Beef Jerky

3 lbs. lean steak, 1 to 1 1/2 inches thick
1/2 cup soy sauce
3/4 cup water
2 teaspoons garlic salt
1/2 teaspoon black pepper

Partially thaw meat. Trim off all fat and slice in thin strips (1/8" thick). Put soy sauce, water, garlic salt, and black pepper together in a bowl. Marinate meat in this mixture for two to three hours. Drain the meat on paper towels and blot dry. Lay the individual strips on the oven rack so that they are not overlapping. Dry in a slow oven with the door ajar for six to eight hours until the meat is brittle.

Crunchy Stuff

2 to 3 cups mixed seeds and nuts
2 tablespoons salad oil
1/2 teaspoon garlic salt

Combine equal amounts of a variety of seeds and chopped nuts (sunflower, pumpkin, sesame, peanuts, cashews, almonds, soybeans) and place in a shallow pan. Mix salad oil and garlic salt (you can also use seasoned salt) and pour over the seeds. Toast in oven for 20 minutes at 350 degrees F., stirring often. Drain on paper towels. When cool, store in a jar.

Granola

3 cups oats or other flaked grains
1 cup each—wheat germ, sesame seeds, and coconut shreds
1 cup assorted dried fruit, chopped
1/4 cup oil
3/4 cup honey
1 cup chopped nuts (optional)
1 tsp. vanilla

Warm oil, honey, and vanilla. Add oats, wheat germ, sesame seeds, and coconut and mix well. Spread mixture on cookie sheets up to 1/2 inch deep. Bake at 250 degrees F., about 45 minutes or until golden brown. Stir mixture periodically to ensure even baking. Add dried fruits after baking. Cool and store in air-tight jars.
Trail Snacks

Variation # 1:

3 cups figs, sliced  
1 cup walnuts, chopped  
\( \frac{1}{4} \) cup soy or whole wheat flour  
\( \frac{1}{2} \) cup dried milk

Combine ingredients and knead. Roll into balls. Roll on shredded coconut.

Variation # 2:

2 cups each of raisins, dates, dried apricots, and dried pears  
1 cup nuts

Mix ground fruits and nuts and roll into balls. Roll in shredded coconut.

THIRD DAY; TUESDAY

Tuesday evening the two groups of campers from Monday evening switch activities. Group one will make trail snacks and group two will analyze their soil data.

FOURTH DAY; WEDNESDAY

Wednesday noon the campers should take fifteen minutes of their lunch break to take part in a "Lifestyle Analysis Exercise." Below is a list of statements relating to behavior and the environment. The directions are as follows:

If your behavior is "strongly consistent" with the statement, put a one in the space along side of it. If your behavior is "fairly consistent," put a two in the space along side of the statement. A three would mean that your behavior
is "not consistent" with the statement.

Scoring:

<table>
<thead>
<tr>
<th>Score</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding</td>
<td>24-30</td>
</tr>
<tr>
<td>Good</td>
<td>25-38</td>
</tr>
<tr>
<td>Average</td>
<td>39-60</td>
</tr>
<tr>
<td>Poor</td>
<td>61-72</td>
</tr>
</tbody>
</table>

Lifestyle Analysis Exercise²⁸

1. I buy soda pop in returnable bottles.
2. I buy food that is usually not prepackaged.
3. I recycle all my magazines, newspapers, bottles, and cans.
4. I use recycled or used paper for most of my correspondence.
5. I have live plants and flowers in my home.
6. I depend on mass transportation for most of my mobility.
7. I don't smoke cigarettes.
8. My automobile is always in tune.
9. I compost the leaves from my yard.
10. I try to use fewer and fewer electric appliances.
11. I quickly fix leaky faucets in my home.
12. I usually buy fresh fruits and vegetables.
13. I put my food scraps in a compost pile—or feed them to my dog.
14. I would never buy a garment made of the fur of an endangered animal.
15. I use biodegradable, no phosphate detergents.
16. I have regularly attended village or city council meetings in my community.
17. I have campaigned for a political candidate with a strong environmental platform.
18. I would consider some form of birth control or contraceptive as a family planning technique.

19. I would let my students (or son or daughter) have access to birth control information in schools if it were up to me.

20. I turn off the lights when I leave a room in which no one is occupied.

21. I wrap and send packages in old paper bags.

22. I never litter anymore.

Wednesday evening is again spent on recreational activities. This is also a good time to involve the campers in various crafts.

FIFTH DAY; THURSDAY

Two hours during the evening should be reserved time for the campers to work on their individual environmental awareness projects. Again, the living leaders should be around to offer any help that is needed.

SIXTH DAY; FRIDAY

The crew leaders should take five minutes of their lunch break to give the campers the weekly environmental awareness evaluation form to fill out. This form is found on page 46.

Friday evening may be reserved for a special campfire. It is a good idea to give the campers the opportunity to plan the activities for the campfire. Examples of favorite activities are: sing-a longs, talent nights, "gong
shows," story tellings, and marshmellow roasts. These are just a few of the activities that could be organized into a special night of fun.

SEVENTH DAY; SATURDAY

This Saturday morning's environmental investigation is spent measuring some water quality criteria. The campers will investigate evidences of aquatic life in a stream, derive stream temperature, $O_2$, and pH from that life, and determine the stream's watershed boundaries. This water investigation is described in lesson plan number ten.

Review the investigation guidelines found on page 48 before conducting the investigation.

Saturday afternoon's field trip may be taken to a nearby fish and wildlife area or wildlife refuge. The objectives of all of the field trips are to orient the campers to various systems these careers are found in. It is important to meet and talk with the managers of the fish and wildlife area or wildlife refuge. Again, encourage the campers to ask questions. These questions can always be thought up during the bus ride to the area.

Saturday evening is a good time to hold a dance. Square dances are popular with the campers. The square dance will be a new and enjoyable experience for everyone.
LESSON PLAN # 10
WATER INVESTIGATION

Objectives:

1) Identify the watershed boundaries of the stream being studied.

2) Predict the pH, temperature, and dissolved oxygen count of the stream, using the list of aquatic animals found, and the water interpretation charts provided.

Materials:

1) Pencils.

2) Twenty-five maps of the area.

3) Jelly cups.

4) Hand lenses.

5) Five or more Pond Life books (Golden Nature Series).

6) Screens or Plankton Nets.

7) Five containers such as white dishpans.

Procedures:

Divide the group into smaller groups of five campers for each investigation leader. Begin the investigation by reviewing quickly what will take place in the two hours. For example: In the next two hours you will be determining watershed boundaries, observing the stream environment, observing, identifying and recording aquatic animals, and predicting water characteristics from aquatic animals found in
the stream.

The first task of the investigation is to determine the watershed boundaries of the stream being studied. Before the campers begin, first define a watershed. Then determine what establishes the boundaries before the campers draw any lines around the boundaries on the map. Next, distribute maps of the area to each camper or group of campers. Instruct the campers to follow the instructions on determining watershed boundaries, then to answer the following questions.

Find ______________ Creek on the map. Find your location. Where does the water in this stream come from? Trace upstream to its source.

Draw lines around the boundaries of the watershed.

We are in the ______________ Creek watershed.

1. What is the importance of a watershed?

2. What are some of the factors that you think can effect the watershed? (Accept all comments. One person in each group could list these on a fullsized sheet of paper on a clip board.)

3. As you traced the boundaries what political boundaries (e.g. city, county, state, federal) does the watershed cross? How could this affect the management of this watershed? The management of the watershed of your community at home?

Walk to the stream and do the following:

As you approach the stream, observe and record your observations about the stream environments: (can be done visually and verbally.)
Plants ______________________________________________
Animals _____________________________________________
Air __________________________________________________
Rocks ______________________________________________
Water ________________________________________________

Questions and discussion:
1. What did you notice about the stream environment?
2. What plants were growing on the gravel bar?
3. Why aren't large trees growing on the gravel bar?
4. What did you notice about the rocks?
5. Where did you see the bigger rocks? the smaller?

Observing Aquatic Animals in a Stream

Questions and discussion:
1. What did you notice about the water in the stream?
2. What do animals need to live in water?
3. Where would you expect to find animals in the water?
4. What guidelines need to be developed by our group as we collect animals from the stream?

Discuss what to do with animals kept for observation, what to do with rocks that are overturned, what to do with the animals when the session is over.

Using collecting equipment (screens, jelly cups, etc.) collect as many types of aquatic animals as possible. Put them in the white containers for observation by the group. (Keep the pan in a cool place.) When the campers are finished they are to generally identify the specimens they found using the "Godlen Nature Guide Pond Life" books or similar
field manuals and picture keys.

List or sketch the animals found below.

<table>
<thead>
<tr>
<th>Type (name or sketch)</th>
<th>Description of where found</th>
<th>No.</th>
</tr>
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<tbody>
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</tbody>
</table>

Return animals to water as soon as finished.

Questions and discussion:

1. What animals did you find?
   Compile a group list. Each person should record the group list on his/her own work sheet.

2. Where did you find most of the specimens?

3. What similarities are there among the specimens?

4. What differences did you find?

5. What classification system could we use to classify the aquatic animals we found?

6. What other life would you expect to find in this stream?

7. Would we be likely to find the same specimens in a different aquatic environment? Why or why not?

The next task for the campers is to predict water characteristics from the aquatic animals that were found in the stream. Review the earlier discussion of the things the campers said animals needed in order to live in the water. Then, based on the aquatic animals the campers found, and the charts below, the campers are to predict the following characteristics of the stream:
I predict:

the water temperature will be ____ because __________
the air temperature will be ____ because ____________
the pH number will be ____ because _________________
the dissolved O₂ count will ____ because _____________

Keep these predictions for your own reference.

Questions and discussion:

1. As a group, discuss the range of predictions.
2. What criteria did you use to arrive at your predictions?
3. How can we test out our predictions?

CHART IX

pH RANGES THAT SUPPORT AQUATIC LIFE

<table>
<thead>
<tr>
<th>MOST ACID</th>
<th>MOST ALKALINE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>Bacteria</td>
<td>1.0</td>
</tr>
<tr>
<td>Plants (algae, rooted, etc.)</td>
<td>6.5</td>
</tr>
<tr>
<td>Carp, suckers, catfish, some insects</td>
<td>6.0</td>
</tr>
<tr>
<td>Bass, crappie</td>
<td>6.5</td>
</tr>
<tr>
<td>Snails, clams, mussels</td>
<td>6.5</td>
</tr>
<tr>
<td>Largest variety of animals (trout, may-fly, stonefly, caddis-fly)</td>
<td>6.5</td>
</tr>
</tbody>
</table>
CHART X

DISSOLVED OXYGEN REQUIREMENTS FOR NATIVE FISH
AND OTHER AQUATIC LIFE

<table>
<thead>
<tr>
<th></th>
<th>D.O. in parts per million</th>
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<tbody>
<tr>
<td>Cold-Water Organisms including (salmon and trout) (below 68°)</td>
<td></td>
</tr>
<tr>
<td>Spawning</td>
<td>7 ppm and above</td>
</tr>
<tr>
<td>Growth and well-being</td>
<td>6 ppm and above</td>
</tr>
<tr>
<td>Warm-Water Organisms (including game fish such as bass, crappie) (above 68°)</td>
<td></td>
</tr>
<tr>
<td>Growth and well-being</td>
<td>5 ppm and above</td>
</tr>
</tbody>
</table>

CHART XI

TEMPERATURE RANGES (APPROXIMATE) REQUIRED FOR GROWTH OF CERTAIN ORGANISMS

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Examples of life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than 68° (warm water)</td>
<td>Much plant life, many fish diseases. Most bass, crappie, bluegill, carp, catfish, caddisfly.</td>
</tr>
<tr>
<td>Upper range</td>
<td>Some plant life, some fish diseases. Salmon, trout, stonfly, mayfly, caddisfly, water beetles, striders.</td>
</tr>
<tr>
<td>(55-68°)</td>
<td></td>
</tr>
<tr>
<td>Legs than 68° (cold water)</td>
<td>Trout, caddisfly, stonfly, mayfly.</td>
</tr>
<tr>
<td>Lower range</td>
<td></td>
</tr>
<tr>
<td>(less than 55°)</td>
<td></td>
</tr>
</tbody>
</table>

Evaluation:

This water investigation is a good introduction to any of the work projects dealing in watershed management and protection. This investigation may also be used as an
introduction to stream erosion control projects and water quality projects. The investigation may also be extended to the campers' home communities. The campers' should be able to determine watershed boundaries and water supply of their own community, the amount of water consumed, and the sources of conservation.

Follow-Up:

Monday and Tuesday evening of the third week will be spent measuring and recording water characteristics to test out the campers' predictions. This second water investigation should be done immediately following the predictions for accuracy. But the time allotted for each investigation will not permit this. The testing should then be done at the same location and at the same time of the previous investigation. Discuss why this is so with the campers.
CALENDAR - WEEK NUMBER 3
WATER INVESTIGATIONS

Environmental Awareness Hours: 7

Day 1

Morning:
1. Worship services

Afternoon, one hour:
1. Introduction to the canoe
2. Two - three hour canoe trip

Evening:
1. Recreation and leisure time

Day 2

Evening, two hours:
1. Group # 1 - Wildlife Investigation
2. Group # 2 - Analyzing Water Data

Day 3

Evening, two hours:
1. Group # 2 - Wildlife Investigation
2. Group # 1 - Analyzing Water Data

Day 4

Lunch Break, 15 minutes:
1. Blind-fold game

Evening, two hours:

1. Individual Environmental Awareness Project time.

Day 5

Evening:

1. Recreation
2. Crafts

Day 6

Lunch Break, five minutes:

1. Environmental Awareness Evaluation

Evening:

1. Preparation for two-day canoe trip

Day 7

All Day:

1. First day of two-day canoe trip

FIRST DAY; SUNDAY

Sunday afternoon should be spent in preparation for the two day canoe trip at the end of the week. (The camp may choose to go on another type of trip, such as backpacking, rather than the canoe trip. In this case, Sunday afternoon should also be spent preparing for that trip.) It is a good idea to spend a half hour to an hour, depending on the experience of the campers, on an introduction before putting the canoes in the water for the afternoon's practice session.
The introduction should include demonstrations on handling the canoe, equipping the canoe, and camping gear.

There are several skills involved in handling a canoe that should be demonstrated for the campers. Start at the beginning: getting the canoe into the water and the campers into it—and out again. The other skills that should be demonstrated or presented are as follows:

1. Seating and stability
2. Basic paddling strokes
3. Lifting and carrying
4. Special conditions and techniques
   a. waves
   b. wind and current
   c. rapids
5. Handling emergencies

A good reference book to gather information from is, The Canoer's Bible, written by Robert Douglas Mead.

When planning the canoe trip, it is important that each camper contributes something to the trip. The campers may be divided into small groups with each group assigned a task (two groups have already been assigned to packing the food and cooking equipment). One person in that group should be responsible in seeing that each member does his/her job, and does it correctly. Two or three staff leaders should then oversee these small group leaders. It is the staff leaders responsibility to have meetings with the group leaders to keep the planning running smoothly.

Sunday evening may be spent in recreation and
leisure activities.

SECOND DAY; MONDAY

Monday evening should be spent on environmental awareness activities. Divide the campers into two groups, about 25 in each group. These two groups should then be further divided into five campers for each environmental awareness leader. Group one will investigate several wildlife habitats while group two will continue the water investigation from Saturday. These two activities are explained in lesson plans number 11 and 12.
LESSON PLAN # 11

WILDLIFE INVESTIGATION

Objectives:

1) Identify and describe six different animal habitats.

2) Construct a diagram of an energy cycle, using the evidences and sightings of animal life observed at the site.

3) Describe at least four cause and effect relationships in the role of the decomposers in the energy cycle.

Materials:

1) Pencils and paper.

Procedures:

During this session the campers will investigate several environmental habitats, infer how animals fit into food chains and the energy cycle and how they are important to the environment, record changes in habitats, and discuss what we can do as citizens to improve the biological interactions in our environment.

Begin the investigation by observing and measuring animal sightings and evidences. Choose an area where several different environmental habitats can be seen, i.e., meadow or field, woods, and edge of the two. The following questions should be discussed at the site:
1. What animals would we expect to find living in this area (vertebrate, invertebrate)?

2. What are the needs of these animals?

3. What are some names of the place where animals live?

4. Where would you look for animals around here?

After the questions have been satisfactorily answered and discussed, give the campers some time to go off on their own to complete the tasks described below.

Task #1:

1. Explore as many places (environments or habitats) as you can from (point out boundaries) _________ to _________, and record animals that you see. As you inventory the animals, figure out some way of recording number of animals seen.

2. Look for and list evidence (signs) of animals (partly consumed foods, excrement, homes, bird nests, feathers, etc.; and record the amounts of evidences seen.

3. Observe and list different habitats for wildlife in the area. (Grass, cultivated field, hedges, swamp, etc.)

4. Observe and list animal foods in area.

Task #2:

Select three different habitats and compare the numbers of animal organisms and the characteristics in each.

Habitat I    Habitat II    Habitat III
Questions and discussion:

Bring the group back for a few minutes of discussion.

1. What animals did you find in each habitat?
2. Which habitat had the most animals? Why?
3. What were the characteristics of each habitat?
4. What could account for the differences and similarities of the habitats?
5. What factors made one habitat more desirable than another?

Task # 3:

Build a food pyramid showing the comparative amounts of animal and animal evidences seen. (Discuss the food pyramids and the following questions.

1. What did you find?
2. How many habitats did you investigate?
3. Which animals around here have the largest habitat? The smallest?
4. What was the largest group of animals found?
5. What do you think their main function in the environment might be?

Review the definitions of herbivores, carnivores, omnivores, and decomposers. Move on to task # 4.

Task # 4:

List the animals you have seen or their evidences in the appropriate places in this diagram. Use arrows to show
direction of relationships, i.e.: energy flows from the sun to living things; plants support herbivores.

<table>
<thead>
<tr>
<th>Light</th>
<th>Plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrients</td>
<td>Herbivores (plant eaters)</td>
</tr>
</tbody>
</table>

What other words and ways can you think of to illustrate a similar cycle? Some people call this the energy cycle. What would happen if one group was eliminated? If the Carnivore group was eliminated, the following would happen: (Substitute the various groups into the question.)

1. What is the function of each part of the energy cycle?
2. What would happen if the decomposers were removed from this ecosystem?
3. How does the energy cycle relate to a food chain?
4. What is a food chain? (Or, who eats whom?)
Task # 5:

Construct a five-stage food chain using specific animals seen so far.

After completing task # 5, the campers should begin observing and recording changes in animal habitats. Start with a short question and discussion period then have the campers complete task # 6.

Questions and discussion:

1. How did your food chain relate to the energy cycle in task # 4?

2. What is the difference between food chains and food webs?

3. Look at your food chain and see if you can construct a web out of it.

4. What evidences of influences can you name that have affected this environment?

Task # 6:

Describe in writing, three influences you have discovered that have changed the habitats in this area including the cause and effect relationships that occurred.

Consider:

1. Evidence of change and the influence or factor causing it.

2. What the area probably looked like before change occurred and the animals that lived there then.

3. What the area looks like now and the animals that live here now.

4. How the change affected the habitat and animal species that did and do live there.

Questions and discussion:

1. Have the campers read their descriptions, and
compare different descriptions.

2. What evidences did you find that show man's influence in this area?

The following tasks are included in the investigation because they help the camper to communicate his/her feelings, awareness, and values about the environment. The tasks consist mainly of discussion questions and short essays to be written by the campers.

Task #7:

Describe how you feel about man's effect on one animal habitat you observed.

Questions and discussion:

1. Discuss the description of your feelings with the group.

2. What are some things that man has done to affect the efficiency of the energy cycle? Here? Elsewhere?

Task #8:

Describe in writing, three things you can do in your everyday life to make the energy cycle more efficient and cause the least amount of harm to the ecosystem.

Select the one you think would be your best contribution. Describe the benefits of the action.

a. Where you live.

b. In your consumer habits.

Discuss the results with the group.

The following questions should be presented as a summary of the wildlife investigation.
1. What did we find out about animals in our field study session today?

2. Why are animals important in the ecosystem?

3. How can we summarize our investigations today?

4. What processes and methods did we use to find these things out?

5. Which of the objectives did we accomplish in this session? (Review the objectives.)

Evaluation:

This wildlife investigation is an excellent review of the basic ecological principals and environmental concepts the campers learned during the first week of camp.

The investigation may be used with a variety of work projects involved with wildlife. Some examples of these work projects are: 1) wildlife habitat improvement, 2) wildlife surveys and study, and 3) campground construction and maintenance or picnic facilities.

Follow-Up:

The follow-up to this investigation should occur during the two day canoe trip and at the campers' homes. A few chosen campers should record the various animals and their habitats seen during the trip. This list should be discussed during and shortly after the canoe trip.

As a result of this session the campers should be able to take home with them three things that they can do in their everyday life to make the energy cycle more efficient, and cause the least amount of harm to the ecosystem where they live and to their consumer habits.
LESSON PLAN # 12
ANALYZING WATER DATA

Objectives:

1) Demonstrate the ability to test out the predictions (lesson plan # 10, objective # 2) using the water testing kit.

2) Measure the cubic feet of water per second flowing in the stream.

3) Describe three ways the stream being studied is important to the surrounding environment.

Materials:

1) Five water testing kits.
2) Five thermometers.
3) Five 100 ft. tapes.

Procedures:

The campers should be divided into the same groups they were a part of during Saturday's water investigation (lesson plan # 10). Explain quickly what will take place in the allotted time. The campers will continue the first investigation by checking out their predictions through experimentation. They will also determine the streamflow of the stream and discuss ecological, social, and political concerns of using such water.

The first step in testing the campers' predictions is to measure and record water characteristics of the stream.
Pass the water testing kits (Hach O₂ pH Testing Kit or equivalent) to each group. The instructions are on the lid. Make sure everyone in the group gets involved in the testing. Send the groups to different parts of the stream. Then, using the water test kit, have the campers determine the water temperature, air temperature, dissolved oxygen count, and pH of the stream. Record the data (on the following page; also record predictions from lesson plan #10 to compare).

Questions and discussion:

Have each group report the results of their tests to the entire group. Compare results.

1. What might account for any differences in results from each group?

2. How did the test results compare to the predictions?

3. What can we say about the quality of the water in this stream?

4. What else would we need to know to decide whether or not to drink this water?

5. Under what conditions might we expect to get different test results than we did today?

Next, the campers will measure streamflow. The following "Determination of Streamflow" gives the instructions for collecting and recording stream flow measurements.
<table>
<thead>
<tr>
<th>Location of water sample (edge or middle of stream)</th>
<th>Time taken</th>
<th>Temperature</th>
<th>pH</th>
<th>Useable Oxygen (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Water</td>
<td>Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>My prediction test</td>
<td>My Actual prediction test</td>
<td>My Actual prediction test</td>
<td>My Actual prediction test</td>
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</table>
DETERMINATION OF STREAMFLOW

Instructions for collecting and recording streamflow measurements

a. Measure and mark a 100-foot distance along a straight section of your stream. If you can’t find a 100-foot section, use 25-feet or 50-feet. Throw a stick (two or three inches long) in the water above the upstream marker. Record the number of seconds it takes to float downstream between the markers. Record below. Now divide the 100-foot distance by the total seconds it took the stick to float between the stakes.

\[
\frac{100 \text{ ft.}}{\text{(Distance)}} \times \frac{\text{(Total seconds to float} 100 \text{ ft.})}{\text{(number of ft. stick floated each second)}} = \text{ft. per sec.}
\]

b. Find the average width of your section of the stream. Measure the width of the stream at 3 places within the 100 foot area. Divide the total by three to get the average width of the stream.

First measurement _____ feet.
Second measurement _____ feet.
Third measurement _____ feet.

Total _____ feet ÷ 3 = _____ feet.
(average width)

c. Find the average depth of your section of the stream. Measure the depth of the stream in at least three places across the stream in a straight line. Divide the total by three to get the average depth of the stream.

First measurement _____ feet.
Second measurement _____ feet.
Third measurement _____ feet.

Total _____ feet ÷ 3 = _____ feet.
(average depth)

d. Find the cubic feet of water per second. Multiply the average width, average depth, and the number of feet the stick floated each second.
Average width \( \times \) Average depth \( \times \) Number of feet per second = Cubic feet of water flowing per second

Note: A cubic foot of water is the water in a container one foot wide, one foot high, one foot long, and contains 7.48 gallons.

In order to find out how many people could live from the water in this stream, complete the following calculations.

\[
\frac{\text{Stream flow in cubic ft. per sec.}}{\times \, 7.48} = \frac{\text{Gallons in 1 cubic ft. of water}}{\text{Gallons of water per second}}
\]

\[
\frac{\text{Gallons per second}}{\times \, 60} = \frac{\text{Seconds in minute}}{\text{Gallons of water per minute}}
\]

\[
\frac{\text{Gallons of water per minute}}{\times \, 1440} = \frac{\text{Total gallons of water}}{\text{Total No. of people who could live from water in this stream}}
\]

Questions and discussion:

1. How many people in a community could live off the water in this stream?

2. What would happen to this environment if we piped all the water out of the stream at this point to a community?

3. If we were going to use this water, how much water should be left to flow down stream? Why?

* The average person uses about 200 gallons of water a day for home use. This does not reflect each person's share of water used for industrial, public services, and commercial.
4. Does this stream always have this amount of water in it?

5. What are some problems you encountered during this task?

The final minutes of this session should be spent discussing the campers' feelings, awareness, and values about water. The following discussion questions are examples of questions that lead the participants into communicating their feelings, awareness, and values about water.

1. How important is this stream to us?

2. Describe how you feel about man's effect on the aquatic environment at this site.

3. Describe at least one action you can take in your everyday life to help improve the way water is managed—in your home, in your community, and in your consumer habits.

4. Describe the benefits of each action in # 3.

End the session by discussing the following summary questions:

1. What did you find out about water from our investigation tonight?

2. Why is water important to the ecosystem?

3. How can we summarize our discussions and investigations?

4. What methods and processes did we use in our investigation?

Evaluation:

This session on analyzing water data completes the investigation on the water environment. It is important to include this lesson on analyzing water data when using the water investigation for an introduction to a work project.
The two lessons should be completed on the same day and time of day, if the time allotted permits it.

Follow-Up:

An investigation on a pond or lake can be made if the campers are interested in continuing their water study. The investigation should include measuring the pond or lake volume, observing the pond environment, identifying aquatic animals in the pond, and measuring and recording water characteristics in the pond or lake.

THIRD DAY; TUESDAY

Tuesday evening the two groups will switch activities. Group two will take part in the wildlife investigation and group one will analyze water data.

FOURTH DAY; WEDNESDAY

During the campers' lunch break, fifteen minutes should be taken for a blindfold walk. This blindfold walk is a follow-up experience to the campers' first blindfold game as described in lesson plan #4.

Divide the campers into pairs, one person being blindfolded. The blindfold walk allows no physical contact between the two campers. The blindfolded person is required to self-orient and self-direct. The guide should only speak when safety demanded. Each partner should be blindfolded for five minutes. After both campers have finished the blindfold walk, the campers should discuss and compare
their experiences with the other participants. The campers should also try to compare this day's blindfold walk to the first walk they had in the first week of camp.

The evening's two hour block should be spent working on the individual environmental awareness projects.

FIFTH DAY; THURSDAY

Thursday evening may be spent in recreation. The staff might want to organize tournaments in several sports such as ping pong, volleyball, and basketball.

SIXTH DAY; FRIDAY

Five minutes of the campers lunch time should be spent on the weekly environmental awareness evaluation.

The evening should be spent preparing for the weekend canoe trip. Everything should be ready to go in the morning. Organization is essential.

SEVENTH DAY; SATURDAY

This is the first day of the canoe trip. Be sure to start fresh and early in the morning. Once the trip is under way, set a rough objective for each day's travel and then stick to it. As the campers travel they should keep their eyes open for animal life in the water and along the shore. A few of the campers should be making a list of all the wildlife seen. The campers might even want to keep a journal of the trip.
Environmental Awareness Hours: 10

Day 1

All day:
1. Canoe trip

Day 2

Evening, two hours:
1. Group #1 - Animal Activity Investigation
2. Group #2 - Individual Environmental Awareness Project time

Day 3

Evening, two hours:
1. Group #2 - Animal Activity Investigation
2. Group #1 - Individual Environmental Awareness Project time

Day 4

Evening, two hours:
1. Individual Environmental Awareness Project time
2. Recreation

Day 5

Evening, three hours:
1. Presentation on Individual Environmental Awareness Projects

Day 6

**Morning**, one hour:

1. Environmental Awareness Appraisal - Post Test

**Afternoon:**

1. Environmental Awareness Evaluation

2. YCC Olympics

**Evening:**

1. Awards presentation

2. Dance

Day 7

**Morning:**

1. Campers leave

**FIRST DAY; SUNDAY**

Sunday is the last day of the canoe trip. The main purposes of the two day trip are to give the campers the opportunity to reflect on their camp experiences, to use some of the knowledge that they have gained from camp, and to enjoy the friendships they have made during camp. It is also an experience that the campers will take home with them when they leave.
SECOND DAY; MONDAY

Monday (and Tuesday) evening the campers will be taking part in their last environmental investigation of the four week session. Group one will take part in the animal activity investigation. This investigation is described in lesson plan #13. Group two should work on their individual environmental awareness projects.
LESSON PLAN # 13
ANIMAL ACTIVITY INVESTIGATION

Divide the campers into pairs, then give each pair a copy of the following questions. The campers are to take this sheet and evaluate an area near camp as they think a pair of animals would. The campers may use the Field Guide to the Mammals for a reference.

"We are a pair of ______ (Animal)."

1. How would you rate this area for your following needs?
   a. General habitat
   b. Winter and summer food supply
   c. Evidence of predators
   d. Other factors

2. What evidence can you find that others of your kind live here? How will they feel about you two moving in?

3. Which of the habitat types will you choose? Where will you locate your home; nest, burrow, or den?

4. What evidence can you find that shows that man has changed this area?

5. How do you animals feel about the changes that have been made here?

6. Why are you important to this environment?

7. Considering all things that we have investigated here, we (will, will not) remain here.

8. Are things usually considered from an animal's viewpoint? Are decisions made with animals in mind? Do they ever get to vote?
THIRD DAY; TUESDAY

Tuesday evening the campers should change activities from Monday evening. Those who are in group one will work on their individual environmental awareness projects, and those who are in group two will investigate animal activity.

FOURTH DAY; WEDNESDAY

Wednesday evening is the last evening for the campers to work on their environmental awareness projects. Those who have already finished may take part in recreational activities.

FIFTH DAY; THURSDAY

Thursday evening should be reserved for the presentation of the campers' individual environmental awareness projects. The campers and their staff should decide in the beginning of the week how they wish the projects to be presented. The presentation should include the following:

1. Why the camper chose his/her project.
2. An explanation of the process for completing the project.
3. A demonstration or presentation of the project.
4. What the camper has learned from the project.
5. A question and answer period.

SIXTH DAY; FRIDAY

The Environmental Awareness Post-Test should be given sometime Friday morning. Block out at least one hour for
the test. When the campers finish the test they should be given the weekly environmental awareness evaluation form to fill out.

Friday afternoon should be spent on some kind of special activity. The author suggests holding a YCC "Olympics" as the special activity. The campers always enjoy the opportunity to demonstrate the skills they have learned over the summer. The Olympic games should include skills that are unique to the camp's particular area, skills that reinforce learning that has taken place over the summer, and any enjoyable activity that is relevant to the campers. Safety must be stressed, as it is just as important in these games as it is on the work projects. The following games are examples of activities that may be included in the Olympics:

1. Ecology quiz
   a. Several campers work as a team.

2. Volleyball game or tournament

3. Obstacle course*
   a. The course is laid out on a field in stations. The participant runs from the starting line to all stations and then to the finish line. The fastest time wins.
   b. Course stations (examples):

   # 1 Put on hard hat, gloves and goggles.
   # 2 Hammer in and pull out five nails in a board
   # 3 Saw through three pine poles (four to five inches thick).

* Adapted from pp. 61 of the YCC Resource Guide; Preliminary Manuscript, U.S. Youth Conservation Corps.
4. Match splitting contest
5. Log throwing contest
6. Relay races
7. Tug of war
8. Orienteering Race

Friday evening is a good time to have an awards presentation for the campers. These can be both serious and fun awards. The YCC certificates and patches should be presented at this time. Then the staff and campers may take over and present their special awards. It is important to involve each camper in the awards ceremony.

A dance is a good last night activity. The dance should be held after the awards ceremony.

SEVENTH DAY; SATURDAY

This is the day the campers leave for home. There should be nothing but good memories and a lot of knowledge that the campers will take home with them.
FOOTNOTES


12. Ibid., p. 50.

13. Ibid., pp. 40, 41.


16. Ibid., p. 9.
17. People and Natural Resources, *op. cit.*, pp. 41-45.

18. Ibid., p. 46.

19. Ibid., p. 49.


23. Ibid., p. 6.

24. Ibid., pp. 6-8.


32. Ibid., pp. 19-24.

BIBLIOGRAPHY


"Hard Work and Good Times." YCC film available from U.S. Department of Forestry and Department of Interior.


