

# ***Another Look***

*conservation and planning*

# A POPULATION SITUATION

<b>Focus</b>	To examine the factors that affect a population, including predation and population size.
<b>Group Size</b>	20-23 students
<b>Time Required</b>	45 minutes
<b>Materials</b>	Small foods ( <i>M&amp;M's, peanuts, etc.</i> )
<b>Physical Setting</b>	Any open space
<b>Process</b>	<ol style="list-style-type: none"><li>1. Discuss food chains and populations, defining basic terms (predator, prey, etc.)</li><li>2. Discuss game rules, divide students into appropriate groups, and play.</li></ol>

## **Discussion:**

Talk about the observations made, effects of population size, effects of predation, and factors missing from the game that exist in the real world (reproduction, disease, replenishment of food supply, hunting, etc).

## **How to Play:**

### *student roles*

**Prey:** 18 students (two large groups of 6, two small groups of 3)

**Predators:** 2 students (one preys on a large group, one on a small group)

### *additional roles*

**Rangers:** 1-2 students (one insures that feeding and predation rules are being followed, a second may record prey populations)

**Scavenger:** 1 student (removes "dead" prey to a separate area)

### *food chain relationships/game play*

•**Prey:** each prey group begins with 30 food units. In one "week" (instructor will designate the passage of a week every few minutes) each member of the prey group will consume one food unit (one M&M). If a prey population consumes all its food resources all members of the group will die during the next week, when there is no food available for them.

•**Predators:** At the end of every two weeks, a predator consumes one member of the prey population to which it is assigned. Prey can only be consumed from populations that have been assigned predators. A member of the prey population is consumed only after it has eaten its weekly food unit. No prey is consumed at the end of the sixth week. Predators do not die during the course of the game.

•The game continues for six weeks. Prey populations are reported and compared at the end of each week. The Scavenger, if included, will remove the "dead" prey, so that they do not interfere with the progress of the game. The numbers given for prey, predators, and food supply are one workable set. Other combinations can be tested and the results observed.

# **BLOWN AWAY**

- Focus** To illustrate the effects of improper clearcutting techniques.
- Group Size** 30 Students
- Time Required** 2 Hours (*May be combined with NOWHERE IS AWAY*)
- Materials** Human resource: Bruce Haney, Toxicologist **BE SURE TO ARRANGE, THROUGH CISPUS STAFF, ONE WEEK IN ADVANCE FOR MR. HANEY'S PRESENTATION.**  
Large fan (*Available from kitchen*)  
Pieces of paper  
Field Journal
- Physical Setting** Logging Room  
Bruce Haney's property, located 1 mile west of Cispus Center

**Process**

**ACTIVITY 1:**

*This part of the lesson is spent in the Logging Room using the fan and small pieces of paper.*

1. Spread the paper out on a table near one end of the room and set the fan on another table about ten feet away, facing the table with the paper pieces. Have the students stand between the two tables. Turn on the fan and notice the effects of the fan upon the papers. Have the students move from between the tables and once again note the effects of the fan upon the paper.
2. Introduce Bruce Haney who will discuss some of the effects which clear cutting has upon the environment.

**ACTIVITY 2:**

*For this part of the lesson, the students will walk to the property of Bruce Haney.*

1. Bruce Haney will discuss the effects which clearcuts on adjacent property have had on his property.
2. Students will take field notes of their observations and draw conclusions discussing 5 possible effects of the use or disposal of pollutants into the environment.

**ACTIVITY 3:**

1. Students will journalize one important lesson which they have learned today and discuss how this impacts their lives in previously unknown ways.

*NOTE: The lesson, NOWHERE IS AWAY, also includes Bruce Haney's property and Mr. Haney as a resource. Combining these lessons will save 1 hr. (approx.) in travel time.*

# **CISPUS SCIENCE TEAM**

<b>Focus</b>	To develop and improve observational and recording skills while working as a member of a team.	
<b>Group Size</b>	18-30 (3-5 teams, with 6 members each)	
<b>Time Required</b>	3 hours	
<b>Materials</b>	<i>Per student:</i>	<i>Per team:</i>
	Pencil	4 Plastic sample cups
	Eraser	2 Magnifying glasses
	Clipboard	2 Thermometers
	Specialist task packet	2 Rulers
<b>Physical Setting</b>	Yellowjacket Ponds Trail	

## **Process**

### **INSTRUCTOR INFORMATION:**

*The intent of this activity is to give students an introduction to the investigation of nature in a qualitative and basic level. Students will also experience the completion of a goal as a team member. During the activity teams progress in two ways:*

- a. The educational objective of completing assigned tasks.*
- b. The physical objective of returning from Yellowjacket Ponds to Cispus.*

1. In this activity, students are broken into teams consisting of six "specialists". Each member is assigned specific tasks that must be completed before the team can advance along the trail (Students should be encouraged to seek help from teammates, but all answers must be written by the specialist assigned to the task).

2. Specific areas have been assigned where certain tasks must be completed:

Investigative Zone I-- Yellowjacket Ponds

Investigative Zone II--trail from the Ponds, up to and including the bridge

Investigative Zone III--trail from the bridge back to Cispus

To encourage complete and satisfactory work, "Science Checkpoints" may be set-up at the end of each area and monitored by teachers or counselors. All members of a team are required to complete their tasks before the whole team may move on to the next area.

3. Students are often asked to explain observations they have made. They may not have the background to do this at a scientifically "correct" level. Encourage them to answer as best they can, as long as it is an answer that reflects thought. A summarizing discussion is a good way to work out those "not sure" answers. You may wish to have the groups display their papers in the dining hall or other visible location.

#### **GETTING STARTED:**

1. Lead the students down the Yellowjacket Ponds trail (stress no running on trails). Encourage them to observe their surroundings. As you leave Cispus, point out the trail that they will take down to the creek in Investigative Zone III (it's a well-defined trail just before you reach the dirt road crossing the main trail).

2. When you reach the ponds, introduce the activity:

Scientists often have to work in a team to accomplish a goal. Many different scientists investigate the natural world. You will now work as a scientist in a team to collect information about the natural area along the Yellowjacket Ponds Trail.

It is the year 2,2020, scientists have just learned that a neighboring volcano, Mt. St. Helens, will soon erupt. This eruption will be much larger than the one in 1980. The entire Cispus area will be covered with lava and rock. You are a member of a scientific team that will research this area. You will record information so that people will know what was here before the eruption. Your team will be made of six scientific specialists. As a scientist, your work must be complete and accurate. Remember that the volcano may erupt soon, and that you should work quickly. Your work will be checked at "Science Checkpoints" to make sure that you are completing your job, and not just trying to escape the blast zone. You may only pass these checkpoints when your whole team has completed its work for that Investigative Zone. Your teammates may help you, but all work on paper must be done by you. Good Luck!

3. Divide the class into teams and have them choose team names. Pass out the Specialist Task Packets and allow the students to choose their specialities. Students should write their names on papers now, no changes should be allowed after initial choices. As soon as all group members have their specialities picked out they may begin.

# BOTANIST

*A botanist is a scientist who studies plants: their life, structure, reproduction, growth, and classification. As the botanist in your team, you will study the plant life of the area.*

**GOOD LUCK!!**

Team name:

Botanists Name:

## INVESTIGATIVE ZONE I

*These jobs should be completed in the Yellowjacket Ponds area before you start back on the trail.*

1. Botanists study plant life in a variety of places. Start by examining the plant life of the pond.

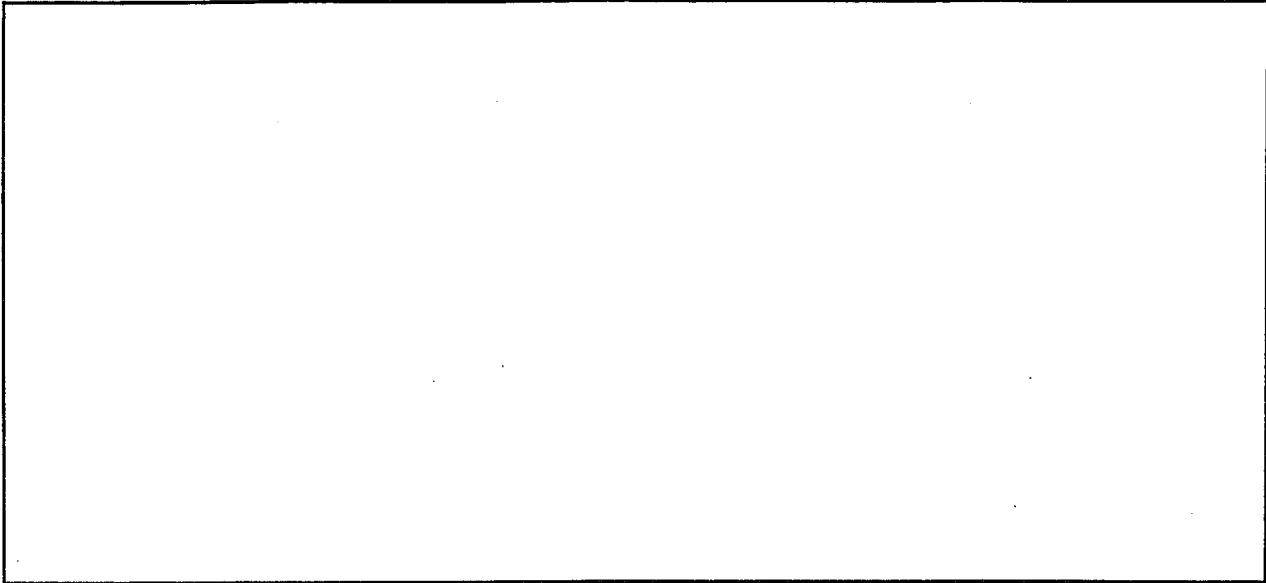
A. Look at a plant growing in or on the water. Describe and draw the plant below:

Description: _____	Drawing:
_____	
_____	
_____	
_____	
_____	

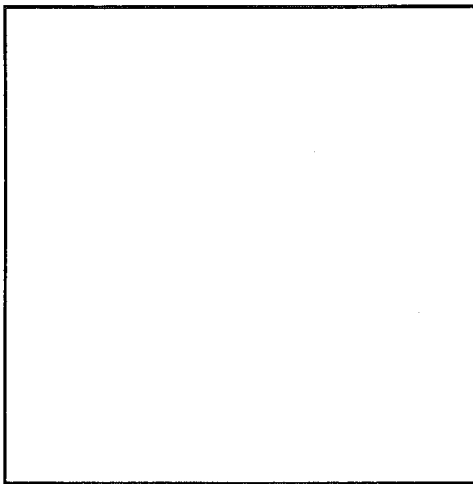
B. Now you will look at a land-based plant, a tree. Choose one that you can see clearly, you will be studying the structure of the tree. Stand far enough away so that you can see all of the tree. Draw and describe what you see.

Description: _____	Drawing:
_____	
_____	
_____	
_____	
_____	

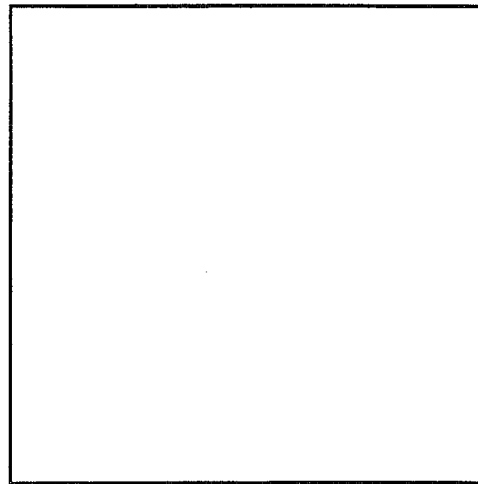
C. Now, walk up very close to the tree. Stand underneath its branches. Look up. Draw the tree as you now see it. Compare it to your first drawing and notice the differences.



D. As you stand next to the tree, notice the bark. Draw the bark in the space below.



E. Next, observe the leaves of the tree. Draw a leaf in the space below. If there are no leaves on the tree, write "No Leaves".



F. Now, compare the pond plant and the tree. Describe how they are different and how they are the same:

2. You have now observed and compared plants that grow in water and plants that grow on land. Now you will examine plants that grow in sunshine and those that grow in shade.  
A. Go to an area at the edge of the forest where there is plenty of sunshine. Describe the plants you see:

B. Go to an area that is shaded by the trees of the forest. Describe the plants you see:

C. Now, compare the plants found in the sun and the plants found in the shade. Describe how they are different and how they are the same.

### **INVESTIGATIVE ZONE II**

*This job should be completed as you walk back along the trail, but before you finish crossing the Yellowjacket Creek bridge.*

1. Trees are affected by many forces in their lives such as: animals, wind, fire, lightning, humans, diseases, and other plants. Choose one tree and describe how it has been affected by one or more of these forces:

### **INVESTIGATIVE ZONE III**

*This job should be completed as you walk back from the Yellowjacket Creek bridge to the Cispus Center.*

1. The rings on the stump of a cut tree can tell us the age of that tree. To find the age of a tree, count the number of rings in the stump, and add 5 years. Find three cut trees of different sizes along the trail. Make sure you can see the rings clearly. Calculate the ages of the trees.

Tree #1 \_\_\_\_\_

Tree #2 \_\_\_\_\_

Tree #3 \_\_\_\_\_

**GOOD WORK BOTANIST! NOW DISCUSS YOUR FINDINGS WITH YOUR TEAM!**



# GEOLOGIST

*A geologist is a scientist who is interested in the earth's crust (the rocks and soils of the earth). The geologist studies the parts of the earth's crust and the changes that take place in it. As the geologist in your team, you will study the soil and rocks of the area.*

**GOOD LUCK!!**

Team name:

Geologists name:

## INVESTIGATIVE ZONE I

*These jobs should be completed in the Yellowjacket Ponds area before you start back on the trail.*

1. Soil temperature is very important to plant growth.

A. Using a thermometer, measure the temperature of the air in a sunny area near the ponds.

Air temperature  
in a sunny area \_\_\_\_\_ Degrees Farenheit

B. In the same sunny area, use a sharp stick to dig a small hole, 2-3 inches deep, into the soil. Place the thermometer down into the hole and take a temperature reading of the soil.

Soil temperature  
in a sunny area \_\_\_\_\_ Degrees Farenheit

C. Move to an area that is shaded by the trees of the forest. Take readings of the air and soil temperature here.

Air temperature  
in a shady area \_\_\_\_\_ Degrees Farenheit

Soil temperature  
in a shady area \_\_\_\_\_ Degrees Farenheit

D. How are the soil temperatures different from the air temperatures?

E. Do you think plants will grow more quickly in a sunny or a shaded area? Why?

2. Not all rocks are the same. They are formed in different ways and are made from different materials. Geologists examine rocks and put them into different categories. Your next job will be to observe and describe some of the rocks of the pond area. Choose 4 different rocks. Look at their color, shape, and surface. Use your ruler to measure their size. Guess their weight. Draw the rocks in the spaces below and describe them using your observations.

Rock #1	Rock #2
Rock #3	Rock #4

### INVESTIGATIVE ZONE II

*These jobs should be completed as you walk back along the trail, but before you finish crossing the Yellowjacket Creek bridge.*

1. Soil must contain nutrients if plants are going to grow in it. Nutrients taken by plants are returned to the soil through animal waste or the decaying remains of plants and animals.

A. As you walk along the trail, look for ways that nutrients are being returned to the soil. Describe two of these ways below:

2. As you stand on the bridge, observe Yellowjacket Creek. Think about the ways that the creek affects the rocks, soil, and land around it. Describe as many of these effects as you can think of.

### **INVESTIGATIVE ZONE III**

*This job should be done as you walk back from the Yellowjacket Creek bridge to the Cispus Center.*

1. Soils may be different in different areas.

A. Collect some soil from the forest along the trail. Place it in one of your plastic cups. Observe it carefully. What color is it? What materials is it made from? Is there plant matter in it? Do you see animals in it? Describe what you see:

B. As you walk back to Cispus, you will see a trail leading down to the creek. At a safe place to reach the creek, collect some soil from near the water. Observe the soil as you did above and write a description of it:

C. Compare the forest and creek soil. If they are different explain why they are:

**GOOD WORK GEOLOGIST! NOW DISCUSS YOUR FINDINGS WITH YOUR TEAM!**

# ZOOLOGIST

*A zoologist is a scientist who studies animals: their life, habits, reproduction, growth and classification. As the zoologist in your team, you will study the animal life of the area.*

**GOOD LUCK!**

Team name:

Zoologists name:

## INVESTIGATIVE ZONE I:

*These jobs should be completed in the Yellojacket Ponds area before you start back on the trail.*

1. One sign of an animals activity is the footprints that it leaves. Search the pond area for the prints of animals. Look in areas where the soil is, or has been, moist and soft. Measure the prints and speculate about the animal that may have made them. Draw the prints below. Include your measurements and the type of animal you think made the print.

Print #1	Print #2
type of animal:	type of animal:

2. Insects are the most common kind of creature in the world. Many insects use the pond area as their home. Search the edge of the pond and the nearby plants for insects. If you can, carefully catch some insects in your plastic cups for observation. Measure the insect. Draw the insects below and include your measurements. When you finish, return the insects carefully to their homes.

Insect #1	Insect #2
CP-11	

3. Even smaller animals are often found living in the water of ponds. Collect some water from the pond, using your clear plastic cup. Use your magnifying glass to examine the water. Do you see any living things? (If not, try another cup of water). Draw any living things you have seen in the space below:

**Pond life:**

**INVESTIGATIVE ZONE II:**

*These jobs should be completed as you walk back along the trail, but before you finish crossing the Yellojacked Creek bridge.*

1. Footprints are not the only signs animals leave behind. The activity of some animals can be very clearly seen. Observe the trees near the creek as you walk back to the bridge. Some of the trees have clearly been affected by an animal's activity. Go over to the trees and examine them.

A. Draw what you see in the space below:

B. What animal has done this?

C. What part of its body do you think the animal used?

D. Why do you think the animal did this?

### **INVESTIGATIVE ZONE III:**

*These jobs should be done as you walk back from the Yellowjacket Creek bridge to the Cispus Center.*

1. Logs that have fallen and are decaying are very important to the life of the forest. They are called nurse logs, because they give nutrients and homes to many animals and plants of the forest. Observe a nurse log very carefully. Describe any animal life, or signs of animal life that you find.

**GOOD WORK ZOOLOGIST! NOW DISCUSS YOUR FINDING WITH YOUR TEAM!**

# METEOROLOGIST

*A meteorologist is a scientist who studies the earth's atmosphere, climate, and weather. As a meteorologist in your team, you will study the weather conditions of the area  
GOOD LUCK!*

Team name:

Meteorologists name:

## Table A: Wind Speed

*The wind is an important part of the weather. A meteorologist must know how fast the wind is blowing. The table below will help you determine wind speed.*

Observation	Description	Wind Speed in miles per hour (MPH)
No part of trees moving Smoke rises straight up, or drifts slowly	Calm	0-3
Leaves and twigs are moving	Slight breeze	4-12
Small branches and small trees are moving	Moderate breeze	12-20
Large branches moving	Strong breeze	20-30
Whole trees moving	Moderate gale	30-40

## Table B: Forest Fire Danger

*In the forest, a meteorologist can help to decide the fire danger level (how easy it would be for a forest fire to start). The table below will you determine the forest fire danger*

Observation	Forecast
High temperature (above 70 degrees F) High winds Dry weather Dry fuel (leaves, grass, wood)	High Fire danger
Temperature between 60-70 degrees F Moderate or no wind Dry weather Dry fuel	Medium Fire danger
Low temperature (below 60 degrees F) No wind Rain or wet weather Wet fuel	Low Fire danger

**INVESTIGATIVE ZONE I:**

*These jobs should be completed in the Yellojacket Ponds area before you start back on the trail.*

1. Your first job will be to describe the weather conditions in the yellowjacket ponds area.

A. Use your thermometer to measure the air temperature at Yellowjacket Ponds.

Air temperature at  
Yellowjacket Ponds =

B. Use the wind speed table to estimate the wind speed at Yellowjacket Ponds.

Wind speed  
at Yellowjacket Ponds =

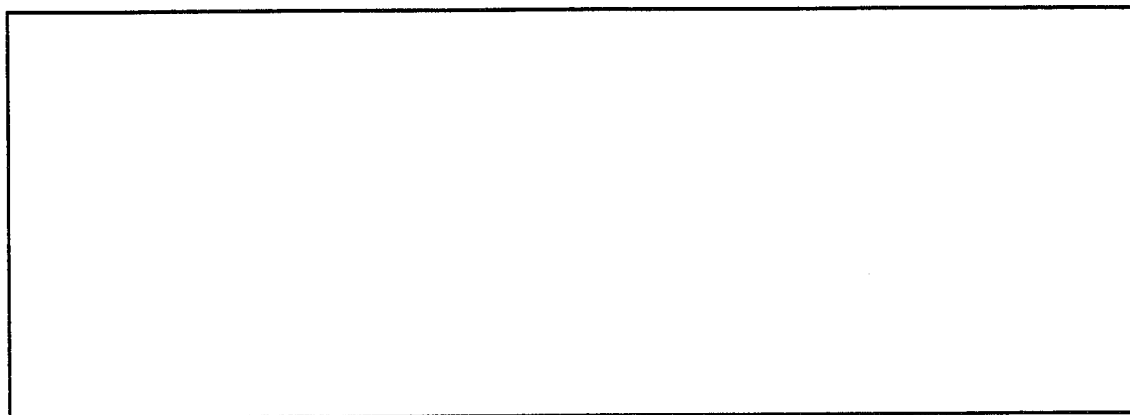
C. Estimate the fire danger in the Yellowjacket ponds area.

Fire danger at  
Yellowjacket Ponds =

2. The sky and clouds can tell a meteorologist a lot about the weather.

A. Look up at the sky and describe its color:

B. If you see any clouds describe what they look like, and draw them in the space below:



**INVESTIGATIVE ZONE II:**

*These jobs should be completed as you walk back along the trail, but before you finish crossing the Yellojacked Creek bridge.*

1. Measure the air temperature, estimate wind speed, and estimate fire danger in the forest as you walk along the trail.

Air temperature =  
Wind speed =  
Fire Danger =

B. Compare the fire danger at the ponds and in the woods. Are they the same or different? Why do you think they are like this?



2. Next, go to the Yellowjacket Creek bridge. Measure the air temperature and estimate the wind speed here.

Air temperature =  
Wind speed =

**INVESTIGATIVE ZONE III:**

*These jobs should be done as you walk back from the Yellowjacket Creek bridge to the Cispus Center.*

1. Compare the wind speed and temperatures at the ponds, the forest, and the bridge. Are these measurements the same in all places? Describe your findings and why you think the reasons are for these results.

**GOOD WORK METEOROLOGIST!! NOW DISCUSS YOUR FINDINGS WITH YOUR TEAM!**

# ECOLOGIST

*An ecologist is a scientist who studies how living things relate to each other and the environment. As the ecologist in your team, you will study the relationships between organisms and environment in the area (Your job includes all parts of the environment, you may find other members of your team doing jobs much like yours. Work with them!)*

**GOOD LUCK!**

Team name:

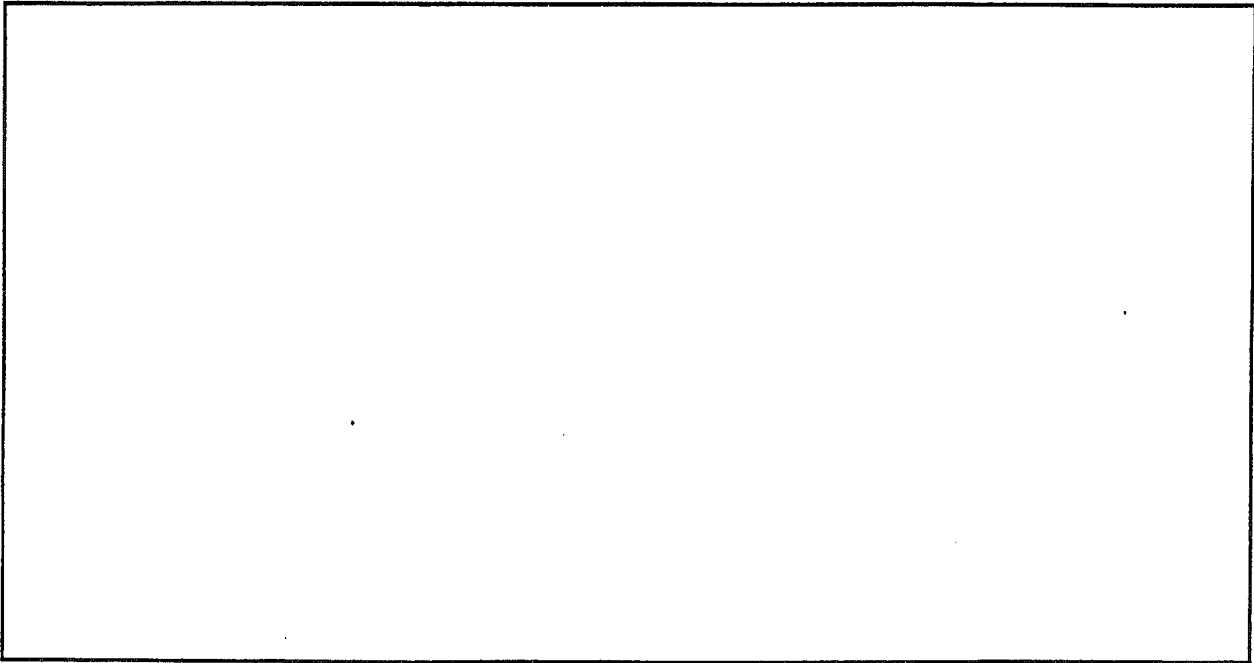
Ecologists name:

## INVESTIGATIVE ZONE I:

*These jobs should be completed in the Yellojacket Ponds area before you start back on the trail.*

1. An ecosystem is an area whose inhabitants (living and non-living) interact and depend on each other to survive.

A. Your first job is to map the exosystem of the Yellowjacket ponds area. In your map, you should show: the two ponds, areas covered by grass, areas with trees, the trail and other human additions, and the location of Yellowjacket creek. Add any other parts that you think are imporant.



B. Humans often have a significant effect on an exosystem. Explore the Yellowjacket Ponds area and find four ways that humans have affected it. In the spaces below, describe these impacts (effects), if you find them helpful or harmful, and why.

1. Human impact:

Positive or negative:

Why?:

2. Human impact:  
Positive or negative:  
Why?:

3. Human impact:  
Positive or negative:  
Why?:

4. Human impact:  
Positive or negative:  
Why?:

**INVESTIGATIVE ZONE II:**

*These jobs should be completed as you walk back along the trail, but before you finish crossing the Yellojacked Creek bridge.*

1. The activity of one animal can have many effects on the environment. Observe the trees near the creek, as you walk back to the bridge. Some of the trees have clearly been affected by an animal's activity. Go over to the trees and look at what has happened.

A. What animal has done this?

B. Why do you think the animal has done this?

C. Do you think this activity will be good or bad for the ecosystem? Why?

**INVESTIGATIVE ZONE III:**

*These jobs should be done as you walk back from the Yellowjacket Creek bridge to the Cispus Center.*

1. Decaying logs are very important to the forest ecosystem. Often called nurse logs, they provide food and homes for many plants and animals. Choose a nurse log that is supporting a variety of life and observe it carefully. Describe what you see, and make a drawing of it in the space below:

**GOOD WORK ECOLOGIST ! NOW DISCUSS YOUR FINDINGS WITH YOUR TEAM!**

# HYDROLOGIST

*A hydrologist is a scientist who studies water and water sources (such as lakes, ponds, and rivers). As a hydrologist, you will study the water resources of the area.*

**GOOD LUCK!**

Team name:

Hydrologists name:

## INVESTIGATIVE ZONE I:

*These jobs should be completed in the Yellojacket Ponds area before you start back on the trail.*

1. Water temperature is very important to the life in the pond.
  - A. Use your thermometer to measure the temperature of the air in the pond area.  
Air temperature  
at Ponds =
  - B. Now, measure the temperature of the ponds.  
Water temperature  
at Ponds =
  - C. Are the two temperatures the same? What could explain your readings?

2. Not all ponds are the same. You will now observe the differences between the two Yellowjacket Ponds.
  - A. Look carefully at each of the ponds. Observe the water, plant life, and animal life of the two ponds. Describe any differences that you see:

- B. What do you think might explain these differences?

3. Drainage is the way that water flows across the land. You will next observe drainage on two different types of surfaces. Collect two cupfuls of water from one of the ponds.
  - A. Pour one cup of water onto some soil in the ponds area. What happens to the water poured on the soil?

B. Walk to the blacktop in the parking area. Pour the second cup of water onto the blacktop. What happened?

C. During a rainstorm, what do you think happens to water that falls on soil?

D. During a rainstorm, what do you think happens to water that falls on blacktop?

**INVESTIGATIVE ZONE II:**

*These jobs should be completed as you walk back along the trail, but before you finish crossing the Yellowjacket Creek bridge.*

1. A watershed is the area from which water flows into a water source. From the bridge, observe the surroundings of Yellowjacket Creek. You are looking at part of the watershed of Yellowjacket Creek.

A. How do you think water gets into Yellowjacket Creek?

B. Where does the water in Yellowjacket Creek go?

C. What could cause the amount of water in Yellowjacket Creek to increase?

D. What could cause the amount of water in Yellowjacket Creek to decrease?

**INVESTIGATIVE ZONE III:**

*These jobs should be done as you walk back from the Yellowjacket Creek bridge to the Cispus Center.*

1. As you walk back to Cispus, you will see a trail leading down to the creek. Go down the trail and find a safe place to reach the creek. You will now compare the temperatures of the creek with those of the Ponds.

A. Measure the air temperature near the creek.

Air temperature  
at the creek =

B. Now, measure the water temperature of the creek.

Temperature  
of Creek water =

C. Is the temperature of the creek water the same as that of the ponds? Give an explanation for your findings.

D. How do you think water temperature affects the living things in the water?

**GOOD WORK HYDROLOGIST! NOW DISCUSS YOUR FINDINGS WITH YOUR TEAM!**

# Conserving Water and Energy

Focus	Activities to increase awareness of the need to conserve energy & water.
Group Size	10 to 40
Time Required	90 minutes
Materials	Poster board, scissors, glue, marking pens, butcher paper, magazines, large bag of MM's, lamp with 100 watt light bulb
Physical Setting	Standard classroom
Process	<p><u>WARM UP:</u></p> <ol style="list-style-type: none"><li>1. Give each student 5 MM's and let them eat the candy.</li><li>2. Show the lamp and bulb. Turn on the assembly for 36 seconds. Note that one MM's gives you the same amount of energy that is used by the light bulb every 3.5 seconds. Show 10 MM's, drop one in the garbage can approximately every 3.5 seconds until all are gone.</li><li>3. Discuss this demonstration with the students. That amounts to 1028 MM's per hour for each light bulb left burning.</li><li>4. Ask the students to suggest ways to save (conserve) energy. List these ideas on the board or on poster paper.</li><li>5. Ask the students if they know how energy in the form of electricity is made in our state. Encourage suggestions until water power (dams) is brought up. Ask students to suggest ways to conserve water. List those suggestions on the board or poster paper.</li></ol> <p><u>TALK/ WRITE:</u></p> <ol style="list-style-type: none"><li>1. Divide the students into pairs. Place a large piece of poster paper on the wall for each team. Title the pages <b>Conserving</b> or <b>Wasting</b>. Ask the students to write a two paragraph story about a typical day in which they either conserve or waste energy and water. One student is the writer and one serves as the coach. The coach helps the writer with ideas, spelling, grammar and structure. You may want to narrow their assignment by listing <i>Before School, before lunch, after lunch, before dinner, before bed</i> as frames for their story.</li><li>2. Allow sufficient time for all to finish. Mingle with the student groups during this part of the assignment, offer suggestions, praise and encouragement.</li><li>3. Have each group read their story to the class. Host a discussion about the content when appropriate.</li></ol>



## NOTES

### POSTERS

1. During the talk write phase, take time to prepare poster boards with titles from their lists on the board about ways to conserve water and energy. Make enough boards so that each team will have one.
2. Handout the poster board and make glue, scissors and magazines available. Instruct the students to find a picture that illustrates the conservation technique.
3. Allow sufficient time for all to finish. Be prepared to help with ideas for pictures. Mingle with the student groups during this part of the assignment, offer suggestions, praise and encouragement.
4. Have each group present their poster to the class. Post the finished results in the classroom, halls or other prominent location.

### WRAP UP:

1. Ask the students to explain what they have learned.  
Do they know the meaning of the word conservation?  
What can they personally do to conserve water or energy?  
Ask for a single thing they can do to report to you later.  
Perhaps they could write you a letter and tell you about their successes.

## ***HELP OUR TOWN!***

<b>Focus</b>	To introduce some environment-related career opportunities to students.
<b>Group Size</b>	Groups of 12.
<b>Time Required</b>	45 minutes
<b>Materials</b>	Game handouts
<b>Physical Setting</b>	Anywhere--indoors or outdoors
<b>Process</b>	<ol style="list-style-type: none"><li>1. Begin with a brief discussion of careers related to the environment and methods that communities use to solve environmental problems.</li><li>2. Introduce the game and go over the rules with the students. Then you're ready to play! Afterwards, as a class, you can discuss other environmental careers and interests that can lead to these careers.</li></ol>

### **Rules of Play:**

1. This game requires a group of 12 students. In each group of 12 there are four town "mayors" faced with environmental problems in their community, and eight "professionals" with skills in various fields. Depending on the roles they choose, or are given, each student is given the appropriate game card. They should take care not to reveal the information on their card to anyone else, until it is required during play.
2. Students can be seated with mayors facing professionals, or in a circle. Play begins when the first mayor reads his/her problem aloud. Then she/he calls on one of the professionals. The professional can then reveal his/her identity and whether or not she/he can help with the problem (Throughout the game professionals are only identified by their responses. Mayors are challenged to remember their identities--they may not write down notes).
3. If the mayor chooses correctly, she/he may now read his/her town's second problem and search for a professional that can solve it (A new problem can only be addressed when the previous one is solved).
4. If the first mayor chooses incorrectly, the second mayor can begin his/her search for the solution to his/her town's dilemma. The game continues until one mayor finds assistance for all four of the town's problems, or until all the town's find help.

## **AQUATIC BIOLOGIST**

"I am an aquatic biologist. I study the plants and animals of the water. I know how these things live and how they are affected by their environment."

## **METEOROLOGIST**

"I am a meteorologist I study weather and climate. I understand why the weather changes. I also am able to forecast the weather."

## **GEOLOGIST**

"I am a geologist. I study and can identify rocks, soils, and minerals. I also understand how to locate underground resources such as oil and water."

## **TOXICOLOGIST**

"I am a toxicologist. I study and identify harmful substances in the environment."

## **ENTOMOLOGIST**

"I am an entomologist. I study insects. I know how they live, feed, and reproduce. I also understand the effects of insects on plants and animals."

## **SEISMOLOGIST**

"I am a seismologist. I study earthquakes, volcanoes and even human-produced explosions. I understand these events and their effects on the environment."

## **BOTANIST**

"I am a botanist. I understand how plants live, grow, and reproduce. I can also identify and classify different types of plants."

## **PARK RANGER**

"I am a park ranger. I work to maintain and protect parks. I manage wildlife, educate visitors, and make sure people follow park rules."

## MAYOR OF TOWN #1

1. There are many fish in our town's river. One type, Striped Bigfish, are very good to eat. Another type, Spotted Smallfish, aren't good to eat or use for bait. The problem we have is that the population of Big fish is decreasing and the population of small fish is increasing. We need help understanding how Bigfish and Smallfish live.

3. Community events are a problem in our town. We planned a parade, and it rained. We planned a kite-flying exhibition, and there was no wind. We planned an ice-sculpting contest, and the ice melted. We need someone to help us determine what the weather will be like, so that our community events can be more successful.

2. A new type of insect has just been found in our town. It is bright blue, can fly, and comes out only at night. We are not sure where this insect came from. We need to know if it will be harmful or beneficial to our community.

4. Our town is located 80 miles away from Mt. Shakey, an active volcano. The volcano's last eruption occurred 100 years ago, but we are always worried that it may happen again soon. We need to understand what is happening in Mt. Shakey so the townspeople won't be unprepared for an eruption, or nervous about one that isn't going to happen.

## MAYOR OF TOWN #2

1. People in our town are very excited. The rocks in our town have been found to contain a shiny, yellow metal. Some people say it is gold. Other people say it's only fool's gold--iron pyrite. We want to know if we have struck it rich.

3. Wonderjunk Chemical Factory is our town's major industry. It provides many jobs in our town. There is a problem at Wonderjunk, however. Many of the employees have a strange disease. Some workers say the chemicals are making them sick. We need to know what is causing the disease.

2. Our town is very lucky, because we have many wildflowers in our fields and forests. Everyone is very interested in these flowers. Our problem is that we don't know what to call them, or their scientific classifications. We have tried names like Big Yellow Flower, Small Yellow Flower, and Medium-Sized Yellow Flower, but it was very confusing. We want to give scientific names to our flowers.

4. Our town has just opened a big, new park. Everyone agreed that this was a good idea. Now we are not so sure. People walk all over and do not follow trails, cars are parked everywhere (even on flowers and other plants), and there is litter in the places that were supposed to be beautiful. We need to find a way to make sure our park is being properly used and cared for.

### MAYOR OF TOWN #3

1. Things in our town are very shaky. Every few years there is an earthquake that causes a lot of damage to our town. People are moving out because of the danger. We need to be able to predict the earthquakes and protect our property and people from their threat.

3. Our town has developed a new industry--honey production. Things are not going well for our new industry; the bees are producing very little honey. Something is wrong in our production set-up. People have suggested that we need different bees. We need to learn more about honey-producing bees to keep our business going.

2. Many people in our town work outdoors. Policemen, construction workers, farmers, and other members of the community need to be comfortable while they're working. They want to know what the weather will be, so they can dress properly. We need to collect and distribute this information to the community.

4. We have just built a new park in our town. It contains a fishpond that people will want to use. In the spring we will stock the pond with fish, but we're having difficulty in deciding what species of fish. We need some that can live in a small area, with slow moving water, are native to the area, and are good to eat. How can we find the right fish?

### MAYOR OF TOWN # 4

1. The park in our town has been open for several years. At first, many people went to the park. Now very few go to visit. People enjoy walking around, but they soon become bored. We want someone that can tell visitors about the interesting plants and animals at the park, and show them the different things to see.

3. A new type of plant has been found growing in our town.. So far, the plants are still very small. We don't yet know what they will become: bushes, trees, green or flowering plants. We want to know that kind of plant this is and what, if anything, we need to do about it.

2. Our town used to have a very large population of purple-tailed deer. Now the purple-tailed deer are dying. We think some substance in the environment may be causing this. Some people think it is car exhaust, others say it is pollution to the water, and still others think that it's pesticides used by farmers and gardeners. We want to know what is happening to our deer.

4. Our town is running out of water and we need to dig new wells. There is a lot of rock under the ground in our town. It is very difficult to drill through this rock. Some people say it's a waste of time to try to dig the wells. We want to know what type of rock we'll be drilling through, and if there will be water underneath it.

# NOWHERE IS AWAY

<b>Focus</b>	To illustrate that we live in a closed system, that any pollutant discarded into the environment has to go somewhere, and the potential hazards of these pollutants to the environment and its inhabitants.
<b>Group Size</b>	30 Students
<b>Time Required</b>	2 hours ( <i>May be combined with BLOWN AWAY</i> )
<b>Materials</b>	Human resource: Bruce Haney, Toxicologist <b>BE SURE TO ARRANGE, THROUGH CISPUS STAFF, ONE WEEK IN ADVANCE FOR MR. HANEY'S PRESENTATION.</b> Field journal 12" x 18" x 3" pan or foil covered( <i>inside</i> ) box lid 1 gallon of sandy soil ( <i>available from soil pit near trailer #10</i> ) food coloring 1 quart of water
<b>Physical Setting</b>	Standard Classroom ( <i>discussion</i> ) Beaver Ponds on Bruce Haney's property
<b>Process</b>	<b>ACTIVITY 1: IN THE CLASSROOM</b> 1. Dump the soil into one end of the pan and allow to slope down, leaving 4-6 inches uncovered. Sprinkle several tablespoons of food coloring over the soil. Tilt the dirt-filled end of the pan up 2-3 inches and sprinkle water over the soil until it leeches through and drains to the bare end of the pan. Have the students note the color of the water accumulating at the end of the pan. 2. Present Bruce Haney, toxicologist who will discuss the effects of putting wastes into the environment. 3. Students will take field notes of observations from the soil leeching demonstration and Mr. Haney's presentation. <b>ACTIVITY 2: IN THE FIELD</b> 1. Students will walk to Bruce Haney's property (about .1 mile) to observe potential ecological effects of spraying defoliants onto hillsides adjacent to water sources or wetland wildlife habitats. 2. Mr. Haney will discuss his experience with this and other types of environmental polluting. 3. Students will take field notes of their observations and draw conclusions discussing 5 possible effects of the use or disposal of pollutants into the environment. <b>ACTIVITY 3:</b> 1. Students will journalize one lesson which they have learned today and discuss how this impacts their life in a way which they had'nt realized.

**Note:** The lesson, *BLOWN AWAY*, also involves Mr. Haney and a visit to his property. Combining these lessons will save approx. 1 hour in travel time.

## **TREES AND TIMBER**

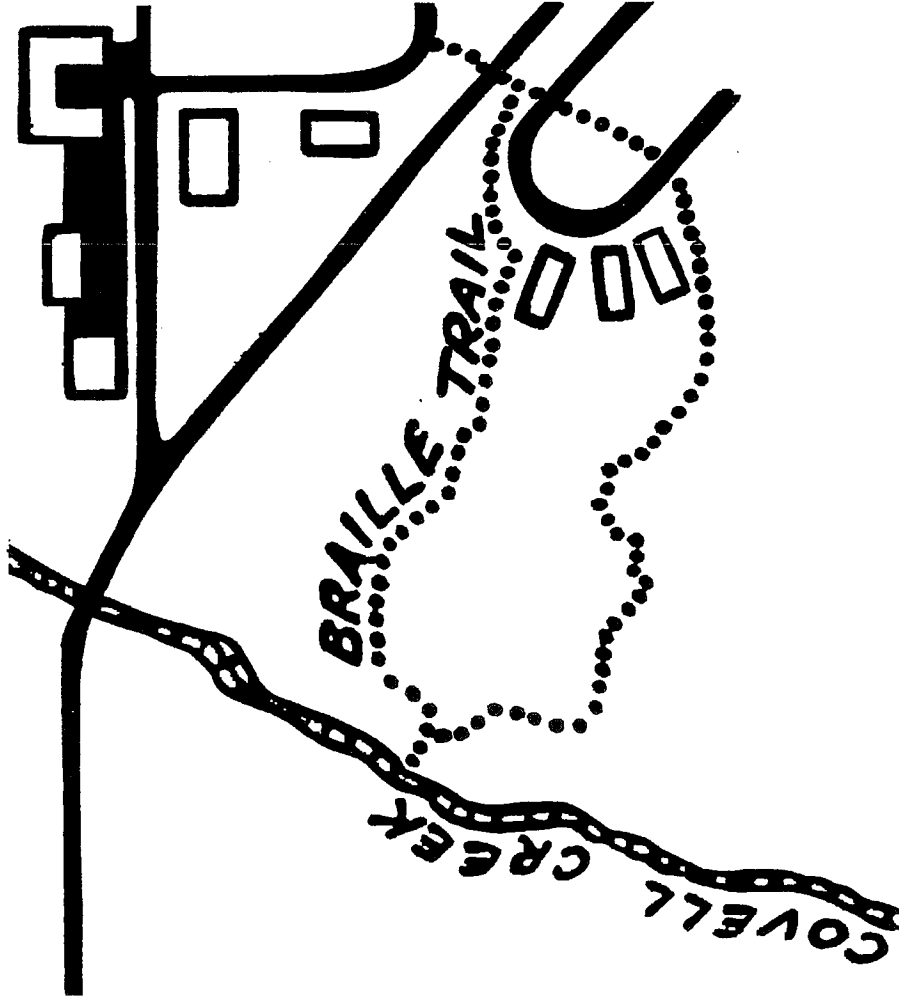
<b>Focus</b>	To examine the issue of logging and forests in the Pacific Northwest.
<b>Group Size</b>	Entire class
<b>Time Required</b>	2 hours
<b>Materials</b>	TV/VCR Videos: <i>"The Trees go on Forever"</i> <i>"Rage Over Trees"</i>
<b>Physical Setting</b>	Indoors for videos and discussion, Cispus area and Quartz Creek Big Trees for follow-up visits
<b>Process</b>	<ol style="list-style-type: none"><li>1. Start a brief preliminary discussion on forest use in the Pacific Northwest.</li><li>2. Show <i>"The Trees go on Forever"</i> (15 min), a video produced by Weyerhaeuser that gives the timber industry viewpoint. And <i>"Rage Over Trees"</i> (50 min), produced by the Audubon Society, this video follows the environmentalist viewpoint (Note the difference in running times. You may wish to counteract this by showing the shorter video second).</li><li>3. Discuss the videos. The questions included in the following pages may be used to facilitate the discussion.</li><li>4. Follow-up visits can be made to Quartz Creek Big Trees (see <i>"KING OF THE FOREST"</i> activity), clear cut, and second growth forests in the Cispus area.</li></ol>

## Discussion Questions

1. "The Trees go on Forever", began by showing farm fields and orchards. Why was this done? Is this comparison (agricultural crops = forest) a good or accurate one?
2. Environmentalists want to preserve old growth forests in their "natural" state. They also would like to use these forests for camping, hiking, researching, hunting, and fishing. Are these human activities "natural" in the old growth forest? Is it "natural" for forests to be protected?
3. The focus of "Rage Over Trees", was old growth forests. "The Trees go on Forever", discussed old growth briefly. Why did the two films address old growth forests in such different ways?
4. What roles are played by the U.S. Government in deciding what will happen to the forest?
5. Do you think our forests would be better managed by small timber companies (as seen in "Rage Over Trees"), or by large timber companies (such as Weyerhaeuser)? What are your reasons for this decision?
6. In "Rage Over Trees", the cutting of forests in the Pacific Northwest was compared with the deforestation in the rainforest of South America. Are these two situations the same? Should people in the U.S. try to influence how forests are managed in other countries?
7. Several people in "Rage Over Trees", suggested that Congress or "the will of the people" what happens to our forests. In this way the majority would have control. Do you think using the most popular viewpoint is a good way to decide forest management policy?
8. In "Rage Over Trees", members of the timber industry were brought together with environmentalists. Do you think the two sides really listened to each other? What effect will this have on solving the problem of forest use?



# Braille Trail Today



## Legend

Evergreen Stands

Deciduous Groves

Fallen logs

Benches

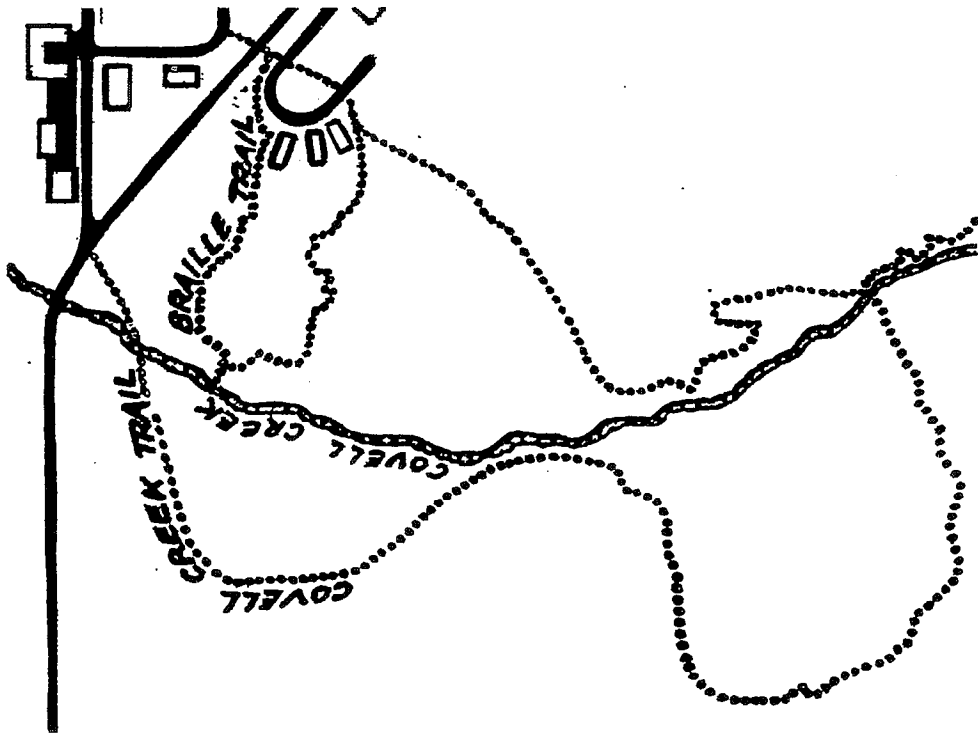
Nurse Logs

Erosion areas

Numbered stops

Sightings:

# Sites and Sightings along the Covell Creek Trail



Sightings:

## Legend

Evergreen Stands

Deciduous Groves

Devils Club

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Shelter

Burned Out Tree

Large Nurse Log

Cut Away Bank

Abandoned Survival Shelter

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## ***BRADSTON: CITY IN NEED***

**Focus** Through a role playing and simulation game, students are better able to understand the advantages and disadvantages to two approaches to managing water resources--the "hard path" and the "soft path".

**Group Size** 30 students

**Time Required** 2 hours

**Materials** *Presentation Materials*  
(*suggestions*):

Flipcharts	Markers
Overhead projector	Poster board
Overhead sheets	Chalkboard
Chalk	etc.

Handouts:

*Bradston: City in Need of Water*  
*City Council Information*  
*Special Interest Group Information*

**Physical Setting** Standard classroom

**Process** 1. Using the following statistics, ask students to brainstorm methods (ways) to manage our water resources (list on chalkboard, overhead or poster):

*The availability of adequate water resources will be the most serious long-range problem confronting the United States and the world.*

Gerald D. Seinwill  
Former Director, U.S.  
Water Resources Council

- At least 80 countries, accounting for nearly 40 % of the world's population, now experience serious droughts.
- World population increases by 212,000 each day.
- The World Health Organization estimates that 25 million people die every year from cholera, dysentery, diarrhea, and other diseases caused by unclean or inadequate water--an average of 68,500 deaths each day.

•In 1979, the U.S. Water Resources Council projected that by 2000 only 3 of the 21 federally designated water regions--New England, the Ohio basin, and the South Atlantic-Gulf area--will have ample water supplies.

2. Using the definitions below, have students categorize each item on their list as being a "hard path" or "soft path" method for managing water resource:

**Hard Path:** Favors increasing water resources in an area by building large-scale dams, creating reservoirs, and constructing canals to transfer water from one watershed to another.  
*(major disadvantage is the expense and disruption of the environment)*

**Soft Path:** Favors voluntary and mandatory water conservation programs along with price increases to reflect the true costs of using water for irrigation and for industrial, commercial, and domestic purposes.  
*(major disadvantage is it involves the cooperation of many different groups, and it goes against archaic water laws that state landowners adjacent to water must continue to withdraw the same amount of water each year to maintain their right. "Use it or lose it.")*

3. Explain that to understand the "hard path" and "soft path" options, the students will be participating in a role-playing and simulation game.

4. Read *Bradston: City in need of Water* with the students.

5. Divide students into groups: one group representing the Bradston City Council and the other groups representing each special interest option.

6. Give *City Council Information* to the council and *Special Interest Information* to the other groups. Allow work time, then call all the groups together for the Bradston City Council meeting. Debrief as needed.

## Background Information: Bradston--The City in need of Water

The population of Bradston is 250,000 and rapidly increasing. The city's boundaries are being extended but the suburban fringe is expanding even more rapidly. The rapid population growth is accompanied by demands for more water for both domestic and industrial uses.

The current water resource management system was built in the early 1970's when the population of Bradston was 75,000. The system consists of a water filtration plant that draws water from the Petekate Lake Reservoir. The reservoir is created by a dam on the Greytab River which is a tributary stream of the Roe River. The water filtration plant provides 75% of Bradston's water needs, and the hydroelectricity generated from the dam coupled with a coal burning plant located in the city provide Bradston with energy.

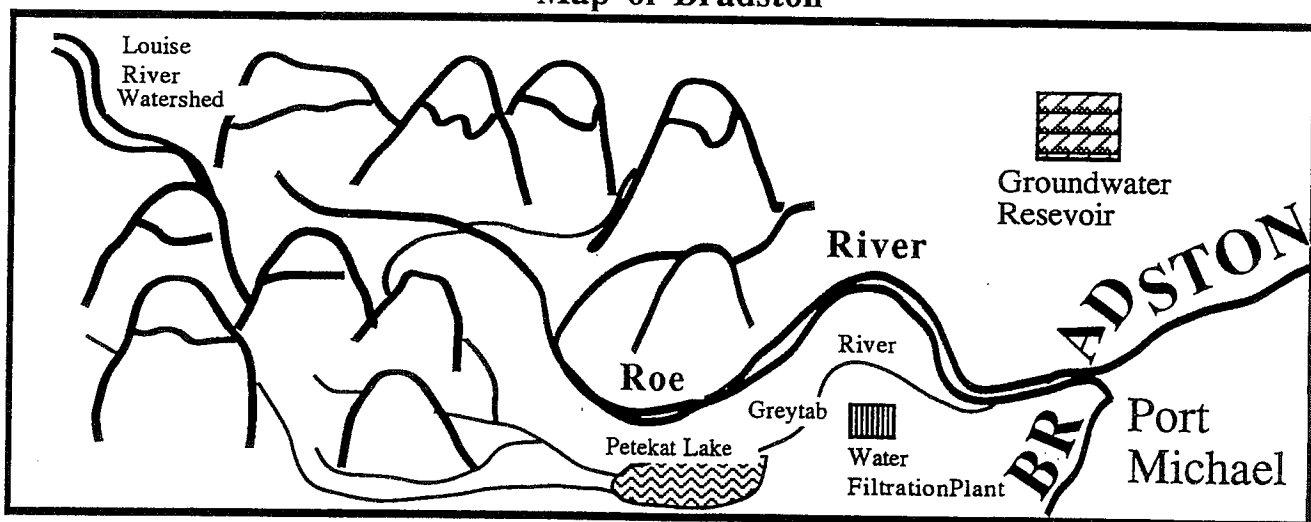
The other 25% of Bradston's water is pumped groundwater. The aquifer that lies underneath the town is recharged by the mountain streams and rivers north of the town. Limestone is the predominant rock strata in the aquifer.

Bradston's economy is based on the industry along the waterfront of Port Michael, a narrow sound that extends to the ocean, and the light industry that has developed in and around the city. The citizens of Bradston have a strong sense of the natural environment. Hiking, river rafting, and fishing in the scenic Roe River Watershed is a common experience.

Knowing that the city's water supply is tapped out, the City Council of Bradston is holding a public hearing on proposals to increase Bradston's water supply. The 7 special interest group proposals are as follows:

1. Dam the Roe River to create another water reservoir and produce more hydroelectricity
2. Channelization of the streams and creeks feeding Petekate Lake
3. A water diversion project which would take water from the bordering Louise River Watershed and bring it to the city of Bradston
4. Increase the amount of groundwater being withdrawn from the aquifer
5. Build a desalination plant on Port Michael to convert salt water to fresh
6. Tow icebergs from the Antarctic region
7. Increase the amount of rain by controlling the weather through a cloud seeding program

Map of Bradston



# Methods for Managing Water Resources: City Council Information

## City Council Task:

1. Hold a City Council meeting for all special interest groups proposing a solution to Bradston's water supply problem.
2. Create questions for each special interest group that highlights the disadvantages of their proposal based on the information below.
3. Develop criteria to evaluate the proposals and select one.

## Method

## Disadvantages

### **Dam the Roe River**

A large area of land behind the dam would be permanently destroyed by the dam's reservoir. The scenic natural area is currently being used for hiking, fishing, and river rafting. Some people living in the area, some vacation cabins would have to be displaced (moved), and some wildlife habitats would no longer exist.

### **Channelization of streams and creeks (tributaries) flowing into Petekat Lake**

The channelization project would create a greater flood hazard. It would also increase sediment deposits and erode banks downstream from Petekat Lake. Channelization would also destroy the salmon spawning grounds and wetland plant habitat. Some people in Bradston claim that taking the meandering scenic streams and creeks and straightening them upsets the beauty of the area.

### **Water Diversion from the Louise River Watershed**

The cost of diverting water from the neighboring Louise River Watershed would be enormous. Estimates for the main canal run between \$20-40 billion dollars. The price could easily double when including the distribution canals. Almost 1/4 of the diverted water would be lost through evaporation.

### **Groundwater Use**

Heavier reliance on groundwater would create three problems for the city of Bradston: one, eventually the aquifer would be depleted because water would start to be drawn faster than precipitation could recharge it; two, because of the limestone rocks around Bradston, sinkholes would become a hazard; three, the saltwater from Port Michael would begin to intrude into the freshwater aquifer.

## Method

### **Desalination Plant**

## Disadvantages

The energy requirements for a desalination plant would tap the energy resources available to Bradston. This would mean that no new industry could move into Bradston. Water from the desalination plant would cost 6 times as much per volume as water from the filtration plant. Desalination would also create huge piles of salt that would need to be disposed of.

### **Towing Icebergs**

The technology for towing an iceberg has not been perfected. Some of the questions that still need to be answered include:

1. How to lasso and tow such a large object
2. What % of the iceberg would melt during the trip (it is estimated that a fleet of tugboats would need a year to tow an iceberg)
3. What effect would the iceberg have on local weather. Would fog and rain be created? Would it be harmful to marine life?
4. Who owns the icebergs in the Antarctic?
5. What are the hazards to shipping if parts of the iceberg break off during towing?

### **Controlling the Weather**

Cloud seeding is still in the experimental stage. It has been successfully done, but scientists are unclear if total rainfall is actually increasing, or rain is being shifted from one area to another. Cloud seeding could change weather patterns, and can actually reduce rainfall if seeding is done incorrectly. The effect on the ecology is also unknown, including the possible harm silver iodide has on humans and wildlife.

### **Water Conservation Campaign & Laws**

Educational campaigns cost money. Laws don't cost money to make, but they cost money to enforce. The City Council does not have the extra money available to implement the changes without raising taxes. Citizens are usually resistant to an increase in taxes and might be just as resistant to mandatory water use laws, such as the proposed "no watering lawns," during the summer.

# Methods for Managing Water Resources: Special Interest Information

## Special Interest Group Task:

1. Develop a 3 minute presentation that highlights the advantages and explains your proposal for managing Bradston's water resources.
2. Develop a list of the possible disadvantages of your proposal and be prepared to answer questions about the disadvantages.

## Method

## Advantages

### **Dam the Roe River**

Building a hydroelectric dam on the Roe River offers many benefits. First, the local economy would be boosted by the construction and maintenance of the dam. Second, the flood danger of the Roe River would be reduced to almost nothing. Third, the dam's reservoir would provide for the popular recreational activities of water skiing, jet skiing, and boating. Finally, the additional hydroelectricity available in Bradston would attract more businesses into the area.

### **Channelization of streams and creeks (tributaries) flowing into Petekkat Lake**

Channelization is taking a natural stream channel and straightening, deepening or widening it. This engineering technique would increase the amount of water flow into Petekkat Lake, which is where the filtration plant draws its water. The channelization project will lead to better flood control in the channelled area, and it will have minimal impact on the scenic Roe River natural area. Cost for the project would be in the middle when compared to the other proposals.

### **Water Diversion from the Louise River Watershed**

The water diversion project consists of transporting water from the Louise River Watershed to the Roe river via a giant pipe-line. This project would keep all of the Roe River Watershed intact, keeping it unchanged for people to enjoy and preserving it as wildlife habitat. It would also take water from an unpopulated area where it is not needed and brings it to a populated area where it is needed.



## Method

## Advantages

### Groundwater Use

Utilizing more of the existing groundwater resources is the least expensive option because all the equipment to accomplish this is already built and operating. The project would not increase the cost of water to domestic and industrial users in anyway, and it would not destroy any wildlife or scenic areas. Depending more on groundwater would also heighten the awareness of pollution in Bradston. People would be more concerned about contaminating the groundwater with pollutants from agricultural lands, feedlots, septic tanks, landfills, household hazardous waste and industrial chemicals.

### Desalination Plant

Desalination is the process of removing salt from ocean water. Two methods work: *distillation* uses energy to evaporate fresh water from saltwater; *reverse osmosis*, separates saltwater and fresh water utilizing a semipermeable membrane, which allows the flow of water but no salts. A desalination plant would add jobs to the Bradston economy and would not change the existing scenic and natural areas of the Roe River Watershed.

### Towing Icebergs

Towing icebergs from the Antarctic region would utilize an untapped natural resource in an unpopulated area, and preserve scarce natural resources in a populated area. Antarctic icebergs are flat and wide sheets of ice that potentially could supply five times the world's current domestic water use. This project would also develop new scientific and marine transportation techniques as towing icebergs has never been done.

### Controlling the Weather

Twenty-three states since 1977 have successfully seeded clouds. Two methods are currently being used to seed clouds with a powdered chemical that acts as nuclei for small water droplets: one involves flying a plane over or under the cloud; the other involves injecting the cloud from ground-mounted burners. The following have been used for cloud seeding: silver iodide (the most effective), salt crystals, dry ice, and clay particles. Cost of cloud seeding would be minimal compared to the other projects.

### Water Conservation Campaign & Laws

To decrease the amount of water being used in Bradston, a group of citizens is proposing to educate citizens on how to conserve water, and it wants the City Council to pass water use laws. The education will take place in the schools, at street fairs and libraries, through public service announcements in the paper and on TV. Books and pamphlets will be published. Some of the proposed water laws include: rationed summer lawn watering, mandatory low flush toilet and low flow shower heads.

## ***ENDANGERED SPECIES: Whose Fault?***

<b>Focus</b>	To use guided inquiry and specimen examination to discover causes for selected animal species having become threatened or endangered.
<b>Group Size</b>	20 (40 if Wildlife and Water Resources rooms used simultaneously)
<b>Time Required</b>	30-40 minutes
<b>Materials</b>	Pen/Pencil Notebook/writing surface Handout: <i>Endangered Species: Whose Fault?</i>
<b>Physical Setting</b>	Wildlife Room Water Resources Room Cispus Administration Office
<b>Process</b>	<b>Activity 1: ENDANGERED SPECIES: WHOSE FAULT?</b> 1. Walk through the Cispus Administration Office, and examine the Spotted Owl mounted in the showcase. 2. Then, go to the Wildlife Room and Water Resource Room (located in the Education Building). Examine the mounted birds and mammals, the fur pelts, skins, shells and skulls. Inform your students that Cispus acquired these specimens from state and federal agencies responsible for enforcing animal protection laws. 3. Have students respond to questions on the worksheet <b>Endangered Species: Whose Fault?</b> . More may be gained by encouraging students to work in group. 4. Complete the activity through whole group discussion. Be prepared, not all may agree about "preserving" a species at the expense of people's jobs. 5. Emphasize in discussion habitat management, regulation by law, and international agreements, as most effective way to save endangered or threatened species.

### **Extension**

Watch the following films in the Cispus Video Library:

"Sea Turtles" (60 min)

"The Lorax" (24 min)

"Rage Over Trees" (50 min)

"Future of Wildlife" (15 min)

## ***ENDANGERED SPECIES: WHOSE FAULT?***

1. What does "endangered species" mean? Define it in your own words. What does "extinct" mean?
2. List the names of endangered species specimens found in Cispus displays.
3. How did Cispus acquire these specimens?
4. What has happened to the people who originally killed or had possession of these specimens?
5. Did these individuals know about laws concerning these animals?
6. What motivated these individuals to break the law?
7. What were the expected uses for these animal's remains?
8. What are other indirect causes for the near extinction of other animals?
9. Name other animals not shown here whose species survival is threatened or endangered?
10. List things that you, as a concerned citizen, can do to help endangered species survival.
11. What do the government and police agencies do to help endangered species survival?
12. What can private, non-profit organizations do to help endangered species' survival?

## ***FOCUS ON FREEDOM***

- Focus** To show the possibilities and opportunities for living an alternative, self-sufficient lifestyle outside the confines of a high consumption society. The need for management of recycling from the beginning will be explored. This lesson will also explore a new meaning for freedom.
- Group Size** Entire Class (12-30 students)
- Time Required** 2.5 Hours
- Materials** Human Resource - Bruce Haney, Environmentalist (*Be sure to arrange, through Cispus Staff, in advance for Mr. Haney's presentation.*)  
3-6 sheets large newsprint  
3-6 markers  
Masking tape  
*For each student:*  
1 penny  
1 small square of animal fur  
Field journal  
1 small block of cedar  
1 grain of corn  
Pen/pencil
- Physical Setting** Standard Classroom  
Bruce Haney's Property
- Process** **Activity 1: IN THE CLASSROOM**
1. Give each student 1 penny, 1 square of fur, 1 kernel of corn, and 1 small block of cedar.
  2. Tell the students that these items represent:  
penny - financial resources (money)  
fur - livestock (i.e. goats, sheep, cattle)  
corn - plants, vegetables, and grains from plants  
cedar - trees (timber resource, etc.)
  3. Divide the students into groups of 4 to 6, and ask them to brainstorm ways of using their resources in the Cispus environment to provide the life essentials of food, clothing and shelter. A scribe in each group will use a marker to list these ideas on the sheet(s) of newsprint (10 minutes.)
  4. Call groups together to take turns sharing the ideas (1 speaker from each group) they've written down. Hang newsprint up on the classroom walls.
  5. Facilitator (teacher) may facilitate additional discussion.

### **Activity 2: IN THE FIELD**

1. Class will walk to Mr. Haney's property (approx. 1.5 miles, 20-30 minutes).
2. Mr. Haney will share the aspects of living with minimal expenditure of financial resources (money).
3. Mr. Haney will also share his ideas about maximizing the use of all natural resources to create a comfortable lifestyle.
4. The students will take field notes of their observations.

### **Activity 3: IN THE JOURNAL**

1. The students will journal 10 ways in which they can maximize the usage of resources which they are currently using.

### **Extension Activity 1:**

1. The students will (in a classroom setting) divide into groups of 4 to 6 and discuss again the possibility of uses for: *penny, fur, grain, and wood.*
2. The students will report, in writing, how thorough use and reuse of resources can reduce consumption of natural and commercial goods and preserve financial resources.

### **Extension Activity 2:**

1. Divide the class into 4 groups and make each group responsible for 1 of the resources. Each group may create as many commodities from their resource type as they wish. These should be listed on a large sheet of newsprint.
  2. The groups may barter their resource commodities in trade for resource commodities from other groups (20 minutes).
  3. The groups need to provide food, shelter, and clothing for their community group from these commodities.
  5. There are no stores.
  6. Allow each group 20 additional minutes to create their community.
  7. Allow each group to share about their community and its resources (20 minutes).
- In consideration of item #4, how did the group in control of financial resources fare in building their community? Discuss.