INSTRUCTOR'S LESSON PLANS
Cover Sheet

COURSE: AUXILIARY TRAINING COURSE

LESSON: Part 2: SURVIVAL

PREPARED BY: KEITH CONOVER

DATE: 21 Sept 1979

All reviewers please sign (N.B. please initial all comments in text)

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<tr>
<td>Jct. 79</td>
<td>K. Conover</td>
<td>TO BE REVISED &amp; TIME ADDED AFTER 60 HR. EXPERIENCE WITH LESSON PLAN</td>
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(Continue on reverse if necessary)

☑ APPROVED 10/27/79  
Date  
Training Officer

☐ REVISED AND APPROVED (original with comments in Group files)

Date  
Training Officer
# I. Introduction

A. Survival priorities:
   - How long can you be lost in VA?
   - Short-term survival is important here.
   - Short term survival means shelter from environment, mostly temp. extremes.

# II. Heat balance concept

A. Body produces heat; must regulate heat loss to maintain stable temp.
B. Body core temp. must be close to 99°F for chemical reactions to work right.
C. Challenge: to use equipment and knowledge to help body stay near 99°F, in harsh environments.

# III. Heat loss and compensation

A. How is heat lost?
B. 3 major causes of outdoor heat loss:
   - temperature (primarily cond. & rad.)
   - windchill (convection)
   - wetchill (conduction & evaporation)

   NOTE: most clothing has a conductivity near that of water when wet.
C. Winter cold gives temperature chill, but worst is around 32°F with wind and rain: HYPOTHERMIA WEATHER.
D. People often caught unprepared by storms in summer; wind & wetness can cause cold problems even at 60°F!
E. Proper gear is important:
   - adequate raingear important, but even with raingear, wetness is still a problem; so,
### CONTENTS

<table>
<thead>
<tr>
<th>(III.E.)</th>
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<tbody>
<tr>
<td>--clothes must be warm when wet!</td>
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<td>--cotton is useless as insulation</td>
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<td>when wet, and wicks water.</td>
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**F.** The 3 "W"s for cold/wet protection:

- **WOOL**
- **WINDPROOF**
- **WATERPROOF**

**G.** 2 plastic leaf bags, a plastic tube-tent, or a tube storm shelter gives light, cheap wind & rain protection.

**H.** With proper knowledge and equipment (not necessarily fancy or expensive) you can be comfortable in hypothermia weather.

### IV. Heat loss physiology

**A.** How does body first react to threats to core temperature?

**B.** By changes in the skin.

**C.** Hot → flushing(expanded blood vessels near skin) & sweat.

**D.** Sweating causes loss of salt and water; too much loss of either one, or simply excessive heat, may cause heat emergencies (will discuss later).

**E.** In a hot environment, cover up with loose clothing, ration your sweat, not your water, and recognize dehydration: Dark urine, dizziness, nausea, tunnel vision, thirst (although thirst not a good indicator of water depletion)

**F.** Cold → shrinking of blood vessels, cooling skin.

### AV AIDS

- 12. FABRIC COMPARISON
- 13. WOOL AND WINDPROOF
- 14. WATERPROOF
- 15. STORM SHELTER
- 16. HAPPY WINTER HIKER
- 17. FIRST LINE OF DEFENSE...
- 18. NORMAL SKIN
- 19. HOT SKIN
- 20. BODY WATER IS LIMITED!
- 20.5 HOT ENVIRONMENT
- 21. COLD SKIN
<table>
<thead>
<tr>
<th>TIME</th>
<th>CONTENTS</th>
<th>AV AIDS</th>
<th>INSTRUCTOR NOTES</th>
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<td>G.</td>
<td>This cooling creates an insulating shell around the core; but note the neck and head stay warm because of continued blood supply to the brain. &quot;If your feet are cold, put on a hat.&quot;</td>
<td>22. PERIPHERAL COOLING</td>
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<td>H.</td>
<td>If core is still cooling, shivering will occur, increasing heat production, but at the cost of exhaustion (depletion of energy stores) and fatigue (buildup of waste products).</td>
<td>22.5 BALACLAVAS</td>
<td>23. EXHAUSTION AND FATIGUE</td>
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V. Cold problems

A. Of the two major cold problems, hypothermia is far more serious than frostbite, because hypothermia → death.

B. Hypothermia = decreased core temp.; when skin cooling, shivering, and adding clothing aren't enough.

--physical + mental impairment

--shivering

--withdrawal

--may not notice in self due to mental effects

--often occurs above freezing, even in VA summer nights

--most who get to stage of not being able to stop shivering can't re-warm self without external warmth.

C. If person gets hypothermic in field,

--recognize the problem

--stop exposure

--change into dry clothes

--force candy or gorp, hot drinks.

26. BODY COLD PROBLEMS
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<th>TIME (ELAPSED) CONTENTS</th>
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D. If a person must be rewarmed, use a sleeping bag with another warm body in it; DON'T put in bag alone.

E. Rapid rewarming (e.g. in tub of water) may cause shock and heart failure; do so only if you know how.

F. Above all, prevent hypothermia!

G. Frostbite is the freezing of tissues
   "Frostnip" is in upper skin only, should be rewarmed in mouth, armpit, etc.
   --Deep frostbite is white, numb, and "wooden"; can walk on frozen feet, but not on thawed ones.
   --Frostbite should never be rubbed; ice crystals will damage tissue.
   --Treatment is to rewarm rapidly in 105°F water (but no hotter--no temp. sensation in frozen limb).
   --Frostbite is always caused by unusual, preventable causes:
      -fatigue, exhaustion, illness, or hypothermia
      -sudden intense cold (e.g. super-cooled gasoline or alcohol, or cold metal against the skin)
      -Restriction of circulation (e.g. tight boots).
   --Trench, or immersion, foot is like frostbite, but caused by cold and wet above freezing, and by tight boots.
   --Frostbite turns red and blisters,

27. HYPOThERMIA

28. WINTER SCENE

29. FROSTBite

30. FROSTBite BLISTERS

31. FROSTBite LATE
### Part 2: Survival

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<thead>
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<th>TIME (ELAPSED) ACTUAL</th>
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<td>(V.G.) then turns black and automatically amputates injured parts.</td>
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<td>H. Important point: hypothermia and frostbite are easily prevented, but difficult to treat.</td>
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<td>VI. Heat Problems</td>
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<td>A. Lack of salt, lack of water, and heat caused (usually) by summer weather may cause 3 major problems:</td>
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<td>B. Heat Cramps --caused by lack of salt replenishment --usually in legs or abdomen, not relieved by massage --replace the salt (best at meals) --if salt tablets used, take plenty of water.</td>
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<td>C. Heat Exhaustion --dehydration $\Rightarrow$ collapse --looks like shock: cold clammy skin, rapid pulse, temp. normal. --normal response to overexertion in hot environment. --rest in shade, drink salty fluids, put feet up.</td>
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<td>D. Heatstroke --A true medical emergency: 50% mortality. --failure of part of brain regulating temperature $\Rightarrow$ sweating stops. --skin hot, dry, red; person appears very sick. --Must lower, and control, temperature. --Transport with standard first aid.</td>
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<td>31.5 WINTER SCENE</td>
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<td>32. HEAT AND DEHYDRATION</td>
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<td>33. HEAT CRAMPS</td>
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<td>34. HEAT EXHAUSTION</td>
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#### E. Review:

- **Heat Exhaustion**—normal response; cold, clammy, pale; rest with feet up in shade, and drink salty fluids.
- **Heatstroke**—true emergency; hot, dry, red, sick; cool off and transport.

#### VII. Survival

- A. **Avoid panic; use the S-T-O-P mnemonic:**

- B. Know your abilities; don't overextend yourself.
- C. Don't let artificial goals (like finishing a summit climb) cloud your judgement.
- D. Be prepared for sudden changes in weather, and other problems, by keeping spare food, water, clothing, and shelter in your pack. Your pack is your life-support system in a hostile environment, so
- E. **DON'T GET SEPARATED FROM YOUR PACK!**

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36. **COMPARISON**
37. **WILD SCENE**
38. **PEAK**
39. **BACKPACKERS**
40. **CARTRON**
41. **SUNSET**