

**LEAVE NO
TRACE
FIELD EXPERIENCE**



LEAVE NO TRACE FIELD EXPERIENCE


LESSON 1 • The Best Trip is Well Planned!

Objectives:

Students will:

- identify at least three reasons why trip planning is important.
- describe the key elements included in successful planning preparation.
- create a planning and preparation list to use in making travel decisions in the future.
- plan and calculate group needs for calories, weight, and cost and then develop a “Total Food Planning” list.
- demonstrate knowledge of **Leave No Trace** principles in a “Skills Trail.”

Background:

One of the most important **Leave No Trace** (LNT) principles is: **Plan Ahead and Prepare**. Adequate trip planning and preparation helps you and your students accomplish trip goals safely and enjoyably while minimizing impacts on the land. This lesson and activities focus on why trip planning is important, what it entails, and how to go about it. The “Elements to Consider When Planning a Trip” teacher/student handout and the “Nutrition and Rations Planning” teacher/student handout serve as background for this lesson. Display the  **Leave No Trace** poster in the classroom as a quick reference for students.

Activity 1: Are You Ready?

Materials:

- pictures depicting a local or regional environment (high alpine, desert, river, etc.)
- copies of student handout: “Elements to Consider When Planning a Trip,” page 65.

Duration: 1 class period

Location: indoors or outdoors

Procedure:

1. Ask students to bring a pack packed for a day hike. Don’t reveal a destination or suggest contents—explain it is a practice exercise. If students are not familiar with packing a day pack, prepare one pack as an example.
2. Break students into groups of three to five. Explain that you are going on an imaginary day hike. Build suspense by asking students to guess the destination. Show the destination

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Procedure continued:

pictures and describe the location you selected (weather, terrain, etc.). Explain the goal of the trip is to bird watch. Ask groups to unpack their packs and discuss their answers to the following questions:

Do the contents of your pack properly prepare you for this trip?

- Do the contents ensure your safety?

Check for proper clothing, maps, compass, small flashlight, water filter, first aid kit...

- Do the contents ensure you will **Leave No Trace**—that you will not damage natural resources? Check for stove, repackaged food, cat hole trowel, no hatchet, plastic jug for water...
- Do the contents ensure your trip will meet your goal—bird watching—safely and enjoyably? Check for binoculars, camera, bird book...

3. Assign as individual or group reading, “Elements to Consider When Planning a Trip” student handout. Facilitate a discussion with students about the results of the activity. Ask small groups to briefly share the answers to the above questions.

Key facilitator discussion points:

- How would the contents of your pack differ with different destinations?

The equipment, clothing, and food chosen would change to suit the intended destination.

- What other information do you need to pack properly for a trip?

There are at least seven elements described in student handout.

- What is the value of pre-trip planning before packing?

Helps ensure the safety of the traveler, accomplish trip goals safely and enjoyably, and minimizes impact to resources.

Credit:

Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills, U.S. Forest Service and Bureau of Land Management.

Activity 2: Will You Make It?

Materials:

- 1 photocopy set of “Will You Make It?” travel cards per group of 3 - 5 students, pages 66-69.

Duration: 1 class period

Location: indoors or outdoors

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Procedure:

1. Read the entire lesson plan. Make copies of handout and cards. Cut the “Will You Make It?” Travel Cards into individual sets.
2. Explain to students that they will identify events which can interfere with a successful trip. These are real-life scenarios emphasizing the need to plan solutions to potential problems before a trip. Students can work in the same small groups as designated for Activity 1, “Are You Ready?”
3. Match events and solutions. Evenly distribute event and solution cards. The goal is to have people find the group member with the corresponding event or solution card and form a pair. You may have to use the key to ensure correct pairing.
4. Plan a presentation. Once all solutions are matched to the corresponding event, have each pair plan some way to teach their plan-ahead concept. Allow group members to be as imaginative as they like. Some ideas include: pantomime, acting out, lecture, or drawing.
5. Give a presentation. Have each pair teach their concept to the rest of the group using the presentation method they have chosen.
6. Facilitate learning by discussing the scenarios after they are presented. Make sure each event is discussed. Emphasize the key elements of trip planning presented in the student handout “Elements to Consider When Planning a Trip.” Tie these key elements to the importance of good preparation.
7. Create a “Planning a Preparation Checklist” you can use to plan your next trip. Use the answers to these questions in creating the checklist.
 - Can your group identify at least three reasons why trip planning is important?
 - Can your group describe seven key elements included in successful planning and preparation (Will You Make It” handout)
 - Do solutions to planning elements change depending on the environment visited, i.e. desert vs. high alpine areas? Reflect back on conservation that resulted from the imaginary day hike to the desert and alpine environments.

Travel Card Key



Event Card	Solution Card
12	1
2	9
15	3
4	11
14	5
6	13
10	7
8	16

Credit: *Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills*, U.S. Forest Service and Bureau of Land Management.

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Activity 3: Developing a “Total Food Planning” List

Materials:

- student/teacher handout: “Elements to Consider When Planning a Trip,” page 65.
- student/teacher handout: “Nutrition and Rations Planning,” pages 70-75.
-  NOLS Cookery
-  Wilderness Ranger Cookbook

Duration: 1 to 2 class periods

Location: classroom

Procedure:

1. Review student handout “Elements to Consider When Planning a Trip.” You can provide hard copies for students or make into an overhead transparency.
2. In large group discussion cover these key elements from the student/teacher handout “Nutrition and Rations Planning.”
3. Explain to the students that they will be creating a “Total Food Plan” for a real or imaginary trip to meet the needs of your class. Small groups will develop a “Master Food List.” Students can get ideas from “Master Food List” at the end of this lesson or refer to the cookbooks “NOLS Cookery” and “Wilderness Ranger Cookbook.”
4. Break the class into groups of four. Each group will complete a food plan. Provide each group with a copy of the student/teacher handout “Nutrition and Rations.” Students will calculate the calories needed for their group, the total weight of their group’s food, and the individual weight to be carried. They will also determine the food’s cost. Using these figures, each group should be able to determine a food list which meets calorie, weight, and cost criteria.
5. If time permits, each small group can share their results. Each group’s “Master Food List” can be critiqued by the rest of the class.
6. Students can create a computer program to display all necessary information to plan a “Master Food List.”

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Activity 4: The Skills Trail

Background:

The skills trail consists of a number of “stations,” each of which addresses a particular backcountry concern expressed in the station heading. Illustrations are used to highlight, and often contrast, key elements of the station topic. Below each station’s illustrations is a challenge to the participant in the form of questions or a scenario regarding the topic. There are two versions to the Skills Trail. Version one is the most challenging of the two and requires “station items” (props). Version one works best when guided by a facilitator. Version two does not require station items and can be self guided. Handouts and information for both versions are contained in this guide and may be photocopied as needed. Have fun!

Materials:

- Skills Trail Posters:
 - “Pre-travel: Destined to Succeed”
 - “Pack a Pack: Hard Wear”
 - “Fires or Stoves: A Hot topic”
 - “Camp: A Site to Behold”
 - “Sanitation: When Nature Calls”
 - “Au Naturel: Compost Naturalization”
 - “Wet & Wild: Is that H2O Really Safe?”
 - “Horse Travel: Good Horse Sense”
- backpack packed with a few items of clothing, dried foods such as beans or instant mashed potatoes repackaged plastic bags, and a bottle of biodegradable soap
- stove and fuel bottle
- small roll of toilet paper and a trowel
- lightweight backpacking tent
- 🐾 Books: NOLS Cookery Wilderness Ranger Cookbook

Duration: 30 minutes to set up, 45 minutes to conduct

Location: outdoors, interesting terrain preferred

Procedure:

Identify a reasonably large outdoor site ahead of time. There aren’t too many requirements of the site, but if you can actually take a hike into interesting terrain it adds to the activity. Establish the stations listed above and post the appropriate poster at each. Pitch the tent at the “Campsite Selection” station, and try to locate this on some resilient vegetation (e.g.

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Procedure continued:

grass), or at an established campsite. Locate the stove and fuel bottle at the "Fires and Stoves" station. If there is an old fire ring in the area, that is a good place for the "Fires and Stoves" station. At the "Human Waste Disposal" station, dig a cat hole into organic soil and leave the toilet paper and trowel next to it. Be sure the cat hole is at least 200 feet away from a water source such as a creek. If you are working with wheelchair bound students, place demonstration materials on a table at wheelchair height, 3 feet to 3 feet, 6 inches.

Now you are ready for the hike. Ask one of the students to carry the backpack, and trade off periodically, so that several students have the opportunity to carry it.

1. Pre-travel—Destined to Succeed:

Station Theme: Experienced campers plan their trips.

Resource Issues: Well-planned trips result in good decisions that help reduce resource damage.

Station items:


- topographic maps
- compass
- manual with hints for map reading
- paper
- pencil

2. Pack a Pack—Sole Food:

Station Theme: Good meal planning helps reduce weight and trash.

Resource Issues:

- unsightly and unsanitary trash from poorly planned meals
- food scraps that contribute to the poor diet of wildlife
- potential water pollution
- overloaded packs lead to fatigue and poor decision making

Station Items: sole food list from  cook books, food tubes, dry cereal, oatmeal, powdered milk, milk carton, honey, syrup, pancake mix, peanut butter and jelly, mayonnaise jar, tuna can, tomato sauce, paste with dry sauce mix, canned stew, dried fruit, foil drinks, dry drinks, soup cans, dry soup, rice, bread sticks, crackers, cheese, weenies and beans, cups of cereal, etc.

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Procedure continued:

3. Pack a Pack—Hard Wear:

Station Theme: Most of us carry too much gear into the backcountry.

Resource Issues: Carrying too much often leads to trash being left behind.

- Heavy packs cause campers to reach destinations late and make poor campsite choices.
- Some equipment, like saws and hatchets, inevitably result in damage to trees and vegetation.

Station Items: hard wear list from guide book, hatchet, backpack saw, food tubes, collapsible jug, water pump, tent, stove, sleeping bags, pillow, blanket, tarp, cook kit, one pot and pan, utensils, small jackknife, cups, bowls, plates, trowel, clothing, radio, garbage bag, toiletry...use imagination!

4. Fires or Stoves—A Hot Topic:

Station Theme: Deciding how to cook your meals may prevent or cause damage to the land.

Resource Issues: Fires can kill vegetation and sterilize soil.

- Fires can leave unsightly scars and contribute to the expansion of bare ground.
- Branches and trees used for firewood provide wildlife habitat and also decay into topsoil. Breaking branches from trees also strips an area of its unspoiled character.

Station Items: Backpack stove, fuel bottle, branches of the proper size, perhaps even an entire fire circle showing the wrong way to build a fire with charred rocks and trash in the pit.

5. Camp—A Site to Behold:

Station Theme: Choosing a campsite that will minimize your impact is one of the most important decisions you will make.

Resource Issues: Campsite selection impacts vegetation, wildlife and the solitude of other visitors.

Station items: several photographs of campsites in different conditions, paper and pencil

6. Sanitation—When Nature Calls:

Station Theme: Disposal of human waste demands careful decision making.

Resource Issues: Fecal waste can spread disease, pollute water, and is unsightly.

Station Items: toilet paper and trowel, pencils and paper for ideas...

7. Au Naturel: Campsite Naturalization:

Station Theme: Breaking camp requires more than simply picking up your litter.

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Procedure continued:

Resource Issues: Encouraging people to choose heavily used sites confines impacts to small areas.

- Camouflaging sites that should not be used again prevents campsite proliferation.
- Proliferation of campsites leads to loss of vegetation, erosion and greater impacts on wildlife and other visitors.

Station items: Photographs of campsites in different conditions or, for variety, set up actual campsites with rocks, ash and litter (for a fire circle); duff and pine needles (for rehabilitation).

8. Wet & Wild—Is that H₂O Really Safe?:

Station Theme: Wild water should not be considered fit to drink until it has been properly treated.

Resource Issues: Surface water from rivers and creek can carry disease.

Station items: iodine tablets, stove, water purification filter.

9. Horse Travel—Good Horse Sense:

Station Theme: Packing with animals requires good horse sense.

Resource Issues:

- Repeated trampling by stock can destroy vegetation.
- Pack animals permit equipment to be brought into the backcountry which can lead to high impact camping practices.

Station items: Webbing for tree savers, hitch line (high-line), hobbles, picket, equipment (Dutch oven, extra line, heavy gear, light gear, etc.), photographs of horse damage, easy boot.

Credits:

- Wasatch Cache National Forest—*Backcountry Skills Posters and Facilitators Guide*
- The primary references here were the Forest Service brochure FS-521, and the book, *Soft Paths*.
- For more in-depth treatment of selected topics, see:
The Wilderness Educator, Cockrell, D. (1991), Merrillville, IN: I.C.S. Books.
Wilderness Medicine, Forgey, W. (1987), Merrillville, IN: I.C.S. Books.

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Evaluation / Follow-up / Extension

- Students can create new event and solution cards for “Will You Make It?” game.
- Assign students to design a Wilderness horsepacking trip. Develop a plan and calculate rations for your stock. Find out what type of feed you will need to pack (pellets, weed seed free hay, etc.) to supplement forage opportunities on your trip. Remember to apply LNT principles to this trip!
- Students will organize and teach the “Skills Trail” for other students.
- Conduct the Project Wild activity, “What Did Your Lunch Cost Wildlife”?
- Bring a properly packed backpack to class. Demonstrate and discuss how and why items are placed where they are. Explain that the pack should weigh approximately 1/3 of our body weight. If you are preparing for a backcountry trip, ask students to weigh and chart information to see if they’re able to apply proper packing principles.
- Present a bear-resistant food container or pannier and discuss proper food containment techniques.

Career Options: outdoor trip leader, commercial outfitter and/or guide, naturalist

References:

- *Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills*, U.S. Forest Service and Bureau of Land Management.
- *The Backcountry Classroom, Lessons Plans for Teaching in the Wilderness*, Jack K. Drury and Bruce F. Bonney
- *Wilderness and Land Ethics Curriculum, K-8*, Arthur Carhart National Wilderness Training Center.

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Teacher Checklist for Planning Field Experience

NOTE TO THE TEACHER/OUTDOOR LEADER:

Listed below is a series of questions you can review before teaching the lessons. Careful planning for a successful field experience is essential for student safety and a positive outcome.

- Is the special project relevant to the discipline objectives of the class/program?
- How does the project fit into the curriculum? Have the expected learner outcomes from accomplishing the project been established?
- What are the interdisciplinary connections?
- Is the project relevant to the students' personal experiences?
- Is the project student-driven?
- Will student motivation and ownership be generated by undertaking the special project?
- Do students possess the cognitive and skill levels necessary for accomplishing the project?
- Will the project include a diversity of learning techniques?
- Have the means of student evaluation been determined?
- Are there any legal considerations or potential insurance problems?
- Will students need to leave the school grounds to complete their special project?
- What special arrangements will need to be made? (Transportation, special passes, parental permission, guest lecturers, special facilities/space, use of special equipment such as computers or telephone, volunteers, chaperones, etc.)
- Has the time frame for the special project been outlined? (When will the students work on their special project? Will students need time outside of class?)
- Will any publicity need to be generated for the special project? If so, have the means to publicize the project been determined?
- In the case of long-term projects, who will be responsible for sustaining the project after the original participants have left?
- Have you contacted the appropriate administrative organization? What special restrictions apply? Are they available to make a presentation to the group?

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Activity 3: Developing a “Total Food Planning” List STUDENT TEACHER HANDOUT “Elements to Consider When Planning a Trip

One of the most important **Leave No Trace** (LNT) principles is: **Plan Ahead and Prepare**. Adequate trip planning and preparation helps you, accomplish trip goals safely and enjoyably while minimizing impacts on the land.

Seven Elements to Consider When Planning a Trip:

1. Identify and record the purpose and goal (expectation) of your trip.
2. Identify the skill and ability of trip participants.
3. Select a destination to match your purpose, goal, skills, and abilities. Remember, you're only as strong as your weakest member!
4. Gain knowledge of the area you plan to visit.
5. Choose equipment and clothing to ensure safety and the likelihood that you'll **Leave No Trace**.
6. Plan trip activities to reinforce your purpose, goals, skills, and abilities.
7. Evaluate your trip after you're back home and note changes you will make next time.

Other Elements to Consider When Planning a Trip:

- weather
- terrain
- regulations/restrictions
- private land boundaries
- average hiking speed of group
- anticipated food consumption (Leftovers create waste which leaves a trace!)
- group size (Does it meet regulations, trip purpose, and Leave No Trace criteria?)
- Strive to practice all **Leave No Trace** principles.

Meals

Meals are an important element to trip planning that have a profound effect on the group attitude in a backcountry. Benefits of good meal planning result in: reduced pack weight, reduced dependence upon campfires for cooking, lighter loads and less garbage. Most food can be removed from commercial packaging and placed in sealable bags before packing into your backpacks.

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Notes:

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Activity 2: Will You Make It?

Event Card	?	Solution Card	!
BLISTERS! You have a nasty blister and can no longer carry your pack. You are not even sure you can walk to your campsite.		An adhesive felt-like material acts like a second skin and can be applied to the feet or other areas of human skin to prevent rubbing. Always carry this with you AND break in new footwear BEFORE a trip.	
LIGHTNING! A storm is quickly blowing into your area. From your vantage point high on the trail you can see lightning. You estimate you have about five minutes before the storm reaches you.		Before you left on your trip, you researched safety. You remember that lightning is attracted to the highest point and that water and metal conduct the electrical charge. You take off your metal frame pack, stay away from puddles of water and choose a low spot away from the tallest trees.	
PACK WEIGHT! Your pack did not feel heavy when you left, but now you can hardly move. You're so tired you would just as soon sit right down and not walk another step!		Too bad. Your heavy pack made it impossible to hike fast. You find a campsite for the night, but you never made it to your destination. Your pack's weight should be 1/3 of your body weight. Weigh your packed backpack on a scale BEFORE you leave. Choose what to leave behind. Some items, like cook kits, may be used by several people and the contents divided among the packs.	
STEEP TRAIL! Your hike is three miles long and gains 1000 feet of elevation for every mile. This is steep. You must reach camp before dark. Everyone is walking very slowly because it is so steep.		You believe in planning ahead. You looked at a map and talked to the agency that manages this trail, so you were aware it was steep. Realizing that people hike an average of two miles an hour on flat terrain, you figured flat-terrain hiking time of 1 1/2 hours for the three-mile trail and doubled it to account for the steep elevation gain. You have plenty of time to reach camp before dark.	

Will You Make It? Travel Cards

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Activity 2: Will You Make It?

Event Card	?	Solution Card	!
<p>PRIVATE PROPERTY! Your group is walking along a trail when suddenly in front of you there is a fence with a “No Trespassing” sign.</p>		<p>Your group leader pulls out a statement signed by the owner of the private property giving permission to cross the private land. A review of maps revealed this private property, and a couple of phone calls resulted in the signed statement.</p>	
<p>WATER! Your group brought two quarts of water per person, but your hike has been very hot and now everyone is low on water. You can’t boil water because a fire ban is in effect and you don’t have a stove because you were only going on a hike.</p>		<p>After another hour of an uncomfortably dry hike, you run across a prepared hiker who pulls out a water filter designed to remove bacteria from wild water sources. After taking a break on the rocky shore of a small pond, you filter water and have enough to finish the hike.</p>	
<p>CAMPFIRE BAN! You have no stove and the area you came to visit has been heavily used and does not permit campfires. It’s dinner time and everyone is hungry.</p>		<p>Because this was only an overnight trip, someone suggested you bring prepared food for dinner. As the sun begins to set, everyone gathers on a rock outcrop near camp and pulls out a sandwich, piece of fruit, and a snack for dessert. As darkness falls the group watches the stars appear and tells stories about the shadows in the night.</p>	
<p>CAMPSITE! When you arrive at your destination, both campsites recommended by friends are being used. It will be dark soon. There is a little time to search for another site. You are tempted to camp right on the trail, even though that doesn’t follow good Leave No Trace ethics.</p>		<p>Your group leader hiked to this area two weeks ago in anticipation of your trip and found three perfect campsite options. After following your leader for another ten minutes you move off trail to a campsite with big flat rocks to sit on and a great view of the canyon.</p>	

Will You Make It? Travel Cards

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STUDENT/TEACHER HANDOUT

Nutrition and Rations Planning

A. FOOD PLAYS IMPORTANT ROLES IN:

1. **Staying healthy**

Keeping well-nourished plays an instrumental role in fighting illness and disease.

2. **Building and repairing body tissue**

3. **Attitude**

Without good nutrition, disposition and attitude deteriorate rapidly.

4. **Energy**

Food provides the energy that allows us to take part in physical activities.

5. **Mental alertness**

Thought processes and decision-making ability deteriorate without good nutrition.

B. SPECIFIC NUTRITIONAL NEEDS

1. **Calories**

- a. A calorie is a unit of heat used to measure the energy value of food. It takes 1 calorie to raise 1 gram of water 1 degree centigrade.
- b. Individual daily caloric needs range from approximately 1,800 per day for a sedentary individual to over 6,500 for an expedition member in severe weather.
- c. In general, individual daily caloric needs for wilderness travelers range between: (1) 2,800 and 4,000 in summer. (2) 3,800 and 6,000 in winter.

2. **Carbohydrates**

- a. Carbohydrates provide short term energy.
- b. They should make up approximately 60% of an individual's diet.
- c. Carbohydrates are found in starches and sugars such as:
 - (1) Pastas (macaroni, noodles, spaghetti)
 - (2) Rice
 - (3) Potatoes
 - (4) Drink mixes
 - (5) Candy
 - (6) Fruit

3. **Fats**

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Activity 3: Developing a Total Food Planning List STUDENT/TEACHER HANDOUT

Nutrition and Rations Planning continued:

- a. Fats provide long term energy.
 - b. They should make up approximately 12.5 - 20% of an individual's diet. During colder weather, increase to 25 - 30% of diet.
 - c. Fats are found in:
 - (1) Cheese
 - (2) Nuts
 - (3) Vegetable oil
 - (4) Margarine
- 4. Protein**
- a. The body uses protein to provide for the building of cells and tissue such as skin and muscles.
 - b. It should make up approximately 15 - 20% of an individual's diet.
 - c. Proteins are made up of 22 amino acids. Of these 22, all but eight are produced in our bodies. These eight must be obtained through proteins in food.
 - d. Complete proteins vs. incomplete proteins
 - (1) Complete proteins
These include all eight of the essential amino acids that the body cannot produce. Therefore, they provide a full complement of protein. Examples include:
 - (a) Meats (pepperoni)
 - (b) Fish
 - (c) Soy products (soy flour, soy nuts)
 - (2) Incomplete proteins include some, but not all eight of the essential amino acids. Therefore, they do not provide a full complement of protein. Examples of incomplete proteins include:
 - (a) Cereals (oats, Cream of Wheat, Wheatena)
 - (b) Vegetables and fruit
 - (c) Legumes (beans, peanuts, lentils)
 - (3) Incomplete proteins can be made complete by combining two or more foods (e.g., beans and vegetables) together in the same meal. Although this usually happens naturally, it's helpful to be aware of this to insure that complete proteins are consumed regularly.

5. Vitamins and minerals

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Activity 3: Developing a Total Food Planning List

STUDENT/TEACHER HANDOUT

Nutrition and Rations Planning continued:

If participants consume a variety of foods and the recommended high number of calories, vitamin and mineral intake is generally adequate. Supplemental vitamins and minerals are usually unnecessary.

6. Water

Water is a critical nutritional element.

a. Water aids in digestion.

- (1) It keeps cells healthy
- (2) It regulates body temperature
- (3) It helps to carry wastes out of the body

b. Times when the body is more susceptible to dehydration:

- (1) Strenuous activity (water is lost through perspiration)
- (2) Higher altitudes (water is lost through increased respiration in drier air)
- (3) Cold weather (water is lost through respiration and perspiration)

c. A minimum of 2-4 quarts in summer and 3-4 quarts in winter should be consumed each day to prevent dehydration.

C. FOOD PLANNING CONSIDERATIONS

Depending on the objectives and length of the trip, the following criteria should be considered:

1. Energy content

The number of calories supplied by a food item in relation to its bulk and weight.

2. Nutritional balance

3. Bulk and weight

4. Spoilage

The risk of food spoiling varies with the season and region.

5. Expense and availability

Is it available, and if so, can the group afford it?

6. Ease of packaging and handling

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Activity 3: Developing a Total Food Planning List STUDENT/TEACHER HANDOUT

Nutrition and Rations Planning continued:

- a. Package food in reusable plastic bags or containers. Make sure that you carry all of these out, since they will not easily decompose.
- b. Make sure all foods can be packaged to prevent spilling.
- c. If camping in bear country, select foods that do not have strong scents or odors.

7. Variety

- a. The longer the trip, the more important this becomes as a morale booster. Few people want to eat the same thing day after day.
- b. The more variety, the better the chance of appealing to everyone's food tastes.

8. Preparation time

Consider preparation time when selecting foods. Decide on a moderate amount of cooking time (e.g., 20 minutes) and select foods accordingly.

9. Supplementary wild foods

- a. Are they available?
- b. Can they be harvested legally?
- c. Are group leaders knowledgeable enough to prevent accidental poisoning?
- d. Can the foods be harvested without impacting the environment (will the plants chosen naturally replenish within a reasonable time)?

D. RATION PLANNING

(See next page)

1. "Total Food Planning"

a. Definition

This process is based on determining caloric needs and ensuring that the group has enough food to meet caloric needs while staying within weight and budget constraints .

b. Planning criteria

- (1) Caloric needs--During summer months, between 3,200 and 3,750 calories are planned per person per day, depending on activity level and weather.
- (2) Weight needs-- Approximately 2 pounds of food per person per day is required during summer months.
- (3) Budget needs-- Nutritious meals can be provided for between \$2.50 and \$4.50 per person per day.

Activity 3: Developing a Total Food Planning List
STUDENT/TEACHER HANDOUT
Nutrition and Rations Planning continued:

c. Advantages of “Total Food Planning”

- (1) A large variety of foods can be used, allowing for an endless variety of meals.
- (2) Cooking can be spontaneous and creative.
- (3) It eliminates the need to plan specific meals. Individuals can eat what they want, when they want, and, in general, should have enough food for the trip.
- (4) By minimizing pre-mixed meals and cooking from scratch, financial savings can be realized.

2. How “Total Food Planning” works

a. Calories

Multiply the number of people (P) going on the trip times the number of days (D) of the trip times the minimum number of calories (C) to be brought per person per day. This is the minimum number of calories needed for the trip (e.g., $12(P) \times 33(D) \times 3500(C) = 1,386,000$).

b. Weight

Multiply the number of people (P) going on the trip times the number of days (D) of the trip times the maximum number of pounds (P) to be brought per person per day. This is the maximum number of pounds of food to be brought on the trip (e.g., $12(P) \times 33(D) \times 2(P) = 792$).

c. Cost

Multiply the number of people (P) going on the trip, times the number of days (D) of the trip times the maximum amount of money (\$) to be spent per person per day. This is the maximum amount of money to be spent on food for the trip (e.g., $12(P) \times 33(D) \times \$3.25 = \$1287$).

d. Working with the results

Use these figures and the planning considerations to develop a food list that meets calorie, weight, and cost criteria.

LEAVE NO TRACE FIELD EXPERIENCE

Activity 3: Developing a Total Food Planning List

STUDENT/TEACHER HANDOUT

Nutrition and Rations Planning continued:

E. COMPUTERS AND THE FOOD PLANNING PROCESS

Spreadsheet software can be used to save time and anguish, making food planning easier.

1. A shopping list can be created that meets minimum caloric needs and maximum pound and cost parameters. Once the data base is established, at the press of a button the computer will do all the computations and generate food lists.
2. A nutritional analysis of the food selected for the trip can be done.

F. INSTRUCTIONAL STRATEGIES & MATERIALS:

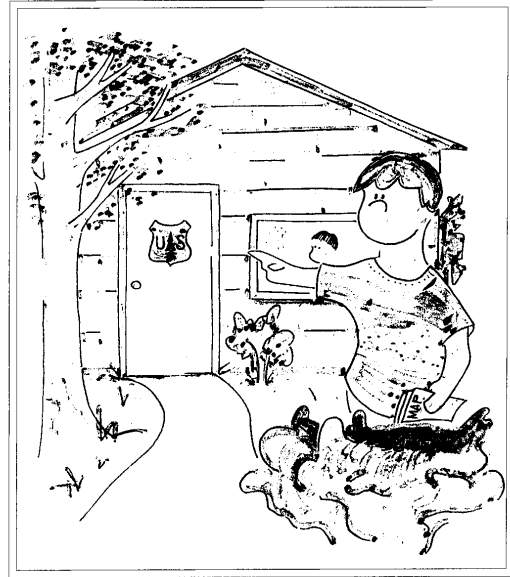
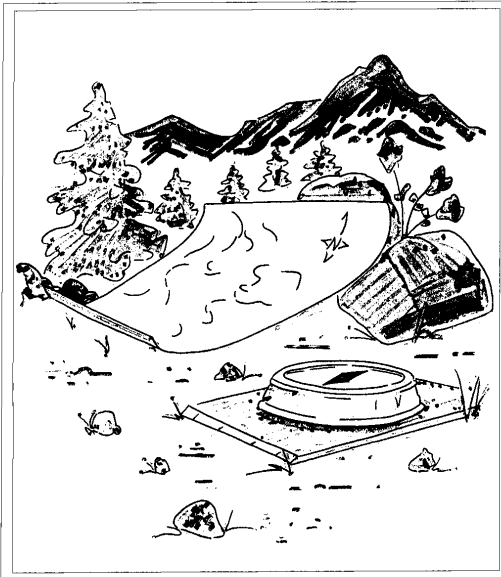
Activity:

Have participants develop a rations plan and use it during a trip.



PRINCIPLE #1

Plan Ahead And Prepare



BEFORE YOU GO

Check with land management agencies before beginning a trip. Know the regulations, inherent risks and special concerns for the area you'll visit.

- Visit the backcountry in small groups.
- Avoid popular areas during times of high use.
- Choose equipment and clothing in subdued colors.
- Always take a topographic map and compass.

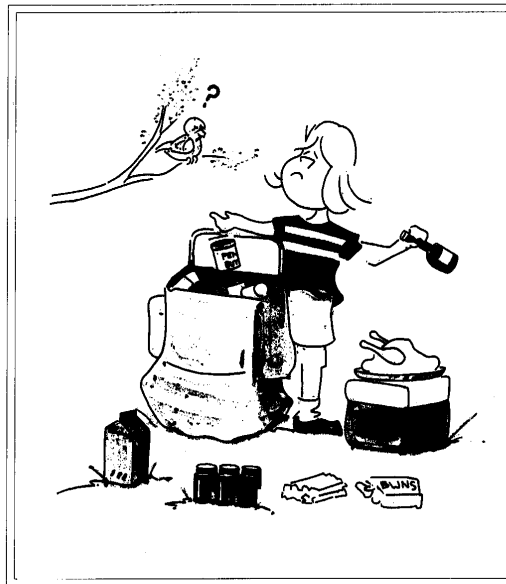
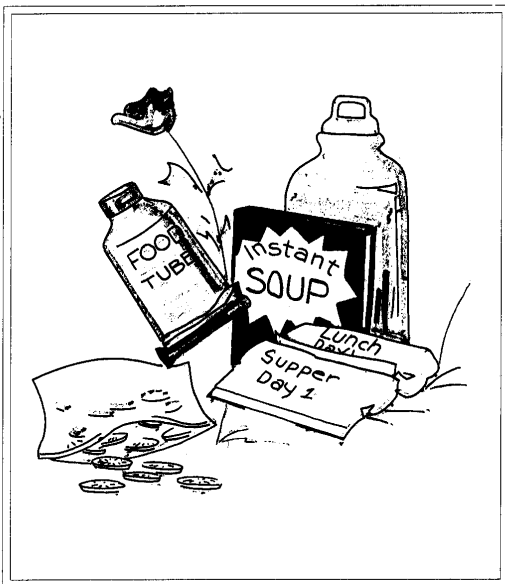


THANKS to the National Forest Foundation and Nike for their generous support of this project.



PRINCIPLE #1

Plan Ahead And Prepare



PACK A PACK

Over-loaded packs lead to fatigue and poor decision making. Well organized meals reduce pack weight.

- **Instructions:** Look at the items at this station. What types of food are lightweight and produce a minimum amount of trash?
- ✓ Dry cereal
- ✓ Powdered milk
- ✓ Dehydrated dinners
- ✗ Bacon & eggs
- ✗ Canned soup
- ✗ Tin-foil dinners & stew

Hints: Anything you bring with you should be eaten or taken home, including leftovers. Repackage food into reusable containers and baggies to reduce waste.



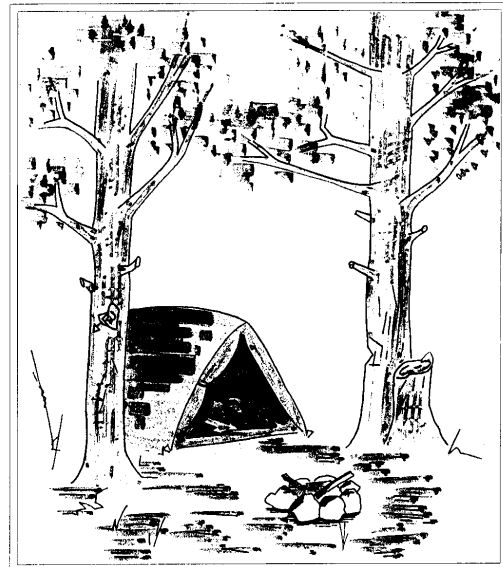
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PRINCIPLE #2

Camp And Travel On Durable Surfaces

***Concentrate Use
And Impacts
In Heavily Used
Areas***



ON THE TRAIL

Stay on designated trails. Walk in single file in the middle of the path. Do not shortcut switchbacks.

- Step to the downhill side of the trail and talk softly when encountering pack stock. Avoid waving arms or making sudden gestures.

AT CAMP

- Choose a worn, legal campsite at least 200 feet (70 adult steps) from lakes and streams and away from other occupied campsites. In National Parks, campers may be required to camp in established sites.
- Restrict activities to the area where vegetation is compacted or absent. Leave the site clean and attractive.



THANKS to the National Forest Foundation and Nike for their generous support of this project.



PRINCIPLE #2

Camp And Travel On Durable Surfaces

*Spread Use
And Impacts In
Pristine Areas*



OFF THE TRAIL

When traveling cross-country, spread out rather than follow the same route. Choose the most durable surfaces available: rock, gravel, dry grasses or snow.

- Do not mark your route with rock cairns, tree scars or ribbons.

AT CAMP

- Choose a durable, undisturbed site to camp on.
- Avoid camping where impact is just beginning. Allow these places to recover.
- Disperse activities in camp. Separate tents from the cooking area and avoid making new paths. Naturalize the site before you leave so others will pass you by.



THANKS to the National Forest Foundation and Nike for their generous support of this project.



PRINCIPLE #2

Camp And Travel On Durable Surfaces



CAMPSITE SELECTION

Look at these drawings of heavily used and pristine campsites. Think about how you would select a campsite based on the following factors:

- How popular is the area (heavily versus lightly used)?
- How large is your group (large versus small)?
- How skilled is your group at no trace camping (high or low skill level)?
- Are you planning to use a stove or campfire?

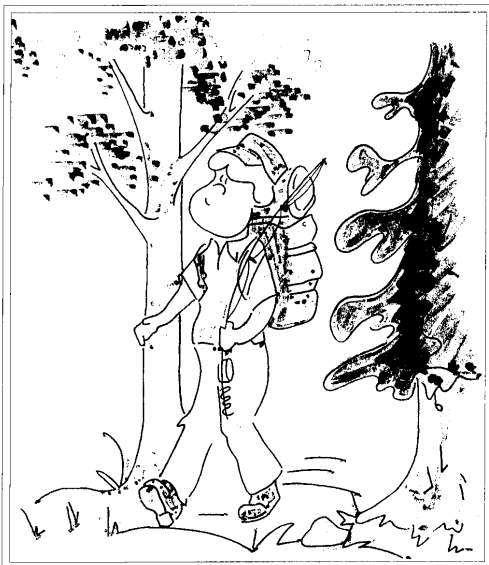
Hints: For each of these two sites think about whether or not you want to encourage other groups to camp here. How would you do this?





PRINCIPLE #3

Pack It In, Pack It Out



Pack out leftover food; never bury it. Pack everything that you bring into the backcountry out with you.

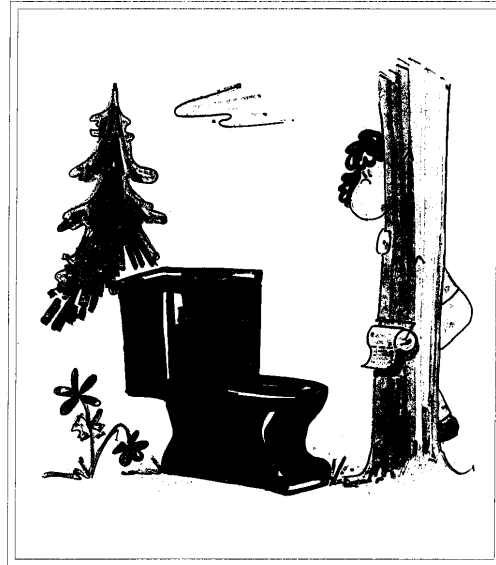
- Pack only what you need for your trip.
- Hang food or use bear resistant food containers in bear country. This protects wildlife and your food.
- Pick up all spilled foods. Pack out all trash, yours and others'.





PRINCIPLE #4

Properly Dispose of What You Can't Pack Out



Use a small trowel to help dig a "cathole". Dig catholes 6 to 8 inches deep and at least 200 feet from water, camp or trails. Cover and disguise the cathole when finished.

- Use white, unscented, biodegradable toilet paper sparingly and pack it out.
- To wash yourself, carry water 200 feet away from streams and lakes, and use a small amount of biodegradable soap.
- After washing your dishes, carry strained dish water 200 feet away from camp and scatter.



THANKS to the National Forest, Presidencies and Nike for their generous support of this project.



PRINCIPLE #4

Properly Dispose of What You Can't Pack Out



Disposal of solid human waste can be an uncomfortable topic, but it demands careful decision making since fecal waste can spread disease. Disposal should:

- ✓ Minimize the chance of finding the waste
- ✓ Minimize the chance of water pollution
- ✓ Maximize the chance for decomposition

Instructions: Following these objectives, choose the disposal method best suited to different backcountry situations.

1. Toilet
2. Latrine
3. Cathole

Hints: How big is your group? Is the area popular? Where is the nearest water? How should you dispose of toilet paper?



THANKS to the National Forest Presidians and Nike for their generous support of this project.



PRINCIPLE #5

Leave What You Find



Treat our natural heritage with respect. Leave plants, rocks, historical and archaeological artifacts as you find them.

- Good campsites are found, not made. Altering a site should not be necessary.
- Let nature's sounds prevail. Keep loud voices and noises to a minimum.
- Control pets at all times. Remove dog feces.
- Do not cut boughs, build structures, furniture or dig trenches around tents.
- Enjoy wildlife at a distance. Give them adequate space particularly near waterholes and during birthing and nesting seasons. Do not feed or disturb animals.



THANKS to the National Forest Foundation and Nike for their generous support of this project.



PRINCIPLE #6

Minimize Use And Impact Of Fire



STOVE OR CAMPFIRE

Campfires can cause lasting impacts to the backcountry. Always carry a lightweight stove for cooking. Enjoy a candle lantern instead of a fire.

- Where fires are permitted, use established fire rings, fire pans, or mound fires. Do not scar large rocks or overhangs.
- Gather sticks no larger than an adult's wrist.
- Do not snap branches off live, dead, or downed trees.
- Put out campfires completely. Remove and pack out all unburned trash from fire rings. Scatter the cool ashes over a large area well away from camp.



THANKS to the National Forest Foundation and Nike for their generous support of this project.



PRINCIPLE #6

Minimize Use And Impact Of Fire



STOVE OR CAMPFIRE

Deciding how to cook your meals may protect or damage the land. Should you use a stove or campfire?

● **Instructions:** List the pros and cons of stoves and campfires, and answer the following questions:

1. How many stoves would you need for your group?
2. If you decide to use a fire, what size and type of wood would you collect?
3. How big a fire will you build? Where do the ashes go?
4. Do you know how to build a fire pan or mound fire?

Hints: How do campfires affect the environment?

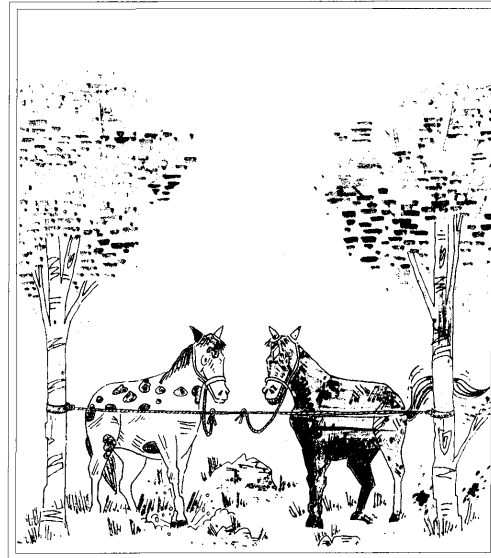


THANKS to the National Forest Foundation and Nike for their generous support of this project.



HORSE SENSE

Horse Travel



Take the minimum number of animals necessary. Fewer animals mean less resource damage to trails and campsites.

- Use a highline or electric fence to secure stock and reduce damage from pawing or cribbing.
- Horses should never be tied to trees for extended periods.
- On the trail, remove obstacles instead of skirting them to prevent "go-around" trails.
- In some areas, grazing is limited or restricted by regulations. To reduce the spread of noxious weeds, all supplemental feed should be certified weed seed free.



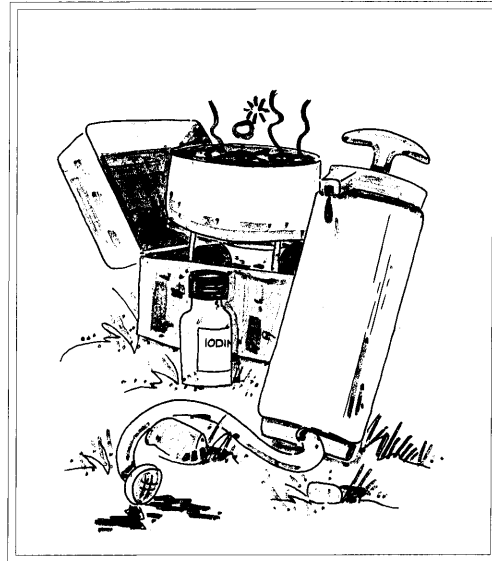
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WET & WILD

Is The Water Clean?



Most health officials agree that open water should not be considered fit to drink until it has been properly treated. Just because it's clear doesn't mean it's clean!

● **Instructions:** What are the pros and cons for each method of water purification? What method would you choose? Why?

- ✓ Chemical treatment (iodine or chlorine)
- ✓ Water purification through filtration
- ✓ Boiling (using a stove prevents a smoky taste)

Hints: Consider elevation, ease of use, cost, effectiveness and fuel consumption. In addition, do you know what "giardia" is, where it is found and how it is spread?



THANKS to the National Forest Foundation and Nike for their generous support of this project.

LEAVE NO TRACE FIELD EXPERIENCE

Lesson 2: A Wilderness Backpacking Trip

Teacher Checklist for Planning Field Experience

NOTE TO THE TEACHER/OUTDOOR LEADER:

Listed below is a series of questions you can review before teaching the lessons. Careful planning for a successful field experience is essential for student safety and a positive outcome.

- Is the special project relevant to the discipline objectives of the class/program?
- How does the project fit into the curriculum? Have the expected learner outcomes from accomplishing the project been established?
- What are the interdisciplinary connections?
- Is the project relevant to the students' personal experiences?
- Is the project student-driven?
- Will student motivation and ownership be generated by undertaking the special project?
- Do students possess the cognitive and skill levels necessary for accomplishing the project?
- Will the project include a diversity of learning techniques?
- Has the means of student evaluation been determined?
- Are there any legal considerations or potential insurance problems?
- Will students need to leave the school grounds to complete their special project?
- What special arrangements will need to be made? (Transportation, special passes, parental permission, guest lecturers, special facilities/space, use of special equipment such as computers or telephone, volunteers, chaperones, etc.)
- Has the time frame for the special project been outlined? (When will the students work on their special project? Will students need time outside of class?)
- Will any publicity need to be generated for the special project? If so, has the means to publicize the project been determined?
- In the case of long-term projects, who will be responsible for sustaining the project after the original participants have left?
- Have you contacted the appropriate administrative organization? What special restrictions apply? Are they available to make a presentation to the group?

LEAVE NO TRACE FIELD EXPERIENCE

LESSON 2 • A Wilderness Backpacking Trip


Objectives:

Students will:

- learn backpacking skills, wilderness values and management
- participate in a multi-day experience in a Wilderness or backcountry area


Background:

Planning and experiencing an extended backcountry trip is an excellent opportunity to learn about Wilderness. Students and teachers will travel by foot carrying all their provisions in backpacks. As they travel and camp, students will learn and explore many aspects of Wilderness education encompassed in this curriculum. The trip will expose students to the elements of Wilderness living by: sleeping on the ground, drinking from creeks, traveling in all types of weather and reflecting in purposeful solitude. Wilderness education will unfold each day of the trip and prepare students to take home what they have learned and to share this with other students, family members, friends, and others in their community.

The class should have some introduction to Wilderness prior to a backpacking trip. The experience itself will bring about an invested interest and concern regarding Wilderness management and values which can be further explored back in the classroom. Read and study chapters from the  "Soft Paths" book that are appropriate "Leave No Trace" practices for the area you will be visiting.

Activity 1: Planning a Wilderness Backpacking Trip

Materials:

- student handout: "Backpacking Equipment List," page 96.
- Other materials are referenced in lessons within subjects and strands of the curriculum
-  LNT Outdoor Skill and Ethics booklets

Duration: See specific lesson





Location: Classroom and outdoors

Procedure:

1. Make copies of the "Backpacking Equipment List Student Handout" and distribute to students. Spend time thoroughly reviewing this list several times before the trip.
2. A number of topics to cover **BEFORE** a backpacking trip should be an introduction to Wilderness. Some suggestions include:
 - **SOCIAL STUDIES** - Conduct lessons on leadership skills in the PERSPECTIVES Strand, pages**70-76.

LEAVE NO TRACE FIELD EXPERIENCE

Procedure continued:

- **HISTORY** - Wilderness Act and History of explorers to the Wilderness you will visit, lessons can be found in OVERVIEW , page**1-19, and in the PERSPECTIVES Strand, pages**29-38; and  the video and discussion questions for the video, “Battle for Wilderness, pages**39-46.
 - **ENGLISH** - Read  “Sand County Almanac” by Aldo Leopold, with accompanying lessons found in the PERSPECTIVE Strand, PAGES**23-28; and  video and discussion questions for “Wild By Law”, OVERVIEW Strand, Pages**1-4.
 - **THE ARTS** - Landscape art work, lessons found in the AESTHETICS Strand, pages**1-3; and the PERSPECTIVES Strand, pages**16-19.
 - **SCIENCE** - Introduction to ecosystems, lessons found in the ECOLOGY Strand, pages**1-4, CONNECTIONS Strand, pages**11-19; and pages**30-41, and the STEWARDSHIP Strand, pages**52-66. Learn about photography in the FIELD EXPERIENCE Strand, pages**67-68
 - **MATH** - Measure the size and scale of the National Wilderness Preservation System, lessons found in the OVERVIEW Strand, pages**1-11. Pre-trip planning lessons are found in the LNT Strand, pages**25-45.
3. A number of topics to cover **DURING** the backpacking trip can be combined. Some suggestions include:
- **SOCIAL STUDIES** - Mapping historical use patterns of the lands you are traveling on. See lessons on cultural resources in the CONNECTIONS Strand, PAGES**37-43.
- Orienteering (map and compass skills), ECOLOGY strand, pages**26-37. See lessons in the  “The Backcountry Classroom” book.
- **HISTORY** - Conduct a town meeting to discuss Wilderness management issues with students representing diverse representatives of a local community, STEWARDSHIP Strand, pages**60-64. Invite a Wilderness ranger to give a talk to your class on the history of the area and its management.
 - **ENGLISH** - Write short stories on the biodiversity in the ecosystems observed. See journaling lesson in the AESTHETICS Strand, pages**15-18.
 - **SCIENCE** - Conduct a research project on human and resource impacts, STEWARDSHIP Strand, pages**5-8.

LEAVE NO TRACE FIELD EXPERIENCE

Procedure continued:

4. **RETURN TO THE CLASSROOM** and reinforce lessons learned in the field. Expand into other activities in each subject area by conducting lessons from the Wilderness curriculum. Some suggestions include:
 - **SOCIAL STUDIES** - Compare field mapping of observed historical use patterns to actual wilderness plans prepared by the agency. Lessons can be found in the CONNECTIONS Strand, pages**37-43. Learn the land management agencies systems for determining user capacities in Wilderness. See recreation use lesson in CONNECTIONS Strand, page**44. Interview land agency staff to determine who uses the Wilderness. Look at socioeconomic class, ethnicity, age, etc. What kind of education can the students provide to the public? See lessons in PERSPECTIVES, pages**23-25; and the STEWARDSHIP Strand, pages**57-61.
 - **THE ARTS** - Produce a photo album, video or article for the media documenting the trip and classroom projects about Wilderness. See lessons in CONNECTIONS Strand, pages**20-29.
 - **SCIENCE** - Compile research data and provide information on results to the land management agency, see the OVERVIEW Strand lesson on research, pages**5-8.
 - **MATH-** Teach camping skills to other classes. See lessons in LEAVE NO TRACE (LNT) Strand, pages**25-45

Activity 2: Activities for a Backpacking Trip

Duration: See specific lesson

Location: Indoors or outdoors

Materials: See specific lesson

Procedure:

1. Listed in order below are lessons and activities to include on a three-day or longer backpacking trip.
2. When beginning the trip it is important to cover basic skills necessary to insure safety, group cooperation, leadership and skills for minimum impact travel and camping. These concepts are covered in lessons from the MATH section, pages**25-45.
 - How to pack and carry a pack
 - How to prevent blisters, dehydration and injuries
 - Water purification
 - Human waste treatment (cat holes according to “Leave No Trace”)
 - Map reading
 - How to hike in a group by staying together (pacing) and communicating (leadership)
 - Campsite selection, shelter and kitchen set up, safe stove operations




LEAVE NO TRACE FIELD EXPERIENCE

Procedure continued:


3. Once the basic skills have been introduced, students can learn more advanced aspects of a backcountry experience. These concepts are covered in lessons from the MATH and SOCIAL STUDIES sections.

- Map reading, SOCIAL STUDIES, pages**26-31
- Minimizing use and impacts of campfires, MATH, pages**29-32

The remaining concepts can be learned from lessons from various subjects and strands.

- Solo and journal writing time, ENGLISH, Aesthetics Strand, page**15.
 - Gourmet cooking and baking,  “NOLS Cookery” and the “Wilderness Ranger Cookbook
 - Readings from famous supporters of Wilderness before serving dinner,  Wilderness Reader,  “Wilderness Quotes” booklet, or Í “Words for the Wild, Trailside Reader” book
4. Toward the end of the trip provide time for reflection and putting closure on the experience. Lessons from various subjects and strands can be used.
- Solo and journal writing, ENGLISH, CONNECTIONS Strand, page**15.
 - Group sharing to express what students have been learning, what they liked and didn't like, MATH, LNT Strand, pages**25-45.
 - Make a list of goals for transferring the experience back into classroom. See “Teaching” and “Issues and Action” practicums in the SOCIAL STUDIES, FIELD EXPERIENCE Strand, PAGES**83-107
 - A closing ritual with an emphasis on giving something back to the land or acknowledging specific efforts that contributed to making the experience as possible. See lessons from THE ARTS, AESTHETICS Strand, pages**1-8.

Evaluation/Follow-up/Extension

- Evaluate introduction classroom activities to determine if students are prepared for the back-packing trip.
- Evaluate the transfer of learning from the backpacking trip back into the classroom through continuation of projects and activities from the “Issues and Action” or “Teaching” practicum in this strand.
- Show “Soft Paths” video and complete discussion questions. Evaluate responses from discussion questions.
- Encourage students to play the game,  “Oh Wilderness!” GAME to test their knowledge of the outdoors.

LEAVE NO TRACE FIELD EXPERIENCE

Career Options:

- Backpacking instructors for outdoor organizations like Outward Bound and National Outdoor Leadership School
- Backcountry and Wilderness rangers

References:

- *Wilderness Ways, The Colorado Outward Bound School Guide For Environmentally Sound Backcountry Travel*, Brian Litz and Lenore Anderson.
- *Soft Paths*, Bruce Hampton and David Cole.
- *The Backcountry Classroom, Lesson Plans for Teaching in the Wilderness*, Jack Drury and Bruce F. Bonney.

LEAVE NO TRACE FIELD EXPERIENCE

Activity 1: Planning a Wilderness Backpacking Trip **STUDENT HANDOUT • Backpacking Equipment List**

I. Group Equipment List

1. tarps or tents
2. backpacking cook stoves (stove repair kit) and fuel
3. pots and frying pans with lids
4. large mixing spoon, spatula and ladle
5. "cat hole" trowel
6. first aid kit
7. maps
8. repair kit
9. 1 bottle of biodegradable soap
10. backpacks for all students
11. sleeping bags for all participants
12. sleeping pad

II. Individual Gear List

1. warm jacket (pile, bunting or wool)
2. warm sweater or wool shirt
3. polypropylene or wool zip T-neck
4. polypropylene or wool long johns
5. synthetic or wool winter hat
6. sun visor
7. maximum of 2 T-shirts
8. 1 pair of shorts
9. 1 pair of lightweight pants or wind pants
10. 3 pairs of wool socks and nylon or polypropylene liner socks
11. 3 pairs of underwear
12. swimsuit
13. 1 pair of wool gloves or mittens
14. 1 bandana
15. plastic water bottle (at least 1 quart)

LESSON 3 • Reflections on Wild Places— A Journal-Making Activity

Objectives:

Students will:

- produce a journal-like collection of items and written entries that reflects on their feelings about “natural things” and “wild places.”
- express in writing at least one value they see in preservation of a wild place.

Background:

Journals have been kept by countless people throughout history. A journal is a tool for capturing thoughts, ideas, reflections, images, and feelings. Many naturalists have kept journals as they traveled and studied their environment. These journals are not limited to written entries of empirical data, but contain snatches of ideas, sketches, poems, even bits and pieces of an experience. Keeping a journal allows us to capture a moment or idea before it escapes us, gives us a chance to take a second look. A journal is a tool to help train all of our senses, to make us better observers. A journal is a record of ideas and information that may later give insight or answers to things we question or are curious about.

Journals can be creative; they can be factual; the best seem to be a combination of both. A log or diary is a journal, so is any kind of record of any part of a person’s life. A photo album is a kind of journal (though the meanings and remembrances will be lost if never written down), a baby book or a scrap book can be journals.

People who have kept journals: Leonardo DaVinci, Albert Einstein, Charles Darwin, Margaret Mead, Rachel Carson, Aldo Leopold, Thoreau, Eleanor Roosevelt, Enos Mills, John Muir, Edward Abbey, and Annie Dillard. There is no wrong way to keep a journal.

Students will make written journal entries, photographic or artistic entries in a book-like format. Students might also make a tape of favorite wild sounds—taken from any source to keep in a pocket inside the back cover of their journal.

Activity 1: Setting the Stage

Materials: For teachers:

- example poems
- journal entries
- photographs
- artwork
- tape of natural sounds
- leftovers of nature (seed pod, feather, leaf or leaf skeleton, rock, crystal, interesting bit of weathered wood, etc.).

LEAVE NO TRACE FIELD EXPERIENCE

Materials continued: For Students:

- a folder (the kind that will hold paper) or notebook
- paper and pen
- anything else you want to use—for example—markers, drawing pencils, charcoal
- glue
- Zip-lock bags—anything goes

Duration:

variable, minimum suggested time frame: one week with at least 15 minutes per day of quiet time offered in class. Students will also need to work on the journal in their own time.

Location:

classroom, optional school sponsored field time/outside time, student choice for location(s) encouraged, inside or out

Procedure:

1. Introduce the concept of keeping a journal. Tell students that they will be working on discovering one new thing about the natural environment around them. Let them know they will need a notebook or scrapbook of some kind. Then let them think about it for a few days—make no demands, set no time limits at this point.

2. Some time later (after lunch, or a day or two) ask the students what they think of keeping a journal; ask them if they have already noticed themselves taking note of things around them. Did just knowing that they needed to discover something new about the environment make them look more closely?

If students are not enthusiastic about keeping a journal, share the background information and/or ask them to pick something they really enjoy knowing a lot about. For example: music, sports, a hobby, the intricacies of the lives of the characters of their favorite soap opera, a favorite video game, a favorite pet. Have them start their journal with approach number one.

3. A few suggestions on ways to begin their journal:

- The Favorite Thing Approach. Start with the thing you really enjoy knowing a lot about and write about it—use the “hot pen” technique—all the ink will melt out into one big blot: write anything that comes into your head, in any order, with no concern about spelling, sentences etc., for three minutes. After three minutes compare what you have written to any natural “wild” thing, a river, a mountain, a leaf, a coyote chasing its tail. Then draw an abstract little sketch, or find a photo, or add some color.
- The Five Senses Approach. Find a place where something catches your eye. Sit and observe, use of your five senses, touch, feel, hear, see, and taste. Record your observations and ideas, what did you notice, how did you feel about this place?

LEAVE NO TRACE FIELD EXPERIENCE

Procedure continued:


- The I Just Don't Feel Creative Approach. Become the scientist naturalist. Find a piece of anything; a rock, a plant, an animal, a brick, a piece of litter. Describe the item in detail, color, texture, weight, shape, measurements, enough detail that another person could identify, draw, or recreate the item you selected without knowing what it is. After you've finished your descriptions, try to determine the purposes of the characteristics you've recorded; why is it that color, what purpose does the texture serve? If ideas and reflections begin to flow...go for it, record them too. If they don't, it's okay, study and learning give insights into many other things. Recording the observations is the important part.
- The Imitate A Mushy-Flowery-Philosophical Poet Approach. Journals are great places to get a little silly and be creative. Do your version of Shakespeare's "description of a tree." Imagine yourself to be a minimalist; find five words that describe an object, but don't relate at all to each other, add an illustration. Outline a bunch of things that strike your fancy (hand, leaf, rock, caterpillar) and write a haiku inside it.

Write a verse for the "ballad of the bull thistle" or anything else that would make a good (bad?) country song (or Arthurian ballad for that matter).

3. Encourage students to have the first few pages of their journals filled in one sitting— filled with anything. If you need a deadline for this, give them some lead time. The 15 minutes in class can be used for recalling notes, expanding on ideas, deciding where they might go to observe next, and after a few days, for voluntary sharing in small groups. You may even want to provide some artistic media they might not have access to otherwise; paints, adhesive plastic, a mortar and pestle for grinding leaves and other sources of natural pigments.

Activity 2: Journaling - Layers of the Landscape

Materials:

-  Regional Natural History Guide
- journal
- pencil or pen
- landscape

Duration: 2 hours

Location: Outdoors

Procedure:

1. Have students find a spot they will be sitting in for the duration. They should be within a small area visible to the teacher (teacher's discretion), and be alone, working independently.
2. Students will use the natural history guide to find the information. It is best to view a landscape that has "layers," so they see elevational changes or landscape changes.

LEAVE NO TRACE FIELD EXPERIENCE

The layers can be something like this:

- where you are sitting—your immediate environment, ten feet around you
- foreground—20 feet to 100 feet around you
- background—the farthest distance you can see

3. In a general overview of the landscape, have students describe the ecological and geological phenomenon in the landscape. Imagination is crucial here! Slope, sun, moisture, temperature can be imagined for the landscape.

4. Using the natural history guide, describe or at least note two plants, two animals, two birds and two species of trees for each of the layers of the landscape.

5. Have students sketch at least one tree, plant or the landscape they see.

6. The activity can be concluded by bringing the students together and having them share a part of all of their experience, including how it felt to be alone and quiet, thinking about the landscape.

Follow-up:

- Follow-up is a matter of choice. What other objectives did you as a teacher have for this exercise? Should you extend the time? Is the process still fresh? Are students sharing their ideas?
- An option: set a time to quit making entries, collect the journals for a week, return them to the students to read and make final entries. This final entry should include something they discovered about the world around them, about wild places, about their thoughts.
- Have them envision a wild place where they could go to live or pursue one of their ideas. They should describe this place. Have student share their place descriptions. Discuss where these places might be found. Are these places valuable—even if you may never get to go there?
- An option: have students research other journals. Have them find a quote they particularly appreciate and put it in the next to last page of their journal. Have them make their own quote on the last page.

Extensions:

- Have students listen to a tape of nature sounds. Have them write whatever the sounds make them think of. Listen to a tape of Aldo Leopold's writings, or Thoreau's. Have the students draw what the words bring to mind—remember drawings can be impressionistic.
- Have students make a tape of their own. Either from real sounds they tape outside (hard to do) or a composite of other tapes. It should be something that makes them feel like putting ideas in their journal or makes them feel like they are in one of their wild places.

LEAVE NO TRACE FIELD EXPERIENCE

Extensions continued:

- Have students decorate/design the outside of their journals—if they haven't already. Suggest that the cover be a kind of preview of what's inside. Compile a collection of poems, quotes, illustrations to be published in a small book (you may even want to let the class sell them to cover the cost at your Earth Day Celebration).

Career Options:

nature writer, journalist, naturalist, scientist, interpretation specialist

References:

- Hammond, W.F. 1993. "Creative Journal Keeping." A Workshop Handout, page 6. Bill Hammond, Natural Context, P.O. Box 07461, Ft. Myers, FL 33919. Project WILD. 1985.
- Project WILD, "Wild Words...A Journal Making Activity." Western Regional Environmental Education Council.