents/guardians note any health problems or physical considerations that may limit students' participation. A sample form follows.

A sample liability form (waiver) is also included in case you are not instructing under the liability protection of a school or other organization. Check with the organization you are working under regarding your liability. It is up to the instructor to ensure that they have proper liability protection.

Surviving Outdoor Adventures Permission Slip

I give my permission for ______________________________ to participate in the water or land safety and survival training exercise field trip as part of

Mr./Ms. ________________________ class. Staff and students will be traveling to

________________________ on date(s) and time(s) ____________________________.

____ We will be taking the bus to and from the school.

____ We will be walking to and from the school

Please list any special needs or concerns your child may have ______________________

____.

Parent/Guardian Signature ______________________________ Date ______________

Printed name ____

Surviving Outdoor Adventures Permission Slip

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Please list any special needs or concerns your child may have ______________________

____.

Parent/Guardian Signature ______________________________ Date ______________

Printed name ____

Sample Waiver Form

Waivers are a controversial topic. Some legal experts believe they limit liability by making students aware of hazards, while others believe they increase liability. Instructors should make their own choice, consulting a lawyer if necessary to make a decision. If you use a waiver in your class, get it signed *before* the class begins. Parents should never be pressed to sign a waiver. A sample follows.

Cold Water Survival Program Assumption of Risk and Waiver & Release

I, ____________________________________ (print name) recognize the activity in which my child desires to participate involves a risk of injury. I am aware and accept the risks involved, which may include but are not limited to: striking objects when entering water, cardiac arrest, ventricular fibrillation, inadvertent gasping and inhalation of water, sudden drowning syndrome, or drowning from other causes, hypothermia, falls from walking on slippery beaches or woods, and other injuries which may occur due to the use of safety and survival equipment such as distress flares, liferafts, personal flotation devices, dewatering pumps, fire extinguishers, etc.

I hereby execute this release as a condition of and in partial consideration for allowing my child to participate in all or a portion of the cold water training program conducted by ____. I am familiar with the activities and events that will be included in this training and I have read a copy of the schedule of activities in which my child is to participate. I have read and voluntarily signed this release, waiver of liability and indemnity agreement, intending legally to be bound, and I further agree that no oral representations, statements, or inducements apart from those contained in this release have been made to me.

I hereby release, discharge, and covenant not to sue ______________________________________, its agents, employees, representatives, officers, directors, members, and all other persons acting for __________________________________ and all instructors, participants and advertisers (hereinafter called "Releasees") from all liability. This includes me, my child, my personal representatives, heirs, assigns, and next of kin, for any and all loss or damage and any claim or demands thereof on account of injury to my child, his/her or property or his/her death, whether caused by the negligence of the Releasees or otherwise, as the result of my child having participated in any portion of the program.

I hereby agree to indemnify and save and hold harmless the Releasees and each of them from any loss, liability, damage, or cost they might incur due to my child's participation in the survival program in any manner and assume responsibility for, and the risk of, bodily injury, death, or property damage due to the negligence of Releasees or otherwise, resulting from my child's participation in the program. I acknowledge that my child's health and physical condition will allow him/her to perform the activities in this training.

IN WITNESS THEREOF, I have executed this release on ____________________ (date)

Releasor signature ____

Printed name ____

Please list any health problems or injuries that may limit your child's participation on the back of this page and return to instructor.

Unit 1: Preparing for a Land Adventure

Unit Rationale

Many children and adults lose their lives when involved in outdoor activities, often because they are inadequately prepared. Many fatalities can be prevented if people learn about weather, hypothermia, outdoor clothing, being prepared for the unexpected, and the danger of mixing alcohol with outdoor activities. This information, presented in this unit, will also enhance self-confidence when circumstances force an unplanned extension of time in the wilderness.

Unit Goal

To introduce students to the knowledge and skills needed to prepare for a safe and enjoyable outdoor experience.

Preparing for a Land Adventure: Teacher Information

The information in this section gives teachers a background in the topic. Use your judgment when presenting this material; some concepts may not be suitable for younger children.

Weather

Introduction

A. Weather can make your outdoor experience a pleasure or a disaster

B. Learn your limits for traveling in unfavorable weather

  1. If tempted to go out in marginal conditions, remember, "When in doubt, chicken out!"
  2. Avoid "get-home-itis"—it can be fatal!
  3. It's better to be late than never arrive at all

C. Movement of large air masses around the earth create weather

  1. Weather fronts
     a. Are located where two air masses meet
     b. Are often marked by different cloud formations and wind shifts
     c. Indicate a change in weather
  2. Local weather
     a. Local weather is influenced by local geographic variations
     b. Local weather is highly variable; changes can be sudden
     c. Local knowledge is best to understand dangers
  3. Seasonal weather conditions
     a. Weather changes tend to be more sudden at or between fall and spring equinoxes
     b. Higher incidence of strong winds autumn through winter in Alaska
     c. Other regions of U.S. have different seasonal weather, e.g., in southern U.S., summer brings more hurricanes
  4. Sudden changes in weather can happen any part of year

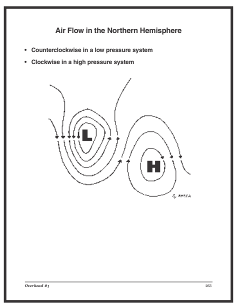
Evaluating the weather

A. Weather can change quickly—evaluate before and during your trip

B. Use more than one source to evaluate weather

  1. Access most recent weather reports and forecasts for departure point, anticipated route, and destination
     a. Scheduled forecasts on AM and FM radio stations
     b. VHF radio—on demand
     c. TV weather stations
     d. Internet—links for Alaska weather on AMSEA's Web site: www.amsea.org
     e. Telephone—available in some locations, number varies, in Alaska marine weather is 907-790-6850
  2. Check local conditions
     a. Check and interpret local weather conditions and patterns

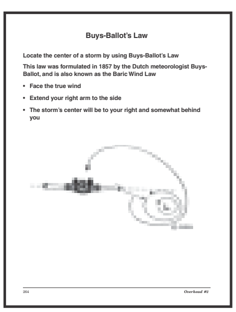
b. Learn local patterns—look for fog, clouds, squalls, etc. (e.g., in coastal Alaska observe western sky for oncoming weather)
   (1) Clouds
      (a) High, fast moving clouds indicate surface winds will increase
      (b) Darker clouds are heavily laden with water and indicate wet, windy weather
   (2) Sudden drop in temperature and/or a rapid change in wind speed or direction usually indicate a front coming through
   (3) Winds from low pressure systems usually
      (a) Start building from the east
      (b) Build to maximum from the southeast
      (c) Begin to weaken from the southwest
      (d) Indicate system has passed when coming from a westerly direction



Overhead #1

c. Check barometer to measure current air pressure
   (1) Low pressure system in Northern Hemisphere—counterclockwise air flow—brings wet, windy, foul weather (the North Pacific has a semipermanent low in winter) (see Overhead #1)
   (2) High pressure system in Northern Hemisphere—clockwise air flow—brings clear, dry, and sometimes windy weather
   (3) The greater the difference between nearby pressure systems, the greater the wind
   (4) Rapidity of barometer's rise and fall
      (a) Is more important than barometer reading at any given time
      (b) Indicates strength of weather system
      (c) Generally, a rising barometer brings improving weather

d. Use local knowledge—Elders and experienced outdoor people are a good source of local weather information



Overhead #2

Buys-Ballot's law—used to find center of storm system in Northern Hemisphere (see Overhead #2)

A. Place your face into the true wind
B. Extend your right arm out to your side
C. The center of the low pressure will be to your right and somewhat behind you
D. As storm passes, center will move farther to your right

Wind

A. Wind can cool you down faster than still air and increase your risk of hypothermia
B. Extreme wind can increase your risk of falling and destroy your camp

Fog

A. Increases risk of getting lost
B. Types
   1. Radiation fog

a. Radiation fog develops at night or in early morning when there is no wind

b. If not cleared by warming sun in late morning, radiation fog may stay all day

2. Advection fog is caused by warm moist air moving over colder surfaces

a. Can develop night or day

b. Needs wind to clear up

Hypothermia

- Hypothermia kills many people on outdoor adventures; knowing how to prevent it is critical!

Definitions

A. Hypothermia = drop in body core temperature

B. Core = inside head and trunk where vital organs like brain, heart, and lungs are

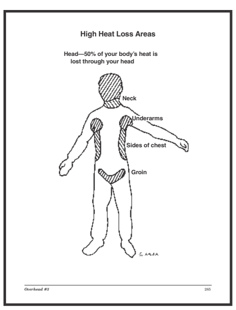
C. Dry hypothermia—also called chronic, land, or slow onset hypothermia

1. Dry hypothermia is most common on land
2. Onset can be extremely slow and can occur in relatively mild conditions
3. Dry hypothermia is sometimes difficult to recognize

D. Immersion hypothermia—also called acute, wet, or rapid onset hypothermia

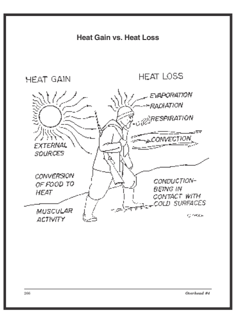
1. Immersion hypothermia can occur from being in water
2. Onset is rapid due to heat loss in water from conduction and convection
3. Loss of muscle coordination decreases ability to self-rescue, and increases rescue difficulties and likelihood of drowning
4. Victim of immersion hypothermia continues to cool rapidly once out of the water because he/she is wet

E. High heat loss areas (see Overhead #3)



Overhead #3

1. Head—50% of your body's heat is lost from your head
2. Neck
3. Underarms
4. Sides of chest
5. Groin



Overhead #4

Heat Gain vs. Heat Loss (see Overhead #4)

A. Any time you lose more heat than you produce, hypothermia results

B. Without adequate food and clothing or external heat sources, your core temperature cannot be maintained except in tropical climates

C. Your body at rest loses more heat than it generates

1. In air less than 80˚F
2. In water less than 91˚F

D. Heat regulation

1. Your body tries to maintain normal body temperature (usually 98.6˚F, 37˚C)
2. Your body reduces circulation to extremities when cold

E. How your body gains heat

1. Muscle activity
    a. Initially may increase body heat
    b. May be voluntary or involuntary (shivering)
    c. Without adequate food, water, and rest, activity leads to exhaustion
2. Food
    a. Required for your body to generate heat
    b. You need more food when under stress
    c. You cannot fully compensate for environmental cooling by eating—you also need to insulate your body
3. External heat sources (e.g., warm food or drinks, sunlight, fire) can assist in maintaining body temperature

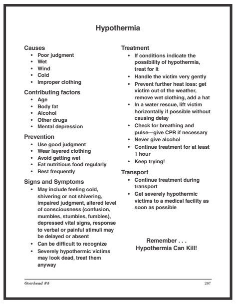
F. Your body loses heat five ways

1. Radiation
    a. Your body is like large radiator 70% full of hot water, giving off heat to environment 24 hours a day
    b. To minimize, insulate body well, drink water, and eat
2. Respiration
    a. Air cooler than your body is inhaled, warmed, then exhaled
    b. To minimize, breathe through your nose or a scarf
3. Conduction
    a. Occurs when in contact with surfaces cooler than your body
    b. Conduction is 25 times faster in water than in still air
    c. To minimize, stay as dry as possible and insulate yourself from cold surfaces
4. Evaporation
    a. Heat is lost when sweat or water on skin evaporates
    b. To minimize, reduce exposure to precipitation and sweating
        (1) Use a waterproof outer layer as appropriate
        (2) Regulate body temperature with layers of clothing
        (3) Reduce activity to minimize sweating
5. Convection
    a. Occurs when moving air or water removes body heat
    b. Heat loss increases as air or water speed increases
    c. Speeds up process of cooling from other four heat loss mechanisms
    d. To minimize, stay out of wind and water, and wear windproof outer layer

General Causes of Hypothermia (see Overhead #5)

A. Poor judgment

B. Exposure to wind, wet, and cold


Hypothermia

Causes
- Poor judgment
- Wet
- Wind
- Cold
- Improper clothing

Contributing factors
- Age
- Body fat
- Alcohol
- Other drugs
- Mental depression

Prevention
- Use good judgment
- Wear layered clothing
- Avoid getting wet
- Eat nutritious food regularly
- Rest frequently

Signs and Symptoms
- May include feeling cold, shivering or not shivering, impaired judgment, altered level of consciousness (confusion, mumbles, stumbles, fumbles), depressed vital signs, response to verbal or painful stimuli may be delayed or absent
- Can be difficult to recognize
- Severely hypothermic victims may look dead, treat them anyway

Treatment
- If conditions indicate the possibility of hypothermia, treat for it
- Handle the victim very gently
- Prevent further heat loss: get victim out of the weather, remove wet clothing, add a hat
- In a water rescue, lift victim horizontally if possible without causing delay
- Check for breathing and pulse—give CPR if necessary
- Never give alcohol
- Continue treatment for at least 1 hour
- Keep trying!

Transport
- Continue treatment during transport
- Get severely hypothermic victims to a medical facility as soon as possible

Remember . . .
Hypothermia Can Kill!

Overhead #5 267

Overhead #5

C. Improper clothing

D. Contributing factors

1. Age—very young or very old people may not have adequate heat regulating systems
2. Body fat—people with less body fat cool faster than people with more body fat
3. Alcohol—dilates blood vessels (which speeds up heat loss), and impairs judgment
4. Other drugs can hasten heat loss
5. Mental depression can lower body temperature

Preventing Hypothermia

A. Use good judgment—know your limits, equipment, and environment

B. Eat nutritious foods and drink water regularly

1. Eat to increase heat production before heat loss is a problem
    - a. Sugar—source of quick but short-lived burst of energy
    - b. Complex carbohydrates—source of short-term energy, lasts longer than sugar
    - c. Fats—provide longer-term, more concentrated energy than sugar and complex carbohydrates
    - d. Protein—needed for cell development, maintenance, and long-term energy; requires more water for digestion
    - e. Vitamins and minerals—essential for cell development and maintenance
2. Digestion requires water
    - a. You will dehydrate if you eat without drinking water
    - b. Take plenty of water with you and drink it!
    - c. Drinking untreated water is not safe—have a way to treat it
    - d. See Emergencies on Land, Unit 3, for information on treating water

C. Rest frequently

D. Reduce exposure to wind, wet, and cold—stay dry and warm!

E. Have a positive mental attitude—depression makes you cooler

F. If you are getting cold, stop your activity, decrease heat loss, and increase heat gain while you are still able to control cooling process

G. Wear proper clothing

- Hypothermia treatment—see Emergencies on Land, Unit 3

Clothing

Clothes are your primary shelter

A. Body heat is retained by trapping air next to it

B. The more still air clothing holds and keeps warm, the better its insulating value

C. Proper clothing protects against wind, wet, and cold, and protects high heat loss areas—waterproof and windproof layers are a must

D. Avoid "day trip" mentality—bring enough clothing to spend an unexpected night

- Dark colors absorb more heat from external sources but are more difficult to see than bright or light colors
- Type of fabric and presence of water affect how well clothing insulates—some fabrics lose most of their insulating value when wet

Fabrics

A. Wool
1. Wool provides good insulation when dry
2. When wet it loses some insulating ability
3. Traps water and is heavy when wet
4. Not readily flammable

B. Polypropylene, "pile," polyesters, Polartec, fleece, and other synthetics
1. Generally light weight and dry quickly
2. Provide good insulation
3. Some are engineered to wick water away from body, which helps prevent heat loss
4. Fibers don't readily absorb and hold water
5. Retain most of their insulating ability when wet
6. Most are not windproof unless specially designed
7. Some chemically treated to not hold body odor
8. Low ignition temperature so can get burn holes or melt onto skin if worn too close to heat
9. Products and properties vary widely; read manufacturer's information

C. Cotton
1. Rapidly absorbs and holds water—cotton sucks
2. Provides no insulation, feels clammy and cold when wet
3. Wet cotton increases heat loss
4. Poor fabric choice for wet climate outdoor activities

D. Silk
1. Very thin
2. Loses insulating ability when wet
3. Can be an effective insulator in dry climates

E. Down
1. One of the most efficient insulators for weight when dry
2. Provides no insulation when wet
3. Very hard to dry once wet
4. Poor choice for wet climate outdoor activities

F. Animal fur
1. Excellent insulator when dry
2. Naturally water resistant due to natural oils
3. Becomes less water resistant over time due to breakdown of natural oils

4. Usually functions as shell and middle layers
5. Best insulating fur has hollow or very dense hair fibers (e.g., caribou, seal, and otter)
6. Very effective at shedding frost and ice

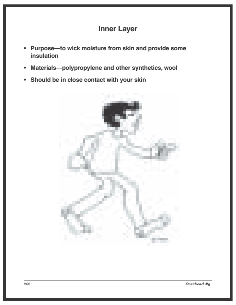
Wear Layered Clothing

A. In general, multiple layers trap more air than a single layer garment of same thickness

B. Adjusting to environmental changes is easier when you layer your clothing

C. Removing layers before overheating reduces sweating and subsequent heat loss

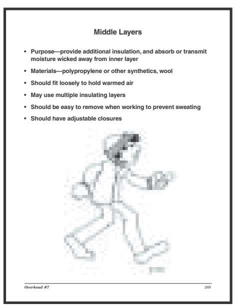
D. Inner layer = underwear, long underwear, inner socks (see Overhead #6)



Overhead #6

1. Purpose—to wick moisture from skin and provide some insulation
2. Materials—polypropylene and other synthetics, wool, silk
3. Should be snug, have close contact with skin

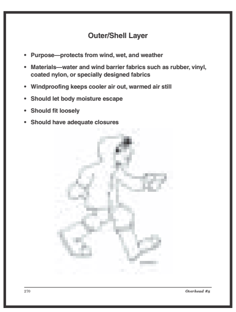
E. Middle layers = shirts, pants, sweaters, vests, jackets, hats, thick socks, mittens or gloves (see Overhead #7)



Overhead #7

1. Purpose—provide additional insulation and absorb or transmit moisture wicked from inner layer
2. Materials—polypropylene and other synthetics, wool, animal furs
3. Should fit loosely to hold warmed air
4. May use multiple insulating layers
5. Should be easy to remove when working to prevent sweating
6. Should have adjustable closures
7. Hats
   a. Reduce heat loss from highest heat loss area—lose 50% of body heat through your head
   b. Effective way to help keep your whole body warm—Cold feet? Put on a hat
   c. Wool and synthetic hats are more effective than cotton baseball caps
   d. Can be middle or outer layer, or combination

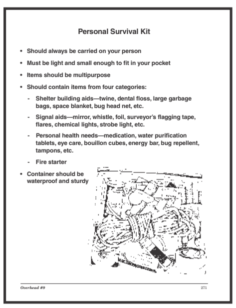
F. Outer/shell layer = wind and waterproof shell, hooded jacket, snow-pants, rain gear, waterproof overmitts or gloves, boots, shoes (see Overhead #8)



Overhead #8

1. Purpose—protects from wind, wet, and weather
2. Materials—water and wind barrier fabrics such as oilskins, rubber, coated nylon, specially treated fabrics, animal fur (if dry), wool (if dry)
3. Windproofing increases efficiency of middle layers by keeping cooler air away from your skin and holding warmed air still
4. Should fit loosely
5. Should have adequate closures
6. Should let moisture escape
   a. "Breathable" shells
      (1) Allow wicked water to escape
      (2) Keep out light rain but not heavy rain

(3) Dirt, oils from skin, wood smoke, salt water, and repeated washing reduces garment's breathability
(4) In a dry sub-freezing environment
(a) Breathable outer layer is critical
(b) Moisture wicked away from body can freeze on inside of shell—even breathable ones
b. Shells that do not "breathe"
(1) Keep wicked water inside
(2) Offer good protection from heavy rain
7. Conditions and activity levels determine which type is best
8. When there is no wind, better to not wear shell and brush off frozen moisture from outermost middle layer
9. When wearing outer shell, carry extra clothes and change wet clothes as soon as activity ends
10. Down parkas combine insulation with a wind shell but offer no protection from rain or wet snow
11. Fur and snowsuits combine insulation with shell layer


Personal Survival Kit

- Should always be carried on your person
- Must be light and small enough to fit in your pocket
- Items should be multipurpose
- Should contain items from four categories:
  - Shelter building aids—twine, dental floss, large garbage bags, space blanket, bug head net, etc.
  - Signal aids—mirror, whistle, foil, surveyor's flagging tape, flares, chemical lights, strobe light, etc.
  - Personal health needs—medication, water purification tablets, eye care, bouillon cubes, energy bar, bug repellent, tampons, etc.
  - Fire starter
- Container should be waterproof and sturdy

Overhead #9 271

Overhead #9

Personal Survival Kits (see Overhead #9)

- Most people arrive in survival situations with just clothing they are wearing and what's in their pockets

Items to have on your person at all times

A. Clothing appropriate for outside environment—cotton is a poor choice in wet environments
B. Hat—wool or synthetic stocking/watch cap
C. Knife—sheath-type or good pocket knife (not safe for small children)
D. Personal survival kit
1. Must be light and small enough so it is always on your person
2. Essential areas of contents
a. Shelter aids—such as twine or cordage, dental floss, large garbage bags, space blanket, bug head net
b. Signal aids—such as mirrors, whistle, foil, surveyors flagging tape, flares, chemical lights, strobe light, paper and pencil
c. Personal health needs—such as medication, water purification tablets, eye care, tampons, bug repellent, bouillon, energy bars
d. Fire starter (see Emergencies on Land unit for detailed information on fire)
3. Multipurpose items are best
4. Contents depend on individual, environment, and activity
5. Contents should not be dominated by one or two items or categories of items
6. Everyone on trip should have one or two kits
7. Commercially purchased kits may not contain the four categories of essential items
8. Should be inspected regularly and outdated items replaced

9. Container must be waterproof and sturdy
10. Considerations for children
    (a) Choose age-appropriate items
    (b) Train to use all items properly

Comfort Kits—Nice to Have Items

A. Bigger version of personal survival kit
   1. Should include items from same categories but expand by adding
      a. Personal Locator Beacon (PLB), hand-held VHF radio, flares, etc.
      b. Food and water
      c. First aid kit

B. Use primarily for vehicle-based land travel or boating

C. Comfort kits should be accessible

D. Don't count on it being there when you need it—this is not a personal survival kit

E. Container for kit should be waterproof and have a handle

F. Comfort kits should be inspected regularly

Equipment

Camping gear—choices and amounts will be individual choice

A. Shelter aids
   1. Extra clothes
   2. Tent, tarp, line, folding saw, hatchet, etc.
   3. Sleeping bag, pad

B. Signals—PLB, hand-held VHF radio, cellular phone, etc.

C. Water, extra water containers, way to purify water

D. Food, cook stove, fuel, matches/lighter, pots, etc.

E. Fire starter

F. Flashlight/headlamp with spare batteries

G. Topographic maps, nautical charts

H. Compass

I. First aid kit

J. Insect repellent

K. Devices for bear protection—bear spray, flares, gun (not appropriate for small children)

L. Personal hygiene items

M. Backcountry snow shovel

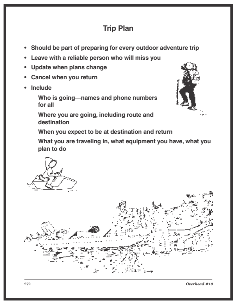
Vehicle gear

A. Extra fuel

B. Spare parts

C. Tool kit

D. First aid kit


Trip Plan

- Should be part of preparing for every outdoor adventure trip
- Leave with a reliable person who will miss you
- Update when plans change
- Cancel when you return
- Include
  - Who is going—names and phone numbers for all
  - Where you are going, including route and destination
  - When you expect to be at destination and return
  - What you are traveling in, what equipment you have, what you plan to do

272 Overhead #10

Overhead #10

Trip Plan (see Overhead #10)

- Should be part of preparing for every trip on land
- Leave with a reliable person who will miss you
- Update when plans change
- Cancel when return
- One of the best ways to signal for help when an emergency occurs

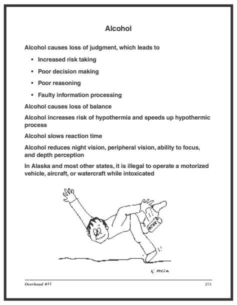
Information to include

A. Who
   1. Names and contact phone numbers of all people on trip
   2. Emergency contacts
   3. Helps searchers
      a. Know how many people to look for
      b. Call other people on trip plan in case you forget to check in
      c. Contact others in case of emergency

B. Where
   1. Describe route, what you plan to do along the way, and destination
   2. Add alternative routes you may take
   3. Include contingency plans (e.g., what you will do if weather turns bad)
   4. Helps searchers know where to look

C. When
   1. When are you expected to arrive at destination and return home
   2. Helps search to be launched sooner
   3. If you are not in trouble but running late, can contact person holding your plan, if possible

D. What
   1. What you are traveling in—description of snowmachine, plane, car, boat, etc.
   2. What equipment you are taking
   3. Nice to leave shoe size and tread or type—makes tracking easier if you become lost
   4. What you plan to do
   5. What vehicle you plan to leave at trailhead, launching ramp, if applicable
      a. Description
      b. License number
      c. Where it will be left
   6. Helps searchers
      a. Know what to look for
      b. Know where to look based on your planned activities
      c. Determine how critical situation is—if you packed extra clothes, extra food, a radio, etc., situation may not be as critical as if you hadn’t


Alcohol

Alcohol causes loss of judgment, which leads to
- Increased risk taking
- Poor decision making
- Poor reasoning
- Faulty information processing

Alcohol causes loss of balance

Alcohol increases risk of hypothermia and speeds up hypothermic process

Alcohol slows reaction time

Alcohol reduces night vision, peripheral vision, ability to focus, and depth perception

In Alaska and most other states, it is illegal to operate a motorized vehicle, aircraft, or watercraft while intoxicated

Overhead #11

Alcohol and Drugs

Alcohol (see Overhead #11)

A. Some facts about alcohol that may surprise you
   1. Most widely used drug by U.S. teens
   2. Causes more deaths every year in U.S. than any other drug
   3. One 12-ounce beer is as intoxicating as a 4 oz. ($^1/_2$ cup) glass of wine
   4. Kills brain cells
   5. A 150-pound person who has had just one drink in 2 hours can experience loss in judgment, reaction time, and coordination
   6. Cold shower, coffee, or physical exercise will not sober you up
   7. Central nervous system depressant—brain is affected first
   8. Absorbed by stomach
      a. Carbonated drinks speed up absorption time
      b. Absorbed faster when consumed on an empty stomach

B. Six reasons why alcohol and outdoor adventures do not mix
   1. Alcohol causes loss of judgment that contributes to increased risk-taking, and poor decision making, reasoning, and information processing
   2. Alcohol causes loss of balance
   3. Alcohol increases risk of hypothermia—alcohol dilates your blood vessels which works against your body's natural impulse to conserve heat; it actually speeds up hypothermic process
   4. Alcohol slows reaction time
   5. Alcohol reduces
      a. Night vision
      b. Peripheral vision
      c. Ability to focus
      d. Ability to distinguish some colors
      e. Depth perception
   6. In Alaska and most states, it is illegal to operate a motor vehicle, aircraft, or watercraft while intoxicated

Drugs

A. Many drugs are a dangerous combination with outdoor activities

B. Many prescription drugs and controlled substances can negatively affect judgment, physiology, and vision

C. Specific effects depend on type of drug

D. Check possible prescription drug side effects before departure

Pre-Departure Checklist

A. Check weather and forecast

B. Check equipment—present and operable

C. File trip plan

Preparing for a Land Adventure: Activities Guide

- The activities in this volume are sequential, and each unit assumes knowledge of the material in the preceding unit(s).
- Activities are arranged by topic in the same order as the Teacher Information.
- Within a topic activities are organized from easiest to most difficult.
- Detailed Alaska Content Standards are located at the end of each activity's procedures.
- Times needed for activities are approximate.
- Many activities contain true stories; be sensitive to the possibility that they could be written about your students' relatives or friends.
- AMSEA This symbol means the equipment is available to borrow from AMSEA.

Topic: Weather

Activity	Objectives	Standards
1. Weather Mobiles Create mobiles using weather terminology p. 25	• Define at least 10 terms associated with weather	Language Arts Science Geography Skills for a Healthy Life Arts
2. Barometer Reading Construct a simple barometer p. 26	• Explain what barometers measure • Make a simple working barometer • Compare barometric pressure reading with actual weather	Mathematics Science Geography Skills for a Healthy Life
3. Weather Log Collect weather data and make predictions p. 29	• Explain two steps to evaluate weather conditions • Explain what barometers, thermometers, and rain gauges measure • Demonstrate how to use a barometer, thermometer, and rain gauge • Make weather predictions based on past weather observations	Mathematics Science Geography Skills for a Healthy Life Technology Library/Information Literacy Cultural Standards

Topic: Hypothermia

Activity	Objectives	Standards
4. Over and Under Experiment to demonstrate the effect of insulation on heat loss p. 32	• Explain how clothing insulates • Select two items of clothing that will help protect against hypothermia on land	Language Arts Mathematics Science Skills for a Healthy Life
5. Breathing into a Bottle Observe heat loss from respiration p. 34	• Explain that breathing is one way people lose heat and water	Language Arts Mathematics Science Skills for a Healthy Life
6. High Heat Loss Areas Game Drill the locations of the high heat loss areas using a board game and arithmetic p. 36	• List the five high heat loss areas • Identify the highest heat loss area of the body	Language Arts Mathematics Science Skills for a Healthy Life

Topic: Clothing

Activity	Objectives	Standards
7. Hot Potatoes on an Outing Compare heat retention properties of different fabrics when wet, dry, and in the wind p. 39	• Compare the insulating properties of four fabrics when worn in layers and worn as a single layer • Explain that water cools a body faster than air of the same temperature • Compare the insulating properties of four common fabrics when wet, dry, and exposed to wind • State that they observed heat loss from conduction, radiation, evaporation, and convection	Language Arts Mathematics Science Geography Skills for a Healthy Life
8. Choosing the Best Clothes Use swatches of material to observe which gets wet most rapidly and which feels the warmest when wet p. 48	• Identify cotton as a material that absorbs water quickly and does not insulate when wet • Identify wool and synthetic fleece as materials that don’t absorb water quickly and still insulate when wet	Language Arts Mathematics Science Geography Skills for a Healthy Life

9. **Dressing for Success** Select clothing from a grab bag that helps prevent hypothermia p. 51	• Distinguish between effective and ineffective clothing for cold, wet conditions, and for dry, windy conditions • List the three layers of clothing • State the purpose of each of the three layers of clothing • Give three examples of appropriate items for each layer of clothing	Science Skills for a Healthy Life
10. **Hypothermia Advertisement** Study the insulating qualities of fabric using writing and video production p. 53	• Describe three qualities of an article of clothing that can help protect against hypothermia • List the five high heat loss areas • Explain how to insulate high heat loss areas to prevent hypothermia	Language Arts Science Skills for a Healthy Life Arts Technology
11. **Dark and Light** Experiment to illustrate how the sun works as an external heat source p. 57	• State that dark clothing is warmer than light clothing on a cold, sunny day • Explain why dark clothing is warmer than light clothing on a cold, sunny day	Language Arts Mathematics Science Skills for a Healthy Life

Topics: Personal Survival Kits, Comfort Kits, Equipment

Activity	Objectives	Standards
12. **Personal Survival Kits** Assemble a personal survival kit that contains essential items p. 60	• Work cooperatively to assemble a personal survival kit • List the four categories of essential items in a personal survival kit • Select items for a personal survival kit that cover the four essential categories	Language Arts Skills for a Healthy Life
13. **Getting Ready—Comfort Kits** Compare pairs of items to explore their potential uses in a survival situation p. 65	• Describe the difference between a comfort kit and a personal survival kit • List four categories of essential items in a comfort kit for land-based trip • Describe the pros and cons of each item in a comfort kit	Language Arts Skills for a Healthy Life

14. Winter Survival Activity Prioritize items for survival use from a mock plane crash p. 68	• List the four categories of essential items in a survival kit • Compare the usefulness of different items in a mock plane crash scenario • Demonstrate cooperative behavior	Language Arts Skills for a Healthy Life

Topic: Trip Plan

Activity	Objective	Standards
15. Trip Plans Write trip plans based on a scenario p. 72	• Write a trip plan that includes the four essential elements	Language Arts Skills for a Healthy Life

Topic: Alcohol and Drugs

Activity	Objectives	Standards
16. Alcohol Stories Analyze effects of alcohol using newspaper articles, and practice skills to recognize and avoid dangerous alcohol situations p. 74	• List two effects of alcohol consumption that can lead to death • Demonstrate one technique to avoid participating in activities where alcohol is consumed	Language Arts Science Skills for a Healthy Life

Weather Mobiles

Time: 60 minutes

Overview
Create mobiles using weather terminology.

Objective
After completing this activity, students should be able to define at least 10 terms associated with weather.

Materials
- One per student, clothes hanger or dowel for mobiles
- Thread or string
- Tape
- Construction paper of various colors
- Scissors

Procedure
1. Explain to students that they will be making weather mobiles.
2. Brainstorm with the class words relating to the weather.
3. Have each student choose five to ten words and use them to create a weather mobile. Have students cut one shape from construction paper to go with each weather word, write the weather word on one side, and its definition on the other.
4. Have students assemble mobiles using their weather words.

Extension
Have students compose weather-related poems or limericks and write them on the backs of their weather mobile shapes instead of the definitions.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing, A-2 Writing conventions, A-6 Using visual communication

Science A-4 Observable natural events

Geography C-1 Physical systems of earth, C-3 Regional environments

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-6 Making healthy decisions, D-2 Safe and healthy environments

Arts A-1 Participate in the arts, A-2 Refine artistic skills, A-3 Materials, tools, techniques, and processes

Barometer Reading

Time: 20 minutes, plus observations

Overview
Construct a simple barometer.

Objectives
After completing this activity, students should be able to:
1. Explain what barometers measure.
2. Make a simple working barometer.
3. Compare barometric pressure readings with actual weather.

Materials
- Printout of a weather forecast with the barometric reading
- Overhead #1 **Air Flow in the Northern Hemisphere**
- Barometer
- One per group of four students, Student Handout #1 **Reading a Barometer**
- One per group of four students, wide mouth jar
- One per group of four students, balloon or 6" x 6" piece of pliable plastic
- One per group of four students, rubber band
- One per group of four students, straw or pencil-sized strip of Styrofoam™
- One per group of four students, heavy paper or cardboard
- One per group of four students, scissors
- One roll per group of four students, tape
- One per group of four students, ruler

Procedure
1. Explain to students that they will be constructing barometers and using them to measure air pressure.
2. Read the weather forecast. Discuss high and low pressure systems, and barometric pressure.
3. Show them a barometer and explain how to read it. Explain how barometric pressure is used in weather forecasting.
4. Divide the class into groups of four.
5. Distribute materials and Student Handout #1 to each group.
6. Explain handout and have students make their barometers.
7. For the next three days, schedule times when students take and record barometric pressure readings with their barometers. If the room's air pressure is greater than the pressure inside the jar, the jar membrane will be lower and the pointer higher. If the room's air pressure is less than the pressure inside the jar, the jar top will dome and the pointer will be lower. They should also record observable weather: wind direction, temperature, and sky condition.
8. Discuss correlation between barometric readings and weather, reasons for differences between group readings, and differences from one day to another.
9. For the next 2 days, schedule times when the class reads both the commercial barometer and their homemade barometers. Compare the readings.
10. Debrief activity. Emphasize what barometers measure and their usefulness in helping predict the weather.

Extension
Research the history of barometers and write a report with a bibliography.

This activity addresses Alaska Content Standards:

Mathematics A-2 Measurement, A-6 Statistics and data collection

Science A-4 Observable natural events, A-5 Forces of nature, B-1 Scientific processes, B-2 Tools of scientific investigation, C-2 Knowledge through experimentation, D-1, 3 Practical applications of scientific knowledge

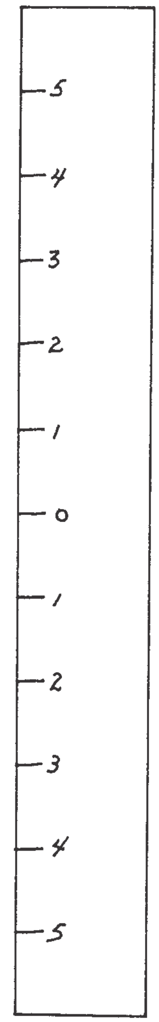
Geography C-1 Physical systems of earth, F-6 Geography across the curriculum

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions, D-1 Responsible decisions, D-2 Safe and healthy environments

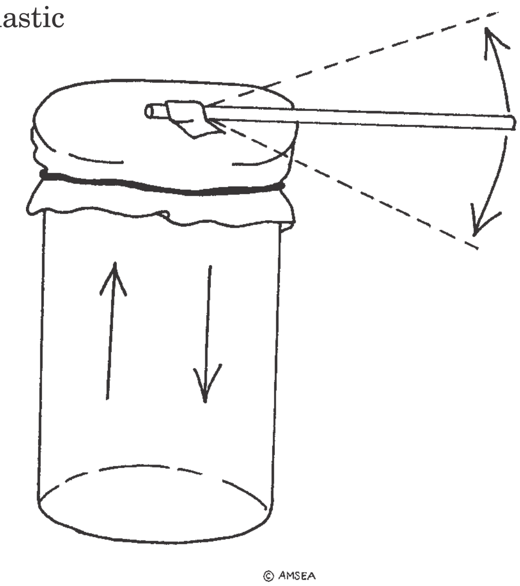
Name: ______________________ Date: ______________

Reading a Barometer

1. Make a barometer.
   - Spread a balloon or piece of pliable plastic tightly over the mouth of the jar and use a rubber band to secure it.
   - Use a straw or pencil-sized piece of Styrofoam™ make the "needle" for your barometer. Cut a small piece of cardboard to serve as a pointer and tape it on one end of the straw or Styrofoam™.
   - Tape the opposite end of the straw or Styrofoam™ to the center of the balloon or plastic so the shaft rests on the edge of the jar.
   - Take a reading by standing a ruler vertically and measuring the height above the tabletop.
   - Record the measurement in the table below.



How it works: As long as the balloon or plastic remains airtight, pressure inside the jar will remain the same as it was when you covered the jar. Changing air pressure outside the jar will cause the balloon to expand or contract which will cause the needle to move up and down.



Date	Time	Reading (+ or –)	Difference	Weather

2. Over the next several class periods you will take additional readings with your barometer. Calculate the difference from the previous reading and determine what the difference means. Compare your readings with other groups and with readings from a commercial barometer.

Weather Log

Time: 15 minutes per day over a 2 week period

Overview
Collect weather data and make predictions.

Objectives
After completing this activity, students should be able to:

1. Explain two steps to evaluate weather conditions.
2. Explain what barometers, thermometers, and rain gauges measure.
3. Demonstrate how to use a barometer, thermometer, and rain gauge.
4. Make weather predictions based on past weather observations.

Materials
- Access to weather forecasts
- Story #1 **"Searches for Eight People in Interior End Happily"**
- Large calendar or piece of butcher paper
- Barometer
- Thermometer
- Rain gauge
- Computer with Internet access
- Local Elder or other weather expert

Procedure

1. Explain to students that they will be making weather observations and predictions.
2. Read Story #1 to class and discuss the weather's role in each of the situations. Explain that evaluating weather conditions includes checking forecasts and making your own local observations.
3. Create a calendar bulletin board for the days that you are studying weather. (To prepare students for the weather unit, you may want to begin the calendar a week before the unit begins.)
4. Each day at about the same time, record on the calendar the outdoor temperature, barometric pressure, and other weather conditions such as clouds, precipitation, wind speed and direction, and visibility. Keep the time factor constant to make weather comparisons more accurate.
5. Keep official weather forecasts for each day observations are made. Check out the National Weather Service Web site.
6. After your class has accumulated two weeks worth of data, ask students if they notice any correlation between their observations and the predicted weather.
7. For several days, have students predict the next day's weather based on what they have observed and recorded over the previous few weeks. Students' reasoning should be included in their forecast.
8. Have students compare their predictions to the actual weather.
9. Discuss the need and ways to check the weather before leaving on a trip on land.
10. Invite a local elder or other expert to discuss local factors to consider when assessing weather for a land adventure.

This activity addresses Alaska Content Standards:

Mathematics A-2 Measurement, A-6 Statistics and data collection

Science A-4 Observable natural events, A-15 Using local knowledge, B-1 Scientific processes, B-2 Tools of scientific investigation, C-2 Knowledge through experimentation

Geography B-6 Making informed decisions about place, C-1 Physical systems of earth, C-3 Regional environments

Skills for a Healthy Life A-3, Injury prevention, A-6 Making informed choices

Technology E-7 Technology in daily living

Library/Information Literacy A-4 Search for information and resources, B-3 Access information

Cultural Standards D-1 Interaction with Elders

Daily Sitka Sentinel, August 17, 2000

Searches for Eight People in Interior End Happily

Fairbanks (AP)—Eight people reported missing during bad weather in Interior Alaska back country have been found—all with happy endings, rescuers said Wednesday.

Five separate parties got lost, including hikers, hunters, horseback riders, a pilot and a canoer, Alaska State Troopers said. Four of the missing were found Wednesday, and the other four were found Tuesday.

North Pole resident MoAnn Bradshaw, 19, and her 24-year-old boyfriend, Pat Clarke, were found with their horses near Beaver Creek early Wednesday afternoon. The couple went out last Thursday to go sheep hunting by horseback, Bradshaw's mother, Ann Bradshaw, told the Fairbanks Daily News-Miner.

Trooper Lt. Steve Dunnagan said the pair was reported overdue on Sunday night. As it turned out, they had been held back by flooding at Beaver Creek and had planned to ride out as soon as the weather improved but were delayed when one of their horses went lame.

Rapid weather changes also hampered Jamie and David Byrd, Fairbanks brothers who left their truck at 80 Mile Steese Highway last Friday to go hunting. A helicopter surveyed the area Tuesday, but weather continued to worsen in the severe terrain.

On Wednesday, the sun was out by the time the brothers made their way back to their truck. Both were in good condition, Dunnagan said.

On Tuesday, troopers located two Fairbanks hikers lost in the Chena River State Recreation Area. Dennis Dooley and Gregory Selid were found by a helicopter well off the Granite Tors Trail after a two-day search, none the worse for two nights spent wandering.

Rex Maurer, a pilot who crashed his plane in the heart of the Arctic National Wildlife Refuge, was evacuated to Fairbanks Memorial Hospital with an injured back. Maurer was the only one of the eight who was injured but he was released Tuesday morning.

The last of the four found Tuesday was Patrick Perry, who walked into a store in Circle. He'd simply gone on a canoe trip to Dawson City, Yukon Territory.

The overdue reports are a common occurrence with the change to autumn and the worsening of weather, rescuers said.

"'Tis the season," said Adam Benson, the trooper pilot who plucked Dooley and Selid out of the woods about six air miles from the trail.

Over and Under

Time: 30 minutes

Overview

Experiment to demonstrate the effect of insulation on heat loss.

Objectives

After completing this activity, students should be able to:

1. Explain how clothing insulates.
2. Select two items of clothing that will help protect against hypothermia on land.

Materials

- Overhead #4 **Heat Gain vs. Heat Loss**
- One per group, Student Handout #1 **Over and Under**
- Hot water
- Four per group, jars of the same size
- Four per group, thermometers
- Two per group, wool or fleece hats of equal insulating value
- One per group, wool or fleece scarf
- Clock with second hand
- Graph paper

Procedure

1. Explain to students that they will be doing an experiment to determine the insulating effects of clothing.
2. Explain the five ways our bodies lose heat using Overhead #4.
3. Divide the class into groups. Distribute and explain Student Handout #1.
4. Distribute jars, thermometers, hats, and scarves.
5. Have students complete the activity and compare their results. Discuss any variables that might have caused different results.
6. Discuss, based on the data collected, items of clothing that will help prevent hypothermia during an outdoor adventure.

This activity addresses Alaska Content Standards:

Language Arts A-6 Using visual communication, C-3 Group decision making, D-1-D Analyzing information, D-2 Evaluating information

Mathematics A-1 Numeration, A-2 Measurement, A-6 Statistics and data analysis, B-3 Using mathematics in real-life situations, C-1 Using pictures, graphs, and charts, D-2 Draw logical conclusions, E-2 Practical applications of mathematics, E-3 Mathematics across the curriculum

Science A-14 Living things and their environments, A-15 Using local knowledge, B-1 Scientific processes, B-2 Tools of scientific investigation, C-5 Collaboration, D-1,3 Practical applications of scientific knowledge, D-2 Effects of scientific innovations, D-4 Social benefits of science

Skills for a Healthy Life A-1 Personal well-being, A-3 Injury prevention, A-6 Making informed choices

Name: ______________________________ Date: ________________

Over and Under

1. Read all the directions and, before starting the experiment, predict which jar will be "warmest," "coolest," or "in the middle" after 4 minutes.
2. Put thermometers in four jars half-full of hot water. Leave the thermometers in the water for the duration of the experiment.
3. "Dress" the jars as follows (results will be most meaningful if you use the same scarf and identical hats):
   - Leave one without a scarf or hat
   - Cover one with a hat
   - Place one on top of a scarf
   - Place one on top of a scarf and cover it with a hat
4. Read and record the temperatures immediately and note the time.
5. Read and record the temperature at 1-minute intervals for 4 minutes.

Start time: __________

Time	**Scarf only**	**Hat & scarf**	**Hat only**	**No hat or scarf**
Beginning temperature				
Temperature after 1 minute				
Temperature after 2 minutes				
Temperature after 3 minutes				
Temperature after 4 minutes				

6. Use graph paper to make a line graph comparing the temperature readings of the four jars.
7. Which of the insulation techniques kept the water warmest? Least warm?
8. Of the five principles of heat loss, which were observed here? Explain.
9. How did the clothing keep the jars warm?

Breathing into a Bottle

Time: 15 minutes

Overview
Observe heat loss from respiration.

Objective
After completing this activity, students should be able to explain that breathing is one way people lose heat and water.

Materials
- Overhead #4 **Heat Gain vs. Heat Loss**
- One per student, Student Handout #1 **Breathing into a Bottle**
- One per student, empty clear plastic bottle such as a soda bottle
- One per group, meat thermometer
- Bottle of rubbing alcohol
- Paper towels
- Clock with a second hand

Procedure
1. Explain to students that they will be doing an experiment. Don't tell them the specifics so they can figure the point of it out on their own.
2. Review the five principles of heat loss using Overhead #4.
3. Distribute and explain Student Handout #1, emphasizing step 2.
4. Have students complete the first question.
5. Break the class into as many groups as you have thermometers.
6. Distribute a bottle to every student and one thermometer to each group.
7. One-at-a-time in each group, have students do the experiment.
8. Have students complete Student Handout #1.
9. Discuss the experiment and the handout, emphasizing the importance of bringing adequate clothing and extra water on an outing.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing

Mathematics A-3 Arithmetic and computation, B-3 Using mathematics in real life situations, D-1 Analyzing situations, D-2 Drawing logical conclusions, D-4 Deductive reasoning, E-2 Practical applications of mathematics, E-3 Mathematics across the curriculum

Science A-4 Observable natural events, B-1 Scientific processes, C-2 Knowledge through experimentation, D-1,3 Practical applications of scientific knowledge, D-6 Using reasoned decisions

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions, B-1 Risks and consequences, D-1 Responsible decisions, D-2 Safe and healthy environments

Name: ______________________________ Date: ____________________

Breathing into a Bottle

In this experiment you will be determining whether or not breathing into a bottle will change the temperature of the air inside the bottle.

1. Do you think the temperature will change? If so, how? If not, why not? Will there be any other changes?
2. Complete the following steps in order. Do not breathe into bottle until step 5 or you will corrupt your data.
3. Place the thermometer in the opening of the bottle so the dial covers the whole opening.
4. Wait 30 seconds, then record the temperature in the chart below.
5. Remove the thermometer and blow into the bottle without covering the whole opening so air can escape. Inhale through your nose and repeat five to ten times.
6. As soon as you remove your mouth from the bottle, place the thermometer back into the bottle, covering the opening. Wait 30 seconds and then record the temperature.
7. Remove and clean the thermometer thoroughly with rubbing alcohol before handing it to the next person. Do not share your bottle.

	Temperature	**Presence of water in bottle**
Before breathing into bottle		
After breathing into bottle		
Difference		

8. Did breathing into the bottle increase or decrease the temperature?
9. How did the bottle change visually after you breathed into it? Why is this?
10. Of the five principles of heat loss, which were observed in this experiment?
11. List items you could take on an outdoor adventure that would protect you from the effects observed in this experiment.

High Heat Loss Areas Game

Time: 30-45 minutes

Overview

Drill the locations of the high heat loss areas using a board game and arithmetic.

Objectives

After completing this activity, students should be able to:

1. List the five high heat loss areas.
2. Identify the highest heat loss area of the body.

Materials

- Overhead #3 **High Heat Loss Areas**
- One per student, Student Handout #1 **High Heat Loss Areas**
- One per group of two to four students, Student Handout #2 **High Heat Loss Areas Game Directions**
- One per group, die
- Pencil and paper for students

Procedure

1. Explain to students that they will be playing a game about high heat loss areas.
2. Have students hold their hands $^1/_8$ inch from their foreheads for 10 seconds. Then have them hold their hands $^1/_8$ inch apart palm-to-palm for 10 seconds. Ask them which area gives off the most heat. Ask students which part of their bodies loses the most heat.
3. Show Overhead #3 and explain that knowing the high heat loss areas is important when preparing for an outdoor adventure.
4. Distribute and have students complete Student Handout #1. Discuss when done.
5. Use one completed Student Handout #1 for every two to four students as a game board. Divide students into groups of two to four players and distribute die, paper, pencils, and Student Handout #2.
6. Have students play the game.
7. Review the names and location of the high heat loss areas.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing

Mathematics A-3 Arithmetic and computation

Science D-1, 3 Practical applications of scientific knowledge

Skills for a Healthy Life A-1 Personal well-being, A-3 Injury prevention, D-2 Safe and healthy environments

High Heat Loss Areas Game is based on an activity submitted by Petersburg, Alaska, Public Schools teacher Shannon Vandervest.

Name: ______________________________ Date: ____________________

High Heat Loss Areas

High Heat Loss Areas Game Directions

1. Each player starts with 10 points.
2. Players take turns rolling die onto game board.
3. Keep track of your own score on a separate piece of paper. Show all adding, doubling, and subtracting.
   - If the die lands on the head, double the number on the die and subtract that number from your total points.
   - If the die lands on a high heat loss area other than the head, subtract the number on the die from your total points.
   - If the die lands anywhere else on the body, add the number on the die to your total points.
   - If the die lands outside the body, you lose your turn.
4. If you reach "0," you are hypothermic. Everyone playing at your board starts a new game.
5. The one with the most points at the end of the play-time is the "survivor."

Hot Potatoes on an Outing

Time: 90-120 minutes

Overview
Compare heat retention properties of different fabrics when wet, dry, and in the wind.

Objectives
After completing this activity, students should be able to:

1. Compare the insulating properties of four fabrics when worn in layers and worn as a single layer.
2. Explain that water cools a body more rapidly than air of the same temperature.
3. Compare the insulating properties of four common fabrics when wet, dry, and exposed to the wind.
4. State that they observed heat loss from conduction, radiation, evaporation, and convection.

Materials
- Overhead #4 **Heat Gain vs. Heat Loss**
- One per student, Student Handouts #1 **Predictions,** #2 **Everything Dry,** #3 **In the Wind,** #4 **Everything Wet,** #5 **Wet and Windy,** and #6 **Wrap-up**
- Nine hot baked potatoes of similar size and a way to keep them hot
- Access to a microwave or oven (or additional potatoes to replace the ones that get too cool)
- Nine meat thermometers
- Three wool socks
- One fleece sock
- Three cotton socks
- Five polypropylene socks
- Duct tape, tags, or some way to label socks
- Permanent marking pen
- One or two fans
- Clock with a second hand

Procedure
This series of experiments works well when done in order in one class period, but can easily be done over several class periods.

Part 1: Everything Dry
1. Explain to the students that they will be comparing the insulating value of various fabrics and fabric combinations when dry.
2. Review the five principles of heat loss using Overhead #4.
3. Explain that you will be using baked potatoes to simulate people, and that the potatoes will be dressed in various fabrics and fabric combinations to determine which fabrics insulate best. Explain that the plastic wrap is intended to simulate rain gear. Make a list on the board of how the potatoes will be dressed. Have students label the various socks so they will be easy to identify.
4. Explain that they need to predict which potatoes they think will be warmest, coolest, and in the middle after 10 minutes. Distribute and explain Student Handout #1, and have students complete Part 1: Everything Dry.
5. Dress the hot potatoes as follows:

   #1: Naked

   #2: Polypropylene

   #3: Wool

   #4: Fleece

   #5: Cotton

   #6: Polypropylene and wool

   #7: Polypropylene and cotton

   #8: Polypropylene and wool and plastic wrap

   #9: Polypropylene and cotton and plastic wrap

6. Insert a meat thermometer in each potato (through the sock for the dressed ones) and have students record the temperature on Student Handout #2.
7. Have students complete Student Handout #2.
8. Discuss the results, including factors that might affect outcome.
9. Make a chart on the board to evaluate the insulating qualities of each sock.
10. Have students graph changes of individual potatoes or use colors to put all the temperatures on a line graph (optional).

Part 2: In the Wind

1. If your potatoes have cooled off substantially, you need to rewarm them before continuing.
2. Explain to students that they will be comparing the insulating value of the same potatoes dressed the same as in Part 1, but this time while in the wind for 10 minutes.
3. Have students complete their predictions on Student Handout #1, Part 2: In the Wind.
4. Distribute and explain Student Handout #3.
5. Put the potatoes in front of the fan(s) so they will be equally exposed to the wind. Record the beginning temperatures on Student Handout #3 before turning on the fan.
6. Have students complete Student Handout #3.
7. Discuss the results and compare them to Part 1.
8. Make a chart on the board to evaluate the insulating qualities of each sock.

Part 3: Everything Wet and Part 4: Wet and Windy

1. If your potatoes have cooled off substantially, you need to rewarm them before continuing.
2. Explain to students that they will be comparing the same potatoes dressed in the same fabrics and fabric combinations, but this time the potatoes will be wet for 10 minutes, and then wet and in the wind for 10 minutes.
3. Have students complete their predictions on Student Handout #1, Part 3: Everything Wet, and Part 4: Wet and Windy.
4. Distribute Student Handouts #4 and #5.
5. Take the same potatoes, dressed the same way, and dip them in water to thoroughly soak them. Set them on the table.
6. Record the beginning temperatures on Student Handout #4 and have students complete the handout.
7. After the 10 minutes, put the potatoes in front of the fans(s) so they will be equally exposed to the wind. Have students record the potato temperatures on Student Handout #5 before turning on the fan(s).
8. Turn on the fan(s) and have student complete Student Handout #5.
9. Distribute and explain Student Handout #6, and have students complete it.
10. Compare the results and discuss how the data could be used to determine the best way to dress to avoid hypothermia on an outdoor adventure. Discussion points:
    - Most people find themselves in an emergency with only the clothes on their back and pocket contents.
    - How students might become wet during an outing.
    - The importance of staying dry.
    - The importance of layering, especially with a wind and waterproof outer layer.
    - Ideas of what clothing would be good for a hiking, hunting, or snowmachine trip.
    - Relevance to local weather patterns.
    - Clothing that insulates and protects you from the environment can be a lifesaving shelter.

Variation

Divide the class into groups. Have each group complete one part of the experiment and share results at the end of the experiment.

Extension

Have students write a report including the procedure, predictions, results, and conclusions.

This activity addresses Alaska Content Standards:

Language Arts A-6 Using visual communication, C-3 Group decision making, D-1-D Analyzing information, D-2 Evaluating information

Mathematics A-2 Measurement, A-6 Statistics and data analysis, B-3 Using mathematics in real-life situations, E-1 Exploring problems using mathematics, E-3 Mathematics across the curriculum

Science A-4 Observable natural events, A-5 Forces of nature, A-14 Living things and their environments, A-15 Using local knowledge, B-1 Scientific processes, B-2 Tools of scientific investigation, B-5 Ethical standards, C-5 Collaboration, D-1 Practical applications of science, D-2 Effects of scientific innovations

Geography C-3 Regional environments, E-6 Physical hazards

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed choices, B-1 Risks and consequences, D-1 Responsible decisions, D-2 Safe and healthy environments, D-5 Effects of attitudes and behavior

Name: ______________________________ Date: ____________________

Predictions

For each experiment, predict which potatoes you think will be warmest, in the middle, and coolest after 10 minutes.

Part 1: Everything Dry

Warmest	In the Middle	Coolest

Part 2: In the Wind

Warmest	In the Middle	Coolest

Part 3: Everything Wet

Warmest	In the Middle	Coolest

Part 4: Wet and Windy

Warmest	In the Middle	Coolest

Name: ______________________ Date: ______________

Everything Dry

Single Layer

Time/Temperature	Naked	Polypropylene	Wool	Fleece	Cotton
Beginning					
After 2 min.					
After 4 min.					
After 6 min.					
After 8 min.					
After 10 min.					

Multiple Layers

Time/Temperature	Polypropylene & Wool	Polypropylene & Cotton	Polypropylene & Wool & Plastic	Polypropylene & Cotton & Plastic
Beginning				
After 2 min.				
After 4 min.				
After 6 min.				
After 8 min.				
After 10 min.				

Observations

1. Which of the potatoes was warmest after 10 minutes?

2. What is the temperature difference between the warmest and coolest potato?

3. Describe the variables that could affect the outcomes of this experiment.

Applications

4. Based on the data you just recorded, which of these fabrics or fabric combinations would help prevent hypothermia by offering the greatest insulation when dry?

5. Of the five principles of heat loss, which were observed in action here? Explain.

Name: ______________________ Date: ______________

In the Wind

Single Layer

Time/Temperature	Naked	Polypropylene	Wool	Fleece	Cotton
Beginning					
After 2 min.					
After 4 min.					
After 6 min.					
After 8 min.					
After 10 min.					

Multiple Layers

Time/Temperature	Polypropylene & Wool	Polypropylene & Cotton	Polypropylene & Wool & Plastic	Polypropylene & Cotton & Plastic
Beginning				
After 2 min.				
After 4 min.				
After 6 min.				
After 8 min.				
After 10 min.				

Observations

1. Which of the potatoes was warmest after 10 minutes?

2. What is the temperature difference between the warmest and coolest potato?

3. Describe the variables that could affect the outcomes of this experiment.

Applications

4. Based on the data you just recorded, which of these fabrics or fabric combinations would help prevent hypothermia by offering the greatest insulation when dry and in the wind?

5. Of the five principles of heat loss, which were observed in action here? Explain.

Name: ____________________ Date: ____________________

Everything Wet

Time/Temperature	Naked	Polypropylene	Wool	Fleece	Cotton
Beginning					
After 2 min.					
After 4 min.					
After 6 min.					
After 8 min.					
After 10 min.					

Multiple Layers

Time/Temperature	Polypropylene & Wool	Polypropylene & Cotton	Polypropylene & Wool & Plastic	Polypropylene & Cotton & Plastic
Beginning				
After 2 min.				
After 4 min.				
After 6 min.				
After 8 min.				
After 10 min.				

Observations

1. Which of the potatoes was warmest after 10 minutes?

2. What is the temperature difference between the warmest and coolest potato?

3. Describe the variables that could affect the outcomes of this experiment.

Applications

4. Based on the data you just recorded, which of these fabrics or fabric combinations would help prevent hypothermia by offering the greatest insulation when wet?

5. Of the five principles of heat loss, which were observed in action here? Explain.

Name: ________________________________ Date: ____________________

Wet and Windy

Time/Temperature	Naked	Polypropylene	Wool	Fleece	Cotton
Beginning					
After 2 min.					
After 4 min.					
After 6 min.					
After 8 min.					
After 10 min.					

Multiple Layers

Time/Temperature	Polypropylene & Wool	Polypropylene & Cotton	Polypropylene & Wool & Plastic	Polypropylene & Cotton & Plastic
Beginning				
After 2 min.				
After 4 min.				
After 6 min.				
After 8 min.				
After 10 min.				

Observations

1. Which of the potatoes was warmest after 10 minutes?

2. What is the temperature difference between the warmest and coolest potato?

3. Were there any surprises?

Applications

4. Describe the variables that could affect the outcomes of this experiment.

5. Based on the data you just recorded, which of these fabrics or fabric combinations would best help prevent hypothermia while wet and in the wind?

6. Of the five principles of heat loss, which were observed in action here? Explain.

Name: ______________________________ Date: ____________________

Wrap-up

1. Complete the following chart using your data from the experiment.

Experiment	Fabric(s) That Kept Potato Warmest	Fabric(s) That Cooled Potato the Most
Everything Dry		
In the Wind		
Everything Wet		
Wet and Windy		

2. Based on your data, can you defend the following statement? "Water cools a body 25 times faster than air of the same temperature." Explain.

3. Based on your data, list clothes that would be a wise choice for an outdoor adventure in a dry climate.

4. Based on your data, which clothes would you want to wear in a wet climate?

Choosing the Best Clothes

Time: 70 minutes

Overview
Use swatches of material to observe which get wet most rapidly and which feel the warmest when wet.

Objectives
After completing this activity, students should be able to:
1. Identify cotton as a material that absorbs water quickly and does not insulate when wet.
2. Identify wool and synthetic fleece as materials that don't absorb water quickly and still insulate when wet.

Materials
- One per group, Student Handout #1 **Choosing the Best Clothes**
- Overhead #5 **Hypothermia**
- One set per group, dry fabric swatches and/or socks of wool, cotton, silk, qiviut, animal fur, polypropylene, fleece, other synthetics
- One per group, container of water big enough to hold the fabric swatches/socks
- Various samples and styles of outdoor gear

Procedure
1. Explain to students that they will be comparing various fabrics to see how much water they absorb and how well they insulate when wet.
2. Discuss what clothing students typically wear on outdoor adventures.
3. Break the class into groups. Distribute a set of fabric swatches and Student Handout #1 to each group. Identify each fabric and explain handout.
4. Have students complete numbers 1 and 2 on the handout.
5. Distribute containers of water and have students complete Student Handout #1.
6. While waiting for the 45 minutes to go by:
   - Discuss students' predictions and reasoning
   - Using Overhead #5, discuss what hypothermia is, its general causes, and the role clothing can play in preventing hypothermia
   - Examine the variety and styles of outdoor clothing
7. After the experiment is over, discuss results and emphasize the importance of choosing the proper clothing, especially to help prevent hypothermia.

This activity addresses Alaska Content Standards:

Language Arts A-6 Using visual communications, C-3 Group decision making, D-1 Logical reasoning, D-1-D Analyzing information, D-2 Evaluating information

Mathematics A-1 Numeration, A-2 Measurement, B-2 Investigations, B-3 Using mathematics in real-life situations, C-1 Pictures, graphs, and charts, D-1 Analyzing situations, E-2 Practical applications of mathematics, E-3 Mathematics across the curriculum

Science A-14-A Living things and their environments, A-15 Using local knowledge, B-1 Scientific processes, C-2 Knowledge through experimentation, C-5 Collaboration, C-6 Scientific discovery, C-7 Effects of scientific breakthroughs, D-2 Scientific innovations

Geography B-7 Regions, C-2 Natural regions, E-1 Natural resource use

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed choices, B-1 Risks and consequences, C-5 Effects of attitude and behavior, D-1 Responsible decisions, D-2 Safe and healthy environments

Name: ______________________________ Date: ____________________

Choosing the Best Clothes

1. Identify each fabric and list it on the chart.

2. Predict the following:
   (a) Which fabric do you think will absorb the most water after lying on water for 3 minutes?
   (b) Which do you think will absorb the least water in 3 minutes?
   (c) After being under water for 45 minutes, which do you think will have absorbed the most water?
   (d) Which do you think will have absorbed the least water after being under water for 45 minutes?

3. Lay part of each fabric/sock on the water, draping the rest over the pan's edge.

4. Record your observations after 3 minutes.

5. Push under water the parts that were on the water and leave them there for 45 minutes. (Some fabrics may not stay under water.)

6. Record your observations after 45 minutes.

Fabric	**Observations after 3 minutes**	**Observations after 45 minutes**

7. Try to get all the fabrics/socks totally wet, then wring out as much water as possible. Drape them over your bare arm or neck.
   (a) Are all pieces equally wet?
   (b) Which feels driest against your skin?
   (c) Which feels warmest against your skin?

8. Based on the above information, which fabric would you want to wear to go hiking, hunting, or snowmachining? If you had to choose at least two layers, which two would you choose?

9. Which fabric would you avoid if you knew you might find yourself in a wet and cold situation?

Dressing for Success

Time: 25-40 minutes

Overview
Select clothing from a grab bag that helps prevent hypothermia.

Objectives
After completing this activity, students should be able to:
1. Distinguish between effective and ineffective items of clothing for cold, wet conditions, and for dry, windy conditions.
2. List the three layers of clothing.
3. State the purpose of each of the three layers of clothing.
4. Give three examples of appropriate items for each layer of clothing.

Materials
- Overheads #6 **Inner Layer,** #7 **Middle Layers,** and #8 **Outer/Shell Layer**
- Three large garbage bags
- Several T-shirts and pairs of gym shorts in a variety of sizes
- Wide selection of clothing in large sizes not suitable for preventing hypothermia—bathing suits, cotton clothing and socks, rayon clothing, shorts, non-waterproof jackets, sandals, sneakers, cotton baseball caps
- A selection of clothing in large sizes appropriate for preventing hypothermia—wool sweaters, fleece vests and jackets, polypropylene or silk long underwear, wool and polypropylene socks, rain gear, waterproof boots

Procedure

Before Class
1. Either complete Activity #8 or be sure you have discussed hypothermia before doing this experiment.
2. Sort the garments with outer/shell layers in one garbage bag, the middle layers in another, and the inner layers in another. Mix the appropriate and inappropriate garments.

During Class
1. Explain to students that they will be selecting effective and ineffective items of clothing for outdoor adventures in various weather.
2. Ask students to describe an outdoor activity common in your area.
3. Introduce the concept of layering clothing by using Overheads #6, #7, and #8.
4. Ask two volunteers to be "models" and dress for this activity. Identify one as the appropriately dressed person, and the other as the inappropriately dressed person. Have the models change into shorts and a T-shirt, explaining that they will be dressing for the activity as if they don't have these garments on.
5. Pull garments out, one at a time, starting with the inner layer. Ask the class to tell you if the item is appropriate or inappropriate for the outing and why.
6. Models dress in clothing, by layers as selected by the class.
7. Contrast the two sets of clothing and discuss the importance of layering clothing for outdoor adventures.
8. Have models change to their regular clothes.
9. Choose a second outdoor activity that will involve a different type of weather than the first (e.g., wet and cold vs. dry and windy) and choose two different models.
10. Repeat steps 4-8.
11. Emphasize the importance of dressing in layers and dressing to prevent hypothermia.

This activity addresses Alaska Content Standards:

Science A-14 Living things and their environments, A-15 Using local knowledge, C-5 Collaboration, C-6 Scientific discovery, D-1, 3 Practical applications of scientific knowledge, D-2 Effects of scientific innovations, D-4 Social benefits of science

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed choices, B-1 Risks and consequences, C-5 Effects of attitude and behavior, D-1 Responsible decisions, D-2 Safe and healthy environments

Dressing for Success is based on an activity submitted by marine/cold water safety instructor, Anna Borland-Ivy, Homer, Alaska.

Hypothermia Advertisement

Time: Two 60 minute class periods

Overview

Study the insulating qualities of fabric using writing and video production.

Objectives

After completing this activity, students should be able to:

1. Describe three qualities of an article of outdoor clothing that can help protect against hypothermia.
2. List the five high heat loss areas.
3. Explain how to insulate high heat loss areas to prevent hypothermia.

Materials

- Set of **Product cards** (make from Template #1)
- Set of **Target Audience cards** (make from Template #1)
- Two bowls
- Video camera and blank tapes

Procedure

Before Class

1. This activity presupposes knowledge of high heat loss areas and hypothermia; see Activities #6-9.
2. Make a set of product cards and target audience cards (feel free to add your own ideas). Place product cards in one bowl and target audience cards in another.

During Class

1. Explain to students that they will create an advertisement to promote or sell an article of clothing that would help prevent hypothermia on a rainy, 45˚F day.
2. Divide the class into working groups and have each group choose one Product card and one Target Audience card.
3. Explain that each group will write and videotape a script for a 30-second television commercial (including necessary props). The script must include:
   - Description of three qualities of fabrics used in protecting against hypothermia, trying to convince the target audience to buy the article of clothing
   - An explanation of which of the five high heat loss areas are protected by the article of clothing and how to "accessorize" it to protect all five
   - The definition of hypothermia
   - A sales pitch or slogan which promotes the product and sells it to the target audience

Variation

Create a full-page magazine advertisement written for a target audience.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing, A-2 Writing conventions, A-4 Writing and speaking with purpose, A-6 Using visual communication, B-2 Investigations in written materials, D-1 Develop a logical position, D-1-A Personal experience and prior knowledge, D-1-D Analyzing information

Science D-1, 3 Practical applications of scientific knowledge

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed choices, B-2 Effective communication, B-5 Evaluating information, D-2 Safe and healthy environments, D-6 Communication for community well-being

Arts A-1 Participate in the arts, A-2 Refine artistic skills

Technology D-1 Convey ideas with multi-media tools

Product Cards and Target Audience Cards

Product Cards

Wool hat, mittens, and socks	Hooded rain gear	Wool or fleece vest
Snow suit	Fleece sweatshirt with hood	Polypropylene long underwear

Target Audience Cards

Families with kids, 1 dog, and 2 cats	Students who live in your town	Snowboarders
Dads who work outside	Active moms	People who like to travel on snowmachines

Dark and Light

Time: 50 minutes

Overview

Experiment to illustrate how the sun works as an external heat source.

Objectives

After completing this activity, students should be able to:

1. State that dark clothing is warmer than light clothing on a cold, sunny day.
2. Explain why dark clothing is warmer than light clothing on a cold, sunny day.

Materials

- One per group, Student Handout #1 **Dark and Light**
- Two pieces per group, cloth—one black and one white, preferably of the same fabric (black and white construction paper, held down with tape, works fine)
- Two per group, thermometers
- One per group, sunny day or desk lamp
- Graph paper

Procedure

1. Explain to students that they will do an experiment to see whether dark or light clothing will keep them warmer on a cold, sunny day.
2. Break the class into groups and distribute materials. Explain Student Handout #1, and have students answer question 1.
3. Assign half of the groups to set up experiments in the shade, the other half in the sun.
4. Have students complete questions 2-9 on the handout. Between temperature readings they can chart their readings on the graph.
5. Have students reproduce the tables from question 10 on the board.
6. Discuss questions 9-12.

This activity addresses Alaska Content Standards:

Language Arts A-6 Using visual communication, C-3 Group decision making, D-1-D Analyzing information, D-2 Evaluating information

Mathematics A-1 Numeration, A-2 Measurement, A-3 Arithmetic and computation, A-6 Statistics and data analysis, C-1 Pictures, graphs, and charts, D-1 Analyzing situations, D-2 Drawing logical conclusions, E-2 Practical applications of mathematics, E-3 Mathematics across the curriculum

Science A-14 Living things and their environments, B-1 Scientific processes, B-2 Tools of scientific inquiry, B-5 Collaboration, C-6 Scientific discovery, D-1, 3 Practical applications of scientific knowledge, D-6 Making reasoned decisions

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions

Name: ______________________________ Date: ____________________

Dark and Light

1. Before doing the experiment, predict: Will dark or light-colored clothing keep you warmer in winter?

2. Place one thermometer under your light-colored cloth or paper, and one under your dark-colored cloth or paper.

3. Take the temperatures immediately and record them in the chart below. Be sure to note the time.

4. Take temperature readings every five minutes for a total of 20 minutes and record them in the chart below.

Experiment in: Sun Shade (circle one)

Time	Temp. Dark Colored	Temp. Light Colored
Beginning		
After 5 minutes		
After 10 minutes		
After 15 minutes		
After 20 minutes		
Average		

5. What was the temperature reading of both thermometers at the beginning of this experiment?

6. Calculate and record the average of your group's dark colored cloth/paper temperature readings.

7. Calculate and record the average of your group's light colored cloth/paper temperature readings.

8. What is the difference between the average light colored cloth/paper temperature and the average dark colored cloth/paper temperature?

9. On a separate piece of paper, graph the changes in temperature over 20 minutes comparing both sets of temperature readings.

10. Record the average temperatures for each group and find the class averages in the tables below.

Sunny Group

Group Name/Number	**Avg. Temp. Black Colored Cloth/Paper**	**Avg. Temp. Light Colored Cloth/Paper**
Class Average		

Shady Group

Group Name/Number	**Avg. Temp. Black Colored Cloth/Paper**	**Avg. Temp. Light Colored Cloth/Paper**
Class Average		

Compare the results between the sunny and shady groups. Support your answers using your observations and data.

11. How does location (in the sun or in the shade) affect temperature readings?

12. How do light and dark clothing/paper affect temperature readings?

13. Which clothing will keep you warmest when outside on sunny winter days, dark or light?

14. What are some disadvantages of wearing dark clothing?

Dark and Light

Questions 2-8:

Answers will vary. In general, the shady groups will observe insignificant differences between temperatures of the light and dark cloths/papers. The in-sun groups will observe the temperatures under the dark cloth/paper becoming much warmer than under the light cloth/paper. How temperatures increase over time will depend on the starting temperature and type of cloth. In general, the sunny cloths/papers will both be warmer than the shady cloths/papers.

10. Does location (in the sun or in the shade) affect temperature readings?

    Yes. The cloths/papers in the sun (both light and dark) were both warmer than the cloths/papers in the shade.

12. How do light and dark clothing/paper affect temperature readings?

    In the sun, dark colors are warmer because dark colors absorb heat, and light colors reflect heat. In the shade it doesn't really matter.

13. Which clothing will keep you warmest when outside on sunny winter days, dark or light?

    Dark. Out of the direct sunlight, both would be equally warm. Color makes no difference when not in direct sunlight.

14. What are some disadvantages of wearing dark clothing?

    It makes you harder to spot unless contrasted on a light background such as snow.

Personal Survival Kits

Time: 45 minutes

Overview

Assemble a personal survival kit that contains essential items.

Objectives

After completing this activity, students should be able to:

1. Work cooperatively to assemble a personal survival kit.
2. List the four categories of essential items in a personal survival kit.
3. Select items for a personal survival kit that cover the four essential categories.

Materials

- Overhead #9 **Personal Survival Kit**
- Story #1 **Hunter Rescued after 3 Nights in Ravine**
- One per student, Student Handout #1 **Some Suggested Items for Personal Survival Kits**
- Two boxes large enough to hold the collection of survival kit items below
- Enough survival kit items to provide at least one item from each essential category for each group
- Inappropriate or too-large survival kit items
- One per group, quart-size Ziploc™ bag

Procedure

Before Class

1. Distribute the survival kit items evenly between the two boxes.

During Class

1. Explain to students that they will be assembling personal survival kits.
2. Introduce the activity by reading Story #1.
3. List items the hunter had with him that were important for survival. List items he used for survival that were collected after being stranded in the ravine. List some items that would have been good to have that he didn't have.
4. Write the following four headings on the board and explain that all items in a personal survival kit should fit in at least one of these categories. Determine which items discussed so far fit in which category.
   - Shelter building aids
   - Signal aids
   - Personal health needs
   - Fire starting aids
5. Show Overhead #9. Define a personal survival kit as a kit with items from each of these four categories that meets your needs and the conditions you are exposed to. It should be small enough to always be carried on your person, i.e., fit in a pocket.
6. Explain that the boxes contain many items useful for surviving an unexpected overnight in the wilderness, and that student groups will put together a personal survival kit in the Ziploc™ bag using items from the boxes.
7. Divide the class into groups of three or four and distribute one Ziploc™ bag to each group.
8. Have each group send one person at a time to the box to choose one item to put in the group's personal survival kit.
9. Allow three to five minutes for selecting items from the box. When time is up, have them pack and close their kits.
10. Allow another minute for discussion and for groups to make one change in their items if they wish.

11. Distribute Student Handout #1. Suggest that students write additional ideas from discussion on their lists and take them home.
12. Have each group show its kit and tell which category each item belongs to. Or point to each category and have groups tell which of their items fit that category. The latter takes much less time. Write items on the board under proper category.
13. Point out that the most useful items fall under more than one category. All kits should have items from the four categories, and the kit must fit into a pocket.
14. Collect the kits.
15. Describe "comfort kits"—made up of useful items that are too big to fit in a pocket. List some items that would be good for a comfort kit. Discussion points:
    - Survival items mentioned in Student Handout #1 were not in the hunter's pockets. He carried them in a backpack.
    - Most people who find themselves in an emergency have only their clothes and the contents of their pockets. Backpacks and other comfort kits are often left behind or lost in an emergency.
    - Always carry a personal survival kit in your pocket. You can also carry a comfort kit, but don't count on it.

This activity addresses Alaska Content Standards:

Language Arts C-3 Group decision making, C-5 Project collaboration, D-4 Explain and defend a position

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed choices, B-2 Effective communication, C-5 Effects of attitude and behavior

Personal Survival Kits is based on an activity submitted by Juneau, Alaska, school teacher Dennis Early.

Daily Sitka Sentinel, November 2, 1998

Hunter Rescued after Three Nights in Ravine

by Shannon Haugland, Sentinel Staff Writer

Even after spending three nights on a remote frozen mountainside protected only by the hide of a mountain goat he had shot, Matt Dobson was still certain he would make it out alive.

"I knew someone would show up; it was only a matter of waiting," said the 30-year-old hunter. Dobson was rescued Saturday afternoon by search and rescue crews who spotted his rifle at the top of a ravine between Rosenberg and Annahootz mountains north of Nakwasina Passage.

The two-day search for the overdue hunter in an area 16 miles north of Sitka brought in more than 100 search and rescue volunteers from Sitka and Juneau, Alaska State Troopers, a private helicopter from Juneau, a Coast Guard helicopter, the U.S. Forest Service and Sitka Police Department.

Dobson, an Alaska State Trooper in the Division of Fish and Wildlife, left Monday afternoon for his solo mountain goat hunting trip, planning to return Wednesday night or Thursday.

"My friends had instructions, and I knew they would come looking for me sooner or later," Dobson told the *Sentinel*. "I was just hoping it was sooner, rather than later."

He took his skiff to the Nakwasina Sound area Monday afternoon. After anchoring the boat he went ashore and set up camp. He spent the night and all of the next day and night in his tent, waiting for the weather to clear.

He said Wednesday turned out to be an ideal hunting day, and he hiked to the top of Rosenberg Mountain. At around 2 p.m. he got in a perfect shot of an average size male mountain goat from about 10 feet away.

"We were basically looking at each other," Dobson said.

Based on his previous hunting experience, he thought he had picked a "safe, accessible" spot because it did not appear the goat would slide down the mountain after being killed.

But it did, coming to rest at the bottom of a steep, snow-covered ravine surrounded by cliffs on three sides and an ice fall leading to St. John Baptist Bay.

"Obviously I didn't want to leave it," Dobson said of the goat. He acknowledged he was partially motivated by his position as a Fish and Wildlife officer, whose duties include enforcing laws that discourage leaving game behind.

"I thought I had made a good evaluation of the scene," he said. "I thought I could get back. I was wrong."

He left his .257 Roberts rifle at the top of the ravine as a marker in case he became trapped, Dobson said.

After climbing down into the ravine he notched his mountain goat harvest tag and prepared the carcass for carrying out. He made it up Rosenberg Mountain to a point about 20 yards short of safety where he came to a vertical cliff. He realized he would be risking his life to go farther, so he went back down to the base of the ravine.

"I got stuck in a place where I couldn't go up and I couldn't go down, which was very frustrating," Dobson said.

Although he had taken a hand-held VHF radio on his hunting trip, he had left it at his base camp to lighten his load if he shot a goat. Adult male mountain goats weigh about 100 pounds.

"I'm kicking myself on that. Hindsight is always perfect," he commented.

What he did take in his backpack was "a basic survival kit:" extra clothing, Power Bars, extra food and water. A stream was nearby, which kept him hydrated for the duration of his stay.

He stayed warm by covering himself with the goat hide.

"I knew I would be OK," said Dobson, who stands 6-3 and weighs 195 pounds. "Physically I was in good shape. I knew I could try and get out and possibly get injured.'' He decided not to take that risk, which would have worsened his situation.

When Dobson didn't return by Friday morning, his fellow Fish and Wildlife officer Terry Lovett alerted troopers who called other rescue workers.

The Sitka Volunteer Fire Department sent out teams to the area Friday afternoon, including two who were dropped off by the Coast Guard helicopter on the ridge. Dobson said he saw the Coast Guard helicopter Friday afternoon and Saturday morning, but had no signaling equipment.

Don Kluting, SAR captain and one of the two who were dropped off, described the search conditions as "miserable" that day.

"The wind kicked our feet out from under us," the sturdy, 205-pound volunteer said. They set up a tent, which was nearly carried away by wind gusts that may have been as high as 60 mph, he said.

On Saturday, more volunteers joined in the search effort, including the mountain rescue unit from Juneau, a private helicopter firm Temsco Helicopters Inc. from Juneau and the regional search dog squad SEADOGS.

In much-improved search conditions that day, four others from the Juneau team were dropped off and joined Kluting and his fellow Sitka searcher Gerald Gangle. While taking a break from the search near the ridge Saturday afternoon, one member of the team spotted the rifle and called down into the ravine.

Dobson called back, and let the group know he was OK.

Using a pulley system, the others lowered Kluting into the ravine, where he performed a medical check of the hunter and determined he was really not injured. With the rope assist both were able to climb out of the gully.

"He looked tired but in very good shape," Kluting said. "He was very happy to see us. We had a good conversation."

Kluting affirmed Dobson's assessment of the area and did the right thing by waiting for a rescue.

"He would have been risking his life to go farther," he said.

Dobson said the decision to stay was both tough and easy. "It was a matter of swallowing my pride," both as a Fish and Wildlife worker and a seasoned hunter, he said.

It's not a good experience, but it's a good reminder that even if you have a lot of hunting experience, things like this can still happen," he said.

Dobson was airlifted to the airport, where a waiting ambulance took him to Sitka Community Hospital. He was treated for hypothermia and released, and advised to rest for a few days . . .

Used with permission from the Daily Sitka Sentinel.

Some Suggested Items for Personal Survival Kits

Try to choose multi-purpose items.

Shelter Building Aids

Twine or cordage
Dental floss
Large garbage bags
Space blankets
Bug head net

Signal Aids

Whistle
Surveyors flagging tape
Signal mirror
Strobe light
Small flares
Chemical lights
Paper and pencil

Personal Health Needs

Prescription medications
Water purification tablets
Tampons/pads
Bug repellent
Spare disposable contacts or contact cleaner/holder
Energy bars, bouillon cubes

Fire Starting Aids

Matches, strike anywhere type or "life boat survival matches"
Lighter
Candles
Magnesium or other commercially available fire starter
Steel wool

Other

Ziploc™ storage bags

Getting Ready—Comfort Kits

Time: 60-90 minutes

Overview

Compare pairs of items to explore their potential uses in a survival situation.

Objectives

After completing this activity, students should be able to:

1. Describe the difference between a comfort kit and a personal survival kit.
2. List the four categories of essential items in a comfort kit for a land-based trip.
3. Describe the pros and cons of each item in a comfort kit.

Materials

- Story #1 **"Juneau Hiker Found Safe"**
- Twice as many 3 x 5 cards as there are pairs of items
- Candle with matches and flashlight
- Can of pop and water bottle
- Lightweight rain suit and heavy raincoat
- State map and local topographic map
- Sunscreen and suntan lotion
- Heavy blanket and emergency space blanket
- Pocket knife and scissors
- Earmuffs and stocking cap
- Metal cup and plastic cup
- Gloves and mittens
- Whistle and mirror
- Sunglasses and hat with visor
- Cotton socks and wool socks
- Rope and dental floss
- Any other items that would fit in a daypack
- One daypack

Procedure

Before Class

1. Complete Activity #12.
2. Gather the listed pairs of items, adding any additional items suitable for your area, and lay out the pairs on tables in the classroom. Give each pair a number and write that number on two separate cards. Place one card on the table with the pair of items. Place the other card in a set that will be distributed to the students.

During Class

1. Explain to students that they will be learning about and putting together a comfort kit.
2. Describe comfort kits and discuss how they might be useful.
3. Read Story #1 to the class. Discuss being lost or stranded, types of emergencies, and related emotions. Apply the information to the story of the hiker.
4. Set the scene. Explain that the students will be selecting items that would be useful to have on an outdoor trip likely in their area. Have them describe the trip. Explain that there are pairs of items around the room that could be useful if an emergency should arise, and that they will decide which items to bring based on the following criteria:
   - All items chosen for the trip must fit inside the daypack (show the day pack)
   - The loaded daypack should be light enough to carry easily
   - The items should cover all four categories of essential items for personal survival kits
   - Items should have more than one use
5. Divide the class into groups and distribute the second set of cards.
6. Have one person from each group go to the tables and get the pair of items that correspond with the number on the card(s).

Members of the group then decide which of the two items to take on the day trip.

7. Starting at one side of the room, give the daypack to one of the groups. That group shows the class the two items it had to choose from, which item it chose, and why. After the group has explained its reasoning, have the class discuss the selection. Emphasize the "why's" during debate. Have students place their chosen item in the bag and pass it to the next group. Continue until every group has placed its item in the bag.
8. Reinforce that most of the choices are debatable. It is the reasoning that is most important. Remind students that this is a day hike and only a limited amount is reasonable to take. This could lead to a discussion about whether an item could be replaced by something smaller and more compact (i.e., dental floss for twine).
9. After each group has placed its item in the bag, the bag must close. If it doesn't, the class must decide which item(s) to remove.

Variations

1. Start with basic items you would always take with you on a trip like a snack, first aid kit, extra layer of clothing, etc. Discuss the need to have these items on any trip and put them in the pack first. Continue the exercise as presented.
2. For a health fair or classroom station, place a daypack and choices on a table. Ask participants to choose three or four items they would want with them and why. Include brochures on wilderness safety and related topics like float and trip plans, first aid, wild edibles, hypothermia, and clothing.

This activity addresses Alaska Content Standards:

Language Arts A-3 Demonstrating speaking skills, C-3 Group decision making, C-5 Individual and group responsibilities, D-2 Evaluating information, D-4 Explain and defend a position

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions, B-5 Evaluating information,C-5 Effects of attitude and behavior, D-1 Making responsible decisions, D-2 Safe and healthy environments

Daily Sitka Sentinel, August 30, 1996

Juneau Hiker Found Safe

JUNEAU (AP)—Alaska State Trooper say a 38-year-old Seattle man was safe Thursday night after a three-day ordeal on Mount Juneau.

Authorities say Robert Wells apparently became disoriented in fog along a mountain ridge after attempting to reach the top of the 3,500-foot peak behind downtown Juneau.

Wells, an electrician who used to live in Juneau, was hiking alone on Monday. Authorities were alerted when he failed to meet his girlfriend later that day as planned.

Searchers scoured the mountain for a third day Thursday without sign of Wells. Volunteers with trained dogs searched with aircraft, including a Coast Guard helicopter with an infrared system that detects body heat.

Troopers say Wells wound up taking a wrong turn and emerged from the forest about seven miles southeast of Juneau.

Wells wound up hitchhiking back into town and made a 911 call to Juneau police around 7 p.m. Thursday to report he was OK.

Trooper Gary Harris, who interviewed Wells, said the hiker was cold and wet, but in good condition.

Wells is an experienced hiker who was equipped with survival gear. He headed up Mount Juneau to get a view of the city from a rocky ledge, officials said.

Winter Survival Activity

Time: 60 minutes

Overview

Prioritize items for survival use from a mock plane crash.

Objectives

After completing this activity, students should be able to:

1. List the four categories of essential items in a survival kit.
2. Compare the usefulness of different items for a mock plane crash scenario.
3. Demonstrate cooperative behavior.

Materials

- One set per group, **Salvaged Items cards** (make from Template #1)
- Student Handout #1 **The Situation**

Procedure

1. Explain to students that they will be choosing survival items for a mock survival situation.
2. Review the definition of a personal survival kit and a comfort kit. Write the essential categories for a personal survival kit on the board.
3. Divide the class into groups.
4. Choose a student to read Story #1 aloud.
5. Distribute a set of cards to each group. Explain that each card represents one item salvaged from the plane wreckage, and that each group is to organize the items in order of importance and number the items from one to 13, with one being the most important and 13 the least important. Allow 15 minutes for decision making.
6. Have each group present and defend their list. Be prepared for vigorous discussion.
7. Have each group sort their list into the four essential categories for personal survival kits, listing an item in more than one category if appropriate. Look for the top six items from the list.
   - Did the top six items on the first list cover all four categories?
   - How many of the top six items were multiple use items?
   - How would these work in a real emergency?

Variation

Devise a scorecard for the items with a score of five being most useful and one being least useful, with extra points for multiple use items or those that would help in extreme cold. Emphasize that there is no one best choice.

This activity addresses Alaska Content Standards:

Language Arts C-3 Decision making and projects, C-5 Project collaboration

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed choices, D-1 Making responsible decisions, D-2 Safe and healthy environments, D-5 Effects of attitudes and behavior

The Situation

You have just crash-landed on a forested mountain in the Colorado Rocky Mountains near timberline. It is 11:32 am in mid-January. The light twin engine plane in which you were traveling has completely burned except for the frame. The pilot and copilot were killed, but no one else was seriously injured.

The pilot was unable to notify anyone of your position before the crash. All indications, however, are that the plane was at least 75 to 100 miles off the course that was filed in the flight plan. The pilot had stated before you crashed that you were approximately 50 miles northwest of a small town, which is the nearest known habitation.

The immediate area is thick woods broken by small creeks with beaver ponds. The last weather report indicated that the temperature would reach 25˚F in the daytime and –40˚F at night. You are dressed in winter clothing appropriate for city wear: suits, street shoes, and overcoats.

Before the plane caught fire, your group was able to salvage 13 items. Your task is to rank these items according to their importance to your survival, starting with the first one (1) as the most important and proceeding to the last one (13) as the least important.

You may assume the number of survivors is the same as the number in your group and the group has agreed to stick together.

You will present your list and the reasoning behind it to the class, so discuss why you are placing items in the order you have chosen.

Salvaged Items Cards

Compress kit with 28' of 2-inch gauze	Knife
Compass	Small plastic aviation map
Newspaper for each person	Ball of steel wool
Can of shortening	Cigarette lighter with fluid
2 plastic seat cushions	.45 caliber hand gun with ammunition
Extra pair of pants and shirt for each person	Flashlight with batteries
30 feet of rope	

Salvaged Items

Shelter Aids

Item	**Rationale**
Extra pair of pants and shirt for each person	Primary shelter, conserve body heat
2 plastic seat cushions	Insulation for shelter
Knife	Cut wood/rope for shelter building
Newspaper for each person	Primary shelter, insulation inside clothes and shoes, fire starter, insulation in shelter
30 feet of rope	Use in building shelter or to pull down dead tree limbs for fuel (Could also be used for fire and as a signal aid.)

Signal Aids

Item	**Rationale**
Cigarette lighter with fluid	Fire starter for signals or fire
Flashlight with batteries	Signal, can also use the battery with the steel wool to make a fire
.45 caliber hand gun and ammunition	Signal
Small plastic aviation map	Might be able to use on a sunny day to reflect light as a signal
Can of shortening	Can eat for energy, use as fuel for fire with lighter, or use with gauze to make a light
Compress kit with 28' of 2-inch gauze	Can use with shortening and lighter as wick for light
Ball of steel wool	Fire starter, it needs a battery to work

Other

Item	**Rationale**
Compass	Do not use—stay put until found, but may be useful as a mirror/signal

Trip Plans

Time: 30 minutes

Overview
Write trip plans based on a given scenario.

Objective
After completing this activity, students should be able to write a trip plan that includes the four essential elements.

Materials
- Overhead #10 **Trip Plan**
- *The Last Adventure from Danger Stalks the Land: Alaskan Tales of Death and Survival* by Larry Kanuit AMSEA
- One per student, Student Handout #1 **What's Your Plan?**

Procedure
1. Explain to students that they will be writing a trip plan.
2. Read the story to your class. Ask students if they believe that leaving a note explaining where they are going is enough information for someone to find them if they run into a problem.
3. Brainstorm with class the information they would need to find a friend or family member overdue from a hiking, hunting, or berry-picking trip. Emphasize the importance of a trip plan being an important way to signal for help in an emergency.
4. Describe what information a trip plan should contain. Show an example.
5. Distribute Student Handout #1.
6. Discuss who should receive this plan.

Extensions
1. Have students read the newspaper for several weeks, looking for news stories where trip plans initiated a search and rescue.
2. See Story #1 from Activities #12 and #13.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing, A-2 Writing conventions, A-3 Demonstrating speaking skills, D-1-A Personal experience and prior knowledge

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-5 Well-being of the family, A-6 Making informed choices, C-5 Effects of attitude and behavior, D-1 Responsible decisions, D-2 Safe and healthy environments

Name: ______________________________ Date: ____________________

What's Your Plan?

Whether you are traveling on or off the water you should let someone know your plans. Write a trip plan for any trip you would like to take, being sure to include the following information:

I will give this plan to: (Someone who will miss you if you don't return.)

____

Who is going? (Names and phone numbers) ______________________________

____

Where are you going? ______________________________

How will you travel? (Plane, car, snowmachine, on foot, etc.?) ______________________________

What route will you take? ______________________________

What will you do along the way? ______________________________

____

When will you arrive at your destination? (Day and time) ______________________________

When will you return home? (Day and time) ______________________________

What are you taking with you for equipment? ______________________________

____

____

____

Activity #16, Alcohol Stories

Time: Two 50-minute class periods

Overview

Analyze effects of alcohol using newspaper articles, and practice skills to recognize and avoid dangerous alcohol situations.

Objectives

After completing this activity, students should be able to:

1. List two effects of alcohol consumption that can lead to death.
2. Demonstrate one technique to avoid participating in activities where alcohol is consumed.

Materials

- Overhead #11 **Alcohol**
- One per group, Student Handouts #1 **Searchers: Missing Man Likely Lived Several Days;** #2 **Girl, 16, Dies of Hypothermia; Alcohol May Have Been a Factor;** or #3 **Brother of Past Lawmaker Dead of Hypothermia**
- One per group, Student Handout #4 **Alcohol Stories**
- One per student, Student Handout #5 **The Refusal Skill™**

Procedure

1. Explain to students that they will be learning about the dangers of combining alcohol consumption with outdoor adventures.
2. Divide students into groups and distribute Student Handouts #1 through #3. Have students take turns reading the stories aloud. Discuss the dangers of alcohol consumption using Overhead #11.
3. Distribute and have students complete Student Handout #4 for their story.
4. Have students read their re-written stories aloud until every disaster alternative has been covered. Discuss what it would have taken in real life to have changed the story to the happier ending.
5. Discuss situations known to students where the combination of alcohol and outdoor activities led to disaster.
6. Discuss the difficulty of refusing to participate in a situation involving alcohol, including the reasons why it is so hard. Explain that you have information that will help them refuse to become involved in situations involving alcohol.
7. Distribute Student Handout #5. Review **The Refusal Skill™,** demonstrating the technique with an assistant. Refusing may be a difficult task for some students whose cultural upbringing has taught them to be quiet and cooperative. This is particularly true in the Yupik culture. If cultural values prohibit students from being assertive or even from suggesting alternatives, they should not be pushed to do so, nor should they be criticized. It may be necessary to discuss this activity with adults of the culture to determine a more culturally sensitive approach. Also, be aware that role playing is not an effective learning strategy for some groups.
8. Have students practice using **The Refusal Skill™** in pairs.
9. Debrief, emphasizing the real dangers and that they need to choose ahead of time what they will do when confronted with these situations.

This activity addresses Alaska Content Standards:

Language Arts B-1 Meaning from written text, B-2 Investigations in written materials, C-5 Project collaboration, D-1 Developing a logical position, E-1 Understanding perspective

Science A-14 Living things and their environments

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, B-1 Risks and consequences, B-5 Evaluating information, C-5 Effects of attitude and behavior, D-1 Analyzing situations, D-2 Drawing logical conclusions

Daily Sitka Sentinel, January 13, 2000

Searchers: Missing Man Likely Lived Several Days

ANCHORAGE (AP)—Searchers who looked for a missing Atmautluak man say there are signs he lived several days while lost on the tundra as wind chills dipped to 80 degrees below zero.

Richard Pavilla, 38, had set out with a friend Christmas Day on a snowmachine trip from Atmautluak to Bethel when they disappeared in a blizzard.

His friend, Richard Tikiun, 27, of Bethel, was found dead of hypothermia three days later, an empty bottle of vodka at his side. Pavilla has not been found.

Bethel search-and-rescue coordinator Peter Atchak said Wednesday there were signs that Pavilla tried to shelter himself from the bitter cold by building small snow caves and making bed mats from branches.

Searchers think Pavilla walked for miles in circles and may have lived for three to five days, looking for the friend and the snowmachine from which he had become separated, or for a sheltering fish camp.

But blowing snow obscured the world beyond a few dozen paces. That also hampered search efforts.

The signs also show that Pavilla's strength waned and his improvised shelters became flimsier the farther he went.

"He doesn't have enough energy to pick up his feet anymore. He's dragging the snow," Atchak told the Anchorage Daily News. "The last shelter that he made, it was out in the open, and his snow break wasn't as high or as well done as the first one."

Alaska State Troopers said Pavilla and Tikiun apparently were intoxicated. That opinion was reinforced by the state medical examiner Wednesday who said Tikiun died of hypothermia in a situation compounded by alcohol abuse.

Days earlier, Tikiun had received a shipment of a case of beer and a half-dozen bottles of vodka. The pair might have intended that night to retrieve some of the alcohol from a cache on the tundra before continuing to Bethel, troopers said. Alcohol consumption is banned in Atmautluak but permitted in Bethel.

"It's very obvious he (Pavilla) was alive for a while and was trying to survive," said trooper Larry Erickson of Bethel. "The only problem is you got 80-degree (below zero) wind chill, and you can't survive that, and he had several straight days of that."

Troopers called off their search Sunday although villagers will continue crisscrossing the area on snowmachines when weather permits, Atchak said.

"There's always miracles," Atchak said. "We do believe in miracles. Until we find a body, there's always a chance."

Daily Sitka Sentinel, December 30, 1998

Girl, 16, Dies of Hypothermia; Alcohol May Have Been a Factor

FAIRBANKS (AP)—Alaska State Troopers are blaming underage drinking for the hypothermia death of a 16 year-old Minto girl.

Lydia Charlie was found dead Monday under her parents' home, which is elevated on pilings. She had last been seen by friends early Sunday morning, when the temperature had dropped to about 30 degrees below zero.

Investigator Lantz Dahlke said Larry Charlie and his wife became concerned about their daughter's whereabouts on Monday and started looking for her.

In small villages such as Minto, where many people don't have phones, it's not uncommon for teenagers to spend the night with friends or relatives without first touching base with their parents, Dahlke said.

The parents found their daughter's body Monday night. The body apparently was in a location that wouldn't have been seen easily.

Troopers think alcohol was a factor in Charlie's death, but they did not elaborate. Investigators said she was not dressed appropriately for the weather.

Authorities don't suspect foul play but are sending the body to the medical examiner's office in Anchorage for an autopsy.

Alcohol is banned in Minto, which is about 120 miles northwest of Fairbanks.

Charlie's death marked the second time this year that a village teen died in an alcohol-related incident.

Russell Daigle, 16, died in May after he fired a shotgun at two friends, wounding one, then turned the weapon on himself, troopers said. The group of boys apparently had been drinking at a hunting area on the outskirts of the village.

Daily Sitka Sentinel, February 24, 2000

Brother of Past Lawmaker Dead of Hypothermia

ANCHORAGE (AP)—The brother of former state legislator Ivan Ivan has been found dead of apparent hypothermia.

The body of Owen Ivan of Akiak was found at 2:30 p.m. Tuesday about 2 $^1/_2$ miles east of the Kuskokwim River village. Akiak Mayor Andrew Jasper and a companion were out cutting wood and found the dead man on his snowmachine, covered with a tarp, troopers said. Ivan had removed his shoes.

Troopers say Ivan, 60, left his brother's home on Monday night. Owen Ivan reportedly was drinking but did not appear intoxicated, according to troopers.

Ivan apparently was speeding and drove his snowmachine into an alder patch. Troopers said Ivan's face probably struck the windshield. He was not wearing a helmet.

Ivan apparently spent the night at the scene, with temperatures in the low teens. He was wearing only light clothing. Troopers said they believe hypothermia was the cause of death.

The dead man's brother, Ivan Ivan, is a former state representative for the Akiak area.

Name: ______________________________ Date: ____________________

Alcohol Stories

Title of Article: ____

Using complete sentences, answer the following questions:

1. Describe the situation that led to trouble for the victim in the article.

2. Describe the environmental conditions at the time of the incident.

3. Did environmental factors contribute to the problem? If so, how?

4. How could this situation have been prevented?

5. Rewrite this story so that the person avoided the incident.

Name: ______________________________ Date: ____________________

The Refusal Skill™

The goal of using **The Refusal Skill™** is to both keep friends and stay out of a dangerous situation. You will be working in pairs. One of you will play the role of the person who wants to participate in some dangerous behavior, the other the role of the person who doesn't want to. The one who doesn't want to will use The Refusal Skill™ to decline to participate. Debrief at the end.

The Refusal Skill™ has several steps:

1. Ask questions.

   "What . . .?" "Why . . .?" This clarifies the situation.

2. Name the trouble specifically.

   "That's . . ."

3. State the physical and emotional consequences.

   "If I do that . . ."

4. Suggest an alternative that communicates that you are rejecting the activity and not the person.

   "Instead, why don't we . . ."

5. Move it, sell it, and leave the door open to persuade your friend that your position and/or alternative is attractive.

   "If you change your mind . . ."

Allow yourself to maintain control of the situation, try to persuade the other person(s) that you are serious, make alternatives look doable and attractive, and emphasize the importance of your friendship and maintaining it.

Here's an example:

Scenario: Your friends are heading out to the next village on snowmachines to visit some friends and they want you to come. Everyone is ready, but you notice that one of the drivers is already drunk and he is not very interested in having anyone drive for him.

For this scenario, there are many ways you could use The Refusal Skill™ if you were the person trying to keep friends and avoid a dangerous situation. One possibility is:

1. Ask questions.

   "What would we do if one of the machines broke down?" "What if ____________ (the person who is drunk) gets separated from us or crashes into ____________ (fill in the blank)?"

2. Name the trouble specifically.

   "Remember when ________________ went out when they were drunk? He was dead by the time they found him. Drinking is really dangerous on snowmachine trips."

3. State the consequences.

   "What if something happens to one or more of us out there? Think how awful it would be to have to tell our parents that something bad happened because we were drinking. And you know what? I really don't want to put myself in a position to tempt me to do something I'll regret later."

   If they keep pressuring you, you could say something like, "Your pressuring me makes me feel angry. It's like you really don't care about me. I don't want to feel responsible if something happens."

4. Suggest an alternative.

   "Why don't we go next weekend?"

5. Move it, sell it, and leave the door open.

   "I'd love to go next weekend."

   If they say they are going anyway, you could say something like, "I care a lot about all of you and wish you'd change your mind. If you do, I'd love to hang out with you. You can find me at the house."

Now you can make up your own scenario and practice using The Refusal Skill™. It may be awkward to do it at first, but it may save your life some day!

Unit 2: Maps and Compasses

Unit Rationale

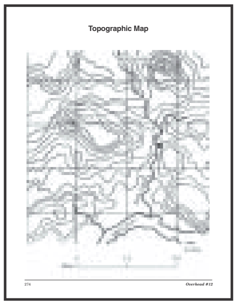
Knowing how to find your way from one place to another is an important life skill. Whether you travel on main streets or back country trails, you need to know where you are and how to get to your destination. When weather or other circumstances force you to change your plans, the ability to find your way to safety can mean the difference between life and death. Knowing how to use an orienteering compass, topographic map, and global positioning system (GPS) unit can help turn an emergency situation into a homecoming.

Unit Goal

To train students to use a topographic map, orienteering compass, and GPS unit to locate their position and to travel on a known course.

Maps and Compasses: Teacher Information

The information in this section gives teachers a background in the topic. Use your judgment when presenting this material; some concepts may not be suitable for younger children.



Overhead #12

Topographic Maps (see Overhead #12)

- Knowing basic map and compass skills can contribute to a more enjoyable outdoor experience and help prevent you from becoming lost

Definitions

A. Map = flat representation of a three-dimensional surface

B. Topographic map
   1. Map using contour lines to depict elevation of geographic land features
   2. Produced in U.S. by U.S. Geological Survey (USGS)
   3. Used for navigation on land
   4. Sometimes called topo map

C. Contour line = line on a map joining points of equal elevation

D. Declination = angle of difference between magnetic north and geographic poles (called “variation” for nautical purposes and “deviation” by armed forces)

E. Elevation = height above sea level

F. Feature = prominent or distinctive characteristic

G. Latitude lines
   1. Imaginary lines around earth parallel to equator
   2. Mark distance north or south of equator
   3. Are equidistant on earth
   4. Distance is expressed in degrees (˚), minutes ('), and seconds (")
      a. Equator is 0˚ latitude
      b. North Pole is 90˚N latitude
      c. South Pole is 90˚S latitude
      d. Fairbanks, Alaska is 64˚49’N

H. Longitude lines
   1. Imaginary lines around earth running from pole to pole
   2. Marks distance east or west on earth’s surface
   3. Longitude lines are not equidistant on earth
   4. Distance is also expressed in degrees (˚), minutes ('), and seconds (")
      a. 0˚ longitude runs through Greenwich, England
      b. International Date Line follows the 180˚ longitude line with some variations for geopolitical reasons (e.g., Alaska)
      c. Fairbanks, Alaska is 147˚52' W

I. Magnetic north = compass direction toward magnetic north pole

J. Scale = proportion between distance on map and actual distance

K. Statute mile = 5,280 feet

1. 69 statute miles = one degree (1˚) of latitude
2. 1.15 statute miles = one minute (1') of latitude

L. True north = direction drawn on a map toward geographic north pole

Features of topographic maps—show only those features useful for navigation on land

A. Contour lines
   1. Depict elevations of land features
   2. Usually printed in two thicknesses—heavier lines are index contours, usually marked with numbers to give height in feet or meters
   3. Contour interval
      a. Set difference in elevation between brown lines
      b. Varies from map to map
      c. Value given in map's margins
   4. Closely spaced contour lines represent steep slopes

B. Natural and manmade features—represented by colored areas and symbols standard on all USGS topographic maps
   1. Woodlands—shown in green tint
   2. Waterways—shown in blue tint
   3. Buildings—shown as black squares or outlines
   4. Road—may be red or black solid or dashed line
   5. Complete key for topographic map symbols can be obtained from USGS at 1-888-ASK-USGS

C. Distance—measured in statute miles

D. Scale—shown on scale bar in map margin
   1. Many Alaska maps use 1:63,360 scale where 1 inch = 1 mile (63,360 inches)
   2. Other scales also used

E. Oriented with true north at top

F. Has latitude and longitude lines

G. Declination
   1. Shown in diagram in map's margin
   2. MN = magnetic north
   3. Star symbol = true north

How topographic maps are different from nautical charts

A. Charts are used for navigation on water

B. Charts emphasize coastal and underwater features and show only those land features useful for navigation on water

C. Distances on charts are in nautical miles

D. Charts use a compass rose to show true and magnetic directions

E. See *Small Boat Safety and Survival* (Vol. 4) for detailed information on charts

Orienteering Compasses

Definitions

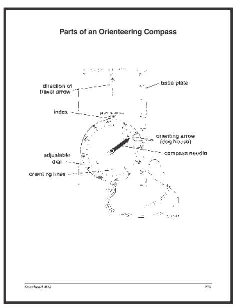
A. Orienteering compass = portable instrument used for navigation on land that uses a magnetic needle or bar, and earth's magnetic field to determine direction

B. Bearing = direction to an object or location from another object or location, expressed in degrees

   1. Magnetic bearing = direction, expressed in degrees, using earth's magnetic north pole as reference; direction indicated by orienteering compass needle
   2. True bearing = direction, expressed in degrees, using earth's geographic north pole as reference

C. Degrees—compasses are divided into 360 degrees

   1. East is 90 degrees
   2. South is 180 degrees
   3. West is 270 degrees
   4. North is 360 degrees or 0 degrees



Overhead #13

Parts of the compass (see Overhead #13)

A. Base plate = flat area that orienteering compass dial sits upon

B. Compass needle = magnetized needle floating in a liquid-filled chamber; red end points to magnetic north pole, even in Southern Hemisphere

C. Dial-adjustable dial on outside edge of moveable circular liquid-filled chamber, divided into 360 degrees; also called compass housing

D. Travel arrow = arrow engraved or marked on body of orienteering compass; used to align with a landmark

E. Index = point where direction of travel arrow intersects with adjustable dial on orienteering compass

F. Orienting arrow = arrow printed on liquid-filled chamber, used to frame compass needle when finding a bearing; also called dog house

G. Orienting lines = lines printed on liquid-filled chamber parallel to one another and orienting arrow (dog house), used for aligning with north/south lines on map when finding a bearing

Cautions in using an orienteering compass

A. Compass is affected by iron and steel objects including belt buckles, pocket knives and utility tools, some watches, snowmachines, vehicles, electrical lines, any electromagnetic current like from a running motor, etc.

B. Must be held level so needle can freely move

Global Positioning System (GPS)—What it is and how it works

A. Satellite-based radio positioning and navigation system

B. Uses multiple satellites to determine a position by triangulation (technique for determining position by using angles)

C. Satellites orbit in different orbital paths

D. Each satellite constantly identifies itself, and gives its position and accurate time of signal (has an extremely accurate atomic clock)

E. GPS receiver compares time signal sent to time signal received to determine distance from satellite
F. With minimum of three satellites, GPS receiver can triangulate latitude/longitude position
G. With four or more satellites GPS receiver can determine latitude, longitude, and altitude
H. Works in all weather in all parts of world

What a GPS unit can tell you within one minute

A. Latitude and longitude within 10 meters of accuracy (95% of the time)
B. Elevation
C. Speed
D. Direction to travel to waypoints and along routes

Other features

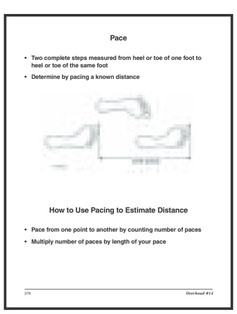
A. Often have man overboard (MOB) function to mark location of MOB
B. Can be connected to chart plotter to show progress on chart

Factors affecting accuracy

A. When all satellites are in one portion of sky, satellite geometry is poor
B. When near tall buildings, or in canyons, mountainous areas, woods, vehicles, or buildings, signals from some satellites can be blocked; antenna needs to be outside, free of obstructions to get good reading
C. Number of satellites available determines whether you will get a reading
D. Multipath signals
    1. When radio signal bounces off building or terrain, signal takes longer than it should to reach receiver
    2. This gives receiver impression satellite is farther away than it is
    3. Usually causes reading error of less than 15 feet
E. Propagation effect—some atmospheric conditions slow down signal as it passes through ionosphere and troposphere

Measuring Distance

On land-pacing method



Overhead #14

A. Pace is individual-specific—two complete steps measured from heel or toe of one foot to heel or toe of same foot (defined as one normal step by surveyors) (see Overhead #14)
B. To determine length of your pace
    1. Locate two points a known distance apart—minimum of 50 feet to reduce error (200 feet if ground is very uneven)
    2. Count number of paces required to walk distance
    3. Divide distance by number of paces to get average length of your pace
C. To estimate distance
    1. Pace from one point to another, counting number of paces
    2. Multiply number of paces by length of your pace

On a map

A. Use latitude scale along edge of map directly across from area of interest
   1. One minute (1') of latitude is equal to 1.15 statute miles
   2. One degree (1°) of latitude is equal to 69 statute miles

B. Use distance scale—topographic maps often have distance scales printed along bottom edge

C. Never use longitude for distances—it is not constant

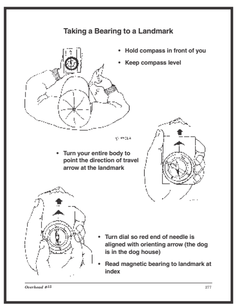
Taking a Compass Bearing

Definitions

A. Line of position (LOP) = line along which an observer is located, often plotted on map by taking bearing to landmark or with electronic position fix

B. Local magnetic disturbance = difference between compass reading and magnetic north resulting from natural disturbances in local area

C. Orienteering = the skill or process of finding your way in the field with map and compass



Overhead #15

Taking a bearing to a landmark (see Overhead #15)

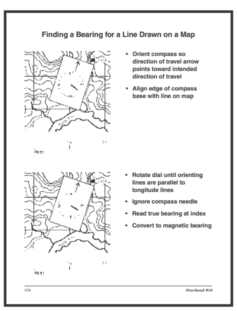
A. Keep compass level throughout process

B. Point direction of travel arrow on compass directly at object or destination

C. Without moving compass, turn adjustable dial until orienting arrow (dog house) on compass dial is aligned with red end of compass needle (the dog is in the dog house)
   1. Using the wrong end of the compass needle can give you a bearing 180° from intended bearing

D. Verify compass is still pointed at landmark and is level

E. Read bearing to object at index



Overhead #16

Finding a bearing for a line drawn on a map (see Overhead #16)

A. Orient compass so direction of travel arrow points toward intended direction of travel on map

B. Align outside edge of compass base (or direction of travel arrow) with drawn line

C. Rotate adjustable dial until orienting lines are parallel to longitude lines on map (ignore compass needle)

D. Read true bearing at index

E. Convert to magnetic bearing (see “Correcting for declination” below)

Correcting for declination

A. Most places in world require a compass correction for declination
   1. Magnetic north pole and geographic (true) north pole are in different places—magnetic north pole is in North America, approximately 1,000 miles from geographic north pole
   2. Magnetic poles move gradually

B. Amount of declination for area on given date is noted on topographic maps

C. To convert from magnetic bearings (what your compass reads) to true bearings (the direction shown on your topographic map)
   1. Add declination to compass reading if easterly—easterly means that from your position on earth, magnetic north pole is east of true north pole
   2. Subtract declination from compass bearing if westerly—westerly means that from your position on earth, magnetic north pole is west of true north pole

D. To convert from true bearings (the direction shown on your topographic map) to magnetic bearings (what your compass should read)
   1. Subtract declination to get compass reading if easterly
   2. Add declination if westerly

E. If accuracy is not critical, you can use magnetic bearings sometimes for simplicity

Relating Your Position to a Point on a Map

From latitude and longitude coordinates

A. Read latitude and longitude on edges of map
   1. Location is expressed in degrees, minutes, and seconds of latitude and longitude (e.g., 63°15'30"N, 155°55'10"W is a location in Alaska)
   2. Latitude scale is on sides of map, longitude is on top and bottom

B. Your position is the point where latitude and longitude lines intersect

From a bearing (also called triangulation)

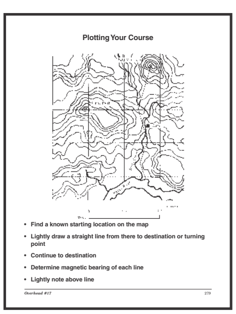
A. Locate two or three landmarks within visual range that show on map

B. Take a compass bearing to each landmark

C. Convert to true bearings (see "Correcting for declination" section above)

D. Plot a bearing line on map for each landmark
   1. Orient compass on map so direction of travel arrow points toward landmark
   2. Place forward corner of compass card on landmark
   3. Turn adjustable dial until true bearing to landmark is at index
   4. Keeping compass edge on landmark, rotate compass body until orienting lines are parallel to longitude lines on map and orienting arrow (dog house) points north (ignore compass needle)
   5. Using a pencil, lightly draw a line along edge of compass extending from landmark on map to expected position
   6. Repeat for each landmark

E. Your approximate position is where lines cross (Inaccuracies are common—with three landmarks you may get a small triangle rather than a point)



Overhead #17

Navigating on Land with an Orienteering Compass

Plotting your course (see Overhead #17)

A. Find starting point or current position on map using known location or triangulation (See "From a bearing" section above)

B. Lightly draw on map (in pencil) a straight line from starting position to destination or turning point (If turning points are used, continue drawing a series of straight lines along reasonable route to destination)

C. Determine magnetic bearing for each segment of route (see “Taking a bearing from a line drawn on map” section above)

D. Use pencil to lightly note bearings above line on map

Follow your course

A. Set adjustable dial on compass so that magnetic bearing on your route is at index

B. Position compass so it is horizontal and direction of travel arrow is pointing directly in front of you

C. Hold compass steady while rotating your body until red end of compass needle is aligned with orienting arrow (dog house)

   1. A common mistake is to orient the wrong end of the needle in dog house; this will put your direction of travel 180˚ from where you want it to be

D. Maintain this position while sighting an object approximately one quarter mile, or convenient distance away, on direction of travel arrow

E. Walk to object, concentrating more on object than on compass

F. Repeat B through E until you reach destination/turning point (if using turning points, reset new bearing and continue to next turning point/destination)

G. Periodically compare actual position with expected position using terrain and other map features or triangulation (see “From a bearing” section above)—make adjustments as necessary

H. Good compasses come with directions for use

Navigating with a Global Positioning System (GPS) Unit

- Follow instructions included with GPS unit

Maps and Compasses: Activities Guide

- The activities in this volume are sequential, and each unit assumes knowledge of the material in the preceding unit(s).
- Activities are arranged by topic in the same order as the Teacher Information.
- Within a topic activities are organized from easiest to most difficult.
- Detailed Alaska Content Standards are located at the end of each activity's procedures.
- Times needed for activities are approximate.
- Many activities contain true stories; be sensitive to the possibility that they could be written about your students' relatives or friends.
- AMSEA This symbol means the equipment is available to borrow from AMSEA.

Topic: Topographic Maps

Activity	Objectives	Standards
1. **Topographic Maps** Become familiar with topographic maps and draw two simple ones p. 96	• Describe what a topographic map is used for • List at least six characteristics of a topographic map • Draw a simple topographic map with eight features • Draw a topographic map of a bowl or other object	Language Arts Science Geography Skills for a Healthy Life

Topic: Orienteering Compass

Activity	Objectives	Standards
2. **Compass Basics** Practice reading an orienteering compass and facing bearings p. 99	• Describe what an orienteering compass is used for • Identify seven parts of an orienteering compass • Use an orienteering compass to correctly face a bearing	Mathematics Science Geography Skills for a Healthy Life

Topic: Measuring Distance

Activity	Objectives	Standards
3. **What's Your Pace?** Estimate distance by pacing p. 104	• Define a pace • Determine the length of their own pace • Use pacing to estimate distance	Mathematics Science Geography Skills for a Healthy Life

Topics: Measuring Distance, Taking a Compass Bearing, Relating Your Real Position to a Point on a Map, Navigating on Land with Orienteering Compass

Activity	Objectives	Standards
4. Route on a Rope Practice facing bearings and estimating distance with pacing on a rope route p. 107	• Use an orienteering compass to face a bearing • Use an orienteering compass to follow directions on a simple orienteering course	Mathematics Geography Skills for a Healthy Life
5. Orienteering Course Practice facing and taking bearings, and estimating distance with pacing on an orienteering course p. 112	• Use pacing to estimate distance • Use an orienteering compass to face and take a bearing • Follow directions on a simple orienteering course	Mathematics Science Geography Skills for a Healthy Life
6. Map and Compass Orienteering Reinforce compass and map skills at stations along an orienteering course p. 118	• Find a bearing for a line drawn on a map • Use triangulation to find their location • List at least three things in a given area that can be used as landmarks • Use a map and compass to follow a charted course • Use landmarks and compass bearings to reach a specific location • State why paying attention to surroundings can help prevent getting lost • Plot a course on a topographic map, and determine the bearing for each segment	Language Arts Mathematics Geography Skills for a Healthy Life

Topic: Global Positioning System (GPS), Navigating with a GPS Unit

Activity	Objectives	Standards
7. Basic GPS Plot a course around the school using a hand-held GPS unit p. 129	• Demonstrate how to locate a position using a GPS unit • Demonstrate basic uses of a GPS unit in navigation • Use pacing to estimate distance • Compare taking a compass bearing with taking a GPS bearing	Language Arts Mathematics Science Geography Skills for a Healthy Life Technology

Topic: Culmination Activity

Activity	Objectives	Standards
8. Name and Use Those Terms Match words about topographic maps, orienteering compasses, and orienteering with their definitions p. 133	• Match at least 20 terms relating to topographic maps, orienteering compasses, and orienteering with their definitions • Write a story using at least six terms relating to navigating on land with a topographic map and orienteering compass	Language Arts Science

Topographic Maps

Time: 50-70 minutes

Overview

Become familiar with topographic maps and draw two simple ones.

Objectives

After completing this activity, students should be able to:

1. Describe what a topographic map is used for.
2. List at least six characteristics of a topographic map.
3. Draw a simple topographic map with eight features.
4. Draw a topographic map of a bowl or other object.

Materials

- Overhead #12 **Topographic Map**
- One per group of two to four students, local topographic map or copy of a section of a local topographic map
- Overhead of the same area of the map
- Key to topographic map symbols AMSEA (also available from U.S. Geological Survey at 1-888-ASK-USGS)
- Color overhead of key to topographic map symbols
- One per student, Student Handout #1 **Draw a Topographic Map**
- One per group of 2-4 students, bowl
- One per group of 2-4 students, ruler or tape measure

Procedure

1. Explain to students that they will be learning about topographic maps.
2. Divide students into groups of 2-4 and distribute a topographic map or copy to each group.
3. Ask students when they would use a topographic map and how it might be useful.
4. Using Overhead #12, and the overheads of the topographic map and key to topographic map symbols, explain scale, contour lines, declination, latitude and longitude lines, magnetic and true north, scale, and the various symbols shown on the map.
5. Distribute and have students complete Student Handout #1.
6. Discuss handout when all are done.
7. Explain how topographic maps are made, using an upside down bowl as an example.
8. Have each student draw a topographic map of an upside down bowl or other simple object.
9. Debrief, emphasizing the usefulness of topographic maps.

Extensions

1. Have students build a three-dimensional model of a section of the topographic map:
    - Use tracing paper to trace the contour lines of the map's section onto another piece of paper
    - Cut out the tracing to the lowest contour line
    - Use it as a pattern to cut a piece of cardboard
    - Cut to the next contour line and repeat the step above
    - Glue this on top of the first piece of cardboard, using the topographic map to guide your placement
    - Follow this procedure until all contour lines are cut and glued in place
    - Mount it on a cardboard base
    - Mix plaster of Paris and use it to smooth out the contours
    - Allow it to dry
    - Using the topographic map as a guide, paint the model the appropriate colors

2. Have students draw a route across the map and describe the terrain it crosses.

Note: *Small Boat Safety and Survival* (Volume 4) covers chart reading. These two activities can be done sequentially, and charts and topographic maps compared.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing, C-1 Multiple strategies to complete projects, E-1 Understand and respect the perspectives of others to communicate effectively

Science A-1 Understand facts, concepts, principles, and theories, B-2 Scientific inquiry

Geography A-1, 2 Make and use maps and report spatial information, A-3 Understanding maps, A-5 Evaluate location, A-6 Spatial tools and technologies, B-2 Utilize, analyze, and explain information

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed choices, D-1 Responsible decisions, D-2 Safe and healthy environments

Name: ______________________________ Date: ____________________

Draw a Topographic Map

1. Explain in your own words what a topographic map is and what it is used for.

2. On a separate piece of paper draw a simple topographic map. Include at least one example of each of the following items and label each:

contour line	longitude line
elevation	scale
feature	water
latitude line	wooded area

Compass Basics

Time: 50 minutes

Overview

Practice reading an orienteering compass and facing bearings.

Objectives

After completing this activity, students should be able to:

1. Describe what an orienteering compass is used for.
2. Identify seven parts of an orienteering compass.
3. Use an orienteering compass to correctly face a bearing.

Materials

- Overheads #13 **Parts of an Orienteering Compass** and #15 **Taking a Bearing to a Landmark**
- One per student, Student Handout #1 **Orienteering Compass**
- One per student, copy of Overhead #15 **Taking a Bearing to a Landmark**
- One per pair of students, Student Handout #2 **Compass Bearings**
- One per pair of students, **Compass Direction Plate** (directions below)
- One per pair of students, orienteering compass AMSEA or a large teaching compass (optional)

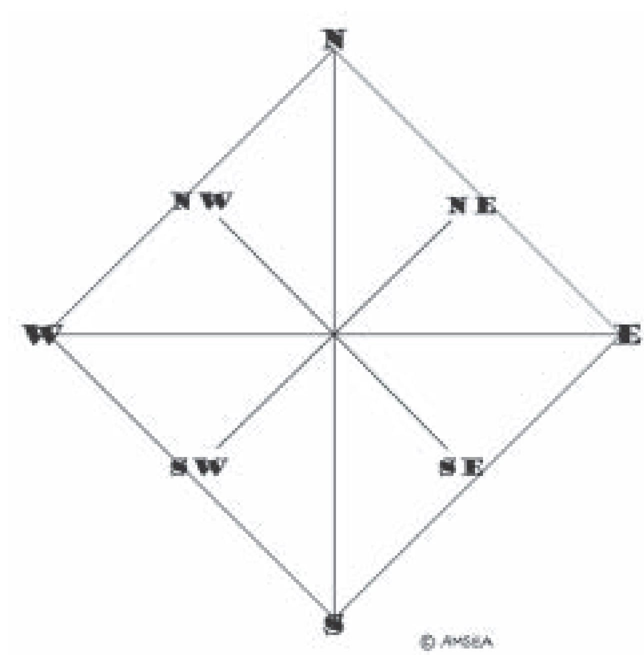
Procedure

Before Class

1. Make one **Compass Direction Plate** for every two students.
   - Cut poster board or cardboard into 12 inch x 12 inch squares.
   - Using a straight edge, draw diagonals from corner to corner. Mark them with cardinal directions, starting with “N” at the top and moving clockwise: “E,” “S” “W.”
   - Using a straight edge, draw lines from the center of one side of the square to the center of the other side. Repeat on the other two sides. These lines should be perpendicular to each other and 45 degrees from the north-south and east-west lines. Starting to the right of “N” moving clockwise, mark the lines “NE,” “SE,” “SW,” and “NW.”
2. Using one of the student’s orienteering compasses, find and mark magnetic north in your room.

During Class

1. Explain to students that they will be learning how to use orienteering compasses.



2. Introduce the activity by explaining why an orienteering compass is a useful tool. Ask students if they have ever been in a situation where it would have been nice to have an orienteering compass.

3. Use Overhead #13 to show the parts of an orienteering compass.
4. Divide class into pairs and give each pair an orienteering compass.
5. Hand out, explain, and have students complete Student Handout #1. Or have them point out the parts on their compasses.
6. Explain true north, magnetic north, bearing, the degrees on a compass, and the points of the compass.
7. Explain that the red end of the needle always points to magnetic north, and that this is one of the things that makes a compass so useful. Show how to hold an orienteering compass level and explain why this is important.
8. List iron and steel objects that might affect an orienteering compass. Have students determine whether they have anything on or near them that is affecting their compasses.
9. Distribute copies of Overhead #15 and explain that they will be learning how to take a bearing to a landmark. One at a time in pairs, have students face north and hold their compasses level in front of them. Explain that in order to have the compass indicate which direction (bearing) they are facing, they need to rotate the dial so the orienting arrow (dog house) is lined up with the red end of the compass needle ("The dog is in the dog house"). Have them read the bearing at the compass index. It should be N, either 0° or 360°.
10. Emphasize that lining up the wrong end of the needle is a common mistake, and will give you a direction 180° away from intended direction.
11. Distribute and explain Student Handout #2.
12. Distribute a Compass Direction Plate to each pair of students and assign pairs to positions throughout the room.
13. Have pairs place their **Compass Direction Plate** on the floor in front of them so that the "N" is facing north.
14. Have one student in each pair stand behind the plate with an orienteering compass and face "N." They should hold the compass, adjust the dial, and read the index as above. The second student records the bearing on Student Handout #2.
15. Have the second student stand behind the plate, face "E" and read the bearing. The first student records it.
16. Have students take turns reading and recording the bearings, and complete Student Handout #2.
17. Debrief the exercise, emphasizing the importance of knowing how and when to use an orienteering compass.

Variation

Instead of the cardboard templates, use tape on the floor or cards on the wall to mark the cardinal directions.

This activity addresses Alaska Content Standards:

Mathematics A-1 Numeration, A-5 Geometry, B-3 Using mathematics in real-life situations, E-2 Practical applications of mathematics, E-3 Mathematics across the curriculum

Science A-4 Observable natural events, A-5 Forces of nature

Geography A-6 Geographical problems and solutions, C-1 Earth's physical systems, F-6 Geography across the curriculum

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, D-1 Responsible decisions

Compass Basics is based on an activity submitted by Lake and Peninsula School District teacher Bernie Gurule from King Salmon, Alaska.

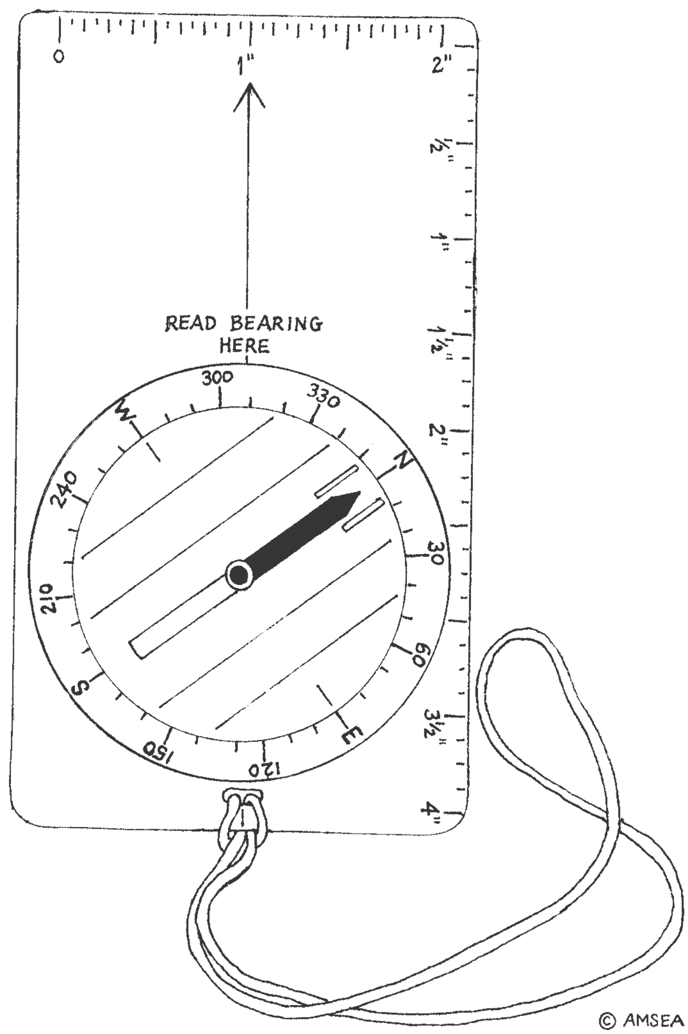
Name: ____________________ Date: ____________________

Orienteering Compass

1. What is an orienteering compass used for?

2. Identify each of the following parts of an orienteering compass by drawing an arrow to each part and labeling each arrow with the correct name.

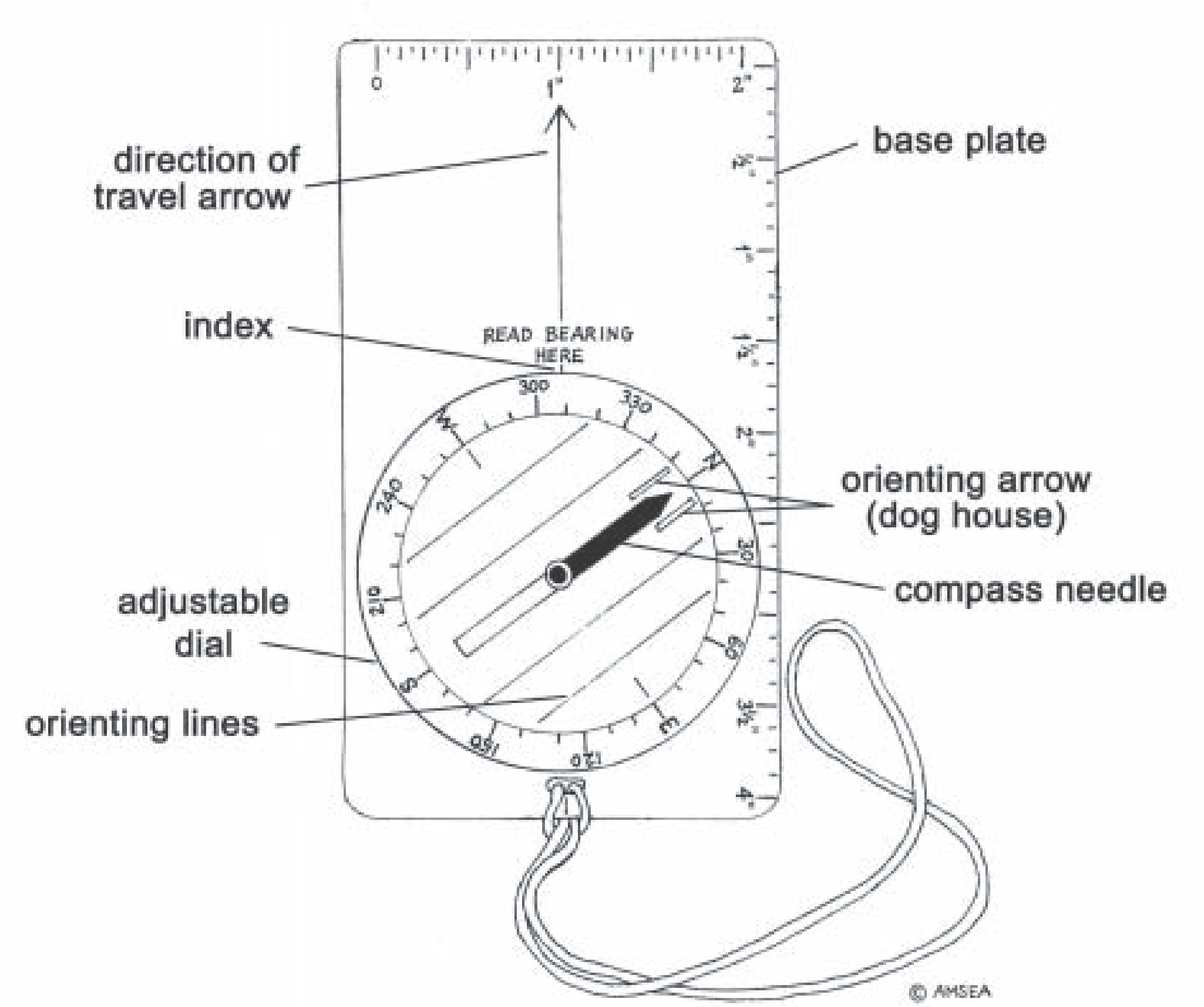
   Dial
   Base plate
   Compass needle
   Direction of travel arrow
   Index
   Orienting arrow (or dog house)
   Orienting lines



Parts of an Orienteering Compass

1. What is an orienteering compass used for?
   Answers can include: to help navigate, to determine your location, to find a bearing, to determine a direction.

2. Identify each of the following parts of an orienteering compass by drawing an arrow to each part and labeling each arrow with the correct name.



Name: ______________________________ Date: ____________________

Compass Bearings

1. For every direction you face, record the bearing below.

Student Faces	Student #1 Bearing (in degrees)	Student #2 Bearing (in degrees)
N		
S		
E		
W		
NE		
SE		
SW		
NW		

2. Using full sentences, describe a realistic situation where the skill you just learned might be useful.

What's Your Pace?

Time: 20 minutes

Overview

Estimate distance by pacing.

Objectives

After completing this activity, students should be able to:

1. Define a pace.
2. Determine the length of their own pace.
3. Use pacing to estimate distance.

Materials

- Overhead #14 **Pace**
- One per group of 4-5 students, Student Handout #1 **Your Pace**
- Level area at least 50 feet long for pacing course
- Longer level area to practice pacing
- Four markers (for pacing course and distance estimating course)

Procedure

Before Class

1. Set up a pacing course by placing 2 markers 50 feet apart over an area of level ground. This will be used by students to determine their pace. If level ground is difficult to find, use a 200 foot course.
2. Measure the distance between another two marked points. This will be paced by students to estimate the distance.
3. Tell students when this activity will take place so they will be appropriately dressed.

During Class

1. Explain to students that they will be determining the length of their own pace and practice estimating distances by pacing. They will use these skills later during an orienteering course activity.
2. Explain using Overhead #14 and a demonstration that a pace is two complete steps measured from the heel (or toe) of one foot to the heel (or toe) of the same foot. Emphasize that paces should be normal, comfortable steps.
3. Divide students into groups of 4-5 students, and distribute and explain Student Handout #1.
4. Go to your pacing course and show students the two markers. Remind them that paces should be normal, comfortable steps.
5. Have students complete the course and Student Handout #1. Discuss any questions or problems.
6. Direct students to the second course and have them use pacing to estimate the distance.
7. Discuss results and emphasize that a pace is a personal measure and can be used to estimate distance. Have students describe when this might be a useful skill.

This activity addresses Alaska Content Standards:

Mathematics A-1 Numeration, A-2 Measurement, A-3 Arithmetic and computation, B-3 Using mathematics in real-life situations, D-2 Drawing logical conclusions, D-3 Mathematical reasoning, E-1 Exploring problems using mathematics, E-2 Practical applications of mathematics, E-3 Mathematics across the curriculum

Science A-4 Observable natural events

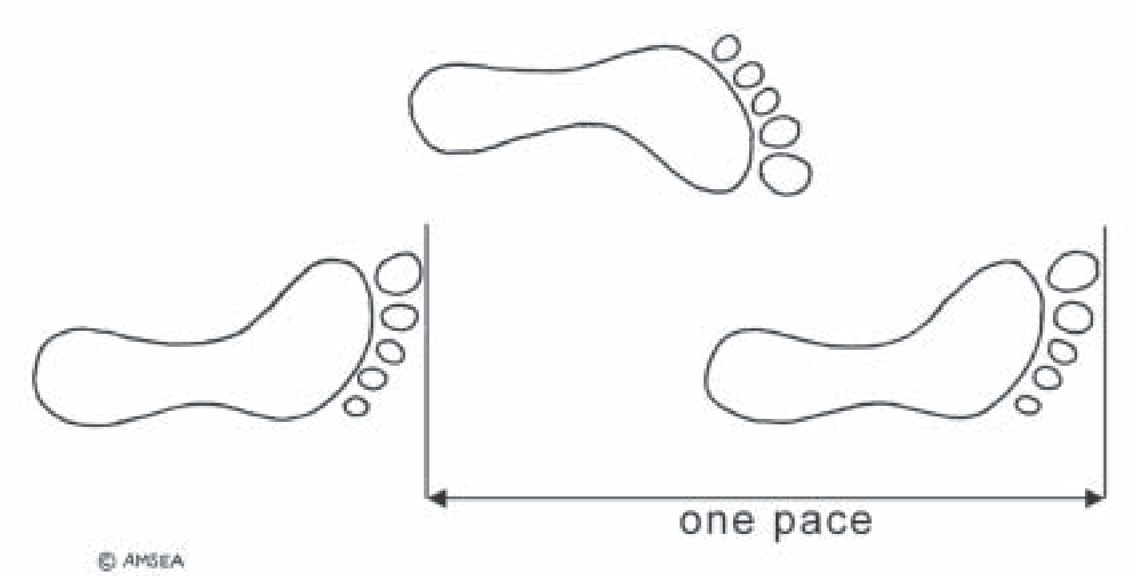
Geography A-4 Using graphic tools, A-6 Geographical problems and solutions, C-1 Earth's physical systems, F-6 Geography across the curriculum

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, D-1 Responsible decisions

Name: ______________________________ Date: ____________________

Your Pace

Pacing is a good method to use to estimate distance, but before you can use it, you need to know how long your pace is. Remember, one pace equals two complete steps.



1. One at a time, start at the first marker and walk in comfortable normal steps to the second marker, then turn and walk back. While walking, count every time your right foot hits the ground.
2. Record the total number of paces it takes to complete the 100-foot pacing course.
3. Calculate the length of your pace (in feet) and record below. Use the equation 100 feet ÷ number of paces = length of pace.

Student Name	Number of Paces	Length of Pace

4. Use pacing to estimate the distance of the second course. Record below. Number of paces x length of pace = estimated distance.

Student Name	Number of Paces	Length of Pace

Estimated Distance: ____________________

Route on a Rope

Time: 30 minutes

Overview

Practice facing bearings and estimating distance with pacing on a rope route.

Objectives

After completing this activity, students should be able to:

1. Use an orienteering compass to face a bearing.
2. Use an orienteering compass to follow directions on a simple orienteering course.

Materials

- 50 feet marked length of rope
- One per group, orienteering compass AMSEA
- Duct tape
- **Course Directions cards** (make from Template #1)

Procedures

Before Class

1. Complete Activities #2 and #3.
2. Mark the rope at 5 foot intervals with large pieces of duct tape. Number each piece of tape from 1 to 10. Note: The 5 foot intervals will work when your class's average pace is 2.5 feet. If your students are younger, you may need to adjust the intervals to make the answers work. If your class's average pace is 2 feet, mark the rope at 4 foot intervals. If your class's average pace is 1.5 feet, mark the rope at 3 foot intervals.
3. Place the rope on a level surface, oriented so 1 is to magnetic north and 10 is to magnetic south.

During Class

1. Explain to students that they will be practicing using an orienteering compass by pacing off assigned courses.
2. Divide the class into 10 or fewer groups.
3. Distribute one **Course Directions card** to each group, explaining that there are three different courses on each card. Orient students to the course and explain that they should raise their hands when they have paced off a course so results can be checked.
4. Distribute an orienteering compass to each group, and have students take turns completing the course. Note: Some students may figure out that the east/west pacing cancels each other out, and that they should end up the designated number of paces north or south of their beginning point. Remind students that this is an exercise in practicing using an orienteering compass and pacing, and that they need to pace off each direction.
5. Compare actual to expected results.

Expected Results

Start location	End location
1	3
2	6
3	5
4	8
5	2
6	10
7	5
8	4
9	7
10	6

This activity addresses Alaska Content Standards:

Mathematics D-3 Mathematical reasoning, D-4 Deductive reasoning, E-1 Exploring problems using mathematics, E-2 Practical applications of mathematics, E-3 Mathematics across the curriculum

Geography A-1 Using maps

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy Behaviors, A-3 Injury prevention, D-1 Responsible decisions

Course Directions

Set 1

Start at Number 1. Take a bearing of 90 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 4 paces in that direction. Take a bearing 270 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Start at Number 2. Take a bearing of 270 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Start at Number 6. Take a bearing of 270 degrees and walk 20 paces in that direction. Take a bearing of 180 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Set 3

Start at Number 4. Take a bearing of 270 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Start at Number 10. Take a bearing of 270 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Start at Number 9. Take a bearing of 90 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 4 paces in that direction. Take a bearing of 270 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Set 2

Start at Number 3. Take a bearing of 90 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 4 paces in that direction. Take a bearing of 270 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Start at Number 8. Take a bearing of 270 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 20 paces in that direction. What number on the line are you closest to?

Start at Number 7. Take a bearing of 90 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 4 paces in that direction. Take a bearing of 270 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Set 4

Start at Number 5. Take a bearing of 90 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 6 paces in that direction. Take a bearing of 270 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Start at Number 3. Take a bearing of 90 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 4 paces in that direction. Take a bearing of 270 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Start at Number 4. Take a bearing of 270 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Set 5

Start at Number 6. Take a bearing of 270 degrees and walk 20 paces in that direction. Take a bearing of 180 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Start at Number 5. Take a bearing of 90 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 6 paces in that direction. Take a bearing of 270 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Start at Number 3. Take a bearing of 90 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 4 paces in that direction. Take a bearing of 270 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Set 7

Start at Number 7. Take a bearing of 90 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 4 paces in that direction. Take a bearing of 270 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Start at Number 1. Take a bearing of 90 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 4 paces in that direction. Take a bearing 270 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Start at Number 8. Take a bearing of 270 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Set 6

Start at Number 2. Take a bearing of 270 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Start at Number 7. Take a bearing of 90 degrees and walk 20 paces in that direction. Take a bearing of 180 degrees and walk 4 paces in that direction. Take a bearing of 270 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Start at Number 10. Take a bearing of 270 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Set 8

Start at Number 8. Take a bearing of 270 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Start at Number 4. Take a bearing of 270 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Start at Number 5. Take a bearing of 90 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 6 paces in that direction. Take a bearing of 270 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Set 9

Start at Number 9. Take a bearing of 90 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 4 paces in that direction. Take a bearing of 270 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Start at Number 6. Take a bearing of 270 degrees and walk 20 paces in that direction. Take a bearing of 180 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Start at Number 2. Take a bearing of 270 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Set 10

Start at Number 10. Take a bearing of 270 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 8 paces in that direction. Take a bearing of 90 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Start at Number 9. Take a bearing of 90 degrees and walk 20 paces in that direction. Take a bearing of 360 degrees and walk 4 paces in that direction. Take a bearing of 270 degrees and walk 20 paces in that direction. Which number on the line are you closest to?

Start at Number 1. Take a bearing of 90 degrees and walk 24 paces in that direction. Take a bearing of 180 degrees and walk 4 paces in that direction. Take a bearing of 270 degrees and walk 24 paces in that direction. Which number on the line are you closest to?

Orienteering Course

Time: Part 1, 30 minutes; Part 2, 40 minutes

Overview

Practice facing and taking bearings, and estimating distance with pacing on an orienteering course.

Objectives

After completing this activity, students should be able to:

1. Use pacing to estimate distance.
2. Use an orienteering compass to face and take a bearing.
3. Follow directions on a simple orienteering course.

Materials

- One per pair of students, orienteering compass AMSEA
- One per station, **Station Directions card** (make from Template #1)
- A way to weatherproof **Station Directions cards**
- One per pair of students, **Bearing card** (make from Template #2)
- One per small group or pair of students, Student Handout #1 **Bearings and Landmarks**
- One per pair of students, Student Handout #2 **Orienteering Course Directions**
- One per pair of students, clipboard

Procedure

Before Class

1. Students must know how to use an orienteering compass and know the length of their paces before starting this activity. See Activities #2 **Compass Basics** and #3 **What's Your Pace?**
2. Set up an orienteering course.
    - Mark a starting point and designate it as Station 1.
    - Note a landmark. Do not use landmarks that are highly magnetized (i.e. large metal items, electric devices, fences and railings, fire hydrants, or stairways). Place some landmarks out of sight of others to prevent groups from following one another. You can also set up two overlapping courses. Again, this prevents students from guessing where they go next.
    - Using one of the student's orienteering compasses, take a bearing to the landmark and record it on a **Station Directions card.**
    - Carefully measure and record on the card the distance to the landmark. Do not use pacing. Students will be counting paces to estimate distance, and if they are estimating an estimated distance, everything could run amuck.
    - Weatherproof the card and affix it in a discreet location at the station.
    - Go to the landmark/Station 2 and repeat the above steps.
    - Repeat the above steps for each of a series of continuous course segments/stations.
3. Tell students when this activity will take place so they will be appropriately dressed.

During Class

Part 1

1. Explain to students that they will be practicing facing bearings.
2. Review how to face a bearing.

3. Break the class into pairs, and give one compass and Student Handout #1 to each pair.
4. Explain and have students complete Student Handout #1, with students taking turns facing bearings. Verify that all groups are looking in approximately the right directions as they complete the handout.
5. Review their results.

Part 2

1. Describe the orienteering activity to students, and the size, shape, and boundaries of the course in general terms. Set a time limit for the course.
2. Divide the class into pairs.
3. Distribute and explain Student Handout #2.
4. Assign students to start at different stations to keep traffic flowing.
5. Remind students that when following a bearing they should focus on the landmark when walking, not the compass.
6. Debrief when all are done.

Extensions

1. Add a clue word or a letter at each station for students to record. When students have reached the final destination, they use the clue words or letters to unscramble a message. This has two benefits: students who finish early have something to do, and students have proof they actually reached each marker.
2. Turn the orienteering course into a fitness course by adding an exercise to each card.
3. At each station, include review questions or information to reinforce learning.
4. The orienteering course can be turned into a creative writing course by requiring students to describe what they see, hear, smell, or touch, using a different form of poetry or prose at each station.
5. Students can set up the course for the next class, providing additional practical experience in reading bearings and giving directions.
6. Set up an orienteering course as a treasure hunt or with a holiday theme. Use bearing and distance clues to lead students through an Easter egg hunt or in search of a Christmas present.

This activity addresses Alaska Content Standards:

Mathematics A-1 Numeration, A-2 Measurement, A-3 Arithmetic and computation, A-5 Geometry, B-2 Investigations, B-3 Using mathematics in real-life situations, D-3 Mathematical reasoning, E-1 Exploring problems using mathematics, E-2 Practical applications of mathematics, E-3 Mathematics across the curriculum

Science A-4 Observable natural events, A-5 Forces of nature

Geography A-6 Geographical problems and solutions, F-6 Geography across the curriculum

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed choices, D-2 Safe and healthy environments

Station Directions

Station ____________ Bearing ____________ Distance ____________	Station ____________ Bearing ____________ Distance ____________
Station ____________ Bearing ____________ Distance ____________	Station ____________ Bearing ____________ Distance ____________
Station ____________ Bearing ____________ Distance ____________	Station ____________ Bearing ____________ Distance ____________

Name: ______________________________ Date: ____________________

Bearing Card

Station	Bearing	Distance	# Paces	Notes

Distance (your pace = # paces) ____________

Station	Bearing	Distance	# Paces	Notes

Distance (your pace = # paces) ____________

Station	Bearing	Distance	# Paces	Notes

Distance (your pace = # paces) ____________

Name: ______________________________ Date: ____________________

Bearings and Landmarks

1. Take turns facing a bearing and finding a landmark along that line until everyone has had a chance to do so.
2. To face a bearing:
   - Hold the compass level with the direction of travel arrow pointing straight ahead
   - Set your bearing (e.g. 60°) by using your other hand to turn the dial so the bearing (the number 60) is lined up with the index. (Some compasses have a handy "Read Bearing Here" direction embossed on the base plate of the compass.)
   - Look at the compass, and, holding it level and steady, turn your body as a unit (not just the compass hand, but your entire body) until the red (north) end of the magnetic needle is framed inside the orienting arrow/dog house (the dog is in the dog house) printed on the face of the compass dial
3. Look along the bearing and select a landmark along this line.
4. Record a description of the landmark below.
5. Give the compass to another student to face the next bearing.
6. Complete until all the bearings below have been faced, being sure to take turns.

Bearing 1: 60° ____

Bearing 2: 120° ____

Bearing 3: 45° ____

Bearing 4: 360° ____

Orienteering Course Directions

Orienteering is a useful skill to help you find your way. An orienteering course has been set up to help you practice basic orienteering skills by finding and following bearings, and estimating distance by pacing. The course is made up of a number of straight segments (paths) with turning points (stations) where you will receive instructions for the next segment.

1. Your teacher will assign your group to a station where you will start the orienteering course. You will have ____ minutes to complete the course.
2. Your group will be assigned a unique starting point from the other groups, and your routes may not be the same. Don't worry about how other groups are doing or where they are going. If you "pile up" at a station, be patient and wait your turn.
3. At your starting station you will find a direction card that will tell you what bearing to face and what distance to walk to the next station.
4. The entire group should help answer questions and perform required activities before leaving the station. Be sure to leave the direction card in place for the next group.
5. Pick one person in your pair to start with the compass. The second student records the bearing and distance to travel.
6. Calculate the number of paces to the next station (number of paces to next station = distance in feet to next station (pace of student holding compass).
7. When you and your partner have finished recording the necessary information from the direction card and have calculated the number of paces to the next station, the student with the compass will find the bearing and pace off the distance to the next station.
8. At the next station, switch jobs. Repeat steps 3 through 6 until you are back at your starting point.

Map and Compass Orienteering

Time: Part 1, 30 minutes, Part 2, 2 hours plus travel time

Overview

Reinforce compass and map skills at stations along an orienteering course.

Objectives

After completing this activity, students should be able to:

1. Find a bearing for a line drawn on a map.
2. Use triangulation to find their location.
3. List at least three things in a given area that can be used as landmarks.
4. Use a map and compass to follow a charted course.
5. Use landmarks and compass bearings to reach a specific location.
6. State why paying attention to surroundings can help prevent getting lost.
7. Plot a course on a topographic map, and determine the bearing for each course segment.

Materials

Part 1

- Overheads #16 **Finding a Bearing for a Line Drawn on a Map** and #17 **Plotting Your Course**
- One per student, copy of Overheads #16 **Finding a Bearing for a Line Drawn on a Map** and #17 **Plotting Your Course**
- Four laminated topographic maps of the area (or copies of map sections)
- Water soluble marker
- Four orienteering compasses AMSEA

Part 2

- Four **Directions to Stations from Starting Point cards** (make from Template #1)
- Four orienteering compasses AMSEA
- Four copies, Student Handout #5 **Group Points Tally Sheet**
- Four adult helpers with watches
- Four copies **Volunteer Guidelines** (make from Template #2)

Station 1

- Eight copies, Student Handout #1 **Station 1: Where Are You? Finding Your Location through Triangulation**
- Two clipboards
- Two laminated topographic maps of the area or copies of map sections
- Two water soluble markers, cleaning solution, and rags if using laminated copies
- Two pencils if using map copies
- Two rulers

Station 2

- One per student, Student Handout #2 **Station 2: Recognizing Landmarks through Descriptive Writing**
- One per student, clipboard

Station 3

- Eight copies, Student Handouts #3 **Station 3: Plotting a Course on a Topographic Map** and #6 **Our Great Hiking Route**
- Two laminated topographic maps of the area or copies of map sections
- Two water soluble, cleaning solution, and rags if using laminated copies
- Two pencils if using map copies
- Two rulers
- Two clipboards

Station 4

- Four copies, Student Handout #4 **Station 4: Finding Your Way Back to Treasure**
- Something fun for students to find

Procedure

Part 1

Before Class

1. Complete previous activities in this unit.
2. Using water soluble markers, plot a two segment course on the laminated topographic maps (or a course in pencil on the map copies). It will be easiest for you if all maps are the same and have the same course segments on them.

During Class

1. Explain to students that they will be learning how to find a bearing for a line drawn on a map, and how to plot a course.
2. Have students give examples of when these might be useful skills to know. Explain that they will need to know them for the orienteering course they will do soon.
3. Using Overhead #16, explain how to find a bearing for a line drawn on a map.
4. Divide students into four groups and distribute the topographic maps, compasses, and copies of Overhead #16. Explain that they will be finding the compass bearings for the two course segment lines drawn on the map.
5. Have students find the compass bearings, then check to be sure they have done it correctly.
6. Using Overhead #17, explain how to plot a course.
7. Distribute copies of Overhead #17 and have students plot two course segments and find the compass bearings for these segments.
8. Check to be sure students have done this correctly.
9. Debrief, emphasizing why these are important skills to know.
10. Tell students when the orienteering activity will take place so they will be appropriately dressed.

Part 2

Before Class

1. Complete previous activities in this unit and Part 1 of this activity before attempting Part 2.
2. Locate a large area, preferably with varied terrain, such as a park, beach, or woods, and obtain permission to use it.
3. Set up an orienteering course with four turning points or stations that are far apart and not visible from each other. Refer to Activity #5 **Orienteering Course** for directions on setting up an orienteering course, and to Student Handouts #1-#4 to see what activities take place at each station. Because it is the shortest activity, Station 4 should have a good place to hide a treasure and have the most complex route to Station 1.
4. Write directions to the next station in the appropriate blanks on Student Handouts #1-#4.
5. Plot a course to each of the four stations from the starting point. Write directions to each station in the appropriate blanks on **Direction to Stations from Starting Point cards.** Each group will get a different card that will take them to different starting stations on the course.
6. Set up a small compass course that leads to treasure at Station 4 to include nearby landmarks. Write directions on Student Handout #4. The directions could be something like: "Travel 8 feet toward the bent tree; from there, face a bearing of 87° and walk until you see the large gray rock."
7. If you have a large, very complex course you may also need to provide directions back to the starting point from each of the four stations.
8. Recruit and meet with volunteers who know how to use an orienteering compass.
   - Volunteers can stay and move with the groups or be placed one at each station. You need to consider how big your course is and the potential for students getting lost.
   - Explain the activity and station procedures using **Volunteer Guidelines.**
   - Explain that groups will rotate from Station 1 to 2 to 3 to 4 to 1 until they have completed all stations.
   - Emphasize the volunteer's role as timekeepers and rule enforcers; they are

not to help students do the exercise but can answer questions or get students started on an activity.

- Explain Student Handout #5.

9. Gather materials needed for each station.
10. Tell students when this activity will take place so they will be appropriately dressed.

Immediately Before Class

1. Review rules, procedures, and the location of all the stations with group volunteers.
2. Confirm times for rotating the groups (approximately 25 to 30 minutes).
3. Place each station's supplies at the station or give them to the volunteers.

During Class

1. Explain to students that they will be doing an orienteering course to help hone their map and compass skills.
2. Describe the course generally and that they will have ___ minutes to complete a station and move to the next one.
3. Review pacing, facing a bearing, finding a bearing for a line drawn on a map, and plotting a course, if needed.
4. Explain the activity rules:
   - Groups must stay together
   - No one may leave the designated course area
   - Groups must work together
   - Groups should travel to each station as quickly as possible
   - Groups must arrive at each station with compasses and Student Handout #5
   - The last group at each station helps clean up
   - Groups gather at the starting point after completing all the stations
   - Everyone needs a pen or pencil
5. Break class into four groups. Introduce volunteers to each group.
6. Distribute an orienteering compass, Student Handout #5, and a **Direction to Stations from Starting Point card.** Explain how they will be used.
7. Review the rules and send the groups on their different ways.
8. Debrief the activity after all groups have gathered at the starting point.

Extensions

1. Stations can be extended to include a first aid station, a hypothermia treatment station, and a signal station. A first aid station hosted by someone trained in first aid would provide a safety net in a remote location.
2. Have students read the short story Walking Out, by David Quammen (from *Blood Line: Stories of Fathers and Sons*). The story describes the plight of an 11-year-old boy trying to find his way out of the Montana woods to get help for his injured father.
3. The description of place created in Station 2 may be included in a writing activity later in class.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing and speaking, A-4 Writing for purpose, B-2 Investigation in written materials, C-5 Project collaboration

Mathematics A-1 Numeration, A-2 Measurement, B-2 Investigating situations, B-3 Using mathematics in real-life situations, B-4 Developing problem solving strategies, E-1 Exploring problems using mathematics, E-2 Practical applications of mathematics, E-3 Mathematics across the curriculum

Geography A-1 Using maps, A-4 Using graphic tools and technologies, A-6 Geographic problems and solutions

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions, B-2 Effective communication

Directions to Stations from Starting Point Cards

Names: ____   Directions to Station from Starting Point   To get to Station 1, travel _________ feet, at _________°.
Names: ____   Directions to Stations from Starting Point   To get to Station 2, travel _________ feet, at _________°.
Names: ____   Directions to Stations from Starting Point   To get to Station 3, travel _________ feet, at_________°.
Names: ____   Directions to Stations from Starting Point   To get to Station 4, travel _________ feet, at _________°.

Volunteer Guidelines

All Stations

1. At the end of each activity, use Student Handouts to lead students in discussion.
2. Complete Student Handout #5 Group Points Tally Sheet for each group before they leave the station.
3. Help rotate groups on time.
4. Work with the fourth group at the station to clean up the area.

Station 1

1. Divide the group in half. Give each small group a copy of Student Handout #1, a clipboard, topographic map, ruler, and washable marker (pencil if using map copies). Explain to students that they have 5 minutes to find their location on the map.
2. Have students clean marks from maps before leaving the station.
3. Collect maps, rulers, clipboards, markers, etc. before students leave the station.

Station 2

1. Give each student a copy of Student Handout #2 and a clipboard.
2. Monitor time limits.
3. Ask for a volunteer to read his/her piece after everyone is done with the writing exercise.
4. Collect clipboards before students leave the station.

Station 3

1. Divide the group in half. Give each small group a topographic map, ruler, washable marker (or pencil if using map copies), and Student Handouts #3 and #6. Explain to students that they have 5 minutes to plot their course and write the description.
2. After 5 minutes, have groups clean off their maps, and trade maps and handouts. Allow about 10 minutes for groups to follow the other group's course and locate their destination.
3. Collect maps, rulers, clipboards, markers, etc. before students leave the station.

Station 4

1. Distribute Student Handout #4.
2. Have students follow instructions to find the treasure.
3. Between groups, re-hide the treasure.

Name: ______________________________ Date: ____________________

Station 1—Where Are You?
Finding Your Location through Triangulation

1. Identify a landmark that you can see and that shows on your topographic map.
2. Take a compass bearing to the landmark.
3. Plot the bearing line from that landmark on the map. Your location is somewhere on that line.
4. Repeat the process with two more landmarks. Your position is where all the lines intersect.
5. If time, repeat this process using different landmarks.

Discussion Questions:

1. According to the topographic map, what is the elevation of your current location?

2. Why or when would it be necessary to find your location through this process of triangulation?

3. Could you use three lines to find your position? Why might you want to?

Directions to Station 2:

Travel __________ feet, toward __________°; then travel __________ feet, toward __________°.

Name: ______________________________ Date: ____________________

Station 2—Recognizing Landmarks Through Descriptive Writing

You will work independently at this station.

1. Find a comfortable place to sit. Look around for 30 seconds, trying to remember everything you see.
2. Look down at your paper and do not look up until you are done. You have one minute to write a descriptive list of the things you observed.
3. Determine three permanent, non-movable items that could be used as landmarks, and underline these items on your list.
4. You have 2 more minutes. Look around and add any landmarks you missed. You may look around while you write.
5. Take the next 2 minutes to write a list of all of the things you can hear from where you are sitting.
6. Take about ten minutes to write a brief description of where you are. Use at least ten items from your sight and sound lists.

Discussion Questions:

1. Why is it important to know where you are when traveling outdoors?
2. How can paying attention keep you from getting lost?

Directions to Station 3:

Travel __________ feet, toward __________°; then travel __________ feet, toward __________°.

Name: ______________________________ Date: ____________________

Station 3—Plotting a Course on a Topographic Map

Using your imagination and a topographic map, you will plot a route you would like to take some day.

1. Look over your topographic map, and choose a starting and ending point for your route. Pick a course between those two points that looks as easy to walk as possible. Your course should not take you over any cliffs or impassable features.
2. Take 5 minutes to plot your course on the map. Remember, a course is a series of straight lines with turning points in between. For each course segment you will be recording the information on Student Handout #6.
   - Find and record the latitude and longitude coordinates of your starting point.
   - Draw a line to the first turning point.
   - Use your compass to read a bearing along the line and record.
   - Use your ruler and the map scale to get distance for the course segment and record.
   - Repeat until you reach your destination.
3. Clean the marks off your map before you give it and Student Handout #6 to the other group. You have 10 minutes to plot their course on the topographic map and find their destination.

Discussion Questions:

- Did you have problems following another group's directions?

- Is writing clear directions important? Do you have any suggestions that would help make the directions more clear?

Directions to Station 4:

Travel __________ feet, toward __________°; then travel __________ feet, toward __________°.

Station 4—Finding Your Way Back to Treasure

Scenario: Two students were hiking and found a heavy chest filled with even heavier treasure. They were unable to carry it out by themselves, so they wrote down the directions as they came out. You are trying to find the treasure again. You will be timed to see how long it takes you to find it. Work cooperatively.

Discussion Questions

1. What worked well and what didn't work well at this station?

____

____

____

____

2. Describe a real-life situation where you might need to write and/or follow directions like these.

____

____

____

____

____

____

Directions to Station 1

Travel __________ feet, toward __________°; then travel __________ feet, toward __________°.

Name: ______________________________ Date: ____________________

Group Points Tally Sheet

Criteria	Station 1	Station 2	Station 3	Station 4	Total
Arrived together 5 points = yes 0 points = no					
Arrived on time 5 points = yes 0 points = no					
Teamwork scale: 0-5 points 5 points = good 0 points = none					
Finished the task scale: 0-5 points 5 = job well done 0 = no effort					
Bonus for good teamwork and good behavior up to +5 points					
Penalty for negative behavior up to –5 points					
Grand Total:					

Names: ____ Date: __________________________

Our Great Hiking Route

Fill in the blanks for as many course segments as you have. Another group will follow this course and try to find your destination.

Starting Point: __________ latitude, __________ longitude

travel __________ feet, on bearing __________°.

travel __________ feet, on bearing __________°.

travel __________ feet, on bearing __________°.

travel __________ feet, on bearing __________°.

travel __________ feet, on bearing __________°.

travel __________ feet, on bearing __________°.

travel __________ feet, on bearing __________°.

travel __________ feet, on bearing __________°.

Basic GPS

Time: 30-60 minutes

Overview

Plot a course around the school using a hand-held GPS.

Objectives

After completing this activity, students should be able to:

1. Demonstrate how to locate a position using a GPS unit.
2. Demonstrate basic uses of a GPS unit in navigation.
3. Use pacing to estimate distance.
4. Compare taking a compass bearing with taking a GPS bearing.

Materials

- One per group of four or less students, Student Handouts #1 **Basic GPS Course Instructions** and #2 **Basic GPS Worksheet**
- One per group of four or less students, clipboard
- One per group of four or less students, compass
- One per group of four or less students, hand-held GPS unit
- One per group of four or less students, straight edge
- One per group of four or less students, adult helper

Procedure

Before Class

1. Complete Activities #2 and #3.
2. Follow the directions in your GPS unit's manual to initialize the GPS unit if it has never been used in your area before. This could take as long as 30 minutes.
2. Decide on a starting point for the course, and find and record its latitude and longitude using a hand-held GPS unit.
3. This course handles only two groups at a time. If you have more, add more starting and ending points, or send out only two groups at a time and compare results after all groups are done.

During Class

1. Explain to students that they will use a GPS unit to plot and map a course around the school (or other area).
2. Distribute GPS units and review a few basic functions including:
   - Turning power on and acquiring a signal (the time to process satellite information may take up to six minutes)
   - Reading latitude and longitude
   - Reading the information shown on the various navigation screens (bearing, speed, time)
3. Divide students into small groups (no more than four students each).
4. Distribute and explain Student Handouts #1 and #2. Distribute compasses, clipboards, and straight edges.
5. Explain that each group will begin and end at a fixed starting point. If working two groups at a time, send one group one direction and the other the opposite way from the same starting point. This gives each group a chance to figure out its own headings and landmarks.
6. Explain that:
   - In general, the course should take the shortest safe route around the defined path
   - Their course should start and end at the same location
   - Each course segment must be a straight line

- Each segment must be free of obstacles
- Identify the basic path and any out-of-bounds areas
- They will use pacing to estimate distance, a GPS unit to determine latitude and longitude of turning points, and an orienteering compass and GPS unit to determine bearings between turning points
- They need to plot a rough version of their course on paper as they move from point to point

7. Show students the starting point and have them do their courses.
8. Have each group complete Student Handout #2 and make a neat, clear plot of their course.
9. Once all groups are finished, compare routes. Explain that if they had entered their turning points into the GPS unit's memory they would become landmarks. Do the locations of each group's turning points differ? Note differences and similarities.
10. Discuss how the compass bearings compare with the GPS bearings. Emphasize that GPS units are less accurate than a compass at slow speeds since GPS bearings are determined by comparing, at regular intervals, your last position with your current position. At slow speeds, the distance between your last and current positions is much shorter than at fast speeds. Additionally, the typical GPS unit's accuracy factor is +/– 15 feet.

Extensions

1. Have students plot the course on a topographic map. In order to complete this extension, students must enter their turning points into the GPS unit as landmarks or keep a record of the latitude and longitude of their turning points.
2. Have students enter the landmarks in the GPS unit's memory and have each student try to follow another group's course.
3. Have students draw the course to scale.
4. Have students research how GPS units work, or available GPS models and prices.

This activity addresses Alaska Content Standards:

Language Arts C-5 Project collaboration

Mathematics A-1 Numeration, A-2 Measurement

Science A-1, 6 Scientific facts, concepts, principles, and theories, D-1 Apply scientific knowledge

Geography A-6 Geographical problems and solutions

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, D-1 Responsible decisions

Technology A-2 Communicating through technology, C-2 Problem solving

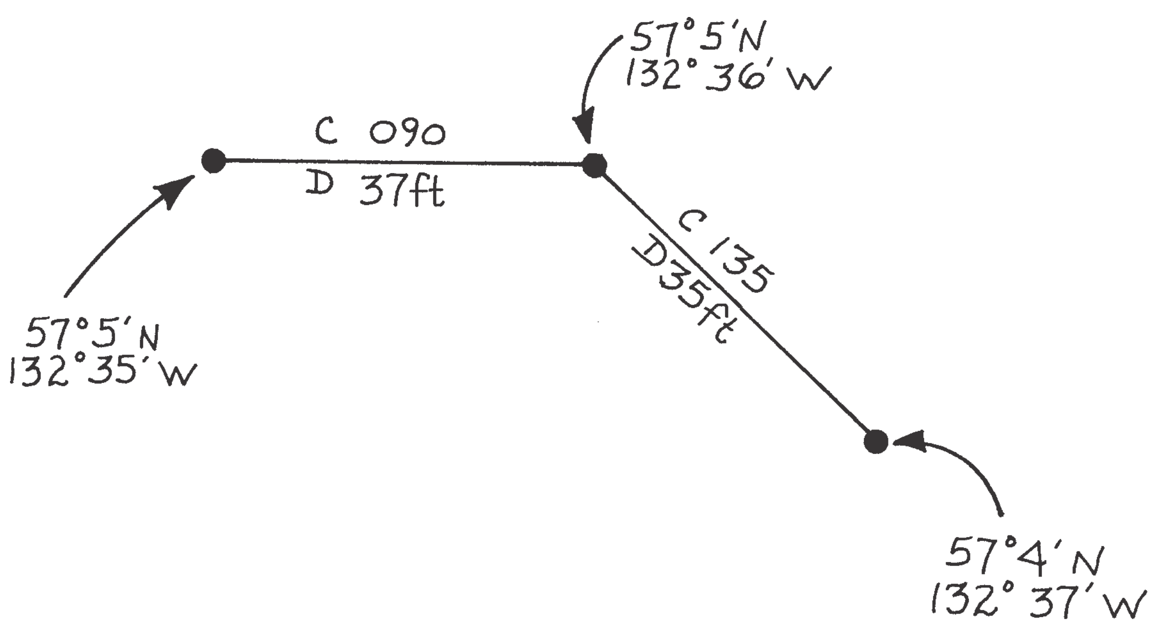
Basic GPS Course Instructions

Using a GPS unit, orienteering compass, and pacing you will plot a course around the school that you will be able to follow in the future through rain, snow, or fog. Plot a course that you can travel safely—one without obstacles like cars, poles, trees, buildings, and fences. The course will be a series of straight segments connected by turning points. When you make a direction change, in GPS language, this is called setting a landmark (on land) or waypoint (on water).

1. Define roles for members of your group. You need a compass reader, a GPS unit reader, and a recorder. All other students will pace the distances between points. Switch roles so everyone does each task at least twice.
2. From the starting point shown by your teacher, turn as directed by your teacher, take a bearing with your compass, and record it on Student Handout #2. Pick a landmark along the bearing line.
3. Start pacing the distance toward your next turning point. Once you have started walking, read the bearing from your GPS unit and record it on Student Handout #2. Continue pacing to the turning point.
4. Record the number of paces on Student Handout #2 and convert the number of paces to distance in feet.
5. Read and record the turning point's latitude and longitude from the GPS unit.
6. Draw the line you just traveled on your map. Record the bearing above the course line, and the distance below the course line.

Example Course Diagram

7. Decide on a new bearing and repeat steps 3 through 6 until you have completed your course.
8. Complete Student Handout #2.



Name: ______________________________ Date: ____________________

Basic GPS Worksheet

For each leg of your course, use this worksheet to record your course information and calculate distance. Try to be consistent in your pacing. Compare distances between students and resolve significant differences. (You can calculate an average distance if you like.) Record the agreed-upon distance on the drawing of your course.

Leg	**Latitude**	**Longitude**	**Compass Bearing**	**GPS Bearing**	**# Paces**	**Pace Length**	**Estimated Distance**
Start							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

1. Why do you think the compass bearing and GPS bearings differ? Which do you think would be most accurate for use at walking speeds?

Name and Use Those Terms

Time: 30-60 minutes

Overview

Match words about topographic maps, orienteering compasses, and orienteering with their definitions.

Objectives

After completing this activity, students should be able to:

1. Match at least 20 terms relating to topographic maps, orienteering compasses, and orienteering with their definitions.
2. Write a story using at least six terms relating to navigating on land with a topographic map and orienteering compass.

Materials

- One set per pair of students, **Compass Word Match cards, Topographic Map Word Match cards,** and **Orienteering Word Match cards** (make from Templates #1, #2, and #3)
- One per pair of students, Student Handout #1 **A Well Paced Story**

Procedure

Before Class

1. Shuffle the sets of cards so each pair of students gets all three sets mixed together.

During Class

1. Explain to students that they will be reviewing the terms relating to maps and compasses in this unit by matching the terms with their definitions.
2. Have students pair up. Distribute the cards and have students match word cards with definition cards.
3. Check students matches.
4. Distribute, explain, and have students complete Student Handout #1.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing, A-2 Writing conventions, A-4 Writing and speaking with purpose

Science D-3, 3 Practical applications of scientific knowledge

Compass Word Match Cards

Dial	Adjustable dial on the outside edge of a moveable circular liquid-filled chamber of an orienteering compass, divided into 360°; also called compass housing
Base plate	Flat area that an orienteering compass dial sits upon
Compass needle	Magnetized needle floating in a liquid-filled chamber in an orienteering compass; the red end points to magnetic north pole
Direction of travel arrow	Arrow engraved or marked on the body of an orienteering compass used to align with a landmark
Index	Point where the direction of travel arrow intersects with the adjustable dial on an orienteering compass
Orienting arrow (doghouse)	Arrow printed on the liquid-filled chamber of an orienteering compass, used to frame the compass needle when finding a bearing
Orienteering compass	Portable instrument used for navigation on land that uses a magnetic needle or bar and the earth's magnetic field to determine direction
Orienting lines	Lines printed on the liquid-filled chamber of an orienteering compass parallel to one another and the orienting arrow (dog house), used for aligning with the north/south lines on a map when finding a bearing
Contour line	Line on a map joining points of equal elevation

Topographic Map Word Match Cards

Elevation	Height above sea level
Feature	Prominent or distinctive characteristic
Latitude lines	Imaginary lines around the earth running parallel to the equator, equidistant from one another
Longitude lines	Imaginary lines around the earth running from pole to pole, distance between lines varies
Map	Flat representation of a three-dimensional surface
Scale	The proportion between a distance on a map and the actual distance
Topographic map	Map using contour lines to depict the elevation of geographic features, produced in U.S. by the U.S. Geological Survey
Bearing	The direction to an object or location from another object or location, expressed in degrees
Declination	Difference in the angle between magnetic north and the geographic poles.

Orienteering Word Match Cards

Line of position (LOP)	The line along which an observer is located, often plotted on a map by means of taking a bearing on a landmark or an electronic position fix
Local magnetic disturbance	Difference between compass and magnetic north resulting from natural disturbances in the local area
Magnetic bearing	A direction, expressed in degrees, using the earth's magnetic north pole as a reference; the direction indicated by an orienteering compass needle
Orienteering	The skill or process of finding your way in the field with map and compass
Magnetic north	Compass direction toward the magnetic north pole
Pace	Two complete steps measured from the heel or toe of one foot to the heel or toe of the same foot
True bearing	A direction, expressed in degrees, using earth's geographic north pole as a reference
True north	Direction drawn on a map toward the geographic north pole

Name: ______________________________ Date: ____________________

A Well Paced Story

Write a story using at least six of the following terms. You will earn extra points for every additional word you use correctly in your story. Be creative!

bearing

declination

line of position

local magnetic disturbance

magnetic bearing

orienteering compass

pace

magnetic north

true bearing

true north

Unit 3: Emergencies on Land

Unit Rationale

What starts out as a land adventure can turn into in a survival situation, sometimes with fatal results. Students can improve their chances of surviving land emergencies by learning survival skills in a secure environment before they are needed. Training, practice with survival techniques and equipment, and familiarity with environmental factors have been shown to help people avoid panic and foster positive behavior in emergency situations.

This unit provides information and skills that can help students survive these land emergencies: types of emergencies and how to avoid them, the psychology of survival, how to recognize and treat hypothermia, and the Seven Steps to Survival.

Unit Goal

To train students to use effective survival techniques with an understanding of the psychology of survival.

Emergencies on Land: Teacher Information

The information in this section gives teachers a background in the topic. Use your judgment when presenting this material; some concepts may not be suitable for younger children.

Types of Emergencies

Immediate onset

A. Immediate onset emergencies happen suddenly with little or no warning

B. Examples include animal attacks, falls, heart attack, sudden changes in weather

Delayed onset

A. Start out slowly and accumulate until situation becomes life-threatening

B. Examples include slowly becoming hypothermic, deteriorating weather, extended exposure, getting lost, illness

Emotional Factors in Emergencies

Studies show that, in emergencies

A. 12%-25% of people act effectively

B. 50%-75% are stunned, bewildered, tend to have tunnel vision, and tend to operate in an automatic way

C. 10%-25% show levels of inappropriate behavior including panic

Potentially disabling emotions during emergencies

A. Fear
   1. Normal reaction in an emergency
   2. Useful function in keeping you aware, "on your toes," in dangerous situations

B. Panic
   1. Prevents clear thinking
   2. Wastes energy
   3. Obstacle in setting priorities

C. Depression or apathy
   1. Recognize that it can be a problem
   2. Destroys the will to live
   3. Documented cases in POW camps show that depression leads to lethargy which can lead to death

Ways to reduce or eliminate fear, panic, depression, and apathy

A. Before emergency
   1. Accept the fact that an emergency situation can happen to you
   2. Make contingency plans, file trip plans, check weather, etc.
   3. Acquire relevant training—first aid, technical climbing, cold climate survival, navigating with a map and compass, etc.

a. Gives you procedures to follow that will increase confidence and improve skills

b. Practice reduces panic and increases likelihood that "automatic operators" act in a helpful way

c. Best training is hands-on practice with actual equipment

B. During emergency

1. Recognize your ability to be creative, innovative, and resourceful—your mind is your most powerful survival tool

2. Develop a positive mental attitude—think like a survivor, not a victim

3. Do something to improve your situation

Will to live

A. Very important in all survival situations

B. Thinking about loved ones and things important in your life helps focus on living

C. Some people have a stronger will to live than others

D. In identical situations, a strong will to live can make the difference between life and death

Your body's physical condition affects your mental state

A. Hypothermia, dehydration, and hypoxia (condition reducing levels of oxygen available to cells, common at 10,000 feet plus altitudes) cause inadequate blood flow to brain which causes

1. Inability to think clearly, leading to poor judgment and decision making

2. Inappropriate behavior

3. Denial and apathy

B. Problems can be difficult to recognize in yourself; watch for signs in others

Avoiding Emergencies

A. Ask permission before you go

B. File a trip plan—see Preparing for a Land Adventure, Unit 1, this volume.

C. Be well-prepared

1. Learn outdoor safety and survival skills

2. Practice skills—regular practice in a safe environment increases your chances of survival

3. Address young children's fears ahead of time

a. Tell stories where a child is in an emergency; talk about what child should do

b. Cover variety of situations and emphasize appropriate actions

4. Carry adequate clothing, water, food, and a survival kit

D. Stay with your group

Hypothermia

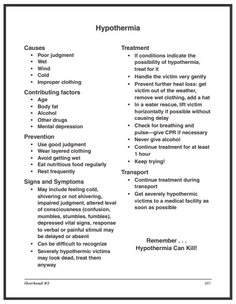
A. Life-threatening lowering of body's core temperature

B. One of the leading causes of death in outdoor adventures

C. Can happen in air temperature below 80˚F

D. Can be prevented

E. See Preparing for a Land Adventure for more on hypothermia causes and prevention.



Hypothermia

Causes
- Poor judgment
- Wet
- Wind
- Cold
- Improper clothing

Contributing factors
- Age
- Body fat
- Alcohol
- Other drugs
- Mental depression

Prevention
- Use good judgment
- Wear layered clothing
- Avoid getting wet
- Eat nutritious food regularly
- Rest frequently

Signs and Symptoms
- May include feeling cold, shivering or not shivering, impaired judgment, altered level of consciousness (confusion, mumbles, stumbles, fumbles), depressed vital signs, response to verbal or painful stimuli may be delayed or absent
- Can be difficult to recognize
- Severely hypothermic victims may look dead, treat them anyway

Treatment
- If conditions indicate the possibility of hypothermia, treat for it
- Handle the victim very gently
- Prevent further heat loss: get victim out of the weather, remove wet clothing, add a hat
- In a water rescue, lift victim horizontally if possible without causing delay
- Check for breathing and pulse—give CPR if necessary
- Never give alcohol
- Continue treatment for at least 1 hour
- Keep trying!

Transport
- Continue treatment during transport
- Get severely hypothermic victims to a medical facility as soon as possible

Remember . . .
Hypothermia Can Kill!

Overhead #5 267

Overhead #5

Hypothermia Signs and Symptoms (see Overhead #5)

- The signs, symptoms, and treatment guidelines described below are based on guidelines developed by the State of Alaska, revised in 1996. Consult your state's Emergency Medical Services office for appropriate recognition and treatment guidelines in your state. It is important to keep current with developments in this field.

- Important to recognize hypothermia in order to treat it as soon as possible

Signs and symptoms may not always be observed or recognized

A. Difficult to recognize in oneself—cooling affects brain's ability to make judgments

B. People may exhibit different signs and symptoms

C. Rescuer may not be in a position to observe progressive signs and symptoms

D. Progression may be rapid, i.e., immersion hypothermia

E. A hypothermic person may appear drunk and not get needed medical treatment

F. Alcohol consumption makes things worse

1. It may mask hypothermia signs and symptoms
2. It can make some people not shiver despite being cold
3. Alcohol speeds up hypothermia so an intoxicated person may also be hypothermic and in desperate need of treatment, especially in winter

G. Must determine from circumstances and conditions whether a person is likely to be hypothermic; if so, treat

- If left untreated, hypothermia will lead to death

Prehypothermia or cold stress/cold reaction

A. Happens just from being in a cold environment

B. Can lead to hypothermia if not corrected

C. Occurs when your core temperature is normal

D. Your body compensates for heat loss by

1. Keeping blood in body core causing fingers and toes to feel cold
2. Generating heat through exercise (shivering)

Signs and symptoms of mild hypothermia—you are beginning to lose ability to compensate for heat loss

A. Feel cold

B. Shivering

1. Can become uncontrollable
2. Not a reliable sign

a. Alcohol intoxication, age, and some medications may cause people not to shiver
b. Very old and very young may not shiver
c. People with metabolic disorders may not shiver

C. Impaired judgment
  1. Can lead to lack of recognition or denial of problem
  2. Can lead to confusion
  3. Can lead to an injury

D. Increased urination

Signs and symptoms of severe hypothermia—you lose ability to produce heat and rewarm yourself

A. Feel cold
B. Diminished shivering
C. Depressed vital signs, such as slow pulse and/or slow breathing
D. Altered level of consciousness
  1. Abnormal behavior
  2. "Umbles" = mumble, stumble, fumble
  3. Confusion, disorientation
  4. Easy to confuse with drunken behavior
  5. Can lead to denial of problem
  6. Can lead to an injury
E. Response to verbal or painful stimuli may be delayed or absent
F. Muscle rigidity
G. Loss of consciousness
H. Heart irregularity
I. Severely hypothermic victims may look dead—treat them anyway

- Victims of frostbite should be assumed to be hypothermic

Hypothermia Treatment

Treat early

A. When in doubt about severity, treat for severe hypothermia
B. Easier to prevent and treat in earlier stages, especially in the field

Basic treatment for all hypothermia patients

A. Minimize movement and be as gentle as possible, especially with severely hypothermic people
B. Recover from cold water in a horizontal position (if it doesn't delay recovery) to lessen risk of rapid fall in blood pressure and possible cardiac complications
C. Prevent further heat loss
  1. Insulate from ground and surfaces cooler than victim
  2. Protect from wind

3. Eliminate evaporative heat loss by removing wet clothing or covering victim with vapor barrier (such as a plastic bag)—do not cover airway except with light fabric to reduce heat loss from breathing; monitor breathing while doing this

D. Monitor victim and transport to medical facility

E. Never give alcohol—it increases heat loss by dilating blood vessels

F. Do not leave unattended

G. Monitor closely—victims are most vulnerable to heart problems during afterdrop
   1. When body temperature continues to fall after victim is moved to warm environment
   2. Degree of afterdrop is directly related to rapidity of cooling—colder water means a greater degree of afterdrop

H. When children respond, they should
   1. Get adult help
   2. Be gentle with victim
   3. Prevent further heat loss by drying or covering victim, especially head
   4. Never use their own body heat to warm victim

Basic treatment for mildly hypothermic victims

A. Use basic treatment for all hypothermia victims (see above)

B. If there is no way to transport victim to a medical facility, gradually rewarm
   1. Place victim in a warm environment
   2. Increase heat production through
      a. Exercise
      b. Eating and fluid replacement—only if totally alert and can feed self
   3. Cautiously apply insulated heat packs to high heat loss areas (head, neck underarms, sides of chest, and groin)—always be alert for burns of cold skin from objects that are used to add heat, even if they are only warm
   4. Consider warm showers and warm bath only if victim is alert
   5. As a last resort, place victim in sleeping bag and provide contact with a warm body
      a. Less efficient than other methods
      b. May endanger rescuer
      c. Do not place in a sleeping bag with another hypothermic or cold person, or a child

Basic treatment for severely hypothermic victims with life signs

A. Severely hypothermic victims may look dead—treat them anyway

B. When there is no way to transport victim to medical facility, prevent further heat loss

C. Follow basic treatment guidelines for mild hypothermia (see above) with these additions

1. Treat as gently as possible—a cold heart is prone to electrical problems and mishandling can cause further injury
2. No showers or hot baths—cold blood from extremities rushes to body core
3. No drinks of any kind
4. Do not rub or massage victim
6. Do not manipulate extremities, forcing joints to move
7. All victims of severe hypothermia must get medical assistance for proper treatment and to prevent development of severe complications such as heart rhythm irregularities

Treatment for severe hypothermia without life signs

A. Treat as above

B. Check for pulse for up to 45 seconds
   1. If no pulse, start CPR
   2. Reassess victim's status periodically

C. Transport to medical facility as soon as possible

D. Don't give up! A victim is not considered dead until warm and dead

Lost or Stranded Survival

Even skilled and experienced people can become lost or stranded

A. Admitting you are lost can be emotionally difficult due to ego or pride

B. A lack of assertiveness by older people or leaders can lead to inaction that causes situations to worsen

How people react

A. Personality, experience, and mental and emotional makeup affect behavior

B. Children behave differently from adults, and differently depending upon their age
   1. One- to three-year-olds
      a. Are usually drawn away by random incidents, animals, or curiosity
      b. Are unaware of concept of being lost and may not immediately try to return home
      c. May travel for several hours before feeling alone, tired, or hungry
      d. Have no idea of how to get back and are likely to remain in general area
      e. Find handiest place available to fall asleep
   2. Three- to six-year-olds
      a. Are more mobile and have definite interests that may draw them away
      b. Navigation skills and sense of direction are poorly developed, so they easily become lost
      c. Have concept of being lost and try to return home, but become progressively more disoriented

d. Are inclined to find a sleeping spot for the night in some kind of shelter (e.g., log, cave, abandoned car)

e. Have been taught not to speak to strangers so rarely respond to searchers until after a prolonged period of being lost

3. Six- to twelve-year-olds

a. Have better navigation and distance skills, are well-oriented in familiar surroundings but easily lost in unfamiliar environments

b. May intentionally run away to sulk, avoid punishment, or gain attention; are often preoccupied and not paying attention to where they are going

c. May be unwilling to answer when called, but respond when gravity of situation becomes apparent

d. Suffer the same fears and problems as adults, but have less confidence in their ability to help themselves

4. All above ages are unlikely to find their way home on their own

C. For in-depth information on lost or stranded behavior, read *Analysis of Lost Person Behavior: An Aid to Search Planning* by William G. Syrotuck

What to do if you are lost

A. Recognize you are lost and take appropriate action

B. Stay in one place

1. Being close to point last seen greatly increases your chance of being found

2. Wandering around increases risk of falls and injuries, and decreases opportunity to make your situation better

C. Build a good shelter and stay with it—your shelter provides more security than running away from animals; yell at any approaching animals or noise

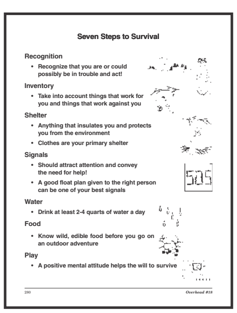
D. Build good signals

E. Gather water and food

F. Conserve energy

G. Always respond to searchers—they want to help you

H. Use Seven Steps to Survival to help you act effectively in an emergency



Seven Steps to Survival

Recognition
- Recognize that you are or could possibly be in trouble and act!

Inventory
- Take into account things that work for you and things that work against you

Shelter
- Anything that insulates you and protects you from the environment
- Clothes are your primary shelter

Signals
- Should attract attention and convey the need for help!
- A good float plan given to the right person can be one of your best signals

Water
- Drink at least 2-4 quarts of water a day

Food
- Know wild, edible food before you go on an outdoor adventure

Play
- A positive mental attitude helps the will to survive

280 Overhead #18

Overhead #18

Seven Steps to Survival (see Overhead #18)

- Can help you survive an emergency
- Principles developed by U.S. Coast Guard search and rescue personnel
- Help you identify and prioritize needs in an emergency situation

A. Listed in order of priority and logical sequence for staying alive in a survival situation; order may change depending on circumstances

B. Review every time your situation changes

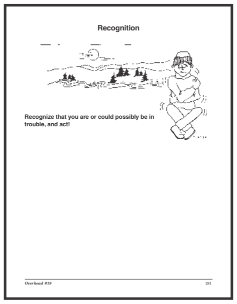
C. Young children do not need to know the words, but should know the ideas

1. Recognition—are you in danger?

2. Inventory—what will help you and what will hurt you?

3. Shelter—improve your clothing (primary shelter) and make a shelter as you can
4. Signals—try to attract attention of someone who can help you
5. Water—safe water can be hard to get in a survival situation, know how to obtain it
6. Food—don't eat if you don't have water, eat only foods you know are safe
7. Play—think and act like a survivor!

D. Discussed in detail below



Overhead #19

Recognition (see Overhead #19)

A. Realize that you are in trouble and that if you fail to take action you may die

B. Some people refuse to believe that they can get into or are in a survival situation

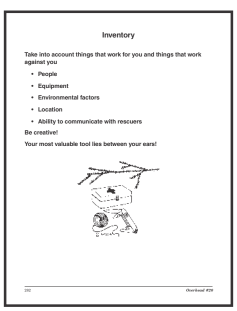
1. Some people express fatalistic or superstitious viewpoints (e.g., "If I don't have survival equipment nothing bad will happen to me.")
    a. Even if you share these viewpoints, it would be a comfort to your loved ones to know you are prepared for emergencies
    b. Many emergencies are unpredictable and can happen to anyone
2. Refusal to recognize situation limits your options, causes situation to worsen, means you will not react logically

C. Taking effective action in an emergency is essential

D. Many emergencies are survivable if you are prepared and act effectively

E. Don't give up!

F. You are not a survivor until you are home recounting your adventure to friends



Overhead #20

Inventory (see Overhead #20)

Take into account things that work for you and things that work against you

A. People

1. Account for all
2. Assess and treat injuries
3. Assess emotional condition
4. Inventory skills
5. Elect a leader—decisions must be made and tasks assigned

B. Equipment—condition and availability

1. Survival kits
2. Comfort kits
3. Everything on and around you can potentially help
    a. Keys and key rings become fishhooks, lures, shovels, or signal mirrors
    b. Paper money becomes fire starter

c. Wet cigarette lighter can produce sparks (flint may need to be struck repeatedly to dry)

d. Lip balm can protect from sunburn and make fires burn hotter

e. Plastic becomes tent, raincoat, water container, smoke

f. Throw nothing away no matter how insignificant it seems at the time

C. Environmental factors

1. Weather—present and forecasted

2. Cliffs, terrain, avalanche dangers, etc.

3. Animals

a. Look for sign of animals that may be hazardous to you, food, or gear

b. Find a place to cache food out of reach of bears or other predators

c. Avoid camping on game trails

D. Location—do you know where you are?

1. Is your location safe? (falling trees, avalanche, animals, tides, etc.)

2. Forested areas provide shelter—building materials, but may hide you from rescuers

3. Open areas make you visible to rescuers, but provide little protection from environment

E. Ability to communicate with rescuers

F. Initial inventory may be rapid

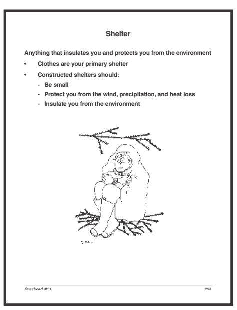
G. Inventory is ongoing as survival situation changes

1. Take advantage of positive changes

2. Be creative!

3. Your most valuable tool lies between your ears!

4. Inventory step gives you time to think



Overhead #21

Shelter (see Overhead #21)

Anything that insulates and protects you from environment

A. Your body can tolerate only a narrow range of core temperature

B. Hypothermia can kill

C. Your clothes are your primary shelter; in cold climates you must find or make additional shelter to survive for long periods

General considerations

A. Don't wait until evening to build a shelter

B. Build one shelter for 2-4 people; more bodies generate more heat

C. Three requirements of a good shelter

1. Build small—but not so small you get claustrophobic and don't want to use it

2. Should protect you from wind, precipitation, and heat loss

3. Should insulate you from environment—insulating from the ground is most important

D. Take time to find good shelter location
   1. In protected area that is visible or near area good for signaling
   2. Use natural surroundings for beginnings—fallen trees, dry hollows, caves, overhangs, rocks
   3. Not under dead standing trees, snags or “widow-makers”
   4. Close to fresh water supply
   5. Far enough away from tide and surf in case of storm
   6. Not on low gravel bars or in dry streambeds in case of rain
   7. Away from areas that fill with water during rain
   8. Facing away from prevailing wind and in as protected an area as possible
   9. Near a source of firewood
   10. Not on bear or other game trails

E. Your shelter is limited by your imagination, immediate physical needs, available materials, and energy

F. Shelter materials can include—driftwood, fallen trees, branches, grass, sod, leaves, moss, flotsam, debris, materials from your survival kit, snow, etc.

Large garbage bags

A. Can create quick shelters

B. Trap body heat

C. Increase effectiveness of clothes

D. Quick and take little energy

E. Can be first day’s shelter if insufficient time to build a better one

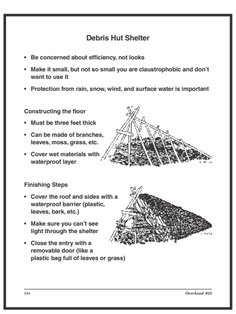
F. Don’t insulate or protect from environment as well as debris and snow shelters

G. Quick shelter for small child using 2 bags
   1. Fill one bag with debris—as dry as possible and with no sharp objects
   2. Make hollow in center of debris and stuff second bag into it
   3. Child climbs into “nest”
   4. Need hat and scarf for child as shelter doesn’t cover neck and head

H. Quick shelter for larger child or adult using 2 or more bags
   1. Fill both bags with debris—as dry as possible with no sharp objects
   2. Lay both bags on ground next to each other in a protected area, fasten together if possible
   3. Gather boughs or other dry material suitable for a “blanket”
   4. Lie down on bags and pull boughs/other debris over you; remember to cover your head and neck
   5. Pull another plastic bag over all if you have one
   6. If you don’t have plastic bags, you can heap debris and burrow into it

Debris hut shelter (see Overhead #22)

A. Very effective if materials are available—can keep you warm, dry, and provide psychological boost



Debris Hut Shelter

- Be concerned about efficiency, not looks
- Make it small, but not so small you are claustrophobic and don’t want to use it
- Protection from rain, snow, wind, and surface water is important

Constructing the floor

- Must be three feet thick
- Can be made of branches, leaves, moss, grass, etc.
- Cover wet materials with waterproof layer

Finishing Steps

- Cover the roof and sides with a waterproof barrier (plastic, leaves, bark, etc.)
- Make sure you can’t see light through the shelter
- Close the entry with a removable door (like a plastic bag full of leaves or grass)

284 Overhead #22

Overhead #22

B. Be concerned about efficiency, not looks

C. Small size is important, but not so small you are claustrophobic and don't want to use it

D. Protection from rain, snow, wind, and surface water is important
    1. If light shines through it anywhere, it will leak water, wind, and warmth
    2. Large plastic bags can help, but work best when not in direct contact with clothes (causes condensation)

E. Use natural features like fallen logs and overhangs to aid in construction

F. Critical to insulate from ground
    1. You will not warm up the earth
    2. Floor is easiest to build if built first—at least 3 feet thick
        a. Start with "spring box" layer—put arched forked branches directly on ground (creates air layer between you and ground)
        b. Build loft layer—fill in gaps of "spring box" and add softer insulation
            (1) Use dry insulating material where possible
            (2) Use vapor barrier if possible (e.g., garbage bags, plastic)

G. Build walls and roof to insulate above and around you
    1. Walls and roof should be 2-3 feet thick
    2. Use branches to construct an A-frame support—cross two branches, lash together to make a notch that supports a ridge pole that rests on the ground on the other end
    3. Cover with a waterproof barrier—overlap bark or large leaves like shingles, or use large plastic bags/tarp on top of insulation, anchor securely
    4. Can cover waterproof layer with snow as added insulation

H. Door is important—should insulate, seal totally, and be easily removed from inside for quick exit for signaling

I. Test effectiveness of shelter by climbing inside and looking for light (there should be none)

J. It can take at least 2 days to get shelter completely tight

K. Consider using fire as part of your shelter
    1. In wet environments, fires can be near or inside a debris hut shelter (shelter size will need to be larger)
    2. If fire is inside shelter, allow for vent and monitor for fire spreading—can build a rough hearth and chimney
    3. Use hot coals in shelter, not smoky debris
    4. Set a fire watch to maintain safety and fire—fires are a lot of work
    5. Incorporate reflective surface in shelter walls and roof to maximize warmth from fire

Snow shelters

A. General considerations
    1. Can be dangerous if not built correctly!

a. Consult a good book and/or experienced person before building one

b. Practice building one before you really need one

2. Carrying a backcountry shovel makes this much more feasible

3. Air spaces between snow crystals trap air effectively, making snow a good insulator

a. Snow shelters offer more insulation than airplane fuselage or vehicles

b. Snow and ground under a thick blanket of snow can remain near 32°F

(1) Often warmer than the air

(2) Digging into the snow takes advantage of this and decreases exposure to wind

4. A lit candle in a snow shelter increases inside temperature (do not generate a lot of heat inside a shelter—it will melt)

5. Snow shelters should include

a. Cold air well

(1) Cavity lower than rest of shelter that accumulates cold air (hot air rises)

(2) Should be one foot below sitting or sleeping area

(3) Increases efficiency of shelter

b. Ventilation holes

(1) Two needed—one low and one high for best air flow

(2) CO_2 created during respiration and combustion (i.e., burning candle) can accumulate and suffocate occupants

(3) Ventilation holes must always be kept clear, especially in drifting snow

(4) Make extra ones if you cook inside

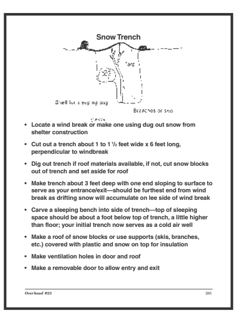
6. A door can be made from extra gear, seat cushions, bag filled with snow, moss, etc.

7. Maintain watches—snow muffles sound so rescuers may be difficult to hear

8. Keep yourself as dry as possible during construction and in shelter

9. Excess snow can be heaped on tarp and dragged away—saves shoveling energy

10. Be sure to sleep with your shovel inside shelter in case shelter collapses


Snow Trench

- Locate a wind break or make one using dug out snow from shelter construction
- Cut out a trench about 1 to 1 1/2 feet wide x 6 feet long, perpendicular to windbreak
- Dig out trench if roof materials available, if not, cut snow blocks out of trench and set aside for roof
- Make trench about 3 feet deep with one end sloping to surface to serve as your entrance/exit—should be furthest end from wind break as drifting snow will accumulate on lee side of wind break
- Carve a sleeping bench into side of trench—top of sleeping space should be about a foot below top of trench, a little higher than floor; your initial trench now serves as a cold air well
- Make a roof of snow blocks or use supports (skis, branches, etc.) covered with plastic and snow on top for insulation
- Make ventilation holes in door and roof
- Make a removable door to allow entry and exit

Overhead #23 285

Overhead #23

B. Snow trench shelters (see Overhead #23)

1. A simple trench is a shelter, but is much more efficient if covered

2. Covered shelters stop or slow heat from escaping and protect you from drifting snow

3. Snow trenches are one choice on treeless tundra where snow is hard-packed and can be cut into blocks—could also build igloo

a. Locate a windbreak (use your snowmachine) or use dug out snow to make one during shelter construction

b. Cut out a trench about 1 to 1 1/2 feet wide x 6 feet long, perpendicular to windbreak

(1) Dig out trench if roof materials available; if not, cut snow blocks out of trench and set aside for roof

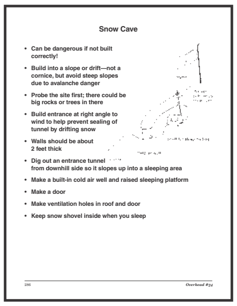
(2) Make trench about 3 feet deep with one end sloping to surface to serve as entrance/exit—should be farthest end from wind break as drifting snow will accumulate on lee side of wind break

c. Carve a sleeping bench into side of trench—top of sleeping space should be about a foot below top of trench, a little higher than floor; initial trench now serves as cold air well

d. Make roof of snow blocks or use supports (skis, branches, etc.) covered with plastic and snow on top for insulation

e. Make ventilation holes in door and roof

f. Make a removable door



Snow Cave

- Can be dangerous if not built correctly!
- Build into a slope or drift—not a cornice, but avoid steep slopes due to avalanche danger
- Probe the site first; there could be big rocks or trees in there
- Build entrance at right angle to wind to help prevent sealing of tunnel by drifting snow
- Walls should be about 2 feet thick
- Dig out an entrance tunnel from downhill side so it slopes up into a sleeping area
- Make a built-in cold air well and raised sleeping platform
- Make a door
- Make ventilation holes in roof and door
- Keep snow shovel inside when you sleep

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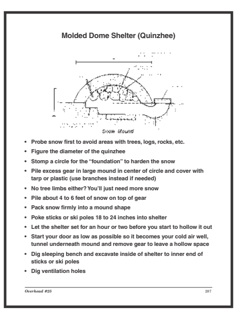
Overhead #24

C. Snow caves (see Overhead #24)

1. Build into a slope or drift—not a cornice
   a. Very difficult to build on less than 20˚ slope but avoid steep slopes due to avalanche danger
   b. Probe the site first; there could be big rocks or trees in there
2. Build entrance at right angle to wind to help prevent sealing of tunnel by drifting snow
3. Walls should be about 2 feet thick
4. Dig out entrance tunnel from downhill side so it slopes up into sleeping area
   a. Makes snow removal easier
   b. Makes built-in cold air well
   c. Build curving entrance tunnel to lessen direct airflow into cave
5. Build a raised sleeping platform
6. Make a door
7. Build in ventilation holes in roof and door



Molded Dome Shelter (Quinzhee)

- Probe snow first to avoid areas with trees, logs, rocks, etc.
- Figure the diameter of the quinzhee
- Stomp a circle for the “foundation” to harden the snow
- Pile excess gear in large mound in center of circle and cover with tarp or plastic (use branches instead if needed)
- No tree limbs either? You’ll just need more snow
- Pile about 4 to 6 feet of snow on top of gear
- Pack snow firmly into a mound shape
- Poke sticks or ski poles 18 to 24 inches into shelter
- Let the shelter set for an hour or two before you start to hollow it out
- Start your door as low as possible so it becomes your cold air well, tunnel underneath mound and remove gear to leave a hollow space
- Dig sleeping bench and excavate inside of shelter to inner end of sticks or ski poles
- Dig ventilation holes

Overhead #25 287

Overhead #25

D. Molded dome shelters (see Overhead #25)

1. Also called quinzhee (Athabascan word for snow shelter)
2. Probe snow first to avoid areas with trees, logs, rocks, etc.
3. Figure diameter of quinzhee
   a. For three people: about as far as the tallest person can reach
   b. For each additional person add about a foot to diameter
4. Stomp a circle for “foundation” to harden snow
5. If excess gear is available
   a. Put it in large mound in center of circle and cover with tarp or plastic
   b. Pile about four to six feet of snow on top of gear
   c. Pack snow firmly; striving for a mound shape (much stronger than a flat shelter)
   d. Poke sticks or ski poles 18 inches to 24 inches into shelter as markers for wall thickness when you dig out center of quinzhee

e. Let the shelter set for an hour or two before hollowing it out

f. Start door as low as possible to incorporate cold air well, tunnel underneath mound, and remove gear to leave a hollow space

g. Dig sleeping bench and excavate inside of shelter to inner end of sticks or ski poles

(1) Second person at door to remove snow is a big help

(2) Don't plug your tunnel while you're digging

h. Dig ventilation holes

(1) Dig one half-way-up wall on downwind side

(2) Dig second hole in door to provide air intake

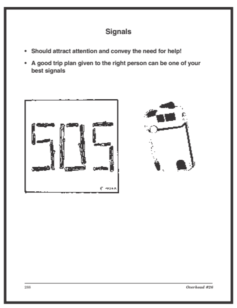
(3) You may need more ventilation holes

6. If no excess gear is available

a. Use tree limbs and position them so they are easy to pull out where your entrance will be

b. Follow steps above

c. No tree limbs either? You'll just need more snow


Signals

- Should attract attention and convey the need for help!
- A good trip plan given to the right person can be one of your best signals

288 Overhead #26

Overhead #26

Signals (see Overhead #26)

- Must attract attention and convey the message that you need help
- Remember that a good trip plan given to right person is one of best signals

A. A person in vast tundra, on a long stretch of beach, or in open ocean is hardly noticeable

B. Precipitation or fog restricts visibility and increases difficulty locating survivors

C. A signal must attract attention

1. Bigger—make signals as big as possible
2. Brighter—neon colors are most visible from a distance but must contrast with background
3. Different—use contrast to your advantage

a. E.g., dark branches on snow

b. Use straight lines, sharp geometric shapes, and right angles—rarely found in nature

c. Use movement—wave things, toss rocks into flat calm water, build some signals so wind will move them

D. Signals must convey the message that help is needed

1. Use universal SOS or HELP for English speakers
2. Groups of three convey message of distress

a. Three fires

(1) Lots of work; instead, maintain a small fire with a pile of additional fuel and two unlit fires built nearby

(2) Ignite others when you see potential rescuers

b. Three shots

c. Wave both arms—one arm means, "All's well"

E. Stay alert; rescue may come at any moment, have a plan

F. Be innovative

G. Construct multiple signals

H. Do not construct emergency signals for non-emergency purposes—it is illegal

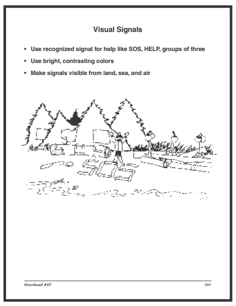
Construct signals that are both passive and active

A. Passive signals—work without you

1. Examples—Personal Locator Beacons (PLBs), strobe light, SOS, Emergency Locator Transmitters (ELTs) in aircraft
2. May need maintenance
    a. In snow conditions, an SOS may be covered quickly and repeatedly
    b. Winds can destroy an SOS

B. Active signals—you make them work

1. Examples—whistles, mirrors, radio distress calls, waving your arms, flares
2. Require constant effort



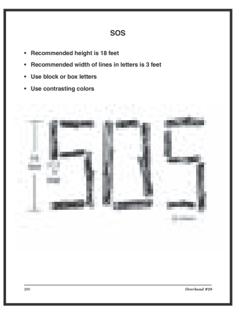
Overhead #27

Visual signals (see Overhead #27)

A. Should be able to be seen from ground, water, and air

B. SOS or HELP (see Overhead #28)

1. Passive
2. Must be large and contrast with background
    a. U.S. Coast Guard recommends letters be 18 feet tall with line width of 3 feet (6:1 ratio)
    b. Use right angles and adequate spacing between letters (each must be seen distinctly at great distances)
    c. In the snow, stomp out an SOS and place tree boughs or other contrasting things in SOS



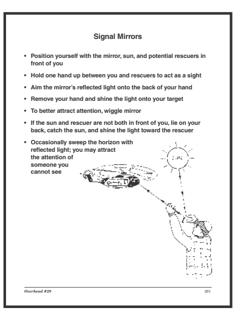
Overhead #28

C. Reflective tape

1. Passive
2. Requires light source to work

D. Mirrors (see Overhead #29)

1. Active
2. Works in sun or overcast
3. Visible from aircraft up to 50 miles
4. Procedure for using a signal mirror when sun, and potential rescuers, are positioned in front of you
    a. Hold up one hand to act as sight between you and rescuers
    b. Hold mirror in other hand
    c. Catch sunlight with mirror and aim reflection so light appears on back of sighting hand
    d. Keeping light on sighting hand, steer hand to rescuers; then drop sighting hand and shine reflection on rescuers
    e. To better attract attention, wiggle mirror to "flash" signal



Overhead #29

5. Procedure for using a signal mirror if rescuer and sun are not in front of you
    a. Lie on your back
    b. Follow procedure above

E. Strobe lights
    1. Passive
    2. Attract attention better than steady lights
    3. Universal distress signal
    4. Require batteries

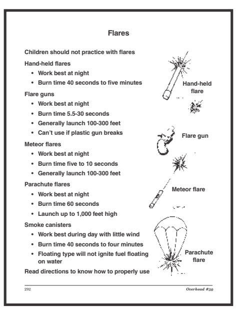
F. Chemical light sticks
    1. Passive
    2. Good signal when swung around in circle
    3. Dim in cold
    4. Expire (expired ones have high failure rate)

G. Fire
    1. Daytime signal fires should be smoky
    2. Nighttime signal fires should be bright
    3. Three conveys message that help is needed
    4. See Role of Fire below for details on fire building

Flares

A. Children should not practice with flares

B. Flares are not the best signal choice for wooded areas



Flares

Children should not practice with flares

Hand-held flares
- Work best at night
- Burn time 40 seconds to five minutes

Flare guns
- Work best at night
- Burn time 5.5-30 seconds
- Generally launch 100-300 feet
- Can't use if plastic gun breaks

Meteor flares
- Work best at night
- Burn time five to 10 seconds
- Generally launch 100-300 feet

Parachute flares
- Work best at night
- Burn time 60 seconds
- Launch up to 1,000 feet high

Smoke canisters
- Work best during day with little wind
- Burn time 40 seconds to four minutes
- Floating type will not ignite fuel floating on water

Read directions to know how to properly use

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Overhead #30

C. Types and properties (see Overhead #30)
    1. Hand-held flares—work best at night, burn time of 40 seconds to five minutes
    2. Flare guns—work best at night, burn time 5.5 to 30 seconds
    3. Meteor flares—work best at night, burn time of five to 10 seconds
    4. Parachute flares—work best at night, 60-second burn time, launch up to 1,000 feet high
    5. Dye—best used during day time in calm water

D. Flare use
    1. Red for emergency use, white for practice
    2. Check expiration date on flares regularly and replace expired ones; contact local fire station for safe disposal options
    3. Treat as you would a firearm
    4. Follow directions on flares!
    5. Use gloves, if possible, when firing to prevent burns; flares get hot!
    6. Turn face away before firing
    7. Do not fire directly at other people, aircraft, or vessels
    8. In emergency, fire one flare in case someone is nearby but out of direct sight; conserve others for when rescuers are in sight
    9. Firing hand-held flares

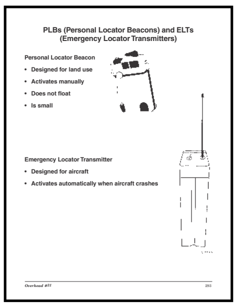
a. Hold horizontally—prevents slag from burning your hand
b. Hold downwind

10. Using meteor and parachute flares
    a. Elevate to 60° from horizontal—allows flare to gain sufficient height for complete burn
    b. Turn face away when firing
    c. Fire downwind or across wind—keeps exhaust gases and debris away from you

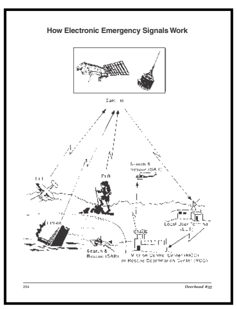
Auditory signals

A. Whistles—eight times more effective than human voice

B. Good complement to visual signals



Overhead #31



Overhead #32

406 mHz Personal Locator Beacons (PLBs) and Emergency Locator Transmitters (ELTs) (see Overhead #31)

A. Work on same principle (see Overhead #32)
   1. When turned on, broadcast strong signal on 406 mHz, and weaker homing signal on 121.5 mHz
   2. 406 mHz signal picked up by COSPAS SARSAT (Search And Rescue Satellite-Aided Tracking) satellites (a polar orbiting system) that link to search and rescue resources
   3. Weaker homing signal can be received by passing aircraft, is used by search and rescue as homing beacon
   4. Owner identification and contact information is encoded in 406 mHz signal
      a. Registration information must be sent in by owner for this feature to work
      b. Encoding gives SAR contact information for owner (for catching false alarms early or confirming emergency) and descriptive information to help in search

B. Differences between PLBs and ELTs
   1. Personal Locator Beacons (PLBs)
      a. Designed for land use
      b. Activate manually, do not float, are small in size
   2. Emergency Locator Transmitters (ELTs)
      a. Used on aircraft and required on most airplanes in U.S.
      b. Automatically activates when aircraft crashes
      c. 406 mHz ELTs have been available since August 2000—previously all transmitted only on 243 and 121.5 mHz bands

C. Using PLBs and ELTs
   1. Complete and send in registration card as soon as possible after purchase
   2. Instruct all in party in proper use of PLB or ELT
   3. Test once a month, following specific testing instructions provided with device
   4. Once device is activated to summon help, leave it on

a. Intermittent signal is difficult for SAR personnel to locate

b. Batteries will last at least 48 hours

5. Keep device with you
6. Do not ground antenna or allow to touch any solid object
7. Properly maintain device—replace battery every 2-5 years according to manufacturer's recommendation

Other electronic signals

A. Can contact help quickly and efficiently over longer distances than non-electronic signals

B. Must be of appropriate type to reach search and rescue (SAR) resources

C. Batteries

1. Keep warm and dry
2. Conserve use
3. Have spares

D. Cellular telephone

1. Limited coverage
2. Other parties can't hear call
3. Can dial 911 in most parts of North America to reach local police in emergency
4. Can dial *CG to reach U.S. Coast Guard in emergency, depending on provider

E. Satellite phone

1. Worldwide coverage
2. Must be used in a clearing
3. Other parties can't hear call
4. Can dial 911 in most parts of North America to reach local police in emergency

F. Citizens Band radio (CB)

1. Has limited range
2. May not be monitored by SAR personnel
3. May not have designated distress frequency, depends on local convention
4. Other parties can hear call

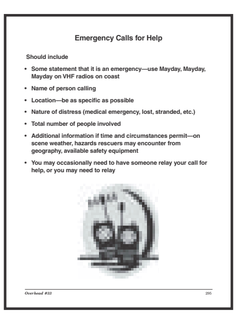
G. VHF radio

1. Channel 16 is emergency frequency
2. Range—approximately 20 miles, line of sight
3. Other parties can hear call

Emergency calls for help (see Overhead #33)

A. All emergency calls for help should include

1. Some statement that it is an emergency

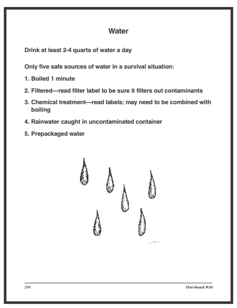


Overhead #33

a. When using a VHF radio in coastal areas say, “Mayday, Mayday, Mayday” (Mayday is an emergency word indicating there is an immediate threat to life or limb)

2. Name of person calling
3. Location
    a. Latitude and longitude are preferred
    b. If geographic reference is given, use proper place names found on maps or charts to avoid confusion
    c. Be as specific as possible
4. Nature of distress (medical emergency, lost, stranded, etc.)
5. Total number of people involved
6. Additional information if time and circumstances permit—on scene weather, hazards rescuers may encounter from geography, available safety equipment

B. You may occasionally need to have someone relay your call for help, or you may need to relay


Water

Drink at least 2-4 quarts of water a day

Only five safe sources of water in a survival situation:

1. Boiled 1 minute
2. Filtered—read filter label to be sure it filters out contaminants
3. Chemical treatment—read labels; may need to be combined with boiling
4. Rainwater caught in uncontaminated container
5. Prepackaged water

296 *Overhead #34*

Overhead #34

Water (see Overhead #34)

Requirements

A. Essential for life
1. You are approximately 70% water
2. Water is required for critical body functions
3. People have lived without food for weeks, but only days without water

B. Daily requirements—2-4 quarts of non-dehydrating fluid per day is recommended minimum for most school age children through adults
1. Adults 18 years and up—minimum 35 ml/kg body weight
    a. 150# adult needs 2.4 liters per day
    b. 250# adult needs 4 liters per day
    c. 350# adult needs 4.7 liters per day
2. Adolescents 11 through 17 years—minimum 40 to 60 ml/kg body weight
    a. 100# adolescent needs 1.8 liters per day
    b. 150# adolescent needs 2.7 liters per day
3. Young children 2 to 10 years—minimum 70 to 110 ml/kg body weight
    a. 30# child needs 1 liter per day
    b. 50# child needs 1.6 liters per day
    c. 75# child needs 2.4 liters per day
4. Infants 0 through 1 year—minimum 100 to 150 ml/kg body weight

C. Water needs increase with any activity, especially stressful activity

D. As water intake decreases, serious health problems may arise

E. When temperatures are below freezing, carry water in sealed container between layers of clothing

Dehydration

A. Occurs when your body loses large amounts of fluid without replacement

B. Signs and symptoms

   1. Headache
   2. Dizziness
   3. Dry mouth
   4. Dark yellow urine
   5. General inability to think clearly or carry out actions efficiently
   6. Drowsiness
   7. Nausea
   8. Depression
   9. General discomfort including cramping and poor muscle function
   10. Fatigue—most people will feel exhausted and may collapse after losing 5 percent of body weight in fluid

C. Prevention

   1. Ensure water intake is sufficient to maintain maximum mental and physical efficiency
   2. Drink water at regular intervals
   3. If water is scarce don't over-ration, drink at least your minimum, use your body as water storage vessel
   4. Prevent evaporative heat loss from sweating
   5. Avoid diuretic beverages such as tea, coffee, and colas with caffeine
   6. Watch each other for signs and symptoms of dehydration

D. Treatment

   1. At first sign of dehydration, increase water intake to 8-10 pints per day
   2. Many people are dehydrated when they enter a survival situation, especially following vigorous outdoor activity.

In survival situations

A. Most survivors describe an unquenchable thirst after initial threat to life has passed

B. Safe-to-drink water is more difficult to obtain; do not assume water is safe for consumption

C. Ice and snow

   1. Don't eat in solid state
      a. Precious body heat is lost melting ice or snow
      b. Metabolic process used to create heat to melt ice and snow uses water; resulting in no net liquid gain
   2. Freezing does not destroy all contaminants, water from melted snow or ice must be treated to be safe

D. Do not drink urine

E. In all but 5% of search and rescue cases, rescue occurs within 72 hours; if you are sick from contaminated water, you may find it difficult to survive

F. Good hand washing, treating water, and cooking food can prevent many problems

Contaminants common in U.S.

A. Protozoans
   1. Giardia
      a. Single-cell organism that lives in water contaminated by animal waste
      b. Causes giardiasis (beaver fever)
      c. Enters digestive tract through mouth by contact with feces of infected humans; transmission can be
         (1) Person-to-person
         (2) From ingesting contaminated water or food
         (3) From contact with fecally contaminated environmental surfaces
      d. Signs and symptoms
         (1) Similar to having serious case of flu
         (2) Can be very debilitating
         (3) Include bloated stomach, fever, stomach cramps, diarrhea, severe weight loss, and inability to digest food
         (4) Generally takes several weeks of treatment for symptoms to disappear—most people require prescription drugs to recover
      e. Onset generally 1-2 weeks after infection
      f. Symptoms generally last 2-6 weeks
      g. Not fatal under normal conditions, but can cause life-threatening dehydration in a survival situation
      h. In a study of streams from Alaska to Arizona all 10,000 tested positive for giardia
   2. Cryptosporidium
      a. Caused by parasite
      b. One of the most common causes of waterborne disease in humans in U.S.; found in every region of U.S. and throughout world
      c. Transmitted by ingestion of oocysts excreted in feces of infected humans or animals; transmission can be
         (1) Person-to-person
         (2) From ingesting contaminated water or food
         (3) Animal-to-person
         (4) From contact with fecally contaminated environmental surfaces
      d. Symptoms similar to giardia, but victims often have less gas and a low grade fever
      e. Onset usually 2-4 days after infection
      f. No cure—usually runs its course in 7-14 days
      g. Look for filters with the words “reverse osmosis” or “absolute pore size of 1 micron or smaller;” not all filters filter out cryptosporidium

B. Viruses
   1. Hepatitis A and E, Norwalk virus, rotavirus, and echovirus are all possibilities
   2. Transmission via fecal/oral route
   3. Onset, signs and symptoms, and duration depend on type of virus
   4. Too small for most filters, boiling is most effective method of treatment

C. Bacteria
   1. Less prevalent than protozoans and viruses
   2. *E. coli, Shigella, Campylobacter, Vibrio cholerae,* and *Salmonella* are most common
   3. Transmission via
      a. Ingesting contaminated food or water
      b. Sharing eating utensils and dinnerware with others who don't wash their hands after defecating
   4. Most cause illness 2-7 days after ingestion, and can last from three days to months
      a. Medications can cure illnesses, but difficult to diagnose in field
      b. Boiling kills bacteria, filtering is effective if filter is absolute pore size of 0.2 microns or smaller

Only five safe sources of water in a survival situation

A. Prepackaged

B. Boiled
   1. Most reliable way to purify water in survival situation if you have container
   2. Centers for Disease Control recommends
      a. A 1-minute rolling boil for low altitudes
      b. If above 2,000 meters (6,562 feet) boil vigorously for 3 minutes or use chemical disinfection after boiling vigorously for one minute
      c. Water can be boiled in a plastic bag slowly passed over hot coals if metal container is not available

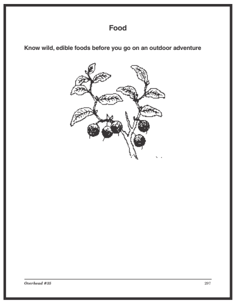
C. Filtered
   1. Several types of filtering systems available
   2. Be sure to read labels to make sure they filter out contaminants; many don't

D. Chemically treated
   1. Includes use of chlorine, halozone, and iodine
      a. Not effective in all cases
      b. Only chlorine dioxide kills cryptosporidium, not plain chlorine
   2. If using chemicals they must have contact with water and all parts of container
      a. Put stream water and chemicals in bottle
      b. Loosen cap a bit and turn bottle upside down
      c. Shake so few drops come out to ensure water contacts threads on cap

3. Effectiveness of treatment depends on type of chemical and contaminant, and water temperature, pH, cloudiness, and organic content
4. Be sure to read chemical treatment literature

E. Rainwater
1. Safe if caught and stored in uncontaminated container
2. Not safe if collected as runoff from trees, bushes, or rocks

F. The Centers for Disease Control's Web site has much valuable information on treatment and contaminants



Overhead #35

Food (see Overhead #35)

Important for energy and morale

A. But people have survived for months on little or no food

B. Food helps ward off effects of cold, illness, and depression

As a general rule, if you do not have water, do not eat

A. Digestion uses water and rapidly increases dehydration

B. Exceptions to rule are foods high in water content, like berries

Survival nutrition

A. Wild edibles
1. May be strange if you have not eaten them before but often have little or no taste
2. Rocky beach can be smorgasbord if you know what's edible
3. Use local Elders and other experts to help in identification

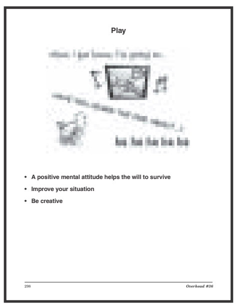
B. Attempt to eat foods that include proteins, carbohydrates, fats, vitamins, and minerals
1. Carbohydrates
    a. Short-term energy builders
    b. Sources—from land plants and seaweed; try to obtain live plants or roots of dormant plants
2. Fats
    a. Provide long-term energy
    b. Sources
        (1) Fish eggs and fish (eat fat just under skin)
        (2) Sea urchin roe—split sea urchin in half along top of shell to find brownish or orange colored segments
3. Proteins
    a. Needed for cell development and maintenance
    b. Sources—limpets, gumboots, birds, rodents, sea cucumbers, fish, blennies, crabs, birds, eggs, insects, mammals, etc.
    c. Require a lot of water to digest
4. Minerals and vitamins
    a. Needed for cell development and maintenance

b. Sources—can be obtained from variety of foods; seaweed is good source

c. Seaweed provides largest biomass of food—all flat seaweed in Alaska are edible

C. Eat only those foods you know to be safe

1. Avoid eating starfish, sea slugs, anemones, worms, and poisonous eggs of Irish lord
2. Avoid poisonous plants like water hemlock and baneberry
3. Paralytic Shellfish Poisoning (PSP)—coastal areas only
   a. Can be fatal
   b. Only sophisticated testing can determine if PSP is present
   c. Can be found in clams, mussels, other bivalves, barnacles, and moon snails
   d. Can be present any time of year
   e. Can be present in environment several years after an outbreak



Overhead #36

Play (see Overhead #36)

Important component of the will to live

A. Helps combat depression

1. Depression can rob you of your will to live
2. Depression is the biggest killer in survival situations; some people just give up and die

B. Any positive activity can be considered play to create and maintain a positive attitude

1. Make yourself more comfortable
2. Provide more food
   a. Hunting is considered play as it usually uses more energy than it gains
   b. Gathering generally provides more energy for the effort
3. Improve shelter and signals
4. Play games
5. Sing songs
6. Tell stories
7. Think of a happy reunion with family and friends
8. Pray or meditate

C. Rescues generally happen within 72 hours of incident

1. Only 5% of search and rescue cases last longer
2. Keep in mind while waiting that people are searching

D. Being alone can decrease will to live, especially in children

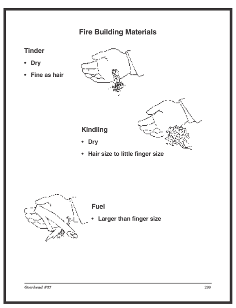
1. Teach children to hug a tree and talk to themselves
2. Talking has a calming effect and reduces panic

Fire

- People in harsh environments (like Inupiaq and Yupik in arctic Alaska) can survive without fire, but fire can improve quality of life in survival situations

A. Fire fits into the Seven Steps to Survival
   1. Recognition—realize you may need to be able to build a fire in an emergency; learn how if you don't know
   2. Inventory—include fire starters in your survival kit
   3. Shelter—fire can be part of your shelter
   4. Signals—use fire to signal for help
   5. Water—fire can be used to boil water
   6. Food—use it to cook food
   7. Play—fire can boost morale

B. Dangers
   1. Survivors can focus on fire and ignore other aspects of survival
   2. Fire requires a lot of work, can divert energy needed for shelter and signals
   3. Fire can turn into TV that everyone watches; apathy can result
   4. Fire can damage shelter and surrounding environment
   5. Fire and sparks can damage clothing and burn you; beware of synthetic fibers that melt and burn at low temperatures



Overhead #37

Three basic categories of fire-building materials (see Overhead #37)

A. Tinder
   1. Must be dry and as fine as hair
   2. Ignites with little heat, just a spark
   3. Available tinder varies from area to area
   4. Examples—shredded inner bark (cedar and birch), fine wood shavings, dead grasses and plants, sawdust, lint, cotton, paper, moss, steel wool

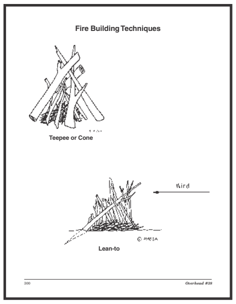
B. Kindling
   1. Readily combustible dry material between hair and little-finger size added to burning tinder
   2. Increases fire temperature so fire will ignite fuel with higher ignition temperatures
   3. Examples—dead twigs and small branches, thin shaved pieces of wood, dead pine needles, commercial or homemade wax-impregnated wood chip sticks or newspaper
   4. Gather twice as much kindling as you think you will need, it takes a lot to produce enough heat to ignite your fuel

C. Fuel
   1. Anything that is larger than your finger and will burn
   2. Can be damp, but is better dry

3. Examples—wood (split and whole, standing deadwood, dry wood from inside or underneath fallen trees, beach wood at or above high tide line), coal, peat, dried animal dung

Building a fire

A. Gather lots of dry tinder, kindling, and some fuel before starting
   1. Large garbage bag filled with tinder and kindling is not too much
   2. Take time to gather enough—more efficient than trying to start fire and failing



Overhead #38

B. Build structure of kindling over pile of tinder (see Overhead #38)
   1. Teepee or cone
      a. Arrange tinder and kindling in shape of teepee or cone
      b. After ignited, teepee burns away and falls inward, feeding heart of fire
      c. Effective when using wet fuel
   2. Lean-to
      a. Push a green stick into ground at 30° angle, upper end of stick pointing against wind
      b. Lean pieces of kindling against lean-to stick
      c. Place some tinder (at least a handful) deep inside lean-to
   3. Cross-ditch
      a. Scratch a cross in ground about 1 foot long and 3 inches deep
      b. Put large pile of tinder in middle of cross
      c. Build kindling cone above tinder
      d. Shallow ditch allows air to sweep under fire, providing critical oxygen

C. Ignite tinder at base of structure

D. Blow across flame base to add oxygen, if needed

E. Constantly tend fire, adding more material as it burns

F. Object is to build good bed of live coals with kindling before adding fuel

G. Tips
   1. Commercial fire starters, small candle, or pitch can be used to hold a fire when starting
   2. In a wet environment
      a. Peel wet bark to get to drier wood
      b. Look for dry wood under fallen logs
      c. Pick dead wood from side of tree that faces away from weather
      d. Snap and twist branches to expose rough edges and get more surface area
      e. Commercial fire starters are very helpful
      f. Plastics can be excellent fire-starters in survival situation, but they create hazardous byproducts and should be avoided in non-emergency fire-building
      g. You can dry damp fuel above coals

3. If ground is wet or snow-covered, build fire on base of green logs
    a. Lay logs side-by-side on ground or snow
    b. Add one or more layers, laying top logs in a direction opposite those of layer below
4. Practice, practice, practice—fire building is a skill

Emergencies on Land: Activities Guide

- The activities in this volume are sequential, and each unit assumes knowledge of the material in the preceding unit(s).
- Activities are arranged by topic in the same order as the Teacher Information.
- Within a topic activities are organized from easiest to most difficult.
- Detailed Alaska Content Standards are located at the end of each activity's procedures.
- Times needed for activities are approximate.
- Many activities contain true stories; be sensitive to the possibility that they could be written about your students' relatives or friends.
- AMSEA This symbol means the equipment is available to borrow from AMSEA.

Topic: Emotional Factors in Emergencies

Activity	Objectives	Standards
1. Psychology of Survival Explore psychological aspects of survival using videos and discussion p. 174	• Describe the effects of three physical and environmental conditions on the will to live • Describe how the will to live affects survival • Describe the effect of training on the ability to cope with survival situations	Language Arts Skills for a Healthy Life

Topic: Hypothermia Recognition and Treatment

Activity	Objectives	Standards
2. Hypothermia Recognition and Treatment Game Match hypothermia scenario cards with appropriate treatment cards p. 175	• List three signs and symptoms of mild hypothermia • List four signs and symptoms of severe hypothermia • List three treatment steps for hypothermia at all levels of severity • List one additional treatment step for mild hypothermia • List four actions to avoid when treating severe hypothermia	Language Arts Science Geography Skills for a Healthy Life

3. Hypothermia Stories Use case histories to learn about hypothermia prevention, recognition, and treatment p. 181	• List three signs and symptoms of mild hypothermia • List four signs and symptoms of severe hypothermia • List three treatment steps for hypothermia at all levels of severity • List one additional treatment step for mild hypothermia • List four actions to avoid when treating severe hypothermia • Apply knowledge of hypothermia and land survival to analyze survival situations and how they might have been prevented	Language Arts Science Geography Skills for a Healthy Life

Topic: Seven Steps to Survival

Activity	Objectives	Standards
4. Seven Steps and *Dersu Uzala* Identify the Seven Steps to Survival in a video p. 189	• List the Seven Steps to Survival in order of importance • Explain how the first four of the Seven Steps to Survival apply to the video *Dersu Uzala* • Describe a delayed onset emergency	Language Arts Geography Skills for a Healthy Life Cultural Standards
5. Seven Steps Survival Walk Apply the Seven Steps to Survival using a video and discussion, and inventory useful survival items found on a field trip p. 191	• List six items found in their local area that could be useful in an emergency • Describe how these items fit into the Seven Steps to Survival	Language Arts Science Geography Skills for a Healthy Life
6. Empty Your Pockets Practice Inventory by evaluating items on your person p. 193	• List ten common items and describe how they might help in a survival situation	Language Arts Skills for a Healthy Life
7. Garbage Bag Shelters Make emergency shelters with garbage bags p. 194	• List the three requirements of a good shelter • List three effective ways of using a garbage bag as an emergency shelter • Make an emergency shelter with a garbage bag	Science Skills for a Healthy Life

8. Shelter Building Make garbage bag and debris hut shelters in the classroom and outdoors p. 195	• Demonstrate one way a garbage bag can be used for shelter • Build a debris hut shelter • List three essential elements of a shelter	Language Arts Science Skills for a Healthy Life
9. Shelters in the Snow Build emergency snow shelters p. 199	• Construct at least one type of emergency snow shelter	Science Geography Skills for a Healthy Life
10. Signals Workshop Build and critique emergency signals p. 201	• Demonstrate two requirements of a good emergency signal • Build an SOS true to the U.S. Coast Guard recommended dimensions • Construct at least one additional emergency signal that is not an SOS • Describe what makes the signal effective • Explain how a PLB works	Language Arts Skills for a Healthy Life
11. Operating Signal Mirrors Practice using a signal mirror p. 206	• Demonstrate how to use a signal mirror as a signaling device	Skills for a Healthy Life
12. Classroom Shelter and Signal Stations Practice building signals, including an SOS, and a debris hut shelter indoors p. 207	• Build an SOS in proportion to the U.S. Coast Guard recommendations • Build three model signals that would be visible from the air, land, and water • Build a model debris hut shelter	Geography Skills for a Healthy Life
13. Help! Determine how to call for help in a land-based emergency p. 209	• State how they would call for help in three land-based emergency scenarios	Language Arts Geography Cultural Standards Library/Information Literacy

14. Water Lab Compare tap water, untreated surface water, and treated surface water under the microscope p. 210	• Explain the microscopic differences they saw in tap water, untreated surface water, and treated surface water • Describe at least two effective ways of treating surface water in a survival situation • Explain why drinking untreated water is not advisable	Science Skills for a Healthy Life
15. Survival Food Identify edible and poisonous wild food using field work and research p. 213	• Identify two edible and two poisonous wild plants and animals found locally • Describe identifying characteristics, edible parts, cautions, and seasonal variations for one local wild edible plant or animal	Language Arts Science Skills for a Healthy Life
16. Play! Make choices to explore how Play affects survival p. 215	• List eight things that can help maintain the will to live	Language Arts Skills for a Healthy Life Arts
17. To Build a Fire Use local materials to build and sustain a survival fire p. 218	• List the three categories of fire building materials • Explain the difference between tinder, kindling, and fuel. • Identify local materials that can be used as tinder, kindling, and fuel • Demonstrate how to combine tinder, kindling, and fuel to build a survival fire • Boil water on their fire	Science Skills for a Healthy Life

Topic: Culminating Activities

Activity	Objectives	Standards
18. Marooned! Apply survival skills in a simulation on a fictitious island p. 221	• Apply the Seven Steps to Survival in a simulated survival situation • Apply five criteria for locating emergency shelters • Describe techniques for dealing with inter-personal problems in a survival situation	Geography Government and Citizenship Skills for a Healthy Life Cultural Standards

19. Decisions, Decisions! Play a game that simulates a survival situation p. 224	• Apply the Seven Steps to Survival to a simulated and real emergency	Language Arts Geography Skills for a Healthy Life
20. Wahoo! Review volume objectives with a board game p. 229	• Review of volume's objectives	Language Arts Science Skills for a Healthy Life
21. Choices Choose items and actions to take when planning a day trip p. 237	• Choose the most appropriate items or actions for an outdoor adventure	Language Arts Geography Skills for a Healthy Life Cultural Standards

Psychology of Survival

Time: 50-60 minutes

Overview

Explore psychological aspects of survival using videos and discussion.

Objectives

After completing this activity, students should be able to:

1. Describe the effects of three physical and environmental conditions on the will to live.
2. Describe how the will to live affects survival.
3. Describe the effect of training on the ability to cope with survival situations.

Materials

- Survival Psychology, *Ray Mears Extreme Survival* video (29 minutes) AMSEA
- *Avalanche News Report* video (5 minutes) AMSEA

Procedure

1. Explain to students that they will be discussing a critical element of survival: the will to live.
2. Show one or both videos, introducing them as tools for understanding the psychology of survival.
3. After the video, lead a discussion including:
   - Importance of Recognition (the first of the Seven Steps to Survival)
   - How exhaustion affects mental state
   - How severe environmental conditions such as hypothermia, other cold injuries, hypoxia, and dehydration affect a person's mental state
   - Ways of preventing deteriorating morale and strengthening the will to live
   - How the will to live affects chances of survival
   - How appropriate training and practice helps prevent panic and fosters appropriate behavior in a survival situation

Variation

Read *Tikta'liktak: An Inuit-Eskimo Legend* by James Houston and discuss Tikta'liktak's various emotions and will to live during his ordeal. This book also ties in well with the Seven Steps to Survival.

This activity addresses Alaska Content Standards:

Language Arts B-1 Meaning from written, oral, and visual text

Skills for a Healthy Life A-1 Personal well-being, A-2 Understand the human body, D-2 Take responsible actions

Hypothermia Recognition and Treatment Game

Time: 45-60 minutes

Overview

Match hypothermia scenario cards with appropriate treatment cards.

Objectives

After completing this activity, students should be able to:

1. List three signs and symptoms of mild hypothermia.
2. List four signs and symptoms of severe hypothermia.
3. List three treatment steps for hypothermia at all levels of severity.
4. List one additional treatment step for mild hypothermia.
5. List four actions to avoid when treating severe hypothermia.

Materials

- One set per group, **Hypothermia Recognition Scenario cards** (make from Template #1)
- One set per group, **Hypothermia Treatment cards** (make from Template #2)
- *Cold Weather Safety and Survival Series: Hypothermia* video AMSEA
- Overhead #5 **Hypothermia**

Procedure

Before Class

1. Make sets of **Hypothermia Recognition Scenario cards** in one color and **Hypothermia Treatment cards** in another color. Note: The treatment cards were developed in accordance with the State of Alaska Cold Injuries and Cold Water Near-Drowning Guidelines, revised January 1996. Compare the scenario and treatment cards with your current state recommendations. Adjust information on cards as necessary.

During Class

1. Explain to students that they will be learning how to recognize and treat hypothermia. Emphasize that hypothermia kills and endangers many people in outdoor situations.
2. Show *Cold Weather Safety and Survival Series: Hypothermia* video. Discuss and list signs and symptoms of hypothermia in one column on the board and treatment in another using Overhead #5.
3. Divide the class into groups of 2-4 students and distribute a set of cards per group. Have students read the scenario cards, determine the severity of the situation, and match the scenario card with the appropriate treatment card. They continue until all cards are matched.
4. After cards are matched, have a volunteer from each group read a scenario card and the matching treatment card to the class. If the class agrees that the treatment matches the scenario, the next group reads another scenario and treatment. If the class does not agree, discuss why and whether more than one treatment may be appropriate for a given scenario. Repeat until all scenarios have been discussed.

Variation

Divide the class into two groups, give each student in one group a scenario card and each student in the other group a treatment card. After students have read their cards carefully, they move around the room seeking their scenario-treatment match.

This activity addresses Alaska Content Standards:

Language Arts A-6 Using visual communication, B-1 Meaning from written text, B-2 Investigations in written materials, D-1 Developing a logical position, D-1-D Analyzing information, D-4 Explain and defend a position

Science A-14 Living things and their environments, A-15 Using local knowledge, B-1 Scientific processes, C-6 Scientific discovery, D-1, 3 Practical applications of scientific knowledge, D-6 Using reasoned decisions

Geography E-6 Physical hazards

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-5 Well-being of family, A-6 Making informed choices, B-1 Risks and consequences, B-2 Effective communication, C-5 Effects of attitude and behavior, D-2 Safe and healthy environments

Hypothermia Recognition Scenario Cards

A.	You are taking a long walk through town with a friend. A wet snow is falling. Your friend is wearing a nylon jacket insulated with down. You stop to rest and you notice that your friend is very wet and shivering violently.	You are backpacking with a friend in the fall. It is raining and your friend is wearing cotton jeans and a sweatshirt. During a lunch break, your friend is shivering and says he feels very cold.	F.
B.	You are traveling with your family to visit the next village when your brother's snowmachine breaks through the river ice. Once pulled out of the water, your brother is soaked. His clothes are freezing quickly.	You are out winter camping with a group of friends. One has fallen behind and is having difficulty following the trail. When you get to camp you find he is pale, wet, exhausted, and has gone past the shivering stage.	G.
C.	You are standing in the rain talking to your classmates. You are all wearing jeans and sweatshirts; no one is wearing rain gear. The temperature is 40˚F. One of your friends starts to shiver.	You have gotten lost while you are out hunting. It is late in the afternoon and the temperature is falling rapidly. Your arms and legs are beginning to feel cold and you realize you will not be able to get home.	H.
D.	You are picking berries with your friends in 45˚F windy weather. One of your friends disappears, but you don't notice for about 20 minutes. You walk back the way you came calling her name. She doesn't respond, but you walk almost into her. She isn't shivering, is lethargic, and doesn't think there is anything wrong with her. The skin on her neck feels cold.	You are looking for a friend who is lost. You find pieces of his wet clothing scattered on a meandering path. When you finally locate him, he has collapsed and is unconscious. You have a radio, dry clothes, and a tent.	I.
E.	You are on an overnight hiking trip in early fall. In the late afternoon of the first day, one of your friends fell off a log into a cold stream. She was wearing jeans and decided to let them air dry while she wore them. Later that evening in camp, she complains of being cold.	You are hunting with two friends in winter. At the agreed time and place, only two of you have arrived. You find your missing friend sitting under a tree apparently asleep. When you try to talk to him, he is sluggish and confused, his clothes are damp, and he asks why you are bothering him.	J.

K. You have been riding your new snowmachine all day in a wet falling snow. Your coveralls soaked through an hour ago and you turned toward home, now a few minutes away. You have no survival equipment with you, but you are not lost. Your hands and feet are numb and you are getting sleepy.	M. After a November football game the players waited around for the photographer who was supposed to take a team picture. When she finally arrived one of the team was cold to the touch and slurring his words. He did NOT smell of alcohol.
L. You are on a survey crew working on a road job near town. The wind is blowing 30 miles per hour and it's 50˚F outside. At the end of the day your partner is very cold and can't remember how to operate the survey instrument.	N. You are walking alone at night on a street in your town in winter. You come upon someone lying on the ground. You can smell alcohol and there is no response from the person when you ask if everything is okay.

Hypothermia Treatment Cards

A.	Have him/her: • Get out of the weather • Change into dry clothes • Eat something • Exercise to re-warm	You should: • Get the victim into a warm environment • Cover the victim's head and neck, and prevent further heat loss • Transport to the nearest medical facility	D. & L. & M.
B.	You should: • Radio or send for help • Remove his wet clothes and give him dry ones to wear • Check for signs and symptoms of severe hypothermia • If he is not severely hypothermic, continue to town on remaining snow machines	You should: • Take off all her wet clothing • Put dry clothing and a hat on her • Have her drink warm liquids and eat a snack • Monitor her and make sure she stays warm	E.
C.	You should: • Get out of the rain • Change clothes • Put on a raincoat if you're going outside again	You should: • Radio or send for help • Remove his wet clothes and dress him in dry ones • Get him into your tent • Insulate him from further heat loss—cover his head and neck, and insulate underneath him • Rewarm gently skin-to-skin	G. & J.
D. & L. M.	You should: • Get the victim into a warm environment • Cover the victim's head and neck, and & prevent further heat loss • Transport to the nearest medical facility	Have him: • Get out of the weather • Change into dry clothes • Put on a raincoat and pants from his backpack • Put on a hat • Eat something • Exercise to re-warm	F.
D. & L. M.	You should: • Get the victim into a warm environment • Cover the victim's head and neck, and & prevent further heat loss • Transport to the nearest medical facility	You should: • Radio or send for help • Remove his wet clothes and dress him in dry ones • Get him into your tent • Insulate him from further heat loss—cover his head and neck, and insulate underneath him • Rewarm gently skin-to-skin	G. & J.

I.	You should: • Radio or send for help • Remove his wet clothes and replace with dry ones • Get him into your tent • Insulate him from further heat loss—cover the head and neck, and insulate underneath • Rewarm gently skin-to-skin • Check for pulse and respiration	You should: • Recognize you are alone and in a dangerous situation—if you continue to lose heat, you may die • Stay awake • Signal for help if you can • Continue toward town	K.
H.	You should: • Recognize you are in a dangerous situation • Take inventory of and use what you have with you that will help you retain heat and protect you from the environment • Build a survival shelter for the night • Signal for help	You should: • Call for help immediately • Recognize that this person is under the influence of alcohol and may be a danger to you if you attempt treatment (first keep yourself safe, then help the person in need)	N.

Hypothermia Stories

Time: 45-60 minutes

Overview

Use case histories to learn about hypothermia prevention, recognition, and treatment.

Objectives

After completing this activity, students should be able to:

1. List three signs and symptoms of mild hypothermia.
2. List four signs and symptoms of severe hypothermia.
3. List three steps for treating hypothermia at all levels of severity.
4. List one additional treatment step for mild hypothermia.
5. List four actions to avoid when treating severe hypothermia.
6. Apply knowledge of hypothermia and land survival to analyze survival situations and determine how they might have been prevented.

Materials

- Overhead #5 **Hypothermia**
- One per group of 3-4 students, Student Handout #1 **Hypothermia Stories**
- One per group of 3-4 students, Student Handouts #2 **Man Trapped in Snow Rescued after 16 Days,** #3 **Tot Who Nearly Froze Once again Lively,** or #4 **Hoonah Hunter Articles**

Procedure

1. Explain to students that they will be using real scenarios to learn about hypothermia prevention, recognition, and treatment. Emphasize that hypothermia is a common problem when outdoors.
2. Review hypothermia signs, symptoms, and treatment using Overhead #5.
3. Break the class into groups of three to four students. Distribute and explain handouts. You may have to give the same story to more than one group.
4. Have each group choose a recorder, a presenter, and two readers.
5. Explain that the readers will take turns reading the article(s) to their group. The group will identify the signs and symptoms of hypothermia described in the story, descriptions of treatment for hypothermia and other injuries, and look for one factor that, if changed, might have prevented the incident. The recorder will write the answers for the group.
6. Have groups read their articles and complete Student Handout #1.
7. Have groups take turns presenting their analysis. If two groups covering the same story have different analyses, discuss them. Focus on how difficult it can be to determine how severe hypothermia is.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing, B-1 Meaning from written text, B-2 Investigations in written materials, C-5 Project collaboration, D-1 Developing a logical position, E-1 Understanding perspective

Science A-14 Living things and their environments

Geography E-6 Physical hazards

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, B-1 Risks and consequences, B-5 Evaluating information, C-5 Effects of attitude and behavior, D-1 Analyzing situations, D-2 Drawing logical conclusions

Name: ______________________________ Date: ________________

Hypothermia Stories

Title of Article: ____

1. Using complete sentences, describe the situation that led to trouble for the victim(s) in the article.

2. Describe the environmental conditions at the time of the incident.

3. What physical symptoms of hypothermia did the victim(s) in the story display?

4. Did the victim(s) suffer from slow onset (dry) hypothermia or rapid onset (immersion) hypothermia? What evidence in the article led you to this conclusion?

5. What medical attention did the victims receive? What action could you have taken if you had been the rescuer?

6. How could this situation have been prevented?

Daily Sitka Sentinel, December 27, 2000

Man Trapped in Snow Rescued after 16 Days

Portland, Ore (AP)—An Air Force man who allegedly went AWOL got trapped in a snowdrift for 16 days, surviving on M&Ms and orange juice and scrawling a farewell note to his parents before snowmobilers came upon him in his car.

Thomas Wade Truett, 29, of Jacksonville, Fla., was hospitalized with hypothermia and was scheduled to be turned over to Air Force officials Wednesday for prosecution on desertion charges.

The snowmobilers who found Truett said he wore no coat or sweater, only a T-shirt. He had lost 20 pounds.

"He's got some healing that he needs to do," sheriff's Cpl. Neil Mackey said. "What he went through, it's enough to make a sane man crazy."

Truett, an airman first class who enlisted in early summer, had recently succumbed to personal problems, according to Mackey, who would not elaborate. He fled his job as a fuel manager at Ellsworth Air Force Base in Rapid City, S. D., on Dec. 3 and drove to Oregon, the sheriff's office said.

Four days after he set out, Truett's sports car became stuck in blustery weather on a snowy, rural road in central Oregon's Deschutes National Forest, Mackey said. He survived four days in the woods, using a cigarette lighter to build small fires.

After depleting the lighter fuel, Truett tried hiking out of the forest but was too weak. He retreated to the car, consumed his meager rations—which consisted of only orange juice, water and a package of almond M&Ms—and wrote a note to his parents in Florida, dated Dec. 13.

On Friday, after 11 days in the car, Truett heard snowmobiles passing by and threw his backpack, a notebook and some clothing out the window to let people know he was there, Mackey said. He wasn't found for another day, when a group of snowmobilers came by and saw the black backpack.

Chuck Bloom tossed the frozen bag aside into a drift, knocking some snow away and revealing the glint of a car window.

"All of a sudden this little claw hand comes up and taps twice," said his wife, June Bloom. "It just scared us to death. We thought, 'Oh my God, there's somebody in there.'"

Chuck Bloom went for help while his wife and their companions started shoveling through the 5 feet of snow. She reached through a window, sliding socks over Truett's hands and feeding him 2 containers of orange juice.

"He was so thin and gray in the face," June Bloom said.

Daily Sitka Sentinel, March 14, 2001

Tot Who Nearly Froze Once Again Lively

Edmonton, Alberta (AP)—Toddler Erika Nordby cries and resists when the doctor tries to unwrap her bandaged fingers.

Erika's hands are still crusted and red from frostbite. When a nurse puts cream on them to stop the itching, Erika smiles. "Peek-a-boo," goes the nurse. Erika responds briefly, then begins agitating again to get out of her hospital crib. The bandages on her legs held her back.

"She just becomes cranky at times and you know why," said plastic surgeon Dr. Garry Lobay. "She has been through a lot."

It's why the brown-eyed 13-month-old girl is known as the miracle baby.

Late last month, Erika wandered into the subzero night and ended up frozen in the snow, her heart stopped.

Although she may lose toes or part of her left foot, she seems otherwise relatively unscathed.

"Whether you call that an inner drive to live, whether you call that an angel on the shoulder-everyone has their own beliefs," is how Dr. Allan de Caen put it.

According to the mother, she took Erika and her 2-year-old sister to a friend's house, where all three went to sleep in the same bed on a Friday night. At some point, she says, Erika got up and wandered out of an unsecured back door into a small snowy yard. She ended up face down about 25 feet away from the door.

Nordby says she woke up and noticed Erika was gone. She ran through the bungalow screaming, then found her baby outside, stiff and unconscious. The temperature on the northern prairies that winter night was 1 degree below zero. Nordby called 911 just before 3:45 a.m. on Feb. 24.

"She was stiff in my arms," Nordby told reporters a few days later in her lone public comments to date. "I wrapped her in a big, pink blanket, and I just rocked her and screamed."

Emergency medical technicians Tammy Hills and Jason Visscher arrived first, followed quickly by paramedics Krista Rampel and Justin Mazzolini. They put Erika on the kitchen table and tried resuscitating her with CPR. Then they tried restoring her heartbeat by injecting medication.

Her jaw muscles were frozen, so a breathing tube couldn't be inserted into her trachea. No one knew how long she'd been outside.

"I wanted to believe that she would be all right while we were working on her, but we also realized how grave the situation was," Mazzolini said later.

The paramedics took her to University Hospital just before 4:30 a.m., the heat in the ambulance warming her enough to insert the breathing tube and force warm air into her lungs. She arrived still lacking a heartbeat.

De Caen, head of pediatrics at the emergency unit of the Stollery Children's Health Center, was called. Doctors wrapped Erika in a plastic blanket called a Bair Hugger, which blows warm air on the body like a hair dryer. Now some heart activity could be detected, but it was weak and abnormal.

Erika was cold to the touch, de Caen said, but her color seemed better than expected.

While continuing CPR, de Caen and his colleagues decided to try using a heart-lung machine, which would warm the body from within by feeding oxygen and blood to vital organs.

It would take almost an hour to get the machine ready, and the delay may have helped save Erika. At 4:45 a.m., Erika's gurney was rolled through the hallways, up the elevator and into the intensive care unit, a straddling nurse performing CPR all the way, de Caen said. The heart surgeon and two assistants prepared to surgically insert tubes for the heart-lung machine into her neck.

As they got ready to make the first cut at 5:45 a.m., Erika's heart began beating normally. Her temperature was 34 degrees below normal, so doctors still had to choose between the heart-lung machine and the Bair Hugger. The Bair Hugger was safer but much slower.

Based on Erika's color and heartbeat, they opted for the Bair Hugger. In three hours her body warmed to 86 degrees, a pace de Caen called "astounding."

The fact that Erika froze may have saved her. Children cool faster because they are small, and their metabolic rate also decreases more quickly, preserving oxygen in the cells. Some body parts can become starved of oxygen during rewarming, causing heart, lungs or kidneys to malfunction.

None of that happened with Erika. "She ended up beating the odds," de Caen said.

A miracle?

"I've called it a miracle already," he said. "So I guess I keep on saying the same thing."

Doctors have removed the last bandages from her fingers, but the feet remained under wraps.

Lobay, the plastic surgeon, said Erika's right foot looked healthy, but frostbite damaged the left one. But even with the loss of toes and the top portion, "I think she's going to be able to walk on the foot."

"Her legs were hard and woody when she came into the emergency, just rock hard. Everything was frozen," he said. "We are very lucky that all she's going to be losing is maybe a portion of one foot."

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Daily Sitka Sentinel, November 30, 1998

Hoonah Hunter Articles
CG Searches for Teen-Age Hunter

A Coast Guard Air Station Sitka helicopter and search teams from Hoonah searched Sunday evening and today for an overdue 15-year-old boy who became separated from his friends on a day hunting trip.

The Hoonah boy had been hunting with three friends in Spasski Bay, four miles east of Hoonah, the Coast Guard said. Searchers later that evening found some candy wrappers and footprints in the snow leading to a wooded area. The helicopter searched Sunday evening and resumed at first light today, the Coast Guard said.

Daily Sitka Sentinel, December 1, 1998

Coast Guard Finds Missing Teen-Ager

JUNEAU (AP)—The Coast Guard on Monday located a teen missing since the night before on a hunting trip near Hoonah.

Anthony Gonzales, 16, was brought aboard a Coast Guard helicopter about 2:10 p.m. Monday. He was in good condition and was ferried to the Hoonah airport.

The helicopter from Air Station Sitka had renewed the search for the young man at sunrise.

Gonzales was reported missing about 10:30 p.m. Sunday by fellow hunters. Coast Guard rescuers with night vision goggles searched for about three hours late Sunday and early Monday before suspending the search.

The boy was found at Whitestone Harbor, about 15 miles southeast of Hoonah.

Southeast Empire, December 16, 1998

Young Hoonah Hunter Found after Town Mobilizes Search

A 16-year-old Hoonah boy, missing in the woods for about 24 hours, was found in good condition Nov. 30 about 15 miles from the search area.

"I'm glad to be back," said Tony Gonzales from his home.

He was found near Whitestone Harbor by a searcher who drove down a logging road and walked toward the beach.

Actually, I didn't even know the person who found me was looking for me," Gonzales said. "I thought he was hunting because he had hunting clothes on."

About 40 searchers on foot, others in vehicles driving down logging roads, and a U.S. Coast Guard helicopter from Sitka had been looking for Gonzales since Nov. 29. Two dogs trained to detect people joined the search Monday morning. Boats swept the shoreline near town.

Gonzales was separated from two deer-hunting partners, ages 16 and 17, Nov. 29, when he took a separate trail from the other boys. They had entered the woods on the Old Spasski Trail, near the Hoonah airport.

"We both went looking for each other but couldn't find (each other)," he said. "So I started walking the beach line."

He walked the whole afternoon and spent the cold, clear night fitfully sleeping. He put plastic bags over his feet to try to keep them warm, said state trooper Ken Piepgras. Searchers occasionally fired shots, but Gonzales didn't fire back.

Gonzales was dressed in blue jeans and a light jacket. Early reports from authorities that he didn't have a rifle were incorrect. He had three sodas, some snack bars, lighters and soggy paper towels that he couldn't ignite.

It rained a little and in the morning Gonzales started walking again, which kept him warm, along rocky and muddy beaches or in the woods near the water.

But he didn't realize he was walking east, away from town and the search area. Searchers were looking near Spasski Trail which crosses wet and wooded ground from near the airport to Spasski Bay. Hoonah is a little west of the trail.

After Gonzales was found, the Coast Guard helicopter picked him up from a logging road. He was examined at a clinic and released. There were no injuries.

"It's great to be in a small town like this where everybody helps out," said Tony's mother, Sandy Gonzales.

Whitestone Logging's outdoor workers took the day off to look for Gonzales. Hoonah Trading Company stayed open all night Nov. 29 to dispense gas for searchers' vehicles. Dozens of townspeople searched.

Troopers spoke to the searchers and other residents after the rescue effort ended.

Seven Steps and Dersu Uzala

Time: 90 minutes

Overview

Identify the Seven Steps to Survival in a video.

Objectives

After completing this activity, students should be able to:

1. List the Seven Steps to Survival in order of importance.
2. Explain how the first four of the Seven Steps to Survival apply to the video *Dersu Uzala*.
3. Describe a delayed onset emergency.

Materials

- One per student, Student Handout #1 **Dersu Uzala and the Seven Steps to Survival**
- *Dersu Uzala* video (15 minute segment) AMSEA
- Overhead #18 **Seven Steps to Survival** and #19 **Recognition**

Procedure

Before Class

1. Cue the video to the point where Dersu and the “Captain” are walking around near the lake trying to find their tracks back from where they came (about 45 minutes from the beginning).

During Class

1. Explain to students that they will be learning about the Seven Steps to Survival and applying them to a survival scenario.
2. Use Overhead #18 to explain the Seven Steps to Survival.
3. Describe delayed and immediate onset emergencies.
4. Discuss Recognition using Overhead #19.
5. Distribute and explain Student Handout #1.
6. Watch the video until they finish rolling on the ground hugging each other with happiness (about 15 minutes). Have students complete Student Handout #1 while watching the video.
7. Use the lists generated on the handout to create a master list of examples of the various steps seen in the video segment.
8. Discussion points:
    - How did the two men react to the emergency?
    - How did they apply the Seven Steps to Survival?
    - Was the emergency an immediate or delayed onset emergency?
    - Discuss the shelter they built

This activity addresses Alaska Content Standards:

Language Arts A-3 Demonstrate speaking skills, B-1 Meaning from oral and visual text, D-1 Developing a logical position, D-1-D Analyzing information

Geography A-6 Geographic problems and solutions, B-1 Geographic characteristics of place, B-6 Making informed decisions about place, B-7 Regions, E-6 Physical hazards, F-6 Geography across the curriculum

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions, B-1 Risks and consequences, D-1 Responsible decisions

Cultural Standards E-7 Interactions of people from different cultural backgrounds

Name: ______________________________ Date: ____________________

Dersu Uzala and the Seven Steps to Survival

While watching the segment of *Dersu Uzala,* list incidents illustrating the Seven Steps to Survival under the applicable step(s).

1. Recognition

2. Inventory

3. Shelter

4. Signals

5. Water

6. Food

7. Play

Seven Steps Survival Walk

Time: 200 minutes (over three days)

Overview

Apply the Seven Steps to Survival using a video and discussion, and inventory useful survival items found on a field trip.

Objectives

After completing this activity, students should be able to:

1. List six items found in their local area that could be useful in an emergency.
2. Describe how these items fit into the Seven Steps to Survival.

Materials

- *Shore Survival* video (21 minutes), (Note: there are some profanities used in this video) AMSEA
- Overheads #18 **Seven Steps to Survival** and #20 **Inventory**
- One per student, copies of Overhead #18 **Seven Steps to Survival** and #20 **Inventory**
- Guest speakers who have been in survival situations (listen to their story ahead of time so you can determine speaker's comfort level and whether or not the story fits into the Seven Steps.)
- Outdoor area to look for useful things for survival situations; washed-up debris makes beaches and shorelines ideal locations for this activity

Procedure

Part 1

1. Explain to students that they will be learning about the Seven Steps to Survival.
2. View the video with the class and discuss the Seven Steps to Survival using Overheads #18 and #20.
3. Invite a guest speaker to tell a true survival story. Ask the speaker what helped and hindered during the survival experience. Relate the answers to the Seven Steps.
4. Forewarn students about and prepare for field trip.

Part 2

1. Explain to students that they will be looking for items that can be used in survival situations (doing an inventory).
2. Divide the class into four groups for the field trip.
3. Tell a story describing how they came to be here (recognition) and assign each group one of the following steps: shelter, signals, water, or food.
4. Instruct each group to walk slowly around the area, documenting anything that could be useful for the group's assigned step. Note that some items may be used by all of the groups. Emphasize that items with more than one potential use in a survival situation are especially valuable. This process involves steps 2 and 7 (inventory and play).

Part 3

1. Explain to students that they will be explaining to the class how the items they found on their field trip could be used in a survival situation.
2. Have each group present its list of items to the class and explain how they can be used in a survival situation.
3. Have students recite the Seven Steps to Survival in order of importance.

Extension

Have each student select an item found on the field trip and lists as many ways as possible to use it in a survival situation.

This activity addresses Alaska Content Standards:

Language Arts A-3 Demonstrate speaking skills, A-4 Writing and speaking with purpose

Science A-12 Biological diversity, A-14 Living things and their environments,

A-15 Using local knowledge, C-3 Cultural influences, D-1, 3 Practical applications of science

Geography B-3 Cultural characteristics of place, C-1 Natural resource use, E-3 Physical systems, F-6 Geography across the curriculum

Skills for a Healthy Life A-1 Personal well-being, A-3 Injury prevention, D-2 Safe and healthy environments

Empty Your Pockets

Time: 30 minutes

Overview
Practice Inventory by evaluating items on your person.

Objective
After completing this activity, students should be able to list ten common items and describe how they might help in a survival situation.

Materials
- Overheads #18 **Seven Steps to Survival** and #20 **Inventory**

Procedure

1. Explain to students that they will be doing an inventory of what they have on them to see how it could be useful in an emergency.
2. Introduce the activity by showing Overhead #20.
3. Have students empty the contents of their pockets onto their desks. (Some students may be carrying personal items in their pockets that they do not wish to share.)
4. Have students list items on the desk plus belts, hats, shoelaces, or other items on their person that might be useful in a survival situation, and identify uses for each.
5. List items on the board under the heading "Equipment."
6. Have students generate other important components of Inventory.
7. Conclude by reminding students that:
   - Most people find themselves in an emergency with the clothes on their backs and items in their pockets
   - Their most valuable tool lies between their ears

This activity addresses Alaska Content Standards:

Language Arts A-3 Demonstrate speaking skills

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions, B-1 Risks and consequences, C-5 Effects of attitude and behavior, D-1 Responsible decisions, D-2 Safe and healthy environments

Garbage Bag Shelters

Time: 50 minutes

Overview
Make emergency shelters with garbage bags.

Objectives
After completing this activity, students should be able to:

1. List the three requirements of a good shelter.
2. List three effective ways of using a garbage bag as an emergency shelter.
3. Make an emergency shelter with a garbage bag.

Materials
- Overheads #18 **Seven Steps to Survival** and #21 **Shelter**
- One per group of 3-4 students, garbage bag
- Field or wooded area free of garbage and hazards

Procedure

1. Explain to students that they will be learning about emergency shelters made from garbage bags.
2. Discuss where Shelter is in the Seven Steps to Survival using Overhead #18, and the requirements of a good shelter using Overhead #21.
3. Divide the class into groups of three or four students and give each group a garbage bag.
4. Go to your grassy or wooded area and challenge the groups to fill the garbage bags with as much soft debris as possible (no garbage, sticks, or rocks—just grass, leaves, green evergreen boughs, weeds) in a given time limit. The goal is to fill the bag to knee-level.
5. Regroup the class, and ask the students to tie the top of the bag closed.
6. Ask the students how their stuffed garbage bag can be used as a shelter or a part of a shelter. For each idea proposed, ask the class to list the good and the bad points. Be sure to discuss the importance of insulation on top of and underneath a person. You may give groups an additional garbage bag to come up with more ideas. Possible answers include:

   For a single stuffed garbage bag
   - Laying or sitting on the stuffed bag to keep off cold or wet ground
   - Pulling the stuffed bag on top like a big quilt

   If a second garbage bag is available
   - Use one bag on top and the other underneath
   - Get inside the empty bag, and then climb inside the grass-bag as if it were a sleeping bag
7. Review the three essential elements of a good shelter. Emphasize that one garbage bag alone would not be a perfect shelter, but it would help them stay warm and dry in an emergency, and could be used to help build a more efficient shelter. Note that garbage bags can easily be kept with you in the event of an emergency.

This activity addresses Alaska Content Standards:

Science A-14 Living things and their environments

Skills for a Healthy Life A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informal choices

Shelter Building

Time: Part 1: 40-60 minutes,
Part 2: 2 hours minimum,
Part 3: 60 minutes

Overview

Make garbage bag and debris hut shelters in the classroom and outdoors.

Objectives

After completing this activity, students should be able to:

1. Demonstrate one way a garbage bag can be used for shelter.
2. Build a debris hut shelter.
3. List three essential elements of a shelter.

Materials

Part 1

- One or more per person, 39-gallon garbage bags
- Overheads #3 **High Heat Loss Areas,** #21 **Shelter,** and #22 **Debris Hut Shelter**
- Small figure or clothespin (to represent a person)
- Debris (grasses, twigs, sticks) for a mini-debris hut shelter
- *Outdoor Survival: A Practical Review* video (8 minutes) AMSEA

Part 2

- Field site with plenty of shelter building materials and easy access
- One or more per group of five students, adult volunteers
- One per adult volunteer, Template #1 **Volunteer Responsibilities**
- One per person, 39-gallon garbage bag
- Loud whistle
- Water and cups
- First aid kit
- Insect repellent
- Camera
- Spare dry, warm clothing including hats
- Hypothermia bag or sleeping bag
- Cellular phone, radio, or other emergency communications device
- Vehicle and driver standing by

Part 3

- Developed photographs of the students' debris hut shelters
- Poster board
- Glue, markers, etc. for making a display

Procedure

Part 1

1. Explain to students that they will be learning to make shelters that can help them survive in an emergency.
2. Ask the class what the greatest danger is outdoors. (After earlier activities they will hopefully know it is hypothermia.)
3. Review the five high heat loss areas using Overhead #3.
4. Use Overhead #21 to review and emphasize the importance of clothing as your primary shelter.
5. Distribute garbage bags and give students 2 minutes to try to cover all their high heat loss areas, but their faces must be outside the bags. After 2 minutes have students freeze. This minimizes noise from rustling bags during discussion. Discuss the advantages of using a garbage bag as a shelter while they remain motionless. After a couple of minutes ask if anyone is beginning to feel warm. Keep them in their bags until they feel warm, then collect the bags.

6. Demonstrate how to build a debris hut shelter using Overheads #21 and #22, the clothes pin person, and debris.
7. Show and discuss *Outdoor Survival: A Practical Review* video.
8. Have students write in their journals explaining what their primary shelter is, how to build a debris hut shelter, and why shelters are important.

Part 2

Before Class

Arrange for:

- Field site and permission to use it (Large groups of students may heavily impact an area)
- Recruit adult helpers and brief them on their responsibilities
- Transportation to the field site
- Materials
- A permission slip and a list of gear for each student to bring

During Class

1. Explain to students that they will be building debris hut shelters big enough for one or two people. (It takes a minimum of three hours to build a shelter for four or five people.)
2. Divide the class into groups of five.
3. At the site, assign each group to a specific area and distribute garbage bags. Set boundaries and leave a buffer between groups. Explain that no one may leave his or her area during the exercise.
4. Give students 2 minutes to check out their area. Then have them sit on the ground (to drive home the need to protect themselves from it) for five minutes and plan their enterprise.
5. Have students spend at least the first half hour building nothing but the floor.
6. Allow a minimum of 60 minutes to gather (only) fallen materials and build their shelter.
7. At a designated time, blow the whistle and have the groups assemble together. Move as a unit to view and discuss each group's shelters.
8. Photograph each shelter with the builders next to or in it.
9. If it is possible to leave the shelters up for a few days, do so. This will provide an opportunity for them to show their work to family and friends. If shelters cannot remain standing, have each group safely dismantle its shelter, scattering debris to minimize impact to the area. They should collect all plastic and other garbage items and carry them out.
10. Have students write in their journals about the field experience, focusing on how they built their shelter, its strengths and weaknesses, how they would have changed it if they had had more time, how the interpersonal relations worked, and how this experience relates to their life outside school.

Part 3

1. Explain to students that they will be making a display of their shelter building experience.
2. Have students use their journal entries to write captions for their photograph(s). Encourage students to make the captions instructive, appealing to the eye, colorful, and creative.
3. Have students assemble and post their displays.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing, A-2 Writing conventions, A-4 Writing and speaking with purpose, C-1 Developing a project, C-2 Project organization, C-3 Group decision making, C-4 Project quality, C-5 Individual and group responsibilities, D-6 Using reasoned decisions

Science A-14 Living things and their environments, A-15 Using local knowledge, B-1 Scientific processes, D-1, 3 Practical applications of scientific knowledge

Skills for a Healthy Life A-1 Personal well-being, A-3 Injury prevention, A-6 Making informed choices

Volunteer Responsibilities

Your role as adult supervisor is to:

- Maintain visual or auditory contact with every student in your group at all times.
- Maintain a lookout for any physical or animal hazards.
- Mediate disagreements when they become stalemates.
- Provide positive reinforcement for your group.
- Support safe learning.
- Watch for signs of hypothermia and take preventive action.
- Help direct discussion about the shelters when viewed by the whole class.
- Your job is not to tell the group how to do things or build their shelter.

Essential Elements of a Shelter

- It must be small, but not so small that you get claustrophobic and won't use it.
- It must insulate you from the ground. The floor needs to be at least three feet thick and contain as much dry material as possible. Plastic can help, especially in a wet environment.
- It must protect you from the wind, rain, and heat loss. If you can see any daylight coming through, precipitation will find its way in and body heat will escape. Plastic can help, but several feet of insulation is also necessary.
- It must have a removable door.
- Location—the best location is protected from prevailing wind and precipitation, but near signals and water source.

Directing Group Discussion at Shelters

Encourage students to discuss the following points at each shelter:

- Is the floor thick enough?
- Is the shelter small enough?
- Will the wind, snow, or rain get in?
- Does it have a door?
- What are the strengths and weaknesses of its location?
- What did the group do very well?
- Keep the discussion positive.

Shelters in the Snow

Time: All day field activity

Overview

Build emergency snow shelters.

Objective

After completing this activity, students should be able to construct at least one type of emergency snow shelter.

Materials

- Overheads #23 **Snow Trench,** #24 **Snow Cave,** and #25 **Molded Dome Shelter (Quinzhee)**
- One per group, copy of Overheads #23 **Snow Trench,** #24 **Snow Cave,** and #25 **Molded Dome Shelter (Quinzhee)**
- Twelve or more per group, 2' long sticks
- One pile per group, evergreen boughs
- Two or more per group, large garbage bags
- Some per group, rope/string
- One or more per group, tarp
- Two or more per group, snow shovels
- One per group, minimum/maximum thermometer
- One per group, candle
- One per group, lighter or matches
- One per group, adult helper
- Warm outdoor clothing

Procedure

Before Class

1. Inform students that they will be building snow shelters outdoors and to dress appropriately on the day of the activity.
2. Select a safe site with adequate snow cover.
3. If you have never built one of these snow shelters before, do so before the class or bring in an expert to help. Snow shelters can collapse, and people can die while inside snow shelters if the shelters are not properly ventilated.

During Class

1. Explain to students that they will be building emergency snow shelters big enough for one or two people.
2. Discuss the features and construction of snow shelters using Overheads #23, #24, and #25, and students' copies. Be sure to emphasize safety precautions.
3. Divide class into three groups and assign one type of emergency snow shelter to each group.
4. Go to the building site, distribute materials, and have groups build the shelters.
5. Rotate between groups giving suggestions as needed.
6. Place a minimum/maximum thermometer in each finished shelter.
7. Let a candle burn for 15-30 minutes and record temperatures.
8. Repeat with people in the shelter and no candles.
9. Discussion points:
   - Which shelter maintained the highest temperature, the lowest?
   - Analyze construction, insulation, size, and why different shelters were or were not warm
   - Compare the shelter temperatures when unheated, heated by a candle, and heated by bodies
10. If time permits, allow students to improve shelters.

This activity addresses Alaska Content Standards:

Science B-1 Process, B-2 Investigations, B-3 Inquiry

Geography A-6 Geographic problems and solutions, B-1 Geographic characteristics of place, B-6 Making informed decisions about place, B-7 Regions, C-2 Natural regions, C-3 Regional environments, E-6 Physical hazards

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions, B-1 Responsible decisions

Shelters in the Snow is based on an activity submitted by outdoor skills instructor Carol Scott from Fairbanks, Alaska.

Signals Workshop

Time: 90 minutes

Overview

Build and critique emergency signals.

Objectives

After completing this activity, students should be able to:

1. Demonstrate two requirements of a good emergency signal.
2. Build an SOS to U.S. Coast Guard recommended dimensions.
3. Construct at least one additional emergency signal that is not an SOS.
4. Explain what makes the signal effective.
5. Explain how a PLB works.

Materials

- Story #1 **Misunderstanding—A True Story**
- Overheads #18 **Seven Steps to Survival,** #26 **Signals,** #27 **Visual Signals,** #28 **SOS,** #30 **Flares,** #31 **PLBs (Personal Locator Beacons) and ELTs (Emergency Locator Transmitters),** and #32 **How Electronic Emergency Signals Work**
- One per student, Student Handout #1 **What Makes a Good Signal?**
- Roll of survey flagging tape
- Signal board illustrating "bigger, brighter, and different"
- 18' length and 3' length of string
- One per group, bag of signal building material (trash bags, string, rope, surveyors tape, foil, space blanket, a tarp or pieces of a tarp, extra clothing, strobe light, chemical light sticks, whistles)

Procedure

Before Class

1. Construct props to illustrate bigger, brighter, and different principles:
   - Take a large piece of cardboard and glue a piece of brightly colored paper, a piece of not-bright paper the same size, and a small and large piece of paper of the same color.
   - Glue white paper onto brown cardboard, and white paper onto white cardboard.
   - Cut one piece of string 18 feet long and one piece 3 feet long.
   - Tear several lengths of survey flagging tape.
2. Identify an outdoor location where the class can build signals and then hopefully see them from a higher location.
3. Tell local police and search and rescue people that you will be practicing building emergency signals.

During Class

1. Explain to students that they will be building emergency signals.
2. Read Story #1.
3. Discuss the need for people to both attract attention and convey the need for help when signaling using Overheads #18 and #26.
4. Discuss ways students could signal in an outdoor emergency in their area using Overheads #27, #28, and #30.
5. Explain how these signals work, and their advantages, disadvantages, and cautions. Explain the difference between active and passive signals, and the need to have multiple signals. Emphasize that one of the best signals is a trip plan.
6. Distribute and have students complete Student Handout #1.
7. Break class into groups.

8. Go outdoors and have students build an SOS together. Allow 20 minutes, then gather everyone on a high spot and evaluate how well it works.
9. Give each group a bag of potential signal materials, and direct them to build one more effective signal. Allow 10 minutes for this.
10. Gather the groups together and travel to each signal, allowing each group to explain how its signal works and how the idea was formulated. Discuss whether the signals meet the two requirements of an effective signal, and if they can be seen from the air and land. Identify which signals are active or passive.
11. Direct students to dismantle their signals and return materials to you. Leave the area looking as you found it.
12. Introduce Personal Locator Beacons (PLBs) using Overheads #31 and #32. (See volume 4, *Small Boat Safety and Survival,* Boating Emergencies, Activity #4, **EPIRB Mania!** for activity ideas.)

This activity addresses Alaska Content Standards:

Language Arts C-2 Project organization, C-3 Group decision making, C-5 Individual and group responsibilities

Skills for a Healthy Life A-3 Injury prevention, D-2 Safe and healthy environments

Misunderstanding—A True Story

Carl McCunn, an experienced outdoorsman, set out for an isolated valley seventy-five miles northwest of Fort Yukon. A commercial flying service flew him in. He was well equipped for his intended stay of five months. Maps with his location marked were mailed to family and friends saying he would be gone for several months. Unfortunately his plans for being picked-up were not clear with anyone. An oversight that would prove fatal.

The sound, at first was very faint. For weeks Carl had waited for it and now it grew louder. Before long he saw the source, on the horizon and slowly heading right for him. A plane! The first he'd heard or seen in months. Grabbing his orange sleeping bag and running out into the opening by the camp, he waved at the plane as it flew over. The plane turned and circled the camp again. Feeling great relief, Carl raised one arm and waved some more at the plane and its occupant. The plane started to circle again. Thinking he had been saved, Carl walked back to his tent as the plane circled once more and then dipped its wing twice and flew off. Carl thought that the wheeled plane couldn't land, so must be returning to Fairbanks to alert others and have someone come back with a float plane that could land on the nearby lake. The sense of relief was overwhelming. He was about to be rescued. Months had gone by since he'd talked with anyone, friends or family. He couldn't wait to see them all again. It had been a tremendous experience, living alone in the wilderness, but it was time to go home. Soon, very soon, he would hear another plane and he would be on his way. He'd started to pack as the plane flew away.

That's not how things worked out.

The pilot that had flown over saw a man wave a red blanket or something. On the second pass the man waved in a casual manner and then started to walk slowly to the tent. On the third pass he saw that the camp was well stocked with wood stacked and covered with plastic and a tent. Nothing amiss here. No wave, no nothing. So the pilot saw no reason to stick around. It looked like everything was in control. He'd come back in a few months after winter set in. For now he'd continue his game patrol. It didn't look like their was any emergency or immediate danger. He waved his wings twice and left.

After a few days of good weather and no plane. Carl began to have second thoughts. Why no plane? He was all packed and ready to go. Had he done something wrong? He'd been waiting for months for rescue. Carl thought that his friends in Fairbanks must miss him by now. He had left a map with his location marked and asked a friend with a float plane to pick him up before winter and it was getting colder every day. Soon winter would officially start. He expected snow anytime and ice was starting to form on the lake. If something didn't happen soon, he'd be here for weeks, until the lake froze hard enough for a ski plane. He was running out of food and supplies. Did he do something wrong? This nagging thought wouldn't leave him.

The weather grew colder and it began to snow. He became desperate. How would he survive the winter when he was out of food and game was scarce. What had he done wrong?

His thoughts drifted back to when he first saw the aircraft.

From his journal, "When I first saw the airplane I waved my orange sleeping bag cover and the plane turned so I know he saw me. As the plane circled, I recall raising my right hand, shoulder high, and shaking my fist, on the plane's second pass. It was a little cheer, like when your team scores a touchdown or something. Maybe the pilot misunderstood. Oh no! No! No! The signal I gave was for ALL OK . . . Do not wait . . . Man, I can't believe it!!!"

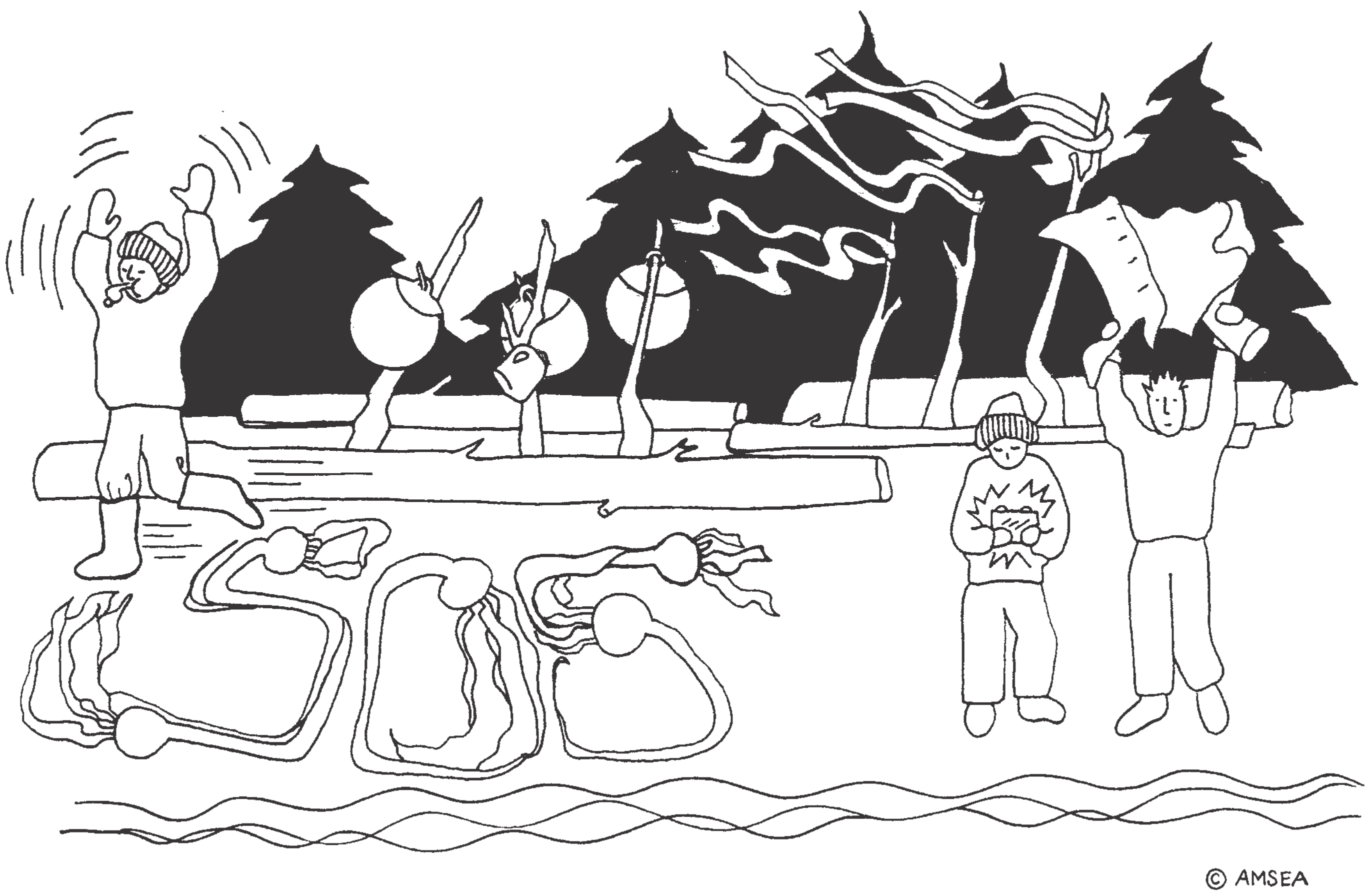
Carl's body was found months later when the pilot returned and, seeing no sign of life, landed and checked the camp.

The complete story can be found in "No Sign of Life," in *Danger Stalks the Land: Alaskan Tales of Death and Survival* by Larry Kaniut.

Name: ____________________ Date: ____________

What Makes a Good Signal?

Signals must attract attention and tell people that you need help. In the picture below, circle the signals that could be seen from the air and put an “X” on those that could be seen from the water.



List four other ways to signal for help.

1.

2.

3.

4.

Operating Signal Mirrors

Time: 15 minutes

Overview
Practice using a signal mirror.

Objective
After completing this activity, students should be able to demonstrate how to use a signal mirror.

Materials
- Overhead #29 **Signal Mirrors**
- One per pair of students, signal mirror
- Four targets (see instructions below)
- Overhead projector

Procedure

Before Class
1. Make and place a target on each wall of the classroom:
    - A large rescue helicopter on front wall
    - A target with list of "Advantages of Using Signal Mirrors" on side wall
    - A small rescue helicopter and the label "50 Miles Away" on other side wall
    - A design of your choice on the back wall (airplane, helicopter, boat)
2. Practice shining the overhead projector (your sun) so it won't blind students, and using the signal mirror.

During Class
1. Explain to students that they will be practicing using a signal mirror.
2. Begin by explaining the advantages of using a mirror as a signaling device.
3. Show Overhead #29. Read through the steps with the class and demonstrate how to use the signal mirror.
4. Distribute a mirror to each pair of students.
5. Remove the overhead and turn the projector around so the light is projected toward the students.
6. Lead students through the steps for using the mirrors and have students aim the reflected light at the "List of Advantages to Mirrors" target on the side wall. When all have done this, read the advantages together.
7. Remind students the distance aircraft can see a signal light on a clear day. Direct them to aim their light at the small helicopter (50 miles away) hanging on the other side of the room.
8. Finally, point out the target (potential rescuer) behind them. Have students try to aim the light directly behind them. You may need to demonstrate this.
9. Debrief, emphasizing the usefulness of signal mirrors.

This activity addresses Alaska Content Standards:

Skills for a Healthy Life A-1 Personal well-being, A-3 Injury prevention

Classroom Shelter and Signal Stations

Time: 80-120 minutes

Overview

Practice building signals, including an SOS, and a debris hut shelter indoors.

Objectives

After completing this activity, students should be able to:

1. Build an SOS in proportion to U.S. Coast Guard recommendations.
2. Build three model signals that would be visible from the air, land, and water.
3. Build a model debris hut shelter.

Materials

- *Outdoor Survival: A Practical Review* video (8 minutes) AMSEA
- Overheads #21 **Shelter,** #22 **Debris Hut Shelter,** #23 **Snow Trench,** #24 **Snow Caves,** #25 **Molded Dome Shelter (Quinzhee),** #26 **Signals,** #27 **Visual Signals,** #28 **SOS,** #29 **Mirrors,** #30 **Flares,** #31 **PLBs (Personal Locator Beacons) and ELTs (Emergency Locator Transmitters),** and #32 **How PLBs and ELTs Work**
- Large garbage bag full of grass, leaves, boughs, moss, sticks, and odds and ends of clean trash for building an SOS
- Two small garbage bags full of the same type of material for debris hut shelter and signal building
- Three plastic tarps—one at least 6 feet x 6 feet, the others at least 3 feet x 4 feet
- Two cardboard boxes (approximately 20 inches x 15 inches x 4 inches)
- Two toy people 4 inches tall or clothespins
- Broom and dustpan, or vacuum

Procedure

1. Explain to students that they will be practicing building signals and a debris hut shelter indoors.
2. Ask students if they've ever known anyone who had to spend an unplanned night outdoors.
3. Watch *Outdoor Survival: A Practical Review* video or introduce shelter building with Overheads #21-#25. Emphasize that shelters must be small enough to be efficient, and that they must keep precipitation and wind out, and body heat in.
4. Compare the different types of shelters, and advantages and disadvantages of each.
5. Ask students if they've ever had to signal for help. How did they do it?
6. Introduce emergency signals with Overheads #26-#32. Emphasize that signals must both attract attention and convey the need for help. Review the recommended height of letters (18 feet) and width of letter line (3 feet) for building an SOS. Show how to use the body to estimate 18 feet (arm span is about equal to height). Discuss good shelter building sites.
7. Divide the class into three groups and have the groups help set up the stations as follows:

   SOS Station: Place the 6 feet x 6 feet tarp in a spacious area that is easy to clean. Place the large trash bag full of debris on the tarp.

   Multiple Signals Station: Place one of the two smaller tarps on a table or floor with one of the small bags of debris and one of the small "people."

   Debris Hut Shelter Station: Place the other small tarp on a table or the floor with the other small bag of debris and the other "person."

8. Explain what students will do at each station:

   SOS Station: Make an SOS on the tarp, using the same height to width ratios that the U.S. Coast Guard recommends.

   Multiple Signals Station: Make three model signals that would be visible from the air and from the land or water. They should make signals other than SOS since that is in another station.

   Debris Hut Shelter Station: Make a model debris hut shelter for the toy person.

9. Explain that they will start at the station they set up and will rotate until they have completed all stations. Encourage them to use whatever they have in their pockets or on their person.

10. Have students begin, allowing 20 minutes per station.

11. Assemble groups and view each other's work before rotating to the next station.

12. When all are done, have the last group at each station clean up that station.

13. Debrief the stations including a discussion of what task was the most difficult, and application to the real world.

This activity addresses Alaska Content Standards:

Geography A-6 Geographic problems and solutions, B-1 Geographic characteristics of place, B-6 Making informed decisions about place, C-3 Regional environments, F-6 Geography across the curriculum

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions, C-1 Conflict resolution, C-2 Effective communication, C-5 Effects of attitude and behavior, D-1 Responsible decisions

Help!

Time: Three to four 45 minute class periods

Overview

Determine how to call for help in a land-based emergency.

Objective

After completing this activity, students should be able to state how they would call for help in three land-based emergency situations.

Materials

- Three per student, 3 x 5 index cards
- Overheads #18 **Seven Steps to Survival,** #26 **Signals,** #27 **Visual Signals,** #28 **SOS,** #29 **Signal Mirrors,** #30 **Flares,** #31 **PLBs (Personal Locator Beacons) and ELTs (Emergency Locator Transmitters),** #32 **How PLBs and ELTs Work,** and #33 **Emergency Calls for Help**
- Access to local search and rescue personnel, police, state police, U.S. Coast Guard, newspapers
- Internet access (optional)

Procedure

Part 1

1. Explain to students that they will be determining the best way to call for help in emergency situations in their area.
2. Divide class into three groups and have each group develop three different scenarios of a land-based emergency that are possible in your area, and write them down on 3x5 cards.

Part 2

1. Collect the scenarios.
2. Explain the importance of signaling for help using Overhead #18 **Seven Steps to Survival.**
3. Explain that each group will get three scenarios and for each one will be researching and presenting:
   - The definition of emergency
   - Whether or not this is an emergency
   - Who they will contact for help
   - How they will contact help
   - If they use a satellite phone, cellular phone, or VHF radio to call for help, the essential pieces of information that must be transmitted
4. Provide parameters for students such as whether you want them to research this locally or statewide, how long their presentations should be, what kind of media they can use to present it, available overheads, whether they can use guest speakers and how to prepare the speaker for his/her presentation, etc.
5. Randomly distribute three scenarios to each group.
6. Have students research and give presentations.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing, A-4 Writing and speaking with purpose, C-2 Project organization, C-3 Group decision making, C-5 Project collaboration

Geography B-1 Geographic characteristics of place

Library/Information Literacy A-4 Search for information and resources, A-5 Identify and use search strategies, B-2 Consider and determine useful resources, B-3 Access information

Cultural Standards D-1 Interaction with Elders, D-5 Solutions to everyday problems

Water Lab

Time: 90 minutes over two class periods

Overview

Compare tap water, untreated surface water, and treated surface water under the microscope.

Objectives

After completing this activity, students should be able to:

1. Explain the microscopic differences they saw in tap water, untreated surface water, and treated surface water.
2. Describe at least two effective ways of treating surface water.
3. Explain why drinking untreated water is not advisable in a survival situation.

Materials

- Overheads #18 **Seven Steps to Survival** and #34 **Water**
- One per student pair, Student Handout #1 **Surface Water Activity**
- One per student pair, microscope
- One per student pair, portable water filter, pot and stove to boil water, iodine tablets, chemical water purifier tablets
- Three per student pair, cups
- Three per student pair, glass slides
- Three per student pair, cover slips or glass slides
- Tap water
- Surface water
- Microbiology references with illustrations of common microorganisms such as *A Guide to Microlife* by Kenneth G. Rainis and Bruce J. Russell (1996) or *Life in a Drop of Water* by George J. Schwartz

Procedure

Before Class

1. Collect surface water from a nearby creek, puddle, pond, or lake.

During Class

1. Explain to students that they will be examining tap water, untreated surface water, and treated surface water under the microscope to see if there is any difference.
2. Explain the importance of having safe water to drink both in every day life and in a survival situation using Overheads #8 and #34. Explain the various pathogens that can contaminate water.
3. Explain how to treat water in a survival situation.
4. Divide students into pairs, and distribute water purification tablets, filters, etc. so all will be used. Emphasize the importance of reading directions on products.
5. Distribute and explain Student Handout #1.
6. Fill a cup with tap water and a cup with surface water for each pair of students, making sure each pair has enough surface water so that they can treat half of it.
7. Distribute materials and have students complete activity.
8. Debrief, asking students to explain how they treated their water, and what they found under the microscope. Emphasize the importance of treating water, especially in survival situations.

Extensions

1. Have a local person who treats the water explain his/her job.
2. Visit the local water treatment facility.
3. Have a health professional give a talk on the signs and symptoms of giardia.
4. Have students research the effectiveness of various water treatments.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing

Science A-4 Observable natural events, A-12 Biological diversity, A-14 Living things and their environments, B-1 Scientific processes

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed choices, D-1 Responsible decisions, D-2 Safe and healthy environments

Library/Information Literacy B-3 Access information

Water Lab is based on a lesson created by Christine L. Case, Microbiology Professor, Skyline College, Seattle, Washington.

Name: ________________________________ Date: ____________________

Surface Water Activity

1. Take half of the surface water sample and treat it by either boiling vigorously for one minute, filtering, or following directions for chemical treatment.
2. Prepare a slide of each of the three water samples: tap water, untreated surface water, and treated surface water by:
   a. Placing a drop of water on a clean, dry slide
   b. Covering with another clean, dry slide or cover slip
3. Center the slide under the microscope. Without moving the slide, count the number of microorganisms and record the number in the table below. Also record the number of different organisms. Note any other observations.

Water Source	**Total # of Organisms**	**# Different Organisms**	**Observations**
Tap water			
Untreated surface water			
Treated surface water			

4. Compare your observations of the tap water, untreated surface water, and treated surface water. How do they differ? Why?

5. Make a drawing below of a microorganism you saw on a slide.

6. Using available reference materials, research the organism you drew. Next to your drawing, briefly summarize the results of your research. If the information is available, include a description of each organism's effect on human health.

Survival Food

Time: 240 minutes over five days

Overview

Identify edible and poisonous wild food using field work and research.

Objectives

After completing this activity, students should be able to:

1. Identify two edible and two poisonous plants and animals found locally.
2. Describe identifying characteristics, edible parts, cautions, and seasonal variations for one local wild edible plant or animal.

Materials

- Overheads # 18 **Seven Steps to Survival** and #35 **Food**
- One per group, notebook or journal
- One or more per group, plant and animal identification books
- Edible wild plant and animal identification experts
- Adult helpers
- Camera, video or still (optional)
- Edible plant and identification area. (Collecting plants and animals is not legal on all public land or may be environmentally destructive to an area. Adjust the activity to fit your area.)

Procedure

1. Explain to students that they will be learning how to identify edible and poisonous wild food in their area.
2. Divide the class into groups of three to five students and explain the importance of knowing what NOT to eat as well as what to eat, and the value of learning about edible plants in your area. Show and discuss Overheads #18 and #35.
3. Have groups generate and prioritize a list of questions they would like answered about plants and animals.
4. Have groups identify sources of information such as books, local experts, Internet sites, and government agencies.
5. Have students share results and determine which experts they would like to invite to class to answer students' questions.
6. Have students invite experts to participate in a field trip.
7. Organize the field trip with parent helpers and experts to seek, identify, and collect local wild edible plants and animals.
8. Have each student create a poster or card with a narrative and picture(s) that includes identification, edible parts, cautions, seasonal variations, and common uses. Ideally, plant identification should take place at least twice a year, once in the spring when the plants are new and again in the winter when they are dormant. This gives students a better idea of what the plants look like year-round.

Extensions

1. Include information on how to locate and prepare local edible plants and animals.
2. Gather local edibles, then prepare, sample, and describe the taste of each item.
3. Prepare a meal of local edibles and invite the community.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing and speaking, A-2 Writing, B-1 Comprehend meaning, C-1 Make choices, C-2 Project organization

Science D-1 Apply knowledge, D-6 Reasoned decisions

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed choices, D-1 Responsible decisions, D-2 Safe and healthy environments

Play!

Time: 20 minutes

Overview

Make choices to explore how Play affects survival situations.

Objective

After completing this activity, students should be able to list eight things that can help maintain the will to live.

Materials

- Overheads #18 **Seven Steps to Survival** and #36 **Play**
- One per student, Student Handout #1 **Play Helps You Live!**

Procedure

Before Class

1. Complete Activity #4 **Seven Steps and Dersu Uzala.**

During Class

1. Explain to students that they will be learning things that can help maintain the will to live.
2. Show Overheads #18 and #36 and discuss the different ways Play can help in a survival situation.
3. Distribute and have students complete Student Handout #1.
4. Have students draw a picture based on the handout or write a story using as many of the terms as possible.

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing, A-2 Writing conventions, A-4 Writing and speaking with purpose, B-1 Meaning from written, oral, and visual text, D-1-A Personal experience and prior knowledge, D-2 Evaluating information

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions

Arts A-1 Participate in the arts

Name: ______________________________ Date: ________________

Play Helps You Live!

Imagine you are in a survival situation. Circle the things in the list below that would help you survive. Cross out the things that would not help you.

Sing
Complain
Cheer each other up
Live one day at a time
Think the worst
Smile
Collect rainwater
Give up hope
Tell jokes and stories
Think a lot about the cold
Feel sorry for yourself
Look for food
Use something shiny as a signal mirror
Build a fire
Sit and stare into the fire until it burns away
Be creative and think
Drink two bottles of beer
Build a shelter
Get rid of junk in your pockets
Break into groups and separate
Take inventory of what you have
Get really mad
Give up
Do nothing
Line up 3 PFDs on the beach as a signal
Eat all your food at once
Lie down to sleep until rescued
Drink all your water (12 pints) at once
Gather firewood
Break into groups, each with a task
Make up a game and play it
Check for injuries
Give first aid
Make a survival plan
Smoke marijuana
Get mad at the others and leave
Make snow angels
Don't eat anything
Don't drink any water
Hide what you have (don't share)
Pray
Eat worms
Make up songs
Cry
Think about ways to change your life after rescue
Make a list of priorities
Search area for helpful items
Eat snow

Play Helps You Live!

Sing
~~Complain~~
Cheer each other up
Live one day at a time
~~Think the worst~~
Smile
Collect rainwater
~~Give up hope~~
Tell jokes and stories
~~Think a lot about the cold~~
~~Feel sorry for yourself~~
Look for food
Use something shiny as a signal mirror
Build a fire
~~Sit and stare into the fire until it burns away~~
Be creative and think
~~Drink two bottles of beer~~
Build a shelter
~~Get rid of junk in your pockets~~
~~Break into groups and separate~~
Take inventory of what you have
~~Get really mad~~
~~Give up~~
~~Do nothing~~
Line up 3 PFDs on the beach as a signal
~~Eat all your food at once~~
~~Lie down to sleep until rescued~~
~~Drink all your water (12 pints) at once~~
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Break into groups, each with a task
Make up a game and play it
Check for injuries
Give first aid
Make a survival plan
~~Smoke marijuana~~
~~Get mad at the others and leave~~
~~Make snow angels~~
~~Don't eat anything~~
~~Don't drink any water~~
~~Hide what you have (don't share)~~
Pray
~~Eat worms~~
Make up songs
~~Cry~~
Think about ways to change your life after rescue
Make a list of priorities
Search area for helpful items
~~Eat snow~~

To Build a Fire

Time: 90-180 minutes

Overview
Use local materials to build and sustain a survival fire.

Objectives
After completing this activity, students should be able to:

1. List the three categories of fire building materials.
2. Explain the difference between tinder, kindling, and fuel.
3. Identify local materials that can be used as tinder, kindling, and fuel.
4. Demonstrate how to combine tinder, kindling, and fuel to build a survival fire.
5. Boil water on their fire.

Materials
- "To Build a Fire," short story by Jack London
- Overheads #37 **Fire Building Materials** and #38 **Fire Building Techniques**
- One per group, Student Handout #1 **Building a Fire**
- Sources of flame/spark (matches, lighter, convex lens, mechanical starter like a flint and steel, or magnesium fire starter)
- Commercial fire starters
- Small collection of tinder, kindling, and fuel for classroom
- Area where tinder, kindling, and fuel can be gathered
- Safe area to build fires
- One per group, coffee can or pot to boil water in
- Cups for hot chocolate
- Hot chocolate mix
- Water and shovels to put out fires

Procedure

Before Class
1. Select and prepare a site for fire building.

During Class
1. Explain to students that they will be practicing building survival fires.
2. Read Jack London's "To Build a Fire" or excerpts of the cheechako's fire building efforts after he fell through the ice. Emphasize the risk the man took traveling alone in such cold weather.
3. Emphasize the importance of knowing how to build a fire. Explain the three categories of fire building materials and how to build a fire using Overheads #37 and #38. Some students may be so used to building fires that this lesson may not interest them, but encourage them that fire building is often very different in a survival situation with limited fire building materials, especially if they are wet or snow covered.
4. Divide the class into groups and distribute a pile of mixed fire building materials to each group. Explain that each group will practice arranging fire building materials but not lighting them indoors. Have students divide the materials into three categories: tinder, kindling, and fuel.
5. Distribute and review Student Handout #1 and have groups build a variety of fire structures, demonstrating proper use of the materials.
6. Discuss locally available materials that could be used in each category.
7. Distribute pots or coffee cans with water in them. Explain to students that they will need to build a fire and boil water so they can have some hot chocolate.
8. Go to the fire building area and have students build fires, boil water, and make hot chocolate.

9. Gather groups together and have them visit each other's fires. Emphasize how much work it takes to keep a fire going.
10. Have students put fires out and redistribute unused fire-building materials.
11. Debrief the activity, comparing the various fire starting materials, and emphasizing the importance of gathering enough material before starting the fire.

This activity addresses Alaska Content Standards:

Science B-1 Processes of science, B-2 Conduct scientific investigations, B-3 Different ways, B-4 Collaborative effort, B-6 Strict adherence to safety procedures

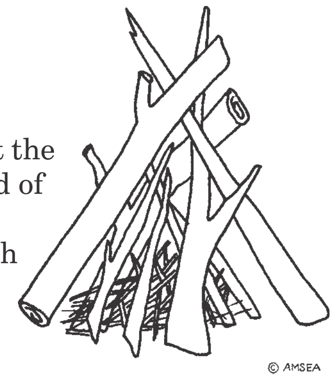
Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions, B-1 Risks and consequences

Building a Fire

Three Fire Building Methods

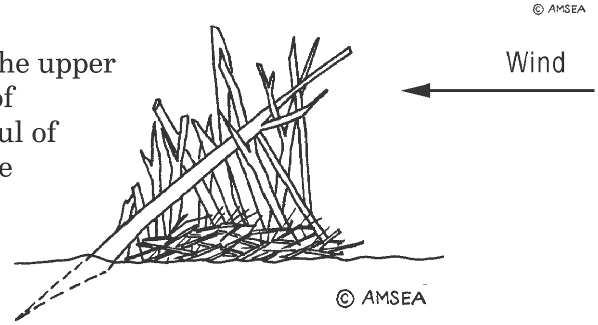
Teepee or Cone

Arrange tinder and a few sticks of kindling in the shape of a teepee, and light the center. Continue to add kindling as the core burns. When there is a good bed of embers, add fuel-sized pieces. As the core burns away, parts of the cone will fall inward, feeding the heart of the fire. This type of fire will burn even with wet wood.



Lean-to

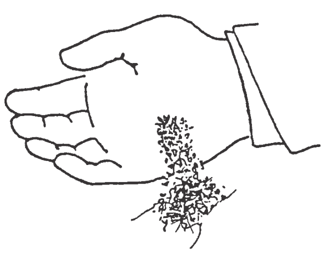
Push a green stick into the ground at a 30° angle with the upper end of the stick pointing against the wind. Lean pieces of kindling against the lean-to stick. Place at least a handful of tinder deep inside the lean-to and light the tinder. As the kindling catches fire, add more kindling until you have built up a good bed of embers. Then add fuel.



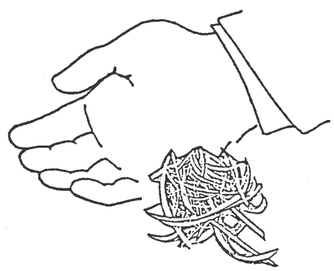
Fire on Saturated Ground or Snow

If the ground is wet or snow-covered you need to build a base for your fire. Take green logs or sticks and lay them side-by-side on the ground or snow. Use one or more layers, laying the top logs in a direction opposite those of the layer below.

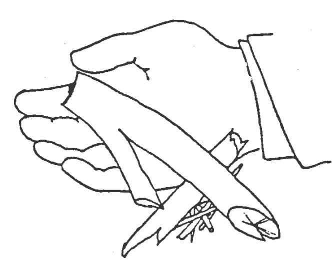
1. Build a fire using one of the techniques above.
2. Look for a spot protected from the wind and rain, and safe for fire building. If you are in a survival situation, your fire should be near your shelter, concentrating heat in your direction. Have your fire-building spot approved by an adult before you go to the next step.
3. Gather enough tinder, kindling, and fuel to build a fire that will boil your water.
4. Larger fuel should be added sparingly. You don't need a bonfire to boil water and cook food.



Tinder



Kindling



Fuel

Marooned!

Time: 90 minutes

Overview

Apply survival skills in a simulation on a fictitious island.

Objectives

After completing this activity, students should be able to:

1. Apply the Seven Steps to Survival in a simulated survival situation.
2. Apply five criteria for locating emergency shelters.
3. Describe techniques for dealing with interpersonal problems in a survival situation.

Materials

- Overhead #18 **Seven Steps to Survival**
- One per group, Student Handout #1 **Marooned! Now What?**
- Butcher paper
- Markers

Procedure

1. Explain to students that they will be drawing an imaginary island. Don't tell them this will be a survival situation or they will "stack the deck" in their favor.
2. Organize small groups, and distribute butcher paper and markers to each.
3. Explain that each group will draw an imaginary island. This island:
   - Supports human life
   - Is in the same climatic zone that they live in now
   - Has no existing facilities or man-made structures
4. Have students draw their island, and all of its resources and dangers.
5. Review the Seven Steps to Survival using Overhead #18.
6. Allow groups a few minutes to add anything they need to their islands. Collect the markers.
7. Present the following scenario: Each group is suddenly cast away on their island until rescuers arrive (an unknown time). No one is hurt, but the only resources they have are what they are wearing and the items drawn on their island.
8. Distribute and have students complete Student Handout #1.
9. When they are done, discuss:
   - How and why groups chose the camp location
   - Which decisions were easiest and why
   - Which decisions were hardest and why
   - Did any groups pick a leader? Why or why not?
   - What emotions did people feel when they were discussing their plans and making decisions? How could these feelings affect the will to live?
   - List strategies for dealing with problem people
10. Wrap-up with a review of the Seven Steps to Survival. Emphasize the need for having a survival plan during an emergency.

This activity addresses Alaska Content Standards:

Geography A-2 Making maps, A-3 Maps as changing documents, B-1 Geographic characteristics of place

Government and Citizenship A-1 Need for government, A-2 Fundamental political ideas, A-3 Organizing government, E-1 Characteristics of effective citizens, E-2 Citizens' responsibilities, E-3 Political participation, E-4 Selecting leaders, E-7 Solving problems and resolving conflict

Skills for a Healthy Life A-1 Personal well-being, A-3 Injury prevention

Cultural Standards D-5 Solutions to everyday problems, E-2 Ecology and geography of bio-region

Name: ____________________________ Date: ____________________

Marooned! Now What?

Inventory

Whew! You are all lucky to be alive here on this island. Now you are wondering how you will survive. How will you stay warm? Is there fresh water and food? Where will you sleep? Will someone rescue you soon? Use the Seven Steps to Survival. You have recognized the emergency, now take inventory.

A. Make a list of everything you have.

B. What are your immediate needs? What must you have to survive, even for a few days? List at least three things in order of importance.

1.

2.

3.

C. Now, look over your island and decide how you will meet the needs you listed above. Describe your decisions below.

1.

2.

3.

The Business of Surviving

A. Choose a spot on the island where your group will set up camp. Assume that you will be stranded for several days. Mark the spot on your island.

B. Write a short paragraph explaining why you have chosen that spot, including:

- Five important criteria to consider when choosing a spot for an emergency shelter
- Which of the Seven Steps to Survival you considered in your decision
- Ideas that were offered that didn't agree with the majority

C. What jobs need to be done immediately in order to survive?

D. How does your group intend to handle or divide the work?

E. Will you have a leader?

F. How will you deal with the following emotional issues? Write down your ideas.

- The person who denies there is a real emergency
- The person who gets depressed and wants to give up
- The person who gets angry all the time
- The person who never agrees with the group's plan
- The person who is so anxious they can't function

Decisions, Decisions!

Time: 45 minutes

Overview

Play a game that simulates a survival situation.

Objective

After completing this activity, students should be able to apply the Seven Steps to Survival to a simulated and real emergency.

Materials

- One per student, 3 x 5 index card
- One per pair of students, **Decisions, Decisions! situation card** (make from Template #1)
- One per pair of students, Student Handout #1 **Decisions, Decisions! Scoring Guide** and #2 **Boy Bounces Back after Five Days on Hill**

Procedure

1. Explain to students that they will be playing a simulation game called, "Decisions, Decisions!"
2. Break the class into pairs and give each pair two 3 x 5 cards.
3. On one of the cards, have each pair list:

- All the clothes they are wearing or have with them in their backpack or purse.
- All the items they have in their pockets. If they chose not to write something down, like candy or a lighter, then it will not be a part of the game.
- Who (outside the school) knows where they are now and when they are expected home.
- Their emotional state (mood, attitude, general feelings about life).

4. Distribute a **Decisions, Decisions! situation card** to each pair. Allow 15 to 20 minutes for them to figure out how they will survive using everything that is on their 3 x 5 cards plus the natural materials they would find in the area described in their scenario. Allow them to change or add four pieces of clothing (since most students don't go to school in what they might wear on a land adventure).
5. Have each pair spend five minutes listing the steps they will take to survive the situation on their second 3 x 5 card.
6. Distribute Student Handout #1 and have students add or subtract points for everything listed on their 3 x 5 cards. Recommended points for survival for each situation are 55 or more.
7. Discuss how the simulation is like a real situation and the ways it is different.
8. Distribute Student Handout #2 and have students read it.
9. Generate a list of things that helped Jeffrey Young. Score them using the scoring guide. How did Jeffrey measure up?

This activity addresses Alaska Content Standards:

Language Arts A-1 Effective writing, A-4 Writing and speaking with purpose, B-1 Meaning from written, oral, and visual text, B-3 Relate to practical purposes, D-1 Developing a logical position, D-1-A Personal experience and prior knowledge, D-1-D Analyzing information, D-2 Evaluating information

Geography A-6 Geographical problems and solutions, B-1 Geographic characteristics of place, B-6 Making informed decisions about place, F-6 Geography across the curriculum

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions, B-1 Risks and consequences, B-5 Evaluating information, C-5 Effects of attitude and behavior, D-1 Responsible decisions, D-2 Safe and healthy environments

Decisions, Decisions! Situation Cards

A Walk Up the Mountain
You and a friend are walking up ____________ trail when a thick fog sets in. You become separated, and while searching for him/her in the mist, you slide off the trail into a steep 30-foot-deep gully. Your ankle is twisted and you can only move by crawling.

A Different Path
When the weather starts to turn windy and cold you decide to take a short cut home, knowing you will have to cross a stream. When you reach the stream it is overflowing and not safe to cross. When you turn back you can't find the main trail in the fading light.

A Short Ride
You and a friend go four wheeling for a few hours on a well-known trail outside of your town/village. It's only after you run out of gas that you realize your brother and his friends must have used your four wheeler without asking permission. You're about 20 miles from home and it's dark.

A Family Camp
Your family is camping at ____________ when you go for a walk after dinner. You're not really paying attention to where you're going and you're not sure how to get back to camp.

A Berry Picking Disaster
It is a bright sunny day when your cousin and you leave to pick berries near ____________ Road. While you are walking back you see a bear on the trail ahead. You decide to take another way, which you think you know, but you become lost.

A Walk on the Beach
You and your cousin are walking on ____________ beach when you realize that the tide has blocked you from your camp. If you search for a trail in the trees you might find your way back but you know the way is thickly wooded.

Decisions, Decisions! Scoring Guide

Use the following list to find your survival score.

Clothing	
Wool or warm hat	10
No hat	–10
Fleece or nylon pants	5
Denim jeans	–5
Fleece, wool, or nylon jacket	5
Cotton jacket	–5
Boots	5
Street shoes	5
Rain coat	10
Total	

Emotional State/Seven Steps to Survival	
Positive attitude	20
Negative attitude	–20
Recognize there is a problem	10
Inventory	10
Shelter	10
Signals	10
Water	10
Food	10
Play	10
Total	

Daily Sitka Sentinel, August 25, 1987

Boy Bounces Back After Five 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 rescue 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.

Used with permission from the Daily Sitka Sentinel.

Wahoo!

Time: 35-45 minutes

Overview

Review volume objectives with a board game.

Materials

- One per group of four students, **Wahoo! Game Board** (make from Templates #1 and #2 or borrow whole game from AMSEA)
- Two per group of four students, pieces of 8 $\frac{1}{2}$" x 11" cardboard (if making own game boards)
- Glue and a way to laminate (if making own game boards)
- One per group of four students, white die and red die
- One set per group of four students, **Wahoo! cards** (make from Template #3)
- One per group of four students, **game thermometer** (make from Template #4)
- One per group of four students, Student Handout #1 **Directions for Play**

Procedure

Before Class

1. Make **Wahoo! game boards.** For each board, make a copy of the **Wahoo! game board top and bottom,** and glue each to a piece of cardboard so the six rows and six columns of squares line up. Color dice along the top red. Laminate.
2. Make a set of **Wahoo! cards** for each board by copying the **Wahoo! card** template onto heavy paper and cutting along the lines. If making multiple sets, use different colors to help keep sets separate. Shuffle cards before using.
3. Make a **Wahoo! game thermometer** for each board.

During Class

1. Explain to students that they will be playing a board game to review land emergencies.
2. Divide class into groups of four and have each group form two teams.
3. Provide each group with a game board, one red and one white die, one set of cards, and one game thermometer.
4. Place cards face down to cover every square on the board.
5. Follow the directions on Student Handout #1 **Directions for Play.**

   Note: The treatment here is in accordance with the *State of Alaska Cold Injuries and Cold Water Near-Drowning Guidelines,* revised January 1996. Compare it with your current state recommendations and adjust the information as necessary.

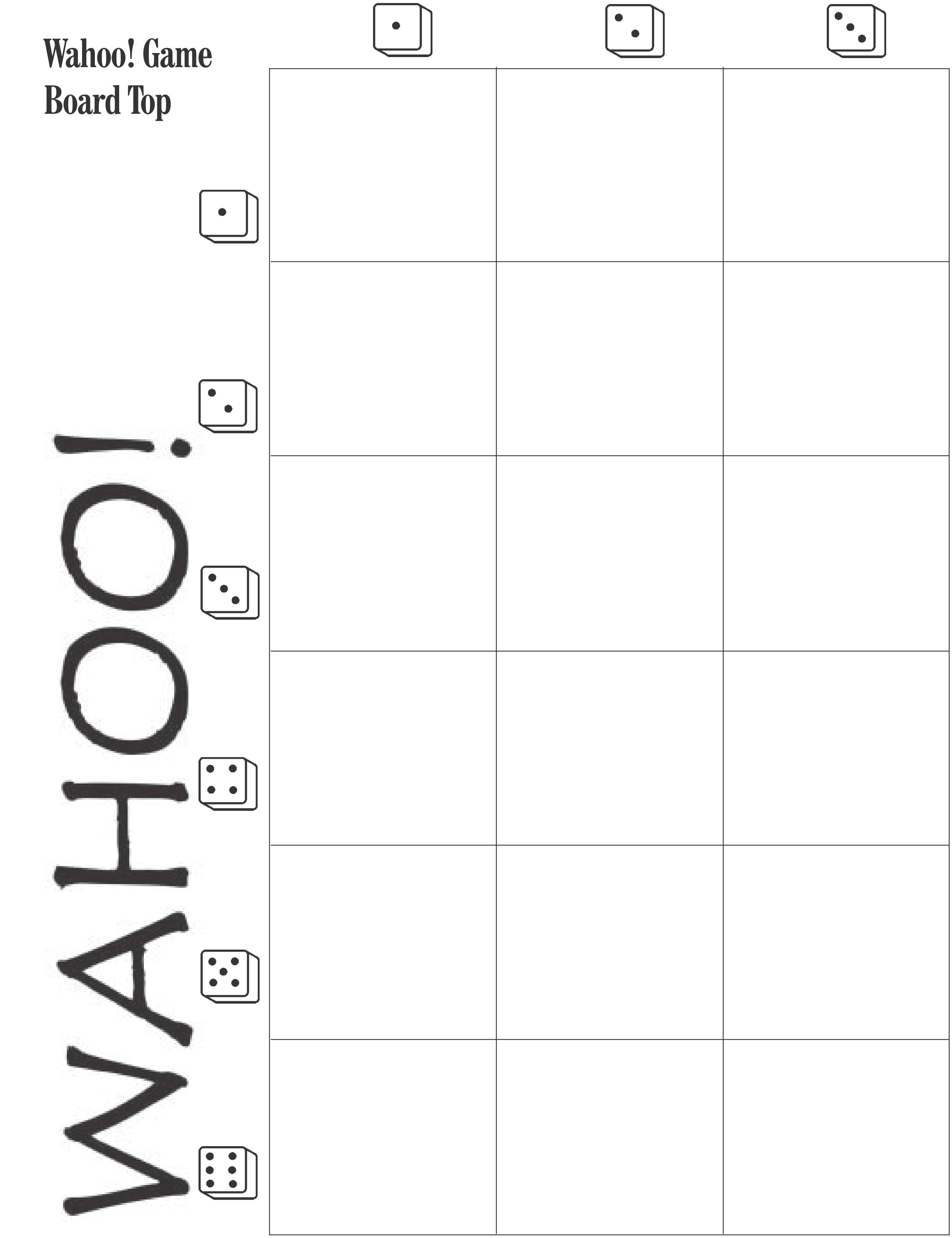
This activity addresses Alaska Content Standards:

Language Arts B-1 Meaning from written, oral, and visual text

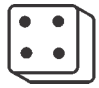
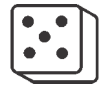
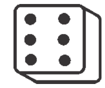
Science D-1, 3 Practical applications of scientific knowledge

Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed choices, B-1 Risks and consequences, D-2 Safe and healthy environments

Wahoo! Game Board Top



Wahoo! Game Board Bottom

Wahoo! Cards

If you feel cold what can you do to avoid hypothermia? *Eat, drink water, exercise, insulate your high heat loss areas better, get out of the weather*	Where should you carry a personal survival kit? *On your person*	Two types of emergencies are . . . *Immediate onset, delayed onset*
List four things to do for a person who is hypothermic. *Be gentle, put a hat on them, move them to a warm place, remove wet clothes or cover with plastic, insulate their high heat loss areas, lightly cover their mouth with a scarf, call for help*	What is your primary shelter? *The clothes you are wearing*	An adequate shelter will . . . *Insulate you from environment, protect you from the elements, and help prevent heat loss*
Name four fabrics that insulate well in a cold environment? *Wool, polypropylene, synthetic fleece, silk, fur*	When dressing in layers, what are the three basic layers? *Inner, middle, and outer/shell*	What is the recommended height of an SOS? How wide should the sides of the lines be? *18 feet, 3 feet*
Name the five high heat loss areas. *Head, neck, underarms, sides of the chest, and groin*	A personal survival kit should contain items from what four categories? *Shelter aids, signals aids, personal health needs, fire starter*	For an SOS the ratio of height to thickness of each line in SOS should be . . . *6 to 1*
What fabric does not insulate well when wet? *Cotton*	A trip plan should contain the following information. *Who is going, how you are getting there, what you are going to do along the way and at destination, where you are going and your route, and when you expect to get to your destination and return home*	An emergency signal must do what two things? *Convey a message and attract attention*
Define hypothermia. *Cooling of the body's core*	The Seven Steps to Survival in order of importance are: *Recognition, inventory, shelter, signals, water, food, play*	What is the minimum amount of water that the average adult needs each day to function well? *About 2-4 quarts*

To be effective, a visual signal must be . . . *Bigger, brighter, and different, and send a message that help is needed*	How much time should water be boiled for before it is safe to drink? *A rolling boil for a minimum of one minute*	Name two signals that are visible from land or water. *Three things hanging, mirror, waving both your arms, three fires*
What is the signal that can be seen the farthest on a clear windy day? *Mirror*	All signals are one of two types, what are they? *Active and passive*	Food should not be consumed unless you have ? *Water (exception: berries)*
At what step in the Seven Steps do you check for and treat injuries? *Inventory*	List four signs and symptoms of hypothermia. *Impaired judgment, shivering, not shivering and feeling cold to the touch, confusion, the "umbles," slow pulse, slow breathing, not responding to pain or voice, acting intoxicated*	List five steps you can take to reduce panic, fear, and depression in an emergency situation. *Recognize you can have a problem, get training, practice skills, file trip plans, check weather, have confidence in your creativity and resourcefulness*
What is the first thing you should check before planning an outing? *The weather (or whether or not you have permission to go)*	Give one example of an active signal *Flare, whistle, mirror, waving both your arms*	How often should you check your personal survival and comfort kits? *Before each outing, when it's been used, regularly during season*
When building a debris hut shelter, what is the first part you should build? *The floor*	Give one example of a passive signal. *SOS, ELT, PLB, three things hanging, strobe light*	Are the Seven Steps of Survival organized in priority? *Yes, but be flexible*
When do you review the Seven Steps to Survival? *Each time your situation changes*	Name two signals that are visible from the air. *SOS, mirror, strobe, three fires*	Why is Play an important part of the Seven Steps to Survival? *Helps with positive mental attitude, strengthens the will to live*

What is the most important psychological factor in an emergency? *The will to live*	What is the primary purpose of the middle layer? *To insulate*	Describe the steps in building a snow cave. *Locate good place, position for wind, dig curved entrance, dig cold air well and sleeping bench, make door, make ventilation holes in door and roof*
What is a comfort kit? *A container with items that will help in a survival situation. It may not be with you because it isn't on your person.*	What is the primary purpose of the outer layer? *To protect you from precipitation and wind*	What two emotions can negatively impact a survival situation? *Panic, depression, apathy*
Name one method of obtaining safe drinking water in a survival situation. *Boiling for one minute, filtering with a small micron filter*	Name three ways you can use a plastic bag to improve your shelter. *Body cover for the high heat loss areas, mattress, layer in ceiling of debris hut shelter, door, sleeping bag*	Name the three sizes of fire building materials from smallest to largest. *Tinder, kindling, fuel*
Is it OK to eat food that you think is edible in a survival situation? *No*	Describe the steps in building a debris hut shelter. *Thick floor, frame, thick sides and roof, door*	
What is the primary purpose of the inner layer? *To wick moisture away from your body*	Describe the steps in building a snow trench shelter *Locate or make windbreak, dig trench/cold air well, dig sleeping bench, build roof, make door, make ventilation holes*	

Wahoo! Game Thermometer

Fahrenheit	Celsius
98.6	37
96.8	36
95.0	35
93.2	34
91.4	33
89.6	32
87.8	31
86.0	30
85.2	29
82.4	28
80.6	27
78.8	26
66.0	25
71.6	22
64.4	18

Normal body temperature

Vigorous shivering, confusion, disorientation

Change in level of consciousness, decreased respiration rate, diminished shivering

Muscle rigidity, loss of consciousness, most shivering stops

Irregular heartbeat

Directions for Play

1. Place a card face down on each square on the board. Leave extra cards in a pile next to the board.
2. The first team rolls the dice. Place the red die at the top of the corresponding red column on the Wahoo! board. Place the white die next to the corresponding white row of the Wahoo! board. For example, if the team rolls a red 6 and a white 3, the red die would be placed at the top of the sixth column and the white die would be placed to the left of the third row.
3. A member of the opposite team reads out loud the question from the card located in the box where the row and column marked by the dice intersect. In the example, the card to read is at the intersection of the third row and the sixth column.
   - If the question is answered correctly, the team that answered keeps the card, says, "Wahoo!," and places the card in the lowest slot on their game thermometer. They give the dice to the other team.
   - If the team gives the wrong answer, the correct answer is read aloud, the card is returned to the game board face down, and the team passes the dice to the next team.
4. The first team to fill its game thermometer all the way to the top, or the team with the most cards after the board has been cleared or time runs out, wins.

Choices

Time: 20-30 minutes

Overview

Choose items and actions to take when planning a trip.

Objective

After completing this activity, students should be able to choose the most appropriate items or actions for an outdoor adventure.

Materials

- **Scenario cards** (make from Template #1)
- **Choices cards** (make from Template #2)

Procedure

Before Class

1. Make **Choices cards.** Copy pages duplex-to-duplex to produce 2-sided cards. Consider copying each set onto a different color paper so they will be easier to keep track of and sort. Blank cards are included so you can offer other options. Laminate the pairs of choices back-to-back.
2. Make **Scenario cards** (they are single-sided).

During Class

1. Explain to students that they will be choosing actions to prepare for and equipment to take on a day trip.
2. Review factors that contribute to a safe outdoor activity. Include clothing, personal survival kits, comfort kits, and trip plans.
3. Divide students into groups of three to five.
4. Give each group a **Scenario card** and a corresponding set of **Choices cards.**
5. Explain that each group will plan the trip described on their **Scenario card,** and then make a list of what to do and pack for that trip based on the options offered on their set of **Choices cards.**
    - Each **Choice card** presents two things to choose from. Students may choose one thing or neither.
    - They should consider space and weight considerations for their scenario. For example, all items for an all-day hiking trip must be carried in your pack, but you can take much more on a plane than on a snowmachine.
    - Help students decide what items are reasonable to take given real-life constraints.
6. When they are done, have each group describe their scenario to the class, what they chose, and why. Discussion points:
    - What is the most important thing they carry on their person and why
    - Which was the most difficult choice they had to make and why
    - Which was the easiest choice they had to make and why
    - What else they would have wanted on the boat and why

This activity addresses Alaska Content Standards:

Language Arts A-6 Using visual communication, D-1-A Personal experience and prior knowledge

Geography B-1 Geographic characteristics of place

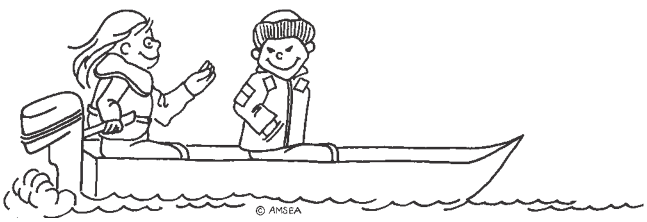
Skills for a Healthy Life A-1 Personal well-being, A-2 Healthy behaviors, A-3 Injury prevention, A-6 Making informed decisions, B-1 Risks and consequences

Cultural Standards D-5 Solutions to everyday problems, E-2 Ecology and geography of bio-region

Choices Scenario Cards

You are going on a five-day kayak trip in a remote area.

You are going on an all-day hiking trip.

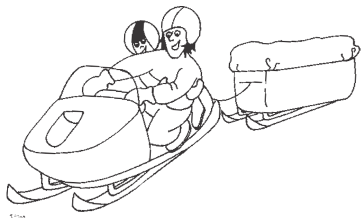
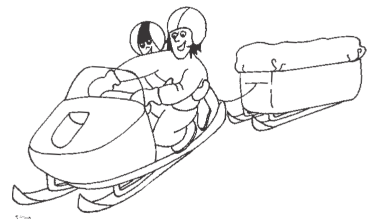
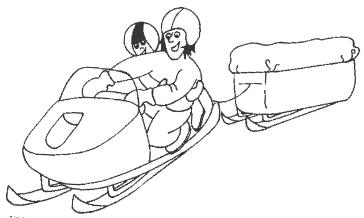
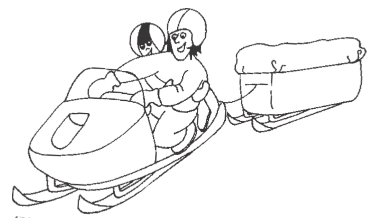
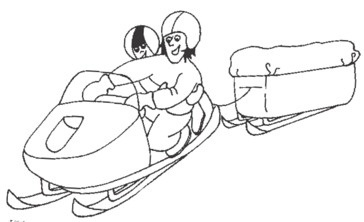
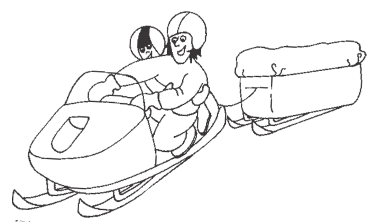
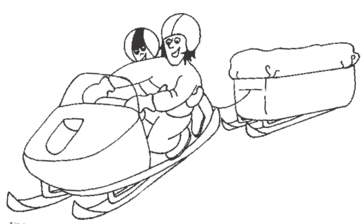
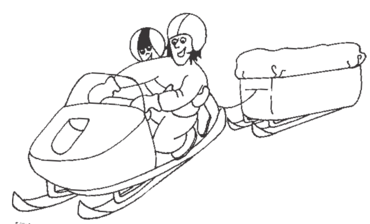
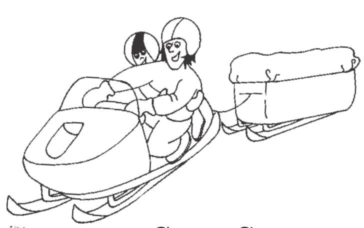
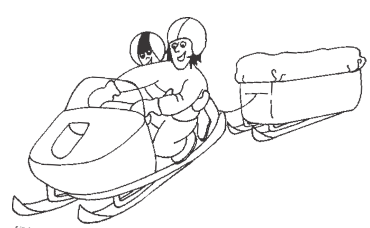


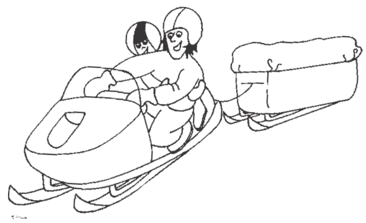
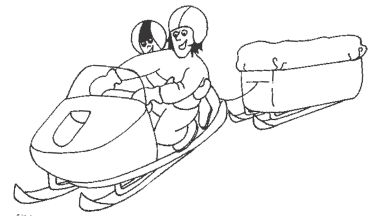
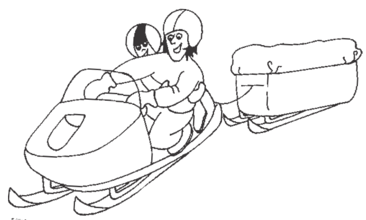
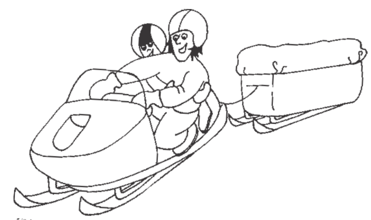
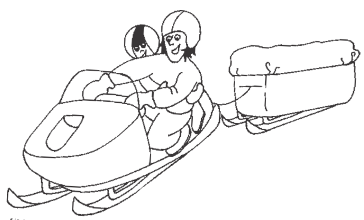
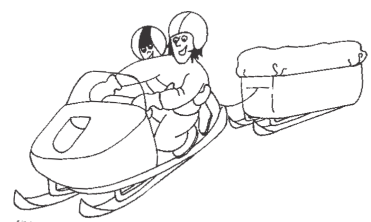
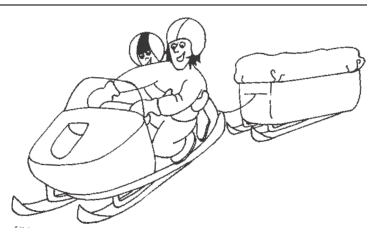
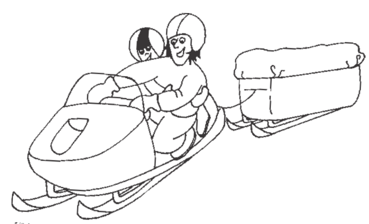
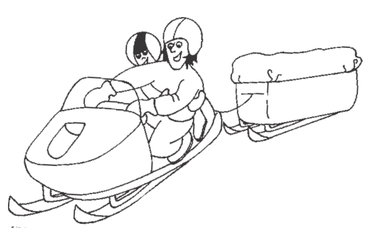
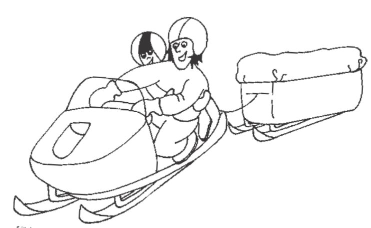
You are going out on an all-day trip to fish camp in a small boat.

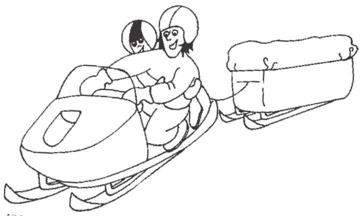
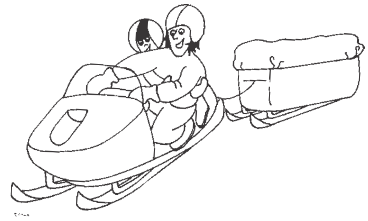
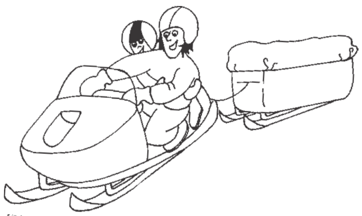
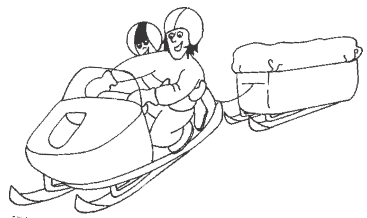
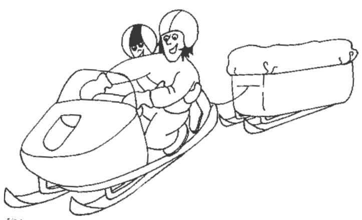
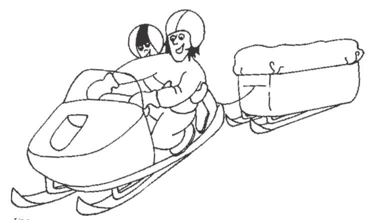
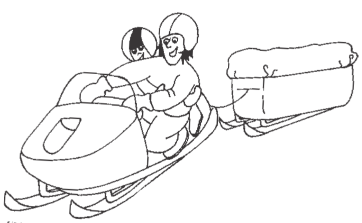
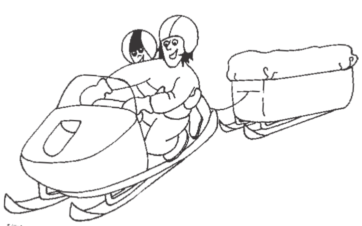
You have chartered a small plane to drop you off at a remote lake for the weekend.

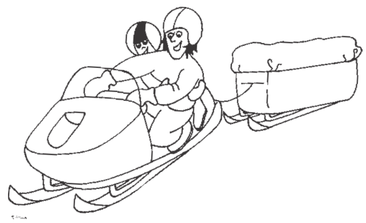
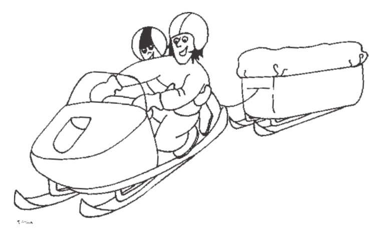
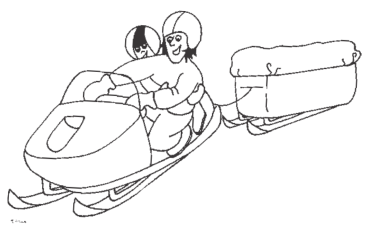
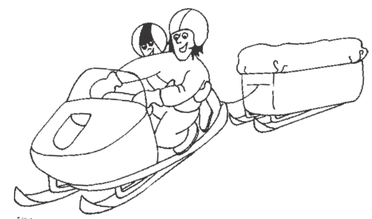
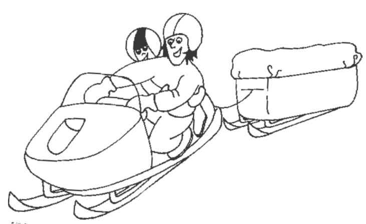
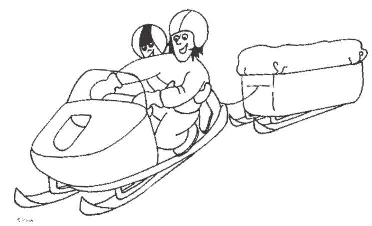
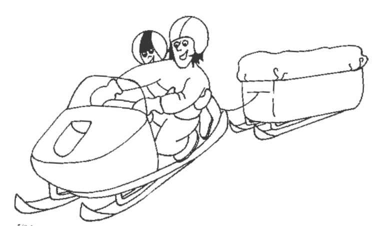
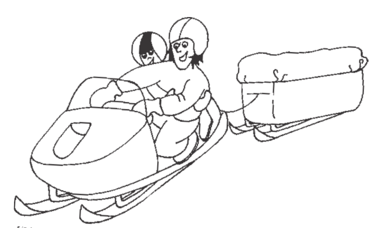
You are taking your snowmachine to a village 25 miles away for the day.

Choices Cards

 PFD—Inflatable Suspenders	 Orange Flagging
 Personal Locator Beacon	 Spare Drive Belt
 Personal Survival Kit	 Sandwich
 Sleeping Bag	 Camp Lantern
 Camp Stove	 Baseball Cap with Visor

 Mirror	 PFD—Flotation Coveralls
 Spare Headlight	 Hand-held VHF Radio
 Foil-Packed Freeze Dried Dinner	 Wallet
 Comfort/Equipment Kit	 Insulated Sleeping Pad
 Fleece Hat	 Cooking Pot

 Fleece Pullover	
 Flashlight	
 Space Blanket	
 Fire Starter	
	

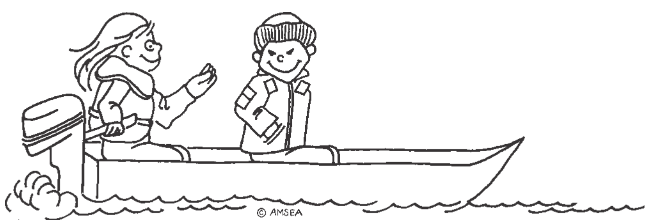
	 Sweatshirt
	 Candle and Matches
	 Plastic Garbage Bag
	 Hand-Held Flare
	

Sweatshirt

Baseball Cap

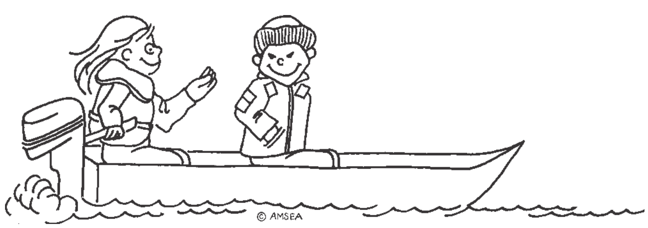
Rain Gear

Juice



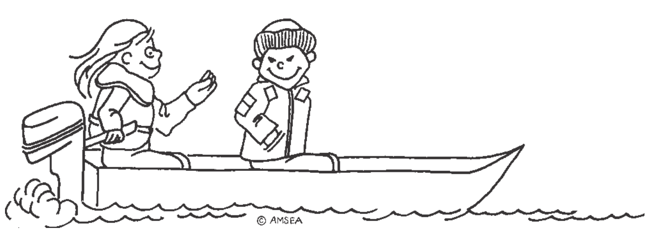
Camera

Flares



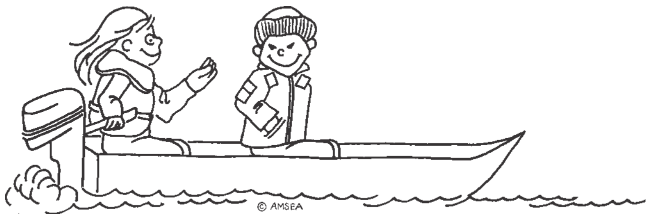
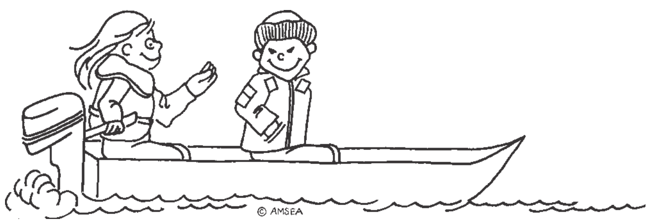
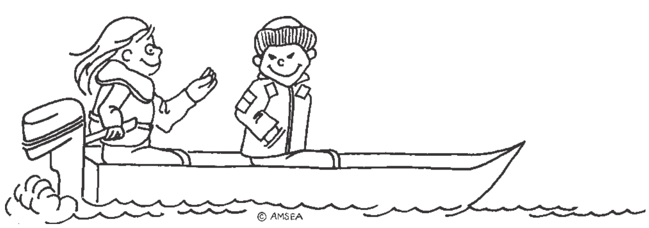
Oars

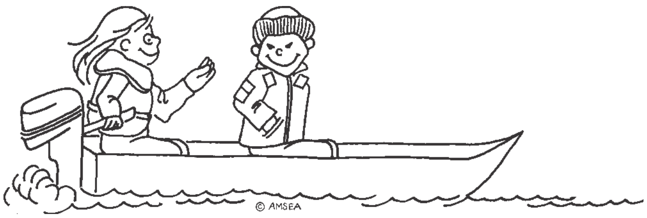
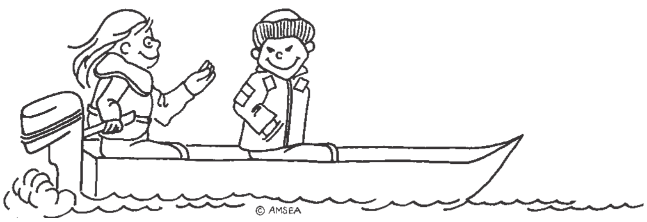
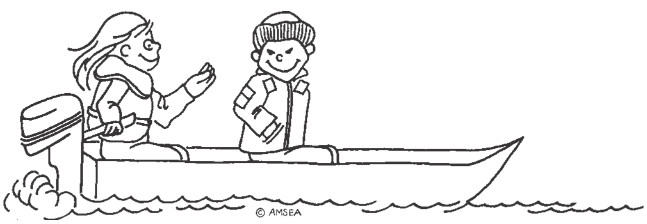
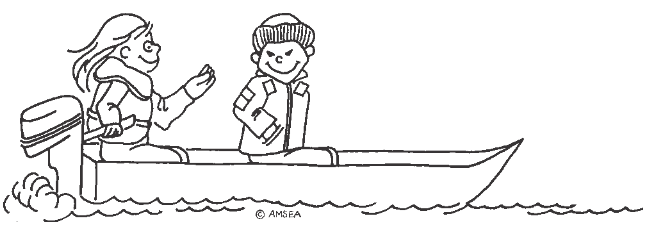
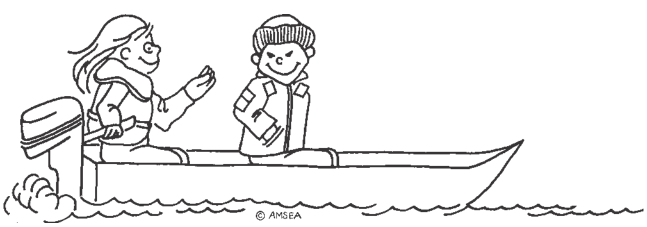
Space Blanket



Sneakers

PFD—Flotation Coveralls

 Fleece Hat	 Wool Sweater
 Beer	 Wind Breaker
 Orange Flagging	 Compass
 Plastic Garbage Bag	 Extra Gas
 PFD—Inflatable Jacket	 Boots

 Leave Trip Plan	
 Half-Pound of Candy	
	
	
	

	 Leave Note Saying Where You Are Going
	 Half-pound of Trail Mix
	
	
	

100 Feet of Twine

Insect Repellent

Folding Saw

Cotton Socks

2 Band-Aids™

Beer

Whistle

Half-Pound of Candy

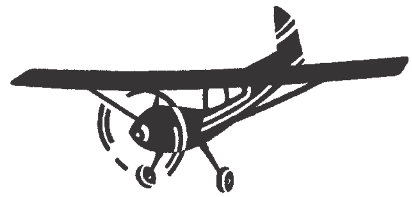
Leave Trip Plan

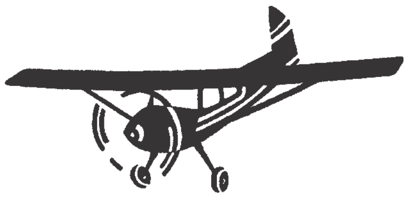
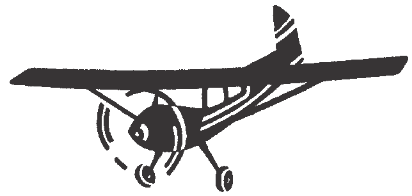
Hand-held VHF Radio

Whistle 	10 Feet of Rope 
Wool Socks 	Pocket Knife/ Leatherman™ Tool 
Juice 	First Aid Kit 
Half-Pound Dried Fish 	Orange Flagging 
Walkman™ Disc Player 	Leave a Note Saying Where You Are Going 

Compass 	
Baseball Cap 	
	
	
	

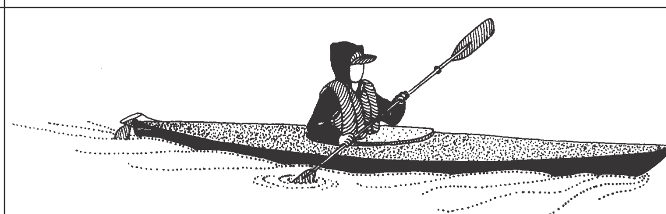
	Camera 
	Wool Hat 
	
	
	

 Rain Gear	 Candle and Matches
 Float Coat	 Snack
 Wool or Fleece Pants	 Baseball Cap
 Personal Survival Kit	 Beer
 Whistle	 Boots

 Flashlight	 Wind Breaker
 Pocket Knife/Leatherman™ Tool	 PFD—Inflatable Vest
 Wool Hat	 Cotton Jeans
 Juice	 Change of Clothes
 Sneakers	 Mirror

 Hand-held VHF Radio	
 Water Purification Tablets	
	
	
	

	 Walkman™ Disc Player
	 Insect Repellent
	
	
	

 Wool Socks	 Wool Hat
 PFD—Inflatable Jacket	 Flashlight
 Cotton Jeans	 Space Blanket
 Leave Trip plan	 Fire Starter
 Whistle	 Hand-held VHF Radio

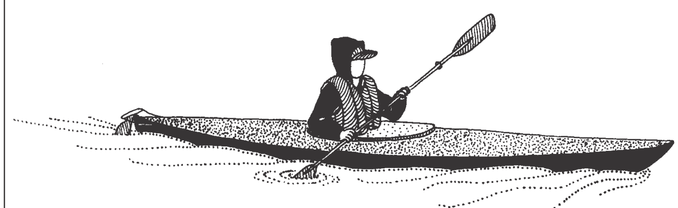
Baseball Cap

Cotton Socks

Candle and Matches

Wind Breaker

Plastic Garbage Bag



Wool or Fleece Pants

Hand-held Flare

Leave Note Saying Where You Are Going

Tape Deck

Mirror

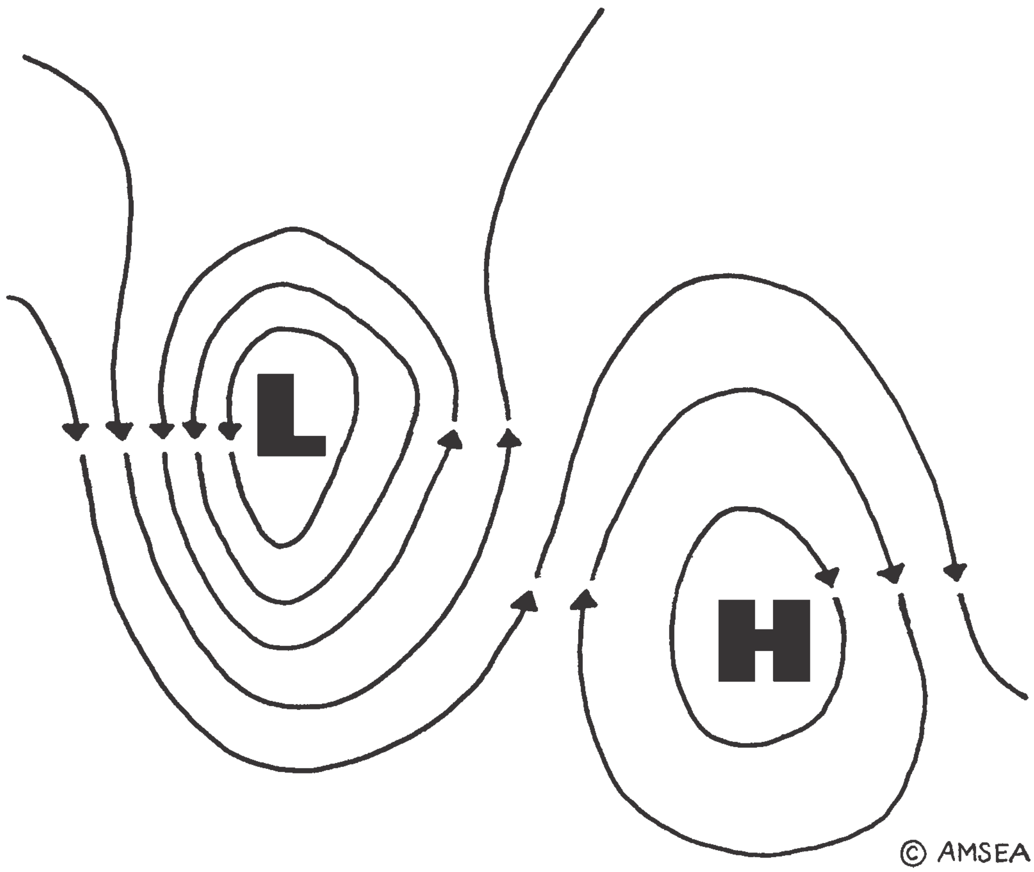
 Aerial Flares	
 Extra Food	
	
	
	

	 Orange Flagging
	 Beer
	
	
	

Overhead Masters

Air Flow in the Northern Hemisphere

- **Counterclockwise in a low pressure system**
- **Clockwise in a high pressure system**

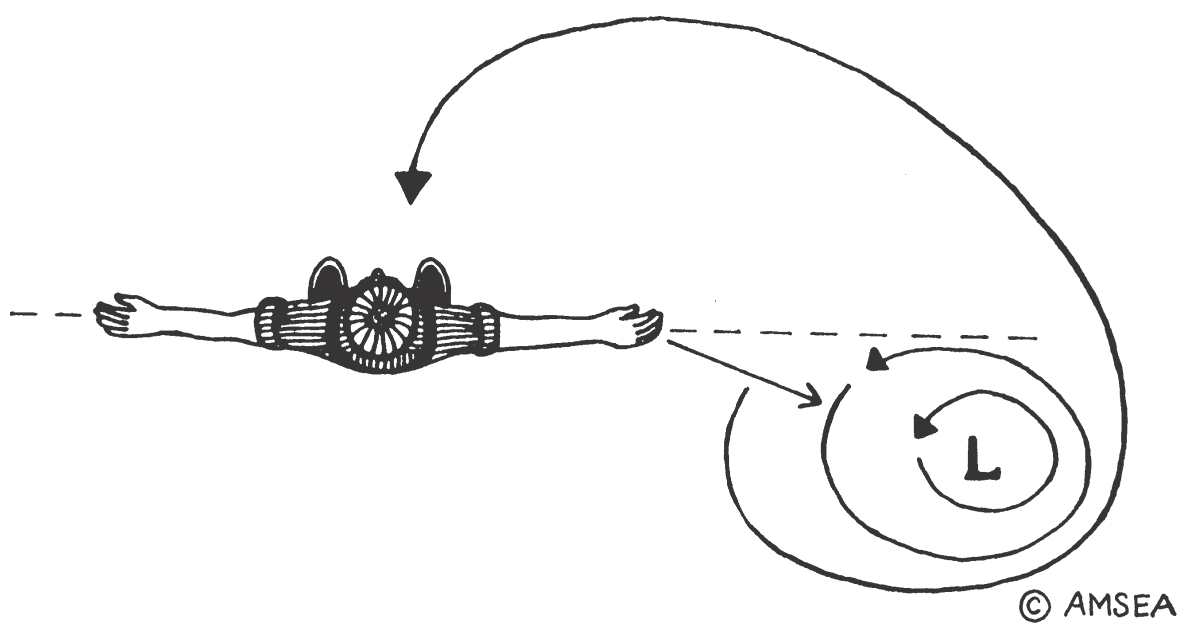


Buys-Ballot's Law

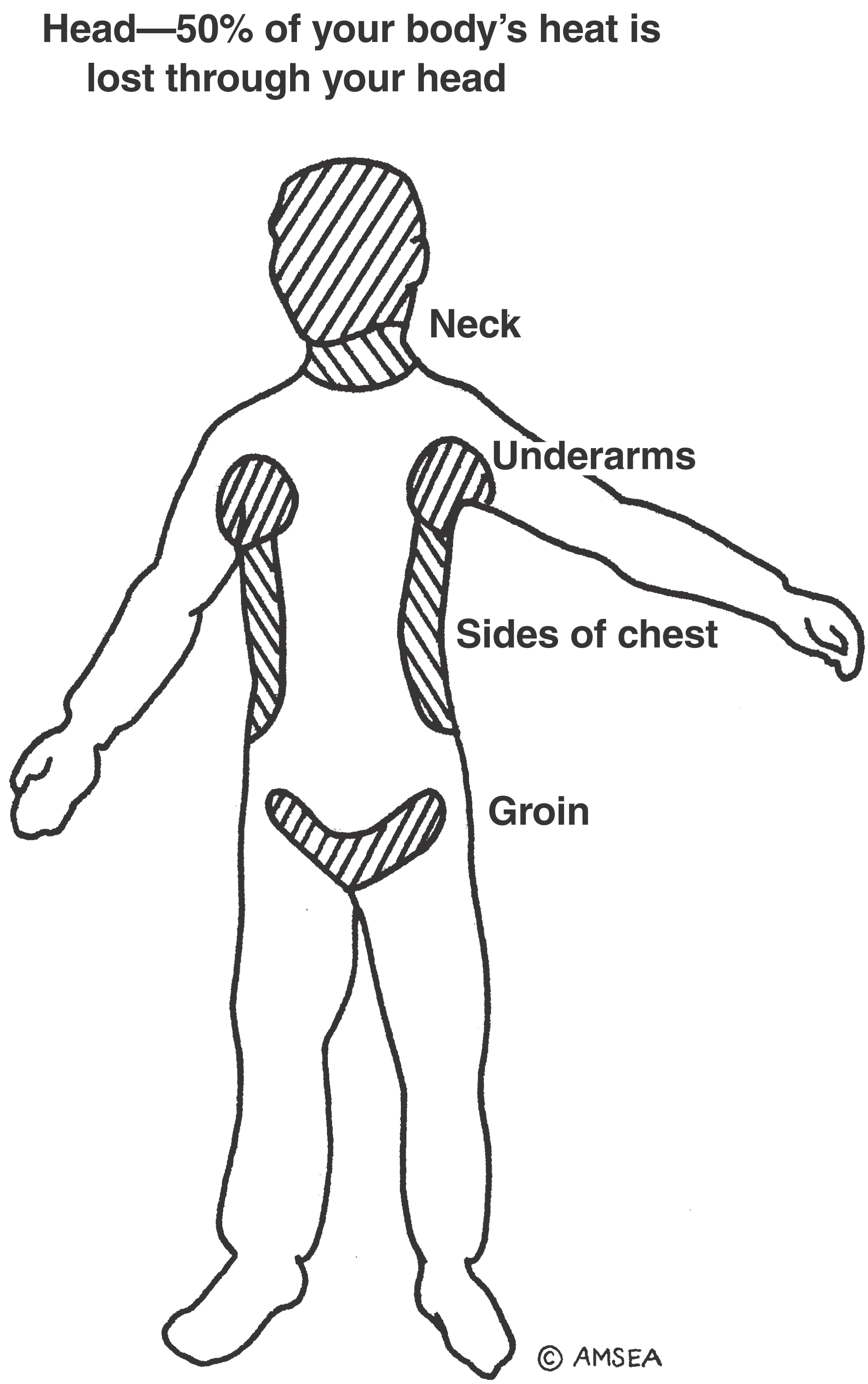
Locate the center of a storm by using Buys-Ballot's Law

This law was formulated in 1857 by the Dutch meteorologist Buys-Ballot, and is also known as the Baric Wind Law

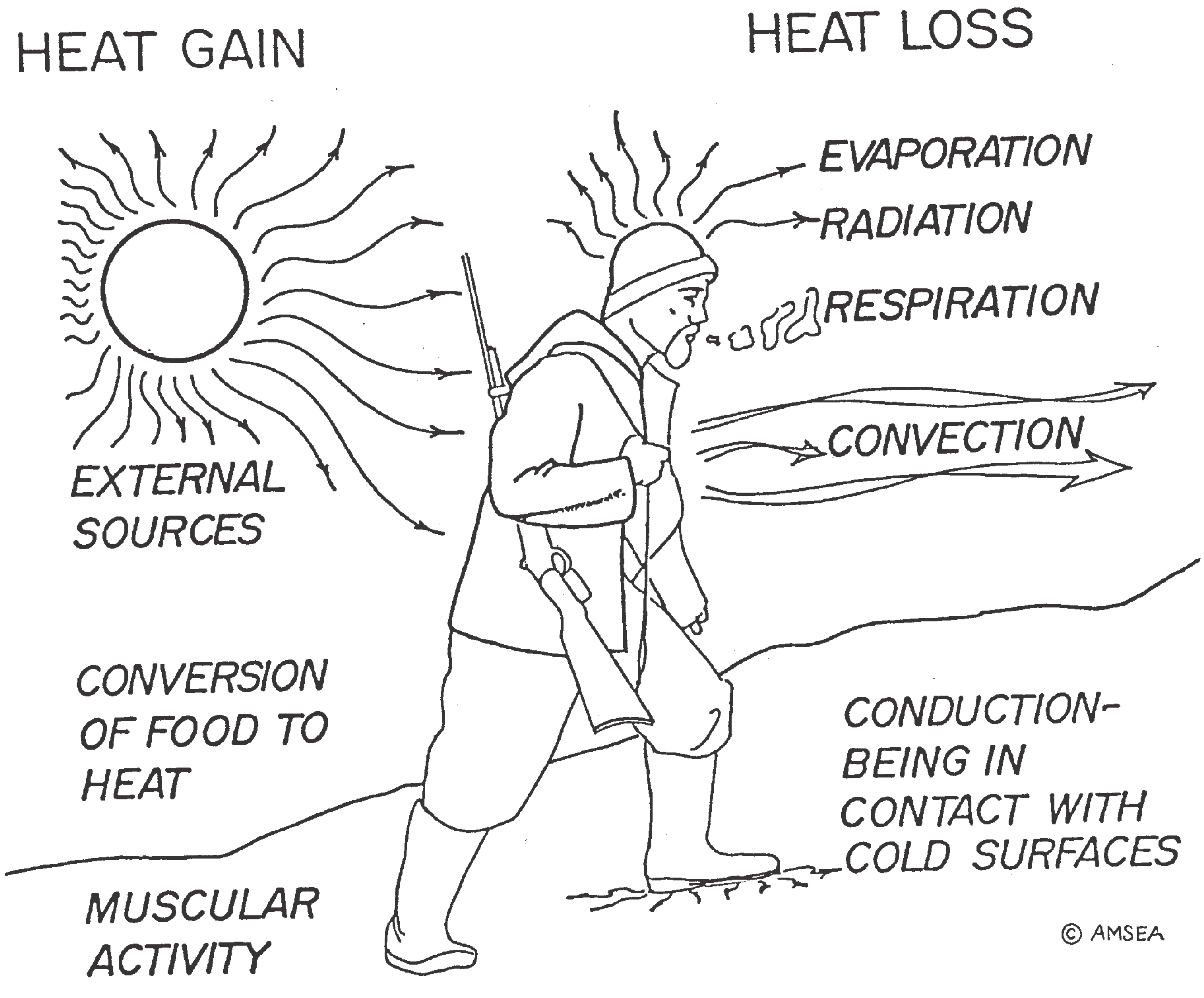
- **Face the true wind**
- **Extend your right arm to the side**
- **The storm's center will be to your right and somewhat behind you**



High Heat Loss Areas



Heat Gain vs. Heat Loss



Hypothermia

Causes
- Poor judgment
- Wet
- Wind
- Cold
- Improper clothing

Contributing factors
- Age
- Body fat
- Alcohol
- Other drugs
- Mental depression

Prevention
- Use good judgment
- Wear layered clothing
- Avoid getting wet
- Eat nutritious food regularly
- Rest frequently

Signs and Symptoms
- May include feeling cold, shivering or not shivering, impaired judgment, altered level of consciousness (confusion, mumbles, stumbles, fumbles), depressed vital signs, response to verbal or painful stimuli may be delayed or absent
- Can be difficult to recognize
- Severely hypothermic victims may look dead, treat them anyway

Treatment
- If conditions indicate the possibility of hypothermia, treat for it
- Handle the victim very gently
- Prevent further heat loss: get victim out of the weather, remove wet clothing, add a hat
- In a water rescue, lift victim horizontally if possible without causing delay
- Check for breathing and pulse—give CPR if necessary
- Never give alcohol
- Continue treatment for at least 1 hour
- Keep trying!

Transport
- Continue treatment during transport
- Get severely hypothermic victims to a medical facility as soon as possible

Remember . . .
Hypothermia Can Kill!

Inner Layer

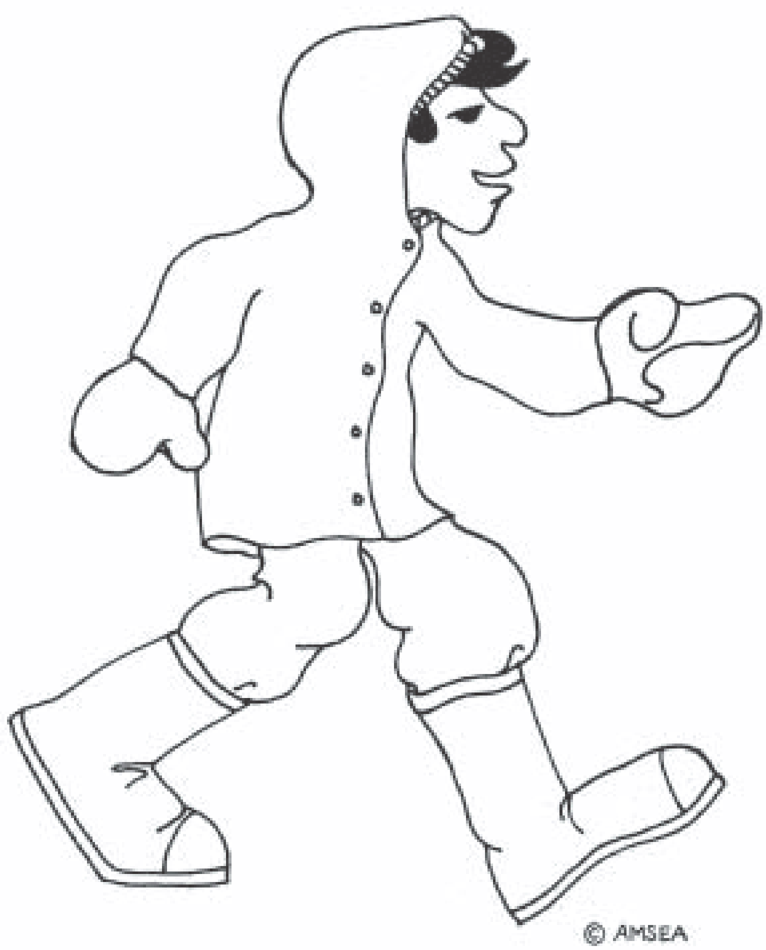
- Purpose—to wick moisture from skin and provide some insulation
- Materials—polypropylene and other synthetics, wool
- Should be in close contact with your skin

Middle Layers

- Purpose—provide additional insulation, and absorb or transmit moisture wicked away from inner layer
- Materials—polypropylene or other synthetics, wool
- Should fit loosely to hold warmed air
- May use multiple insulating layers
- Should be easy to remove when working to prevent sweating
- Should have adjustable closures

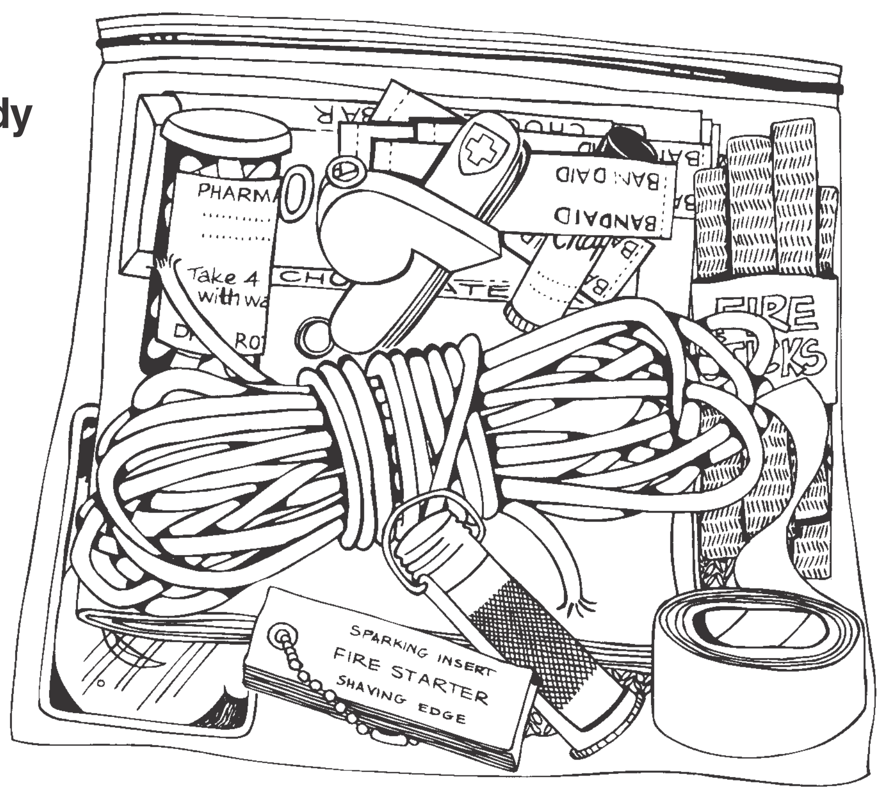
Outer/Shell Layer

- Purpose—protects from wind, wet, and weather
- Materials—water and wind barrier fabrics such as rubber, vinyl, coated nylon, or specially designed fabrics
- Windproofing keeps cooler air out, warmed air still
- Should let body moisture escape
- Should fit loosely
- Should have adequate closures



Personal Survival Kit

- Should always be carried on your person
- Must be light and small enough to fit in your pocket
- Items should be multipurpose
- Should contain items from four categories:
    - Shelter building aids—twine, dental floss, large garbage bags, space blanket, bug head net, etc.
    - Signal aids—mirror, whistle, foil, surveyor's flagging tape, flares, chemical lights, strobe light, etc.
    - Personal health needs—medication, water purification tablets, eye care, bouillon cubes, energy bar, bug repellent, tampons, etc.
    - Fire starter
- Container should be waterproof and sturdy



Trip Plan

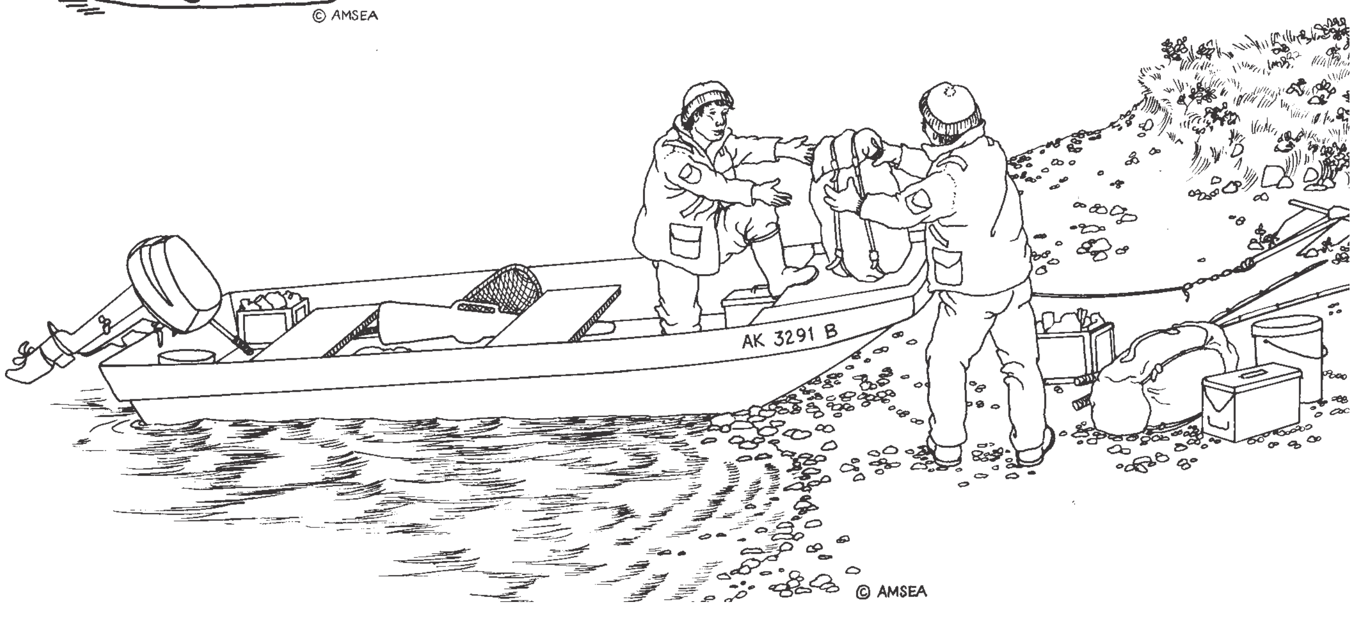
- Should be part of preparing for every outdoor adventure trip
- Leave with a reliable person who will miss you
- Update when plans change
- Cancel when you return
- Include

  Who is going—names and phone numbers for all

  Where you are going, including route and destination

  When you expect to be at destination and return

  What you are traveling in, what equipment you have, what you plan to do



Alcohol

Alcohol causes loss of judgment, which leads to

- **Increased risk taking**
- **Poor decision making**
- **Poor reasoning**
- **Faulty information processing**

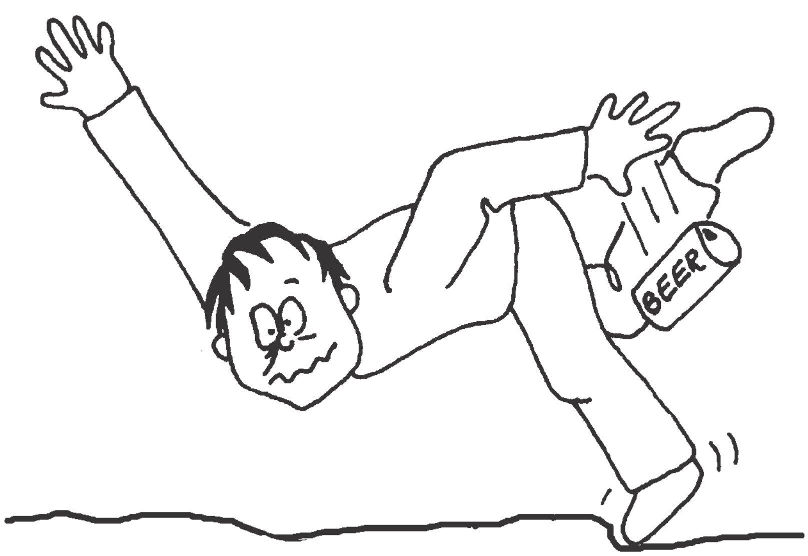
Alcohol causes loss of balance

Alcohol increases risk of hypothermia and speeds up hypothermic process

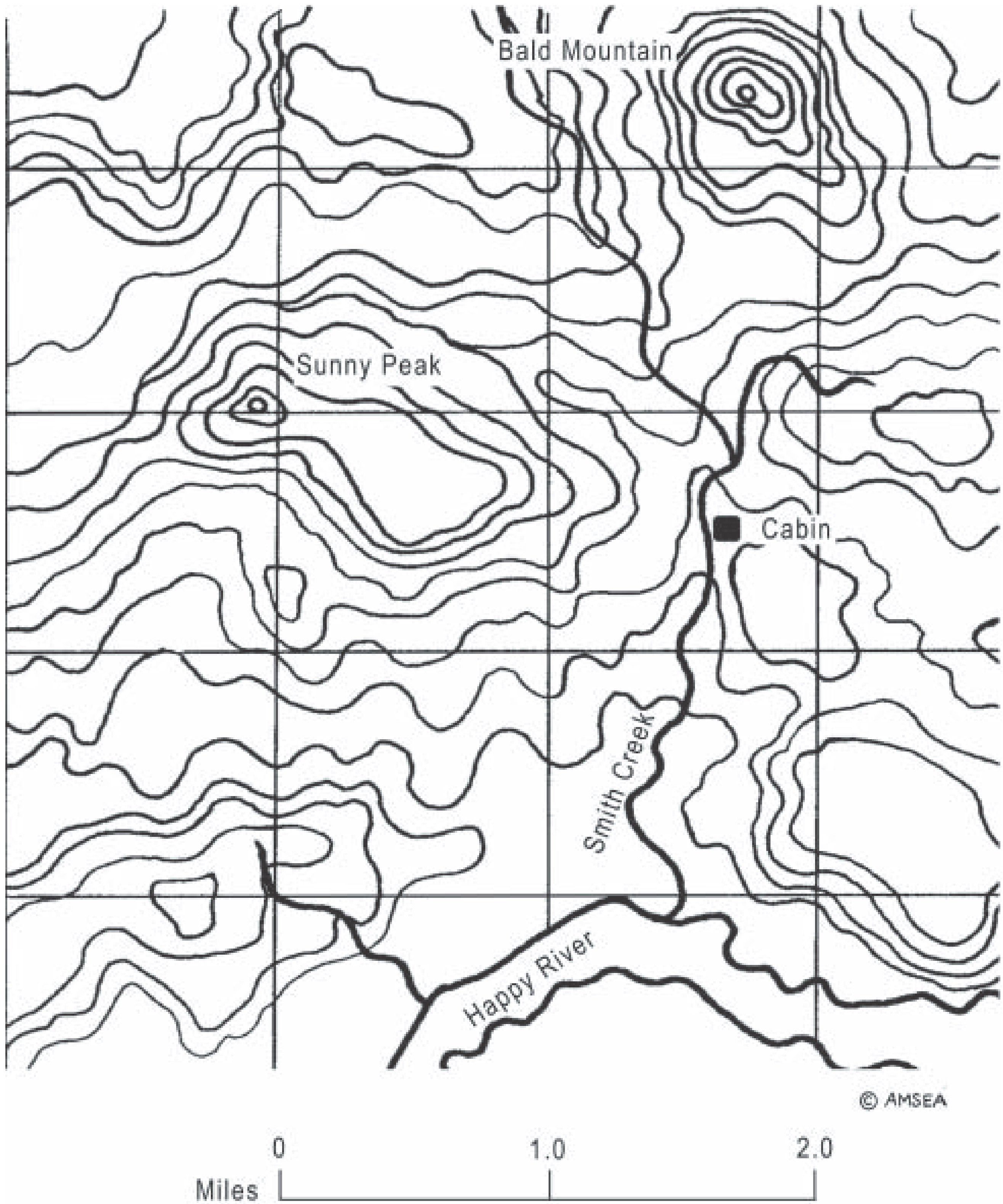
Alcohol slows reaction time

Alcohol reduces night vision, peripheral vision, ability to focus, and depth perception

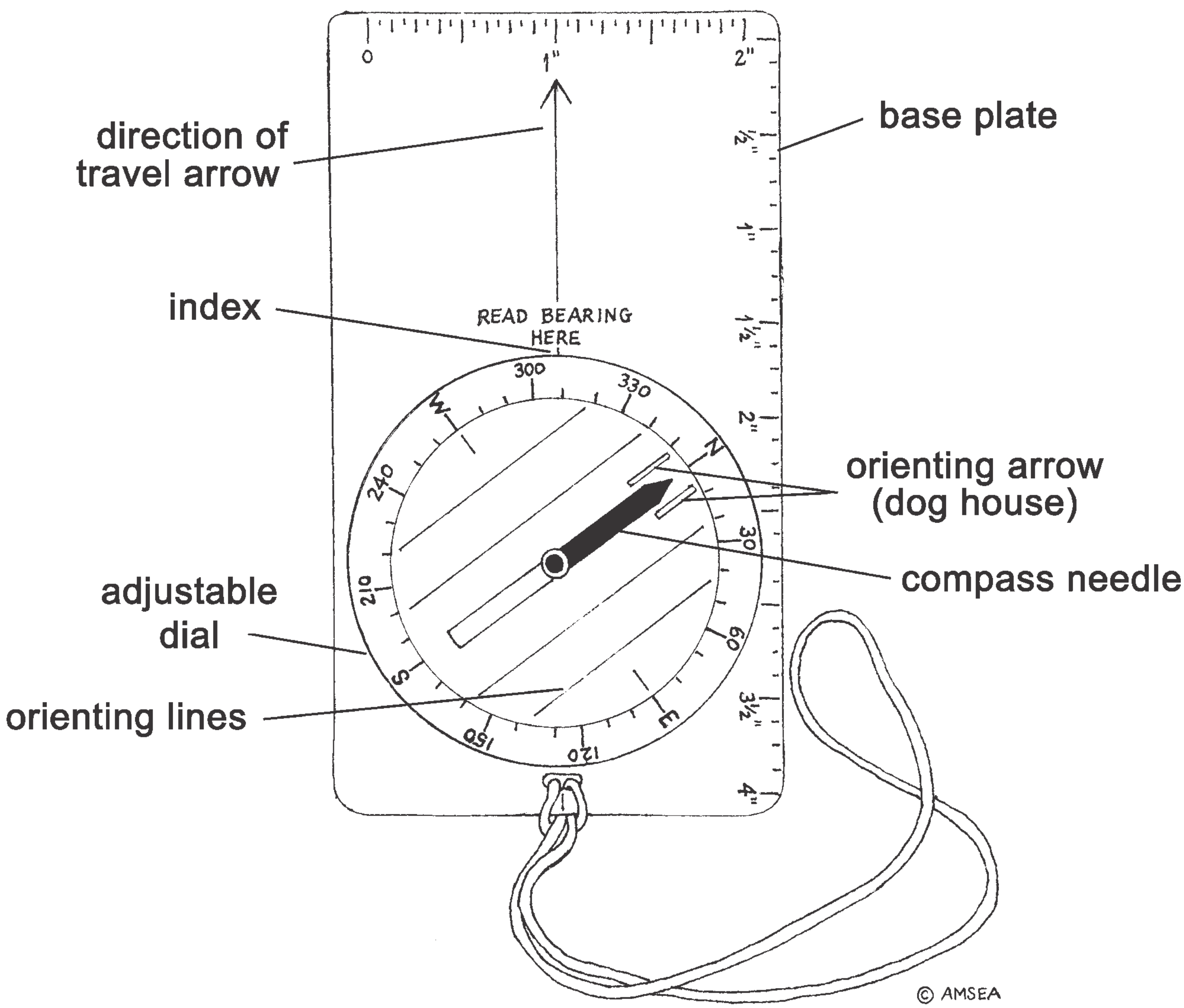
In Alaska and most other states, it is illegal to operate a motorized vehicle, aircraft, or watercraft while intoxicated



Topographic Map

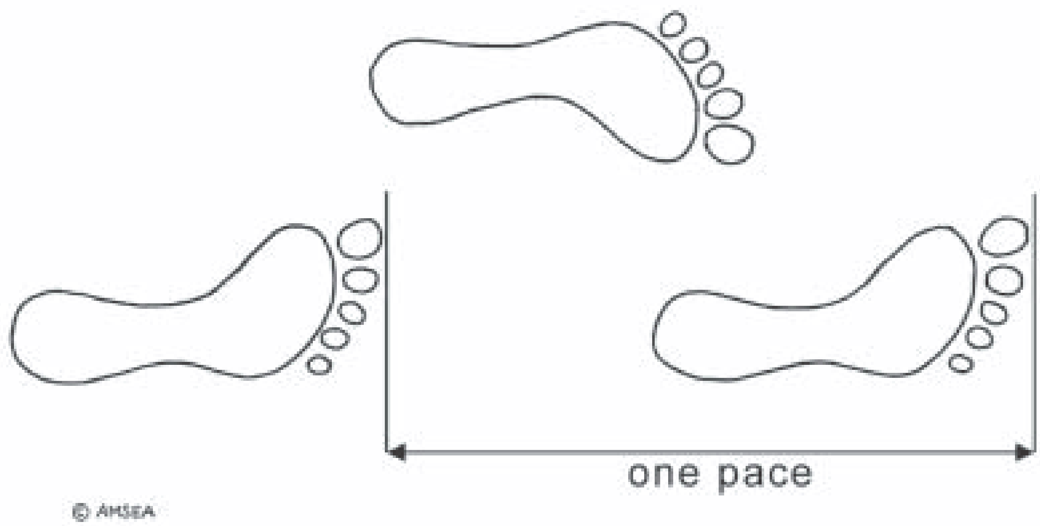


Parts of an Orienteering Compass



Pace

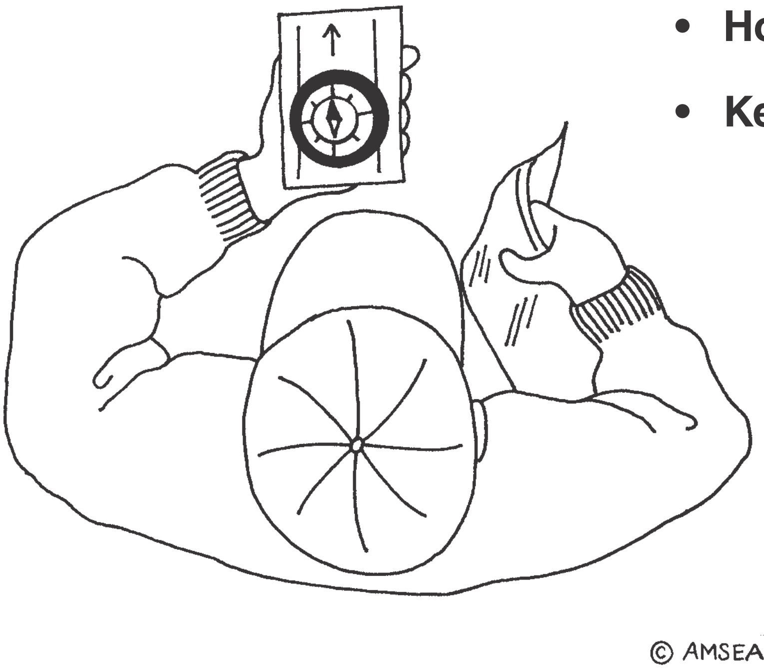
- Two complete steps measured from heel or toe of one foot to heel or toe of the same foot
- Determine by pacing a known distance



How to Use Pacing to Estimate Distance

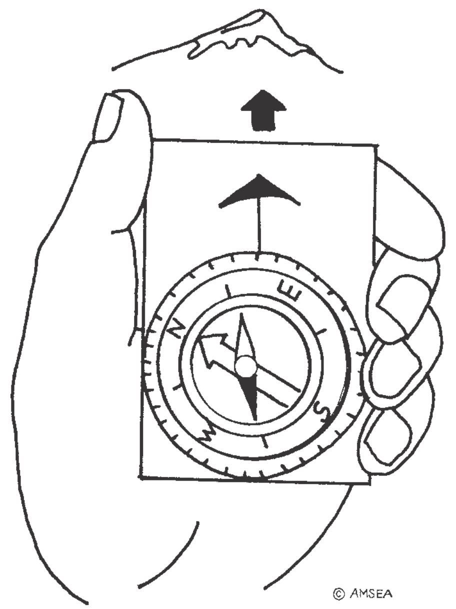
- Pace from one point to another by counting number of paces
- Multiply number of paces by length of your pace

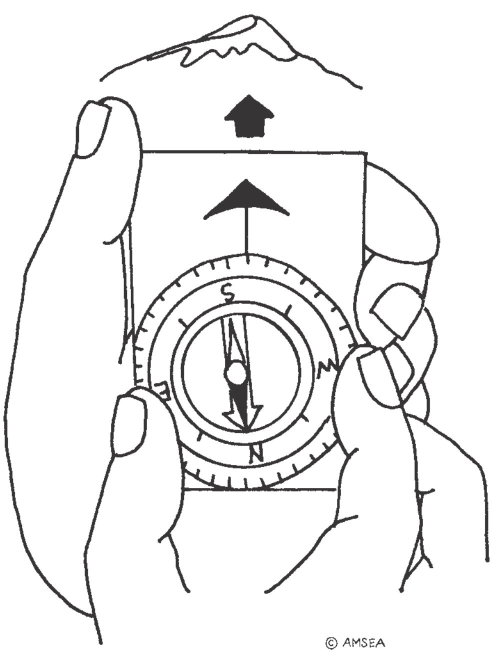
Taking a Bearing to a Landmark



- Hold compass in front of you
- Keep compass level

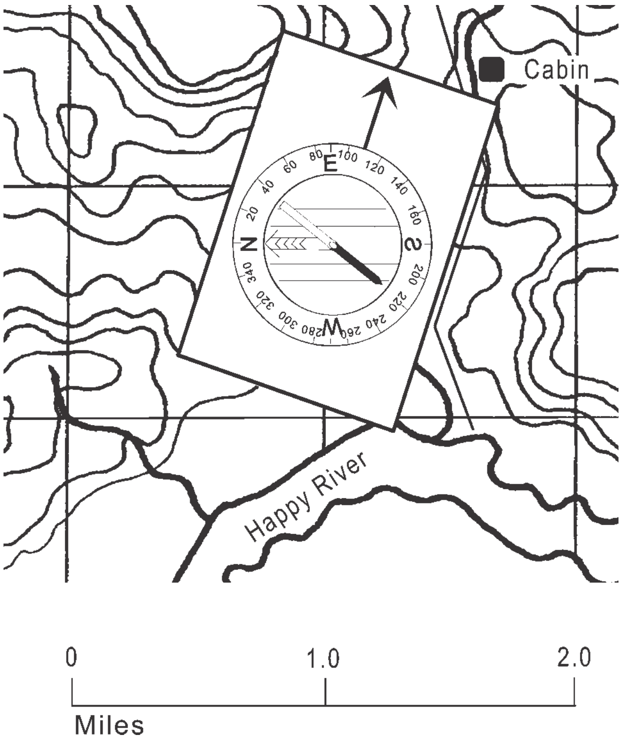
- Turn your entire body to point the direction of travel arrow at the landmark



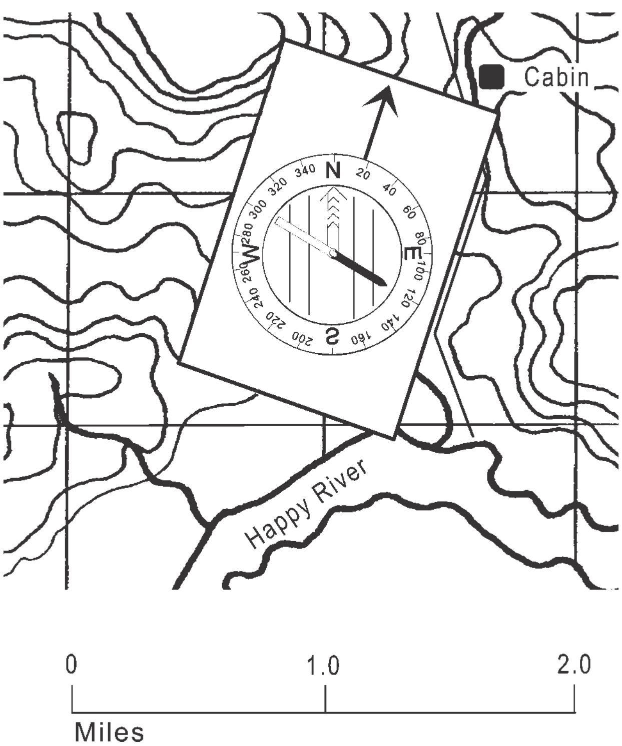


- Turn dial so red end of needle is aligned with orienting arrow (the dog is in the dog house)
- Read magnetic bearing to landmark at index

Finding a Bearing for a Line Drawn on a Map

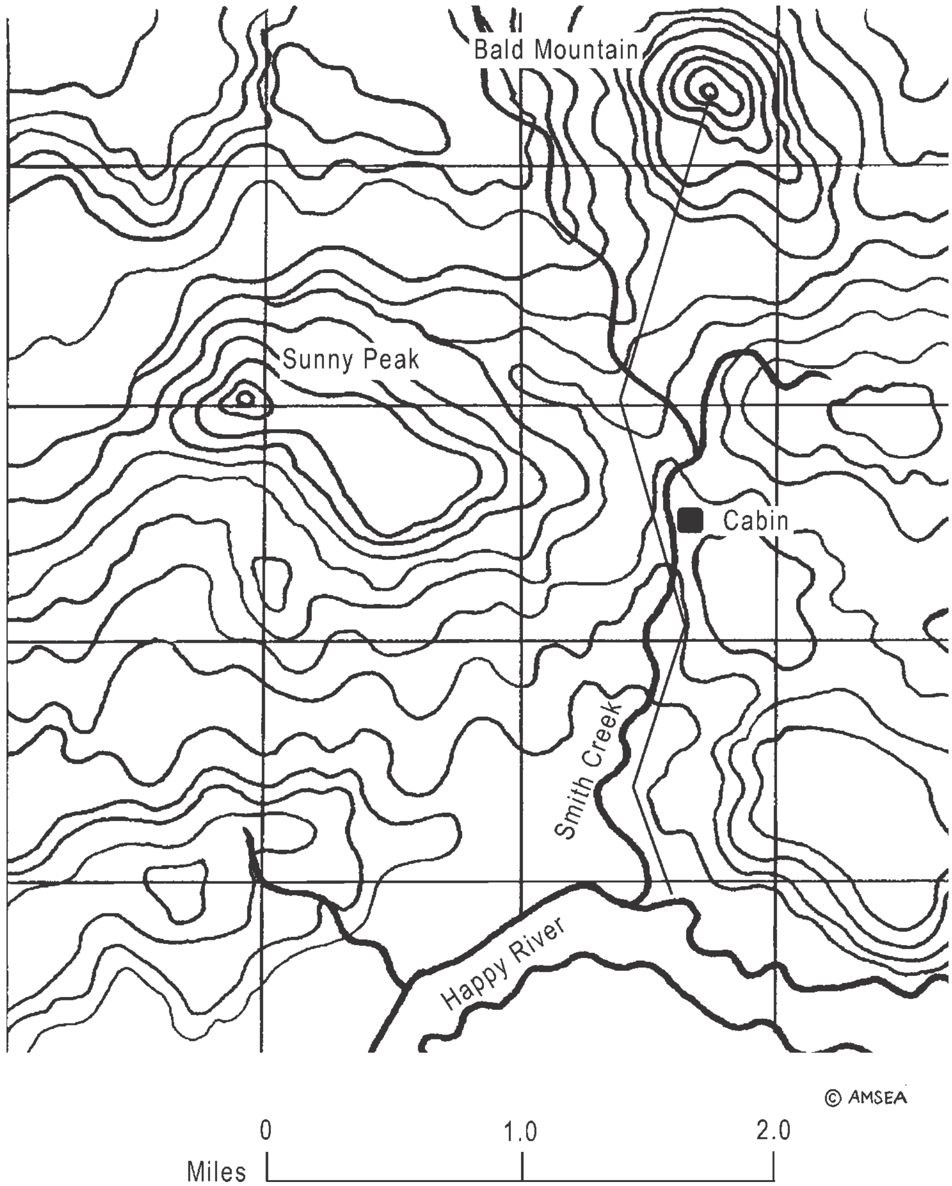


- Orient compass so direction of travel arrow points toward intended direction of travel
- Align edge of compass base with line on map



- Rotate dial until orienting lines are parallel to longitude lines
- Ignore compass needle
- Read true bearing at index
- Convert to magnetic bearing

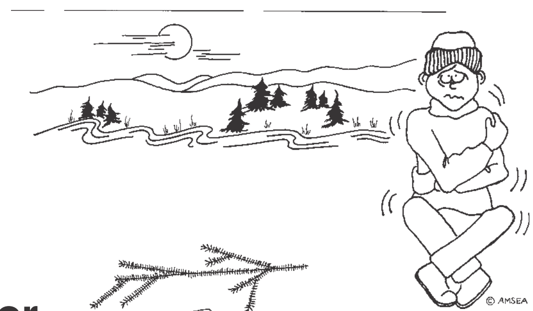
Plotting Your Course



- **Find a known starting location on the map**
- **Lightly draw a straight line from there to destination or turning point**
- **Continue to destination**
- **Determine magnetic bearing of each line**
- **Lightly note above line**

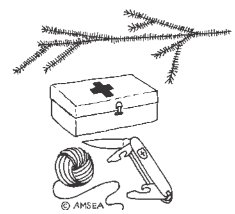
Seven Steps to Survival

Recognition



- Recognize that you are or could possibly be in trouble and act!

Inventory

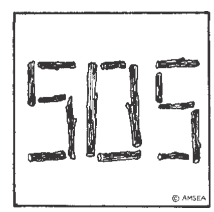


- Take into account things that work for you and things that work against you

Shelter

- Anything that insulates you and protects you from the environment
- Clothes are your primary shelter

Signals



- Should attract attention and convey the need for help!
- A good float plan given to the right person can be one of your best signals

Water

- Drink at least 2-4 quarts of water a day

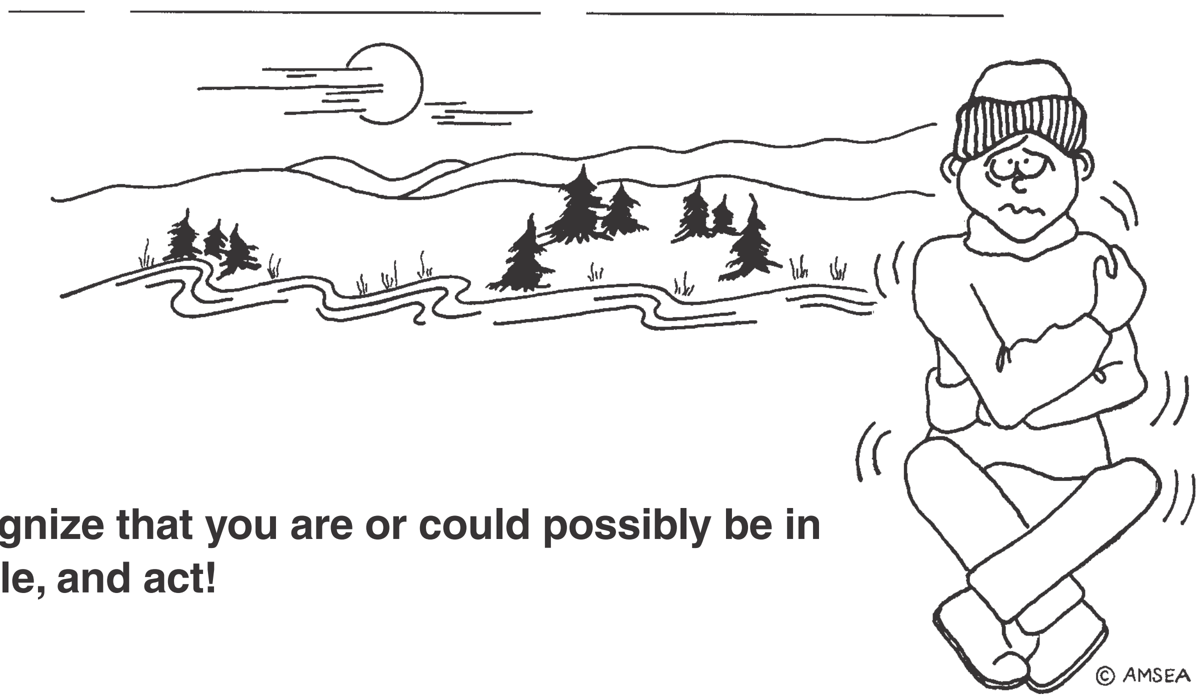
Food

- Know wild, edible food before you go on an outdoor adventure

Play

- A positive mental attitude helps the will to survive

Recognition



Recognize that you are or could possibly be in trouble, and act!

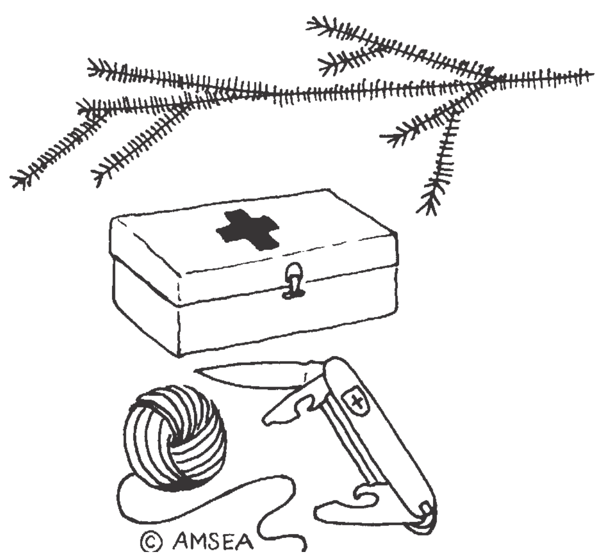
Inventory

Take into account things that work for you and things that work against you

- **People**
- **Equipment**
- **Environmental factors**
- **Location**
- **Ability to communicate with rescuers**

Be creative!

Your most valuable tool lies between your ears!



Shelter

Anything that insulates you and protects you from the environment

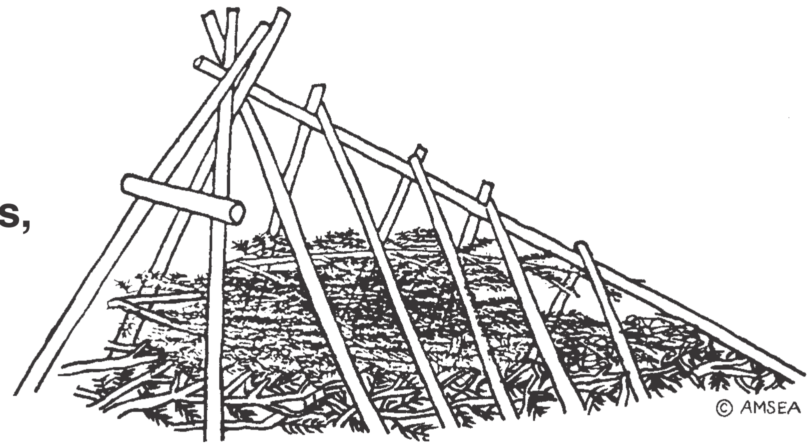
- **Clothes are your primary shelter**
- **Constructed shelters should:**
  - **Be small**
  - **Protect you from the wind, precipitation, and heat loss**
  - **Insulate you from the environment**

Debris Hut Shelter

- Be concerned about efficiency, not looks
- Make it small, but not so small you are claustrophobic and don't want to use it
- Protection from rain, snow, wind, and surface water is important

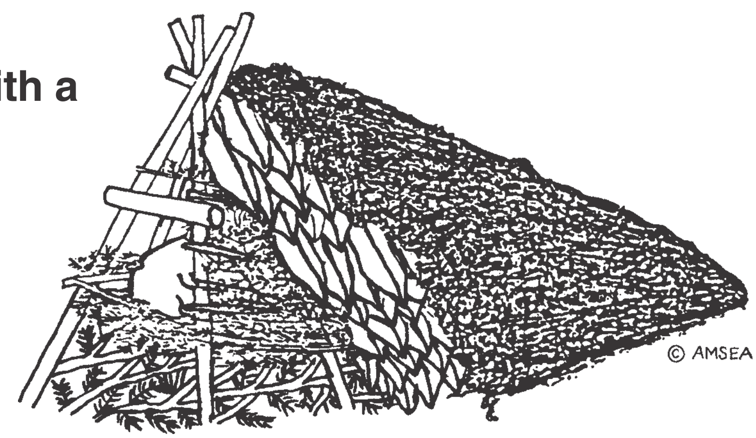
Constructing the floor

- Must be three feet thick
- Can be made of branches, leaves, moss, grass, etc.
- Cover wet materials with waterproof layer

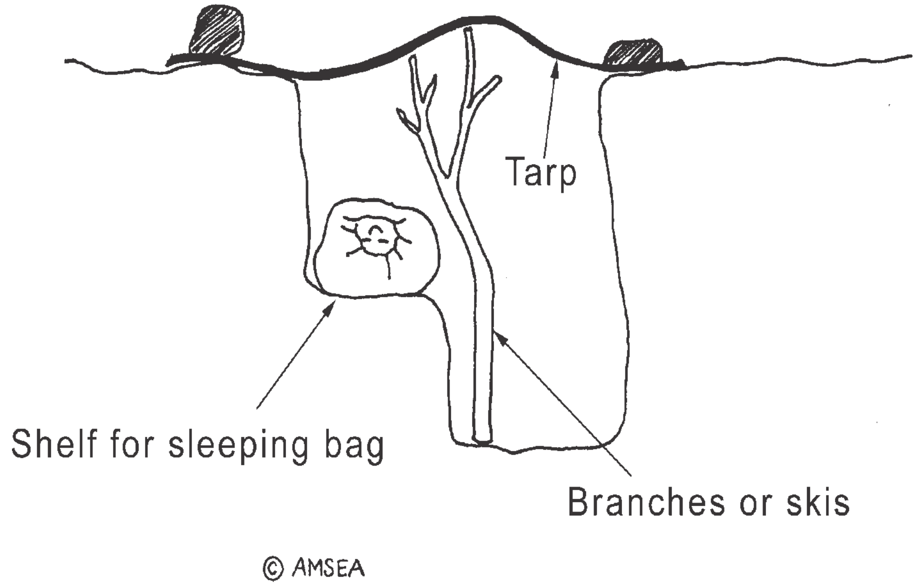


Finishing Steps

- Cover the roof and sides with a waterproof barrier (plastic, leaves, bark, etc.)
- Make sure you can't see light through the shelter
- Close the entry with a removable door (like a plastic bag full of leaves or grass)



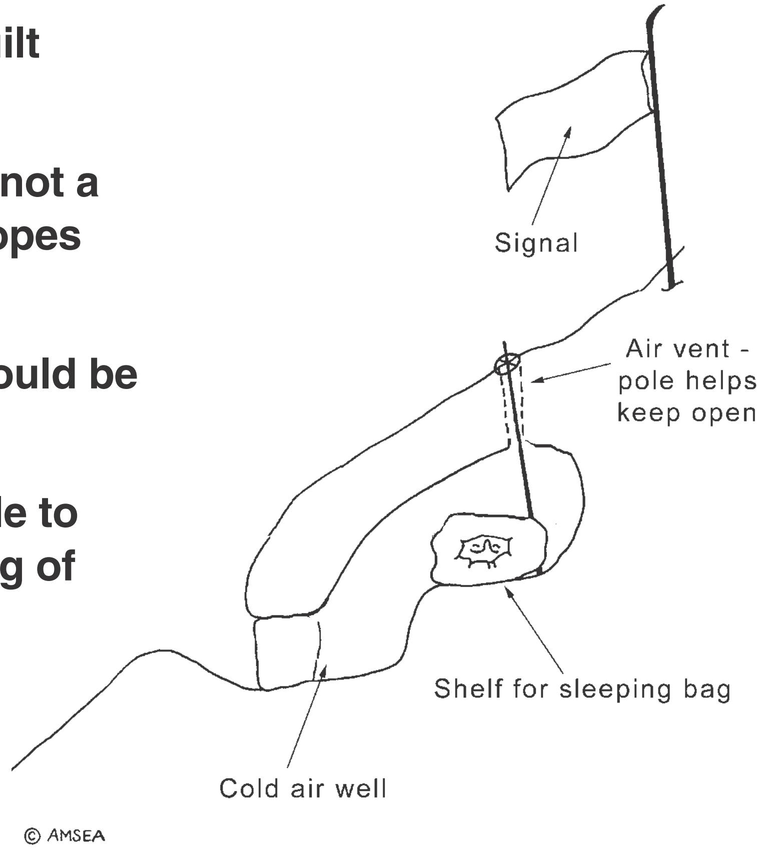
Snow Trench



- **Locate a wind break or make one using dug out snow from shelter construction**
- **Cut out a trench about 1 to 1 ½ feet wide x 6 feet long, perpendicular to windbreak**
- **Dig out trench if roof materials available, if not, cut snow blocks out of trench and set aside for roof**
- **Make trench about 3 feet deep with one end sloping to surface to serve as your entrance/exit—should be furthest end from wind break as drifting snow will accumulate on lee side of wind break**
- **Carve a sleeping bench into side of trench—top of sleeping space should be about a foot below top of trench, a little higher than floor; your initial trench now serves as a cold air well**
- **Make a roof of snow blocks or use supports (skis, branches, etc.) covered with plastic and snow on top for insulation**
- **Make ventilation holes in door and roof**
- **Make a removable door to allow entry and exit**

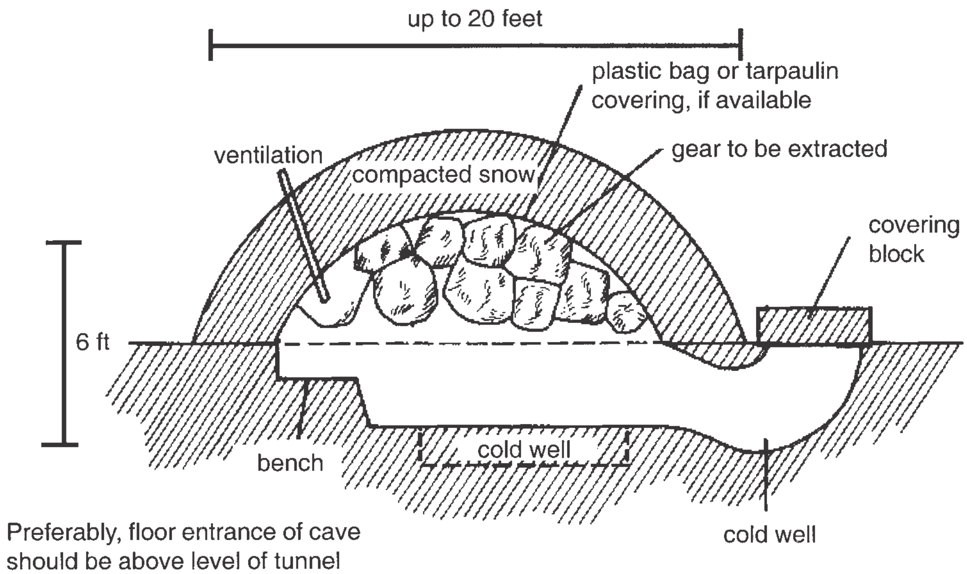
Snow Cave

- **Can be dangerous if not built correctly!**
- **Build into a slope or drift—not a cornice, but avoid steep slopes due to avalanche danger**
- **Probe the site first; there could be big rocks or trees in there**
- **Build entrance at right angle to wind to help prevent sealing of tunnel by drifting snow**
- **Walls should be about 2 feet thick**



- **Dig out an entrance tunnel from downhill side so it slopes up into a sleeping area**
- **Make a built-in cold air well and raised sleeping platform**
- **Make a door**
- **Make ventilation holes in roof and door**
- **Keep snow shovel inside when you sleep**

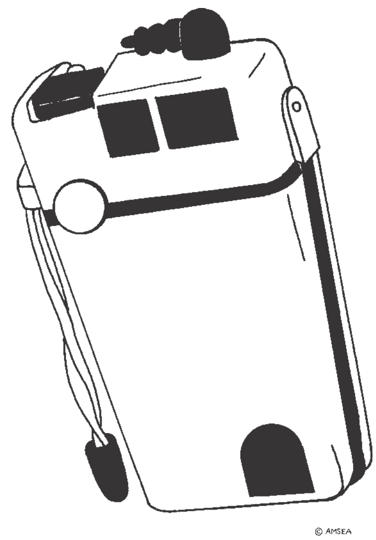
Molded Dome Shelter (Quinzhee)



- **Probe snow first to avoid areas with trees, logs, rocks, etc.**
- **Figure the diameter of the quinzhee**
- **Stomp a circle for the "foundation" to harden the snow**
- **Pile excess gear in large mound in center of circle and cover with tarp or plastic (use branches instead if needed)**
- **No tree limbs either? You'll just need more snow**
- **Pile about 4 to 6 feet of snow on top of gear**
- **Pack snow firmly into a mound shape**
- **Poke sticks or ski poles 18 to 24 inches into shelter**
- **Let the shelter set for an hour or two before you start to hollow it out**
- **Start your door as low as possible so it becomes your cold air well, tunnel underneath mound and remove gear to leave a hollow space**
- **Dig sleeping bench and excavate inside of shelter to inner end of sticks or ski poles**
- **Dig ventilation holes**

Signals

- **Should attract attention and convey the need for help!**
- **A good trip plan given to the right person can be one of your best signals**



Visual Signals

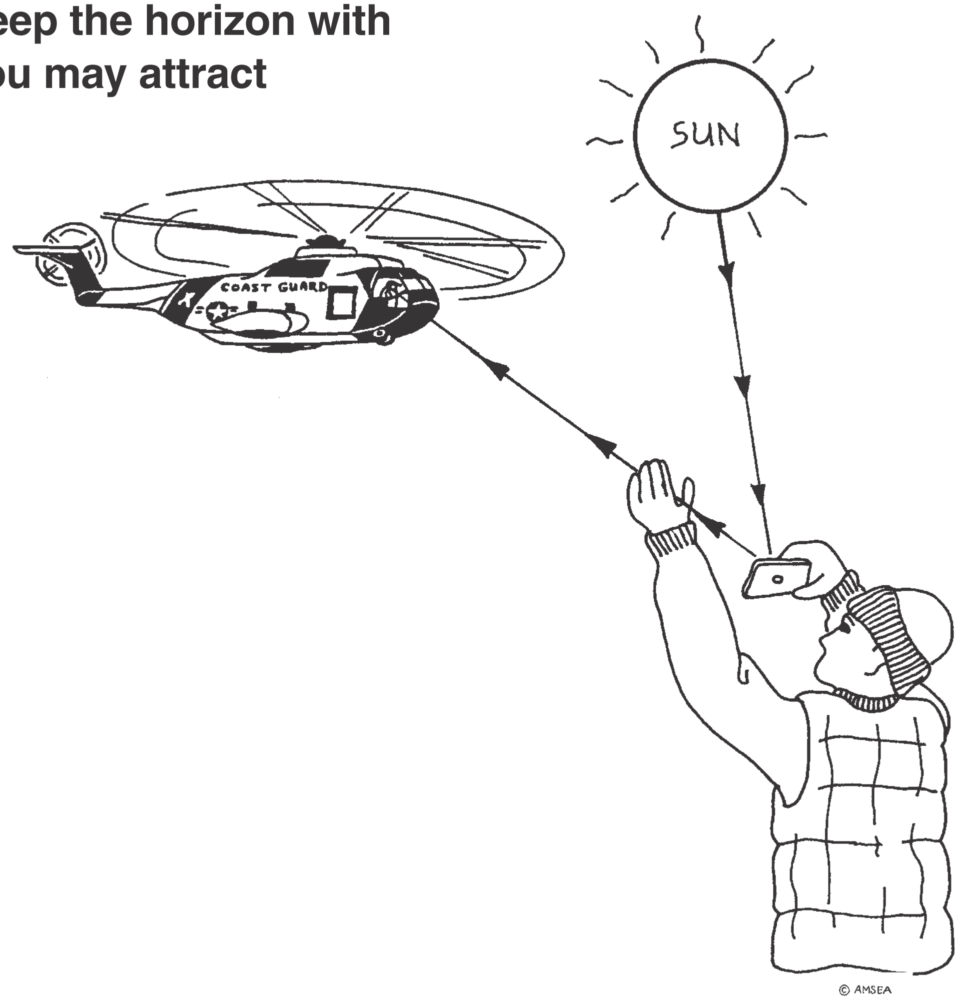
- Use recognized signal for help like SOS, HELP, groups of three
- Use bright, contrasting colors
- Make signals visible from land, sea, and air

SOS

- Recommended height is 18 feet
- Recommended width of lines in letters is 3 feet
- Use block or box letters
- Use contrasting colors

Signal Mirrors

- **Position yourself with the mirror, sun, and potential rescuers in front of you**
- **Hold one hand up between you and rescuers to act as a sight**
- **Aim the mirror's reflected light onto the back of your hand**
- **Remove your hand and shine the light onto your target**
- **To better attract attention, wiggle mirror**
- **If the sun and rescuer are not both in front of you, lie on your back, catch the sun, and shine the light toward the rescuer**
- **Occasionally sweep the horizon with reflected light; you may attract the attention of someone you cannot see**



Flares

Children should not practice with flares

Hand-held flares

- **Work best at night**
- **Burn time 40 seconds to five minutes**

Flare guns

- **Work best at night**
- **Burn time 5.5-30 seconds**
- **Generally launch 100-300 feet**
- **Can't use if plastic gun breaks**

Meteor flares

- **Work best at night**
- **Burn time five to 10 seconds**
- **Generally launch 100-300 feet**

Parachute flares

- **Work best at night**
- **Burn time 60 seconds**
- **Launch up to 1,000 feet high**

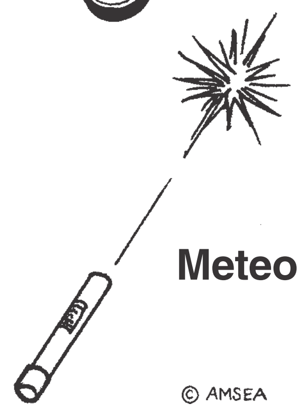
Smoke canisters

- **Work best during day with little wind**
- **Burn time 40 seconds to four minutes**
- **Floating type will not ignite fuel floating on water**

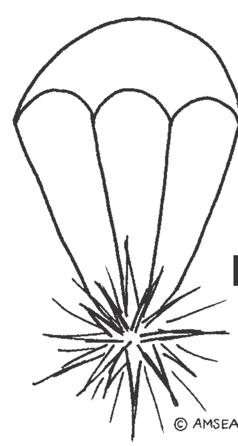
Read directions to know how to properly use

Hand-held flare

Flare gun

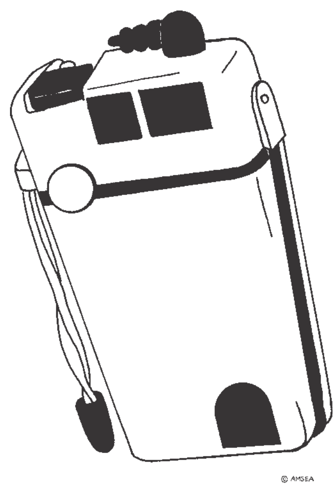


Meteor flare



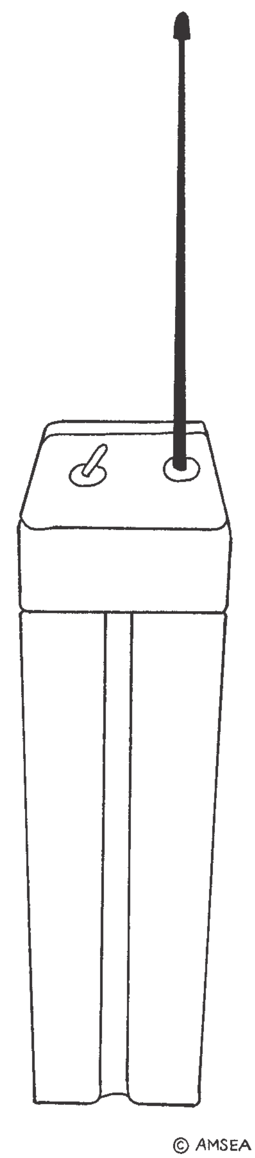
Parachute flare

PLBs (Personal Locator Beacons) and ELTs (Emergency Locator Transmitters)



Personal Locator Beacon

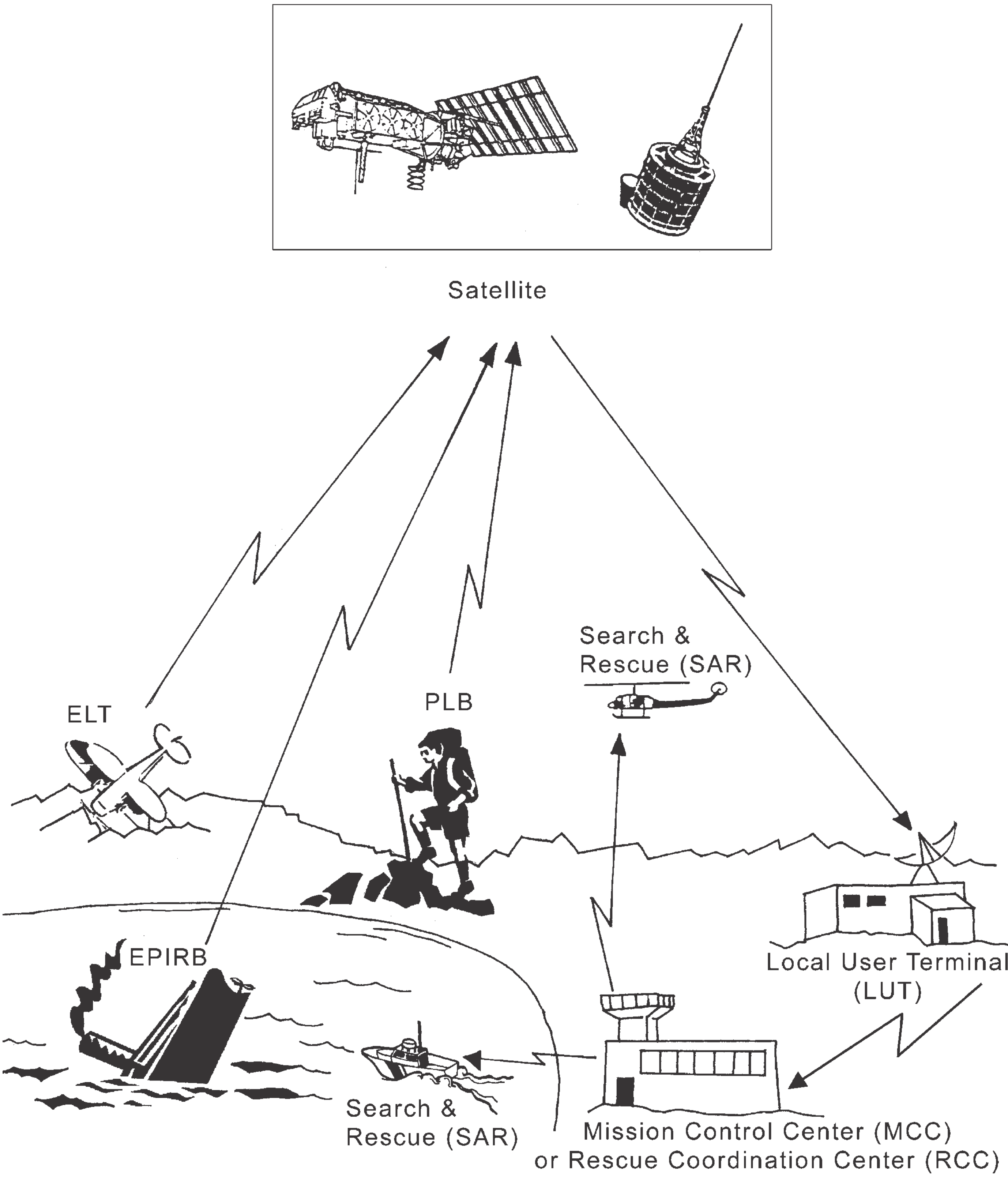
- Designed for land use
- Activates manually
- Does not float
- Is small



Emergency Locator Transmitter

- Designed for aircraft
- Activates automatically when aircraft crashes

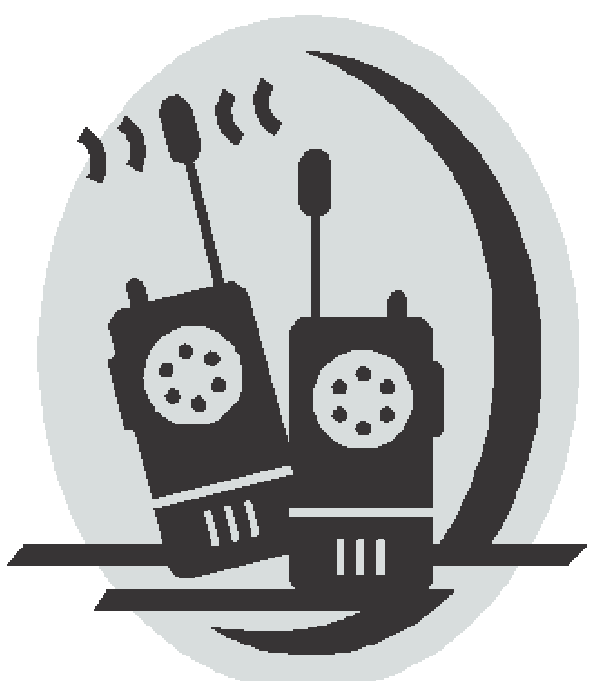
How Electronic Emergency Signals Work



Emergency Calls for Help

Should include

- Some statement that it is an emergency—use Mayday, Mayday, Mayday on VHF radios on coast
- Name of person calling
- Location—be as specific as possible
- Nature of distress (medical emergency, lost, stranded, etc.)
- Total number of people involved
- Additional information if time and circumstances permit—on scene weather, hazards rescuers may encounter from geography, available safety equipment
- You may occasionally need to have someone relay your call for help, or you may need to relay



Water

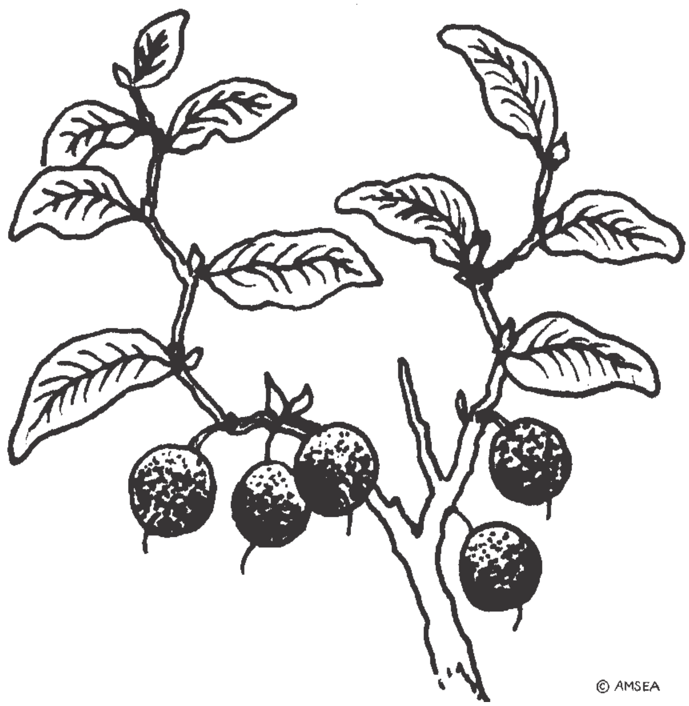
Drink at least 2-4 quarts of water a day

Only five safe sources of water in a survival situation:

1. **Boiled 1 minute**
2. **Filtered—read filter label to be sure it filters out contaminants**
3. **Chemical treatment—read labels; may need to be combined with boiling**
4. **Rainwater caught in uncontaminated container**
5. **Prepackaged water**

Food

Know wild, edible foods before you go on an outdoor adventure



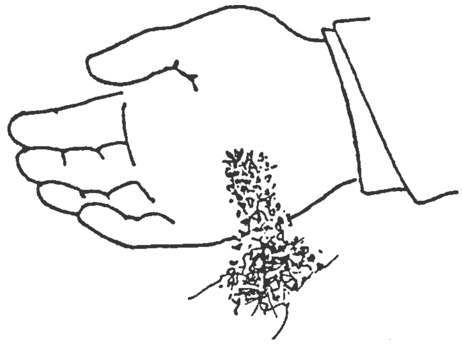
Play

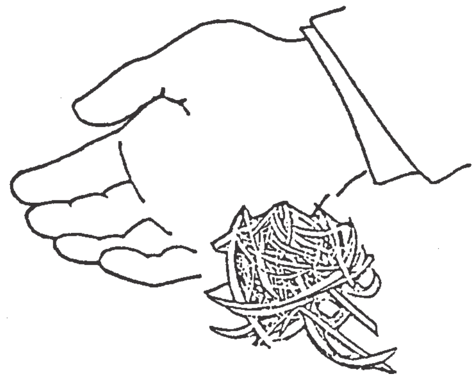
- **A positive mental attitude helps the will to survive**
- **Improve your situation**
- **Be creative**

Fire Building Materials

Tinder

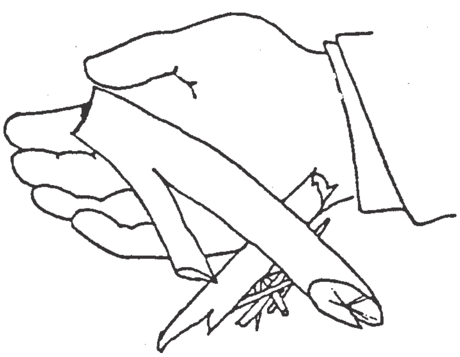
- Dry
- Fine as hair





Kindling

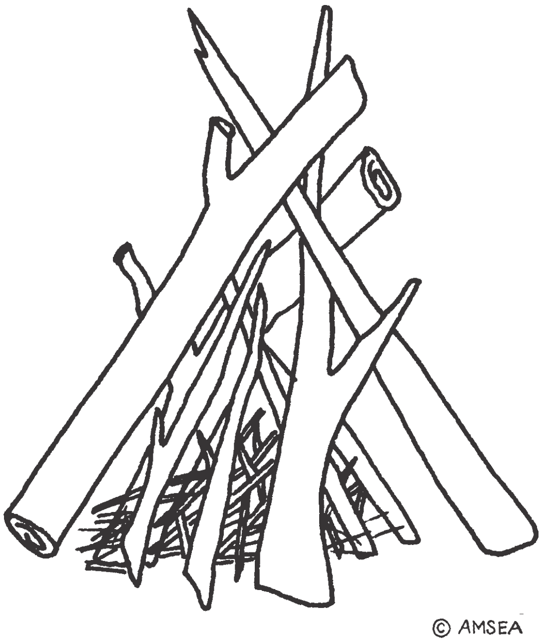
- Dry
- Hair size to little finger size



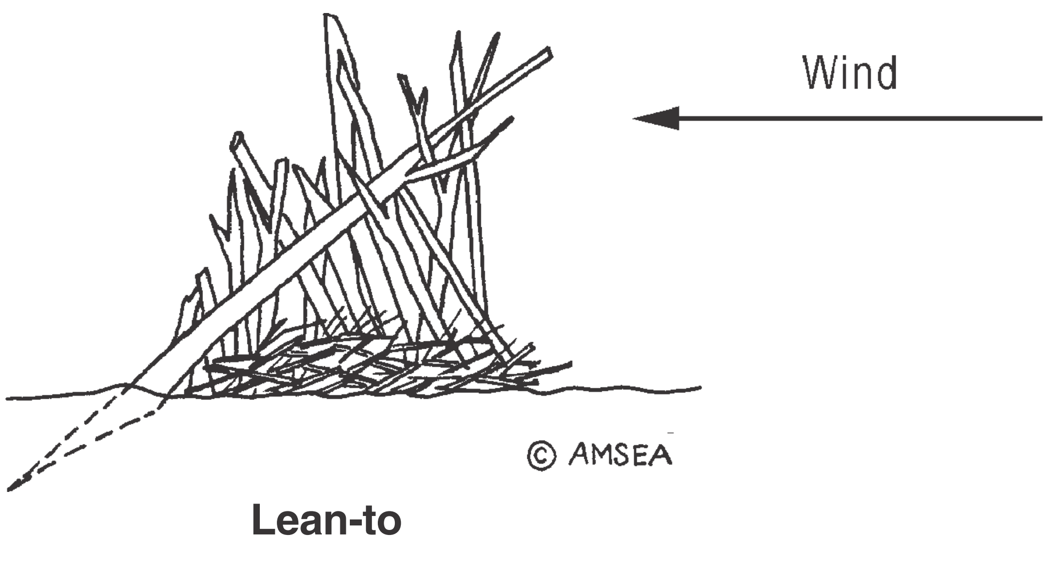
Fuel

- Larger than finger size

Fire Building Techniques



Teepee or Cone



Lean-to

Resources

General References

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Edible Wild Plants. Berglund, Bernt and Clare E. Bolsby. New York: Charles Scribner's Sons, 1977. Guide to wild edibles indigenous to North America with drawings and descriptions for identification; recipes included. 189 pages.

Emergency Survival: How to Handle Emergencies That Can Threaten Your Life. Lehman, Charles. Brookings, SD: CALCO, 1979. Endorsed by the National Association of Search and Rescue (NASAR). Written by an experienced outdoorsman familiar with survival techniques and procedures, describing true experiences. Covers most aspects of typical outdoor emergencies. 150 pages.

Frostbite and Other Cold Injuries. Fairbanks, AK: University of Alaska Sea Grant, 1990. A self-study workbook designed to accompany the Cold Weather Safety and Survival videotape series, *Frostbite and Other Cold Injuries* video. Explains how to prevent, identify, and treat frostnip, frostbite, and immersion foot. 20 pages.

A Guide to Microlife. Rainis, Kenneth G. and Bruce J. Russell. New York: Franklin Watts, 1996. A guide for identifying microorganisms with information about microlife forms and how they affect other life forms, including humans. 287 pages.

Human Error. Reason, James. Cambridge: Cambridge University Press, 1998. Covers the nature of human error. Includes studies, performance levels and error types, cognitive under-specification and error forms, a design for a fallible machine, detection of errors, latent errors and systems disasters and assessing and reducing the human error risk. 302 pages.

Hypothermia. Fairbanks, AK: University of Alaska Sea Grant, 1992. A self-study workbook designed to accompany the Cold Weather Safety and Survival videotape series, *Hypothermia* video. Tells how to prevent, recognize, and treat hypothermia as well as how to wear flotation and thermal protection devices and the advantages and disadvantages of each. 20 pages.

Hypothermia and Cold Stress. Lloyd, Evan L. Rockville, MD: Aspen Publication, 1986. Thorough survey of hypothermia research up to 1986; technical. 400 pages.

Hypothermia, Frostbite, and Other Cold Injuries. Wilkerson, James A., M.D., ed. Seattle, WA: The Mountaineers, 1986. A very readable book on cold injuries. Articles by the editor and Drs. C. Bangs and J. Hayward. Handy field guide format. 105 pages.

Instant Weather Forecasting. Watts, Alan. Dobbs Ferry, NY: Sheridan House, Inc., 1996. A color photographic guide to weather forecasting from the clouds. 64 pages.

Life in a Drop of Water. Schwartz, George J. Garden City, NY: Natural History Press, 1977. Characteristics of microorganisms in a drop of water. 174 pages.

Making Waves at Lakes and Rivers. Seattle, WA: Children's Hospital and Regional Medical Center, 2000. A curriculum focusing on decision making in PFD use for teenagers. 44 pages.

Marine Safety Instructor Manual, 8th edition. Sitka, AK: Alaska Marine Safety Education Association, 2001. In-depth curriculum covering preparation, cold water near-drowning, hypothermia, cold water survival, sea survival including onboard drills and station bills, shore survival, and food and water in a survival situation. Excellent resource. 450 pages.

Outdoor Survival Training for Alaska's Youth: Instructor Manual. Fairbanks, AK: University of Alaska Sea Grant, 1993. Curriculum for a workshop covering preparation, shore survival, and cold water survival skills. A waiver form and quizzes included. 102 pages.

Outdoor Survival Training for Alaska's Youth: Student Manual. Fairbanks, AK: University of Alaska Sea Grant, 1993. Companion to the Instructor Manual; includes content and student worksheets on preparation, shore survival and cold water survival skills. 42 pages.

Shore Survival. Fairbanks, AK: University of Alaska Sea Grant, 1986. A self-study workbook designed to accompany the Fisheries Safety and Survival videotape series, *Shore Survival* video. Covers basic survival principles, including making decisions, building a shelter, making signals, what to eat and drink, and how to keep your spirits up. 39 pages.

Southeast Alaska's Rocky Shores. O'Clair, Rita M., Sandra C. Lindstrom, and Irwin R. Brodo. Auke Bay, AK: Plant Press, 1996. Guide to identifying seaweed and lichens with pictures and descriptions; includes recipes and species list. 149 pages.

State of Alaska Hypothermia and Cold Water Near-Drowning Guidelines. Juneau, AK: State of Alaska, Department of Health and Social Services, Division of Public Health, Community Health and Emergency Medical Services Section, 1996. Provides step-by-step treatment guidelines. 32 pages.

Survival in Antarctica. Washington, DC: National Science Foundation, Division of Polar Programs, 1990. Covers problems specific to polar areas, clothing, survival skills, travel, orienteering, crevasses, signaling, and survival on sea ice. 103 pages.

Surviving on the Foods and Water from Alaska's Southern Shores. Garza, Dolly. Fairbanks, AK: University of Alaska Sea Grant, 1989. Resource on the nutritional value of foods commonly found in Southeast Alaska's shoreline. Includes food preparation suggestions and a section on non-edible and poisonous plants and animals. 23 pages.

Wild and Edible Plants of Alaska. Fairbanks, AK: Cooperative Extension Service, University of Alaska Fairbanks, 1989. Guide to plants in Alaska with pictures and descriptions for identification and uses given for each entry. Narrow book convenient to carry outdoors. 90 pages.

Wilderness Survival. Victoria, B.C.: British Columbia Forest Service. A good synopsis of several Canadian publications that address survival including clothing, travel, psychology, shelter, fire signals, first aid, and survival kits and what to carry in them. Broad discussion of all the basics. 512 pages.

Survival Stories

Adult Level

117 Days Adrift. Bailey, Maurice, D. New York: McKay Co., 1974. A true story of a couple surviving at sea for 117 days. 192 pages.

Alive. Read, Piers Paul. New York: Avon Books, 1975. Story of the survivors of an airline crash in the Andes mountains in Chile. 318 pages.

Almost Too Late. Wortman, Elmo. New York: Random House, 1981. True story of a family shipwrecked in 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. 211 pages.

Danger Stalks the Land: Alaskan Tales of Death and Survival. Kaniut, Larry. New York: St. Martin's Griffin, 1999. True short stories of wilderness survival and sometimes death. Epilogues contain useful discussion points. 324 pages.

Desperate Journeys, Abandoned Souls. Leslie, Edward. Boston: Houghton Mifflin Co., 1988. True short stories of survival from several centuries. 586 pages.

Endurance. Lansing, Alfred. New York: Carol and Graf, 1986. Amazing true survival story of Shackleton's Antarctic voyage. 282 pages.

Hey, I'm Alive. Klaben, H. and B. Day. New York: Scholastic Book Services, 1964. True story of wilderness survival. 185 pages.

Into the Wild. Krakauer, Jon. New York: Anchor Books, Doubleday, 1996. Quasi-true story of a young man who ultimately dies in the Alaskan Interior. A look at psychology of survival. 207 pages.

Into Thin Air. Krakauer, Jon. New York: Villard Books, 1997. One man's account of the deadliest season on Mount Everest. 291 pages.

On Their Own. Horder, Mervyn. London: Gerald Duckworth and Co. Ltd., 1988. Sixteen survival tales, between AD 62 and 1942, recounted. 140 pages.

One Survived. Fortier, E. Anchorage, AK: Alaska Northwest Publishing Co., 1978. A true story of an Eskimo hunting party. Three are lost on ice floes and one survives for 21 days. 41 pages.

Staying Alive in Alaska's Wild. Nault, Andy. Washington, DC: Tee Loftin Publishers, Inc., 1980. Stories of a Kodiak man's life in the wilderness. 210 pages.

Survival. Lord, Nancy. Minneapolis: Coffee House Press, 1991. Collection of stories about Alaska. 161 pages.

"Walking Out," In: *Blood Line: Stories of Fathers and Sons.* Quamman, David. Boulder, CO: Johnson Books, 2000. Short story describing the plight of an 11-year-old boy trying to find his way out of the Montana woods to get help for his injured father.

"We Want to Live." Blank, Joseph P. In: *Reader's Digest*, July 1981. Story of a couple's experience in Alaska after being stranded on the Kenai Peninsula. Pages 97-102.

Juvenile Level

Arctic Showdown. Ball, John. New York: Duell, Sloan and Pearce, 1966. 147 pages.

Climb or Die. Myers, Edward. New York: Hyperion Books for Children, 1994. Teens save parents in winter. Focus on psychology of survival. 180 pages.

Deep Trouble. Morey, W. Duttons. New York: Children's Books, Penguin Books, 1971. Alaska adventure story. 214 pages.

Found Alive. East, B. Mankato, MN: Crestwood House, 1980. On a cold autumn night a 14-year-old boy becomes lost in the northern Michigan woods. 47 pages.

Frozen Fire. Houston, J. New York: Atheneum, 1977. Youth survival fiction. True stories of survival. 149 pages.

Great Survival Adventures. Gannon, R. New York: Random House, 1973. True stories of survival by the men and women who survived them. 149 pages.

The Grizzly. Johnson, Annabel and Edgar Johnson. New York: Harper and Row, 1964. A boy and his estranged father on a camping trip face the threat of a grizzly bear. 160 pages.

Hatchet. Paulson, Gary. New York: Bradbury Press, 1987. Youth survival fiction; a Newbery honor book. 142 pages.

Life Battles Cold. Kavaler, L. New York: John Day Co., 1973. Youth level book on various aspects of living or responding to cold environments. 160 pages.

Lost in the Woods. Politano, C. Sidney, B.C.: Porthole Press Ltd., 1984. A young person's book on a lost-in-the-woods experience. Activities included in text appropriate for all elementary grades. Excellent to read to young children. 62 pages.

Robinson Crusoe. Defoe, Daniel. New York: Airmont, Bantam Books, 1964. Literary classic of a castaway's survival experience. 368 pages.

Snowshoe Trek to Otter River. Budbill, D. New York: Bantam Books, 1976. Three short stories about two boys camping in the woods. 83 pages.

Tikta'liktak: An Inuit-Eskimo Legend. Houston, John. New York: Harcourt Brace and Co., 1990. The story full of suspense of a young Eskimo hunter fighting for survival while stranded on an isolated and desolate island. Tikta'liktak shows great creativity with available resources and a strong will to live. 64 pages.

"To Build a Fire," In: *The Call of the Wild.* London, Jack. New York: Signet Classic, Penguin, 1998. Classic tale that illustrates the reasons not to depend on fire. 16 pages.

Trial by Wilderness. Mathieson, David. Boston: Houghton Mifflin Co., 1985. A girl survives a plane crash off the coast of British Columbia and faces survival in the wilderness. 171 pages.

Video Resources

All videos are available for loan to teachers from the Alaska Marine Safety Education Association library, (907) 747-3287.

General

Cross Cultural Communication. Alaska Marine Safety Education Association, 1994. Father Michael Oleksa discusses communication across culture and gender lines. 42 minutes.

Dersu Uzala. Academy Award–winning Japanese film, directed by Akira Kurosawa, 1975. A survival situation based on a true story. Has a 20-minute section that is a good shelter-building example. 140 minutes.

Fisheries Safety and Survival Series. University of Alaska Marine Advisory Program, 1983. Covers four video segments; *Hypothermia* (14 minutes) and *Shore Survival* (21 minutes) are relevant and good resources. Companion workbooks are available (see general reference section). 75 minutes.

It Could Have Been Prevented. Alaska Marine Safety Education Association, 1990. An award-winning video produced for people who spend time on rivers or coastal waters in Alaska. Covers planning, weather, float plans, and effects of alcohol. Filmed in Kotzebue, Alaska using local residents. 17 minutes.

Outdoor Survival: A Practical Review. University of Alaska Marine Advisory Program, 1994. A slide show on video that covers shelter, signals, food, and water. For anyone unexpectedly in an outdoor survival situation in Southeast Alaska. Reinforces curriculum of the same name. 6 minutes.

Visual Distress Signals. Sabella and Associates, 1989. Discusses what attracts attention, radio signals, pyrotechnics, and lights. 14 minutes.

Environmental/Medical

Cold, Wet and Alive. American Canoe Association, 1989. Follows a group of friends on a canoe trip down a river showing the progression from cold reaction to severe hypothermia. Note: what is defined as severe hypothermia in Alaska is called moderate hypothermia in the video and treated accordingly. 20 minutes.

Frostbite and Other Cold Injuries. University of Alaska Marine Advisory Program, 1988. Four types of cold injuries and their treatments are covered in this video. How to prevent cold injuries and how to avoid situations that could cause them are also explained. 16 minutes.

Hypothermia. University of Alaska Marine Advisory Program, 1986. Part of the Cold Weather Safety and Survival videotape series. Demonstrates the danger of hypothermia on a fishing boat, how to recognize hypothermia, what to do about it, and how to prevent it. Companion self-study workbook is available (see general reference section). 15 minutes.

Hypothermia Lecture: Nemiroff. Alaska Marine Safety Education Association, 1983. Dr. Nemiroff lectures on cold water near-drowning. 60 minutes.

Hypothermia Lecture: Nemiroff. Alaska Marine Safety Education Association, 1988. Dr. Nemiroff lectures on cold water near-drowning at Alaska Emergency Medical Services Symposium. 60 minutes.

Shore Survival. University of Alaska Marine Advisory Program, 1983. The Seven Steps to Survival are demonstrated in this video, as well as vital survival skills such as how to build an emergency shelter from materials at hand, how to create signals, and how to use resourcefulness and ingenuity to stay alive. 22 minutes.

Ice and Snow

Danger, Thin Ice! Minnesota Department of Natural Resources,1993. Ice safety for anglers, snowmobilers, cross country skiers, etc. 10 minutes.

Safe Riders! You Make Snowmobiling Safe. Distributed by the International Snowmobile Manufacturers Association, 1999. Covers basic operation, riding skills, and safety procedures. 22 minutes.

Taken by Surprise: Thin Ice Safety. Alaska State Troopers, 1979. Covers basic ice safety; includes three true stories to emphasize safety points. 29 minutes.

Psychology of Survival

Avalanche News Report. KXTV-10 (ABC), February 2, 1999. News story of five college students on a sledding trip caught in an avalanche; includes survivor interviews. 5 minutes.

Land and Sea: Emergency/Survival/Rescue. Dateline NBC, 1996. Cellular phone is key in rescuing a woman trapped in a car in a South Dakota blizzard. 13 minutes.

Primetime. ABC News, 1996. Motor-sailor sinks off the coast of Hawaii; teens survive 28 days in liferaft. 14 minutes.

Survival Psychology. Ray Mears' Extreme Survival, BBC Bristol. Covers psychology of survival in shipwreck, liferaft, and hijack situations. 29 minutes.

Contact Information for Resources

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P.O. Box 2592
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University of Alaska Sea Grant
P.O. Box 755040
Fairbanks, AK 99775-5040
(888) 790-0090

U.S. Coast Guard 17th District
Maritime Office of Compliance (MOC)
P.O. Box 25517
Juneau, AK 99802-5517

Fishing Vessel Safety Office
(907) 463-2286, 1-800-478-7369

Recreational Boating Safety Office
(907) 463-2297

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