

Layering Clothing for Warmth

I. Inner Layer

- layer that most people ignore.
- best to wear hydrophobic (“water hating”) fabric to transport perspiration away from skin
 - keeps skin dry and comfortable
 - a. Light weight polypropylene, polyester or silk

II. Middle Layer

- insulating layer
- thermal underwear
- a. Light weight
 - i. For times of higher temperatures or high activity
 - e.g.. skiing, backpacking, etc at 40° - 50° F
- b. Mid weight
 - i. For times of lower temperatures or less activity
 - e.g.. Hiking, sledding, etc at 30° - 40° F
- c. Expedition weight
 - i. For times of cold temperatures or no activity
 - e.g.. Sitting at less than 30° F

III. Outer Layer

- Protection from the elements with some ventilation
- Shirt, turtlenecks, pants, sweaters, jackets
- a. Fleece
 - i. Made of plastic, retains insulation even when wet
 - light weight
- b. Wool
 - i. Traps “dead air” in the fabric
 - insulates even when wet, can be wind resistant
 - heavy, dries slowly, itchy
- c. Down
 - i. Lightweight, wind resistant
 - little insulation when wet
- d. Polar guard, Primaloft
 - i. Synthetic fibers for added warmth

IV. Shell

- Protection from wind, rain, snow and sun
- need ample ventilation to prevent moisture buildup
- a. Breathable shell
 - i. Typically made of nylon
 - light weight, inexpensive but not water proof
- b. Waterproof Shell
 - i. Treated nylon
 - waterproof but allows moisture buildup inside
- c. Breathable and waterproof
 - i. Gore-Tex, Ultrex,
 - pores allow vapor out but not water in
 - expensive.

V. Head Layer

- a hat provides protection from sun, rain and reduces heat loss through head

- wool or synthetic
- other items like a wide brim provide protection from sun/rain and help prevent overheating

VI. Hand Layer

- gloves/mittens should fit snugly but not tightly.
 - mittens are warmer than gloves
- polypropylene glove liners together with gloves provide good cold temperature protection

VII. Foot Layer

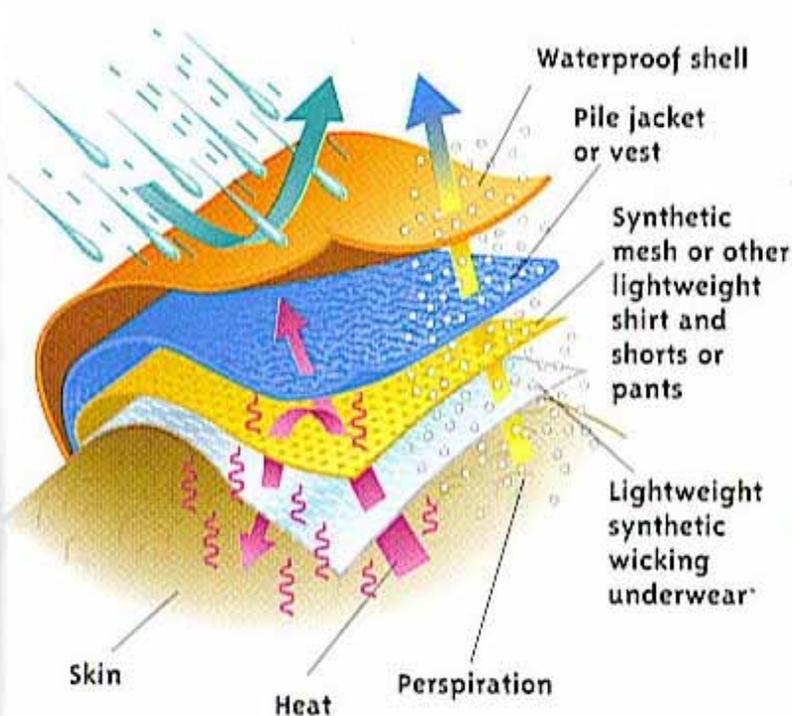
- always, always wear a synthetic sock liner
 - remove moisture from foot to reduce friction, blisters
- on top of liner, wear wool or synthetic hiking sock (do not wear cotton!)

Clothing Techniques

- When you first get up in the morning, your activity level will be low as will the air temperature. You will need to have many, if not all, the layers on until after breakfast.
- When you begin to become active, you will need to shed some layers, since you will start generating heat. A good rule of thumb is, just before you get ready to hike, strip down until you just begin to feel cool, not chilled. Then start hiking.
- if you stop for more than a few minutes, you may need to add a layer to stop from getting chilled.
- if your clothing gets wet, take it off and change into something dry. Wetness can lead to hypothermia
- at the end of the day, just before it gets cool, layer up to stop from getting chilled. It may be good to put on more than you need. Once the body cools down, it is harder to warm up than to ventilate when you are too warm.

The Law of Layering

Layering in Spring, Summer, and Fall



Layering in Winter

