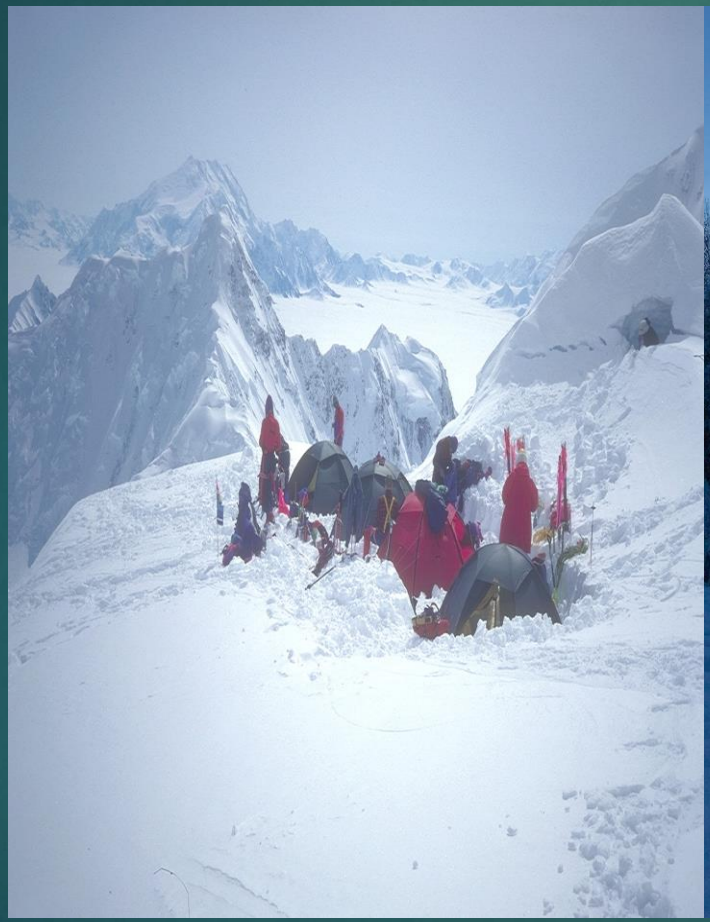
An Order of the Arrow

PRODUCTION

Achewon Nimat

Presents

WINTER CAMP AWARENESS



Fuels & Stoves

Taught by

Royaneh Village

Advantages and Disadvantages of Chemical Stoves and Fires

To Stove or to Fire?

Advantages of Chemical stoves

- Quicker to light
- Cooking is more controlled
- Lightweight stoves as common as heavy-duty models
- Lower environmental impact (fuel cans vs wood, trash vs ashes)

Disadvantages of Stoves

- Limited fuel supply (can’t “gather” fuel”)
- Not very good for warming a lot of bodies
- Not the same feel as having a fire

To Stove or to Fire?

Advantages of Fires

- Social gathering spot (campfires)
- Fuel can be gathered
- Provides more radiating heat

Disadvantages of Fires

- Could be hard to light (esp when surrounded by snow)
- Cooking is less controlled
- Higher environmental impact (taking wood, handling ashes)

Will it be Stoves or Fires?

It's up to you when it's best to use either.

When Choosing a Stove, Consider:

- SAFETY FIRST
- Ease of Use
- Efficiency in your Conditions
- Fuel source (cartridge size, availability, etc)
- Environmental Impact
- Cost (return on investment)

Stoves and Fuel Types

AND THEIR ADVANTAGES AND DISADVANTAGES

Alcohol Stoves

Alcohol Stoves - Advantages

- Spilled Fuel Evaporates Quickly;
  Some Solid and Semi-solid Fuels Available
- No Priming (pressurizing and heating up a stove) required
- Lightweight
- Relatively easy to operate (mostly light and go)
- Stable in the wind
- Relatively cheap (around ~20 dollars)
- Altitude shouldn't be a problem

Alcohol Stoves – Disadvantages

- Highly volatile fuel
- If stoves are cooking sets, they can be large
- Low heat output per amount of fuel
- Limited control of heat
- Burns rapidly
- Small size means constant resupply ($$$)

Butane (and Butane Blends) Stoves

Butane stoves - Advantages

- No liquid fuel to spill
- Lightweight canister and burners
- No Priming necessary
- Easy to operate and control
- Safe and reliable
- Medium Price Range, ~40 dollars

Butane stoves - Disadvantages

Disadvantages

- Liquid fuel, so must be kept above 32 degrees Fahrenheit to be efficient
- As fuel runs low, so does pressure
- Altitude will become a problem
- Cartridges must be specially disposed
- Some smaller burners can only hold smaller pots

Isobutane Stoves – A Possible Solution

- Butane and propane blend
- Same type of lightweight canister and burners
- Can light in colder temperatures
- Still easy and still safe

Propane stoves

Propane stoves - Advantages

Advantages

- Very safe
- High heat output per canister
- Easy to operate
- Commonly available
- Can cook multiple items at once

Propane stoves - Disadvantages

Disadvantages

- Inefficient below 32 degrees Fahrenheit
- Bulky, heavy cartridges
  (bigger group → more cartridges)
- Often larger burners
- Cartridges must be specially disposed

White Gas stoves

White Gas - Advantages

- Very high heat output
- Spilled fuel evaporates quickly
- Functions at very low temperatures
- Fuel readily available
- Consistent output of high heat
- Can use with heat reflector and windscreen

White Gas - Disadvantages

- Highly Volatile Fuel (fumes can ignite)
- Burns more oxygen
- Priming required
- Self pressurizing stoves must be insulated from cold to work
- Don’t spill this stuff on skin in cold weather
- Can be very expensive
- User may need more experience to operate efficiently

White Gas Fuel Consumption Guidelines

(2 Ounces) x (# of people) x (# of meals) = fuel consumption

This formula does not take into account the other needs of a cooking crew, such as dishwashing or hot beverages during the day.

Plan to bring plenty of extra fuel! And have them filled

Stoves and Fuel Safety

FIRST THING FIRST, NO HOMEMADE STOVES.

Guide to Safe Scouting on Chemical Fuels use

- Knowledgeable adult supervision
  - (Adults are ultimately responsible)
- The use of liquid fuels for starting any type of campfire is prohibited
- Safety, Safety, Safety

Guide to Safe Scouting on Chemical Fuels use

- Have the instruction manual readily available when operating stoves
  - Know how to use your stove before the trip

- All liquid fuels shall be kept in well-marked, approved containers and in ventilated, locked boxes away from fires and flammable materials.

Guide to Safe Scouting on Chemical Fuels use

- Never fuel a stove, heater, or lantern in an unventilated structure. Leave at least two ventilation openings, one high and one low.
- Place the stove on a level, secure surface before operating. On snow, place insulated support under the stove to prevent melting and tipping.

Guide to Safe Scouting on Chemical Fuels use

- Use soap solution to check fittings on stoves.
- To avoid possible fires, locate gas tanks, stove, etc., below any tents since heavy leakage of gas will flow down hill the same as water.
- DO NOT PUT YOUR BODY OVER THE FLAMES!

Guide to Safe Scouting on Chemical Fuels use

- Do not leave a lighted stove or lantern unattended.
- Do not put heavy or large objects on top.
- Bring empty fuel containers home for disposal and keep away from flames.

Guide to Safe Scouting on Chemical Fuels use

- Only flashlights and electric lanterns are permitted in tents. ***No flames in tents is a rule that must be enforced.***
- **Never use liquid-fuel stoves, heaters, lanterns, lighted candles, matches, and other flame sources in or near tents.**

Questions?