... lost your sense of wonder?

The National Environmental Education Development Program

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The purpose of the program is to:

(1) **ACQUAINT THE CHILDREN OF SOUTH FLORIDA WITH THE EVERGLADES**

through a pleasant and memorable experience, in order to

(2) **DEVELOP WITHIN THEM AN UNDERSTANDING OF THE VALUE OF THE EVERGLADES TO THE TOTAL WEB OF LIFE**

which is a prerequisite we must achieve in order to effectively

(3) **DEVELOP WITHIN THEM AN APPRECIATION FOR THE TOTAL ENVIRONMENT**

which must be accomplished in order to

(4) **ACTIVATE THE POPULATION MOST CLOSELY DEPENDENT UPON THE EVERGLADES TO A STATUS OF POSITIVE THINKING, IF NOT ACTIVE PARTICIPATION, IN THE ENVIRONMENTAL PROBLEMS FACED NOT JUST BY EVERGLADES NATIONAL PARK, BUT BY THE TOTAL POPULATION OF SOUTH FLORIDA.**
II. AN IDEA OF ENVIRONMENTAL EDUCATION

"Good Education is Environmental" is the title of an article written by Edward Clark, a professor of environmental education at George Williams College. The article and its title are most appropriate for clarifying the concept of environmental education.

Major barriers crop up almost immediately when a viable program of environmental education is introduced into a school curriculum. The first of these barriers is a lack of understanding of what environmental education is; the second, which stems from the first, is a lack of sincere, strong motivation. Due to this lack of understanding, financial support for environmental education programs is extremely difficult to secure.

Dr. Clark goes on to say that environmental education, particularly in urban and ghetto schools, is seen as irrelevant due to this understanding. Relevant issues are the more pressing concerns that are integral parts of urban life: food, housing, jobs, health, and transportation. Environmental issues for many in urban schools are seen as suburban white issues. Suburbanites are the ones who own the factories and automobiles that pollute. They are the ones concerned with open space, national parks, and wilderness areas. The notion of environmental education being pertinent in large urban areas such as Washington, D. C., New York, Chicago, or Miami is still unacceptable for many school administrators.

Dr. Clark attributes this lack of understanding and the lack of motivation to several misconceptions about what people think environmental education really is. He states that there are three major misconceptions. The first misconception is that environmental education is relevant only to biology, science, or nature study. Since many teachers are neither scientists nor comfortable with scientific principles, it is natural for them to avoid excitement about teaching science in the classroom. Who wants to learn a lot
of Latin names? Who needs spiders and ants? How much nature is there
in a classroom, or for that matter, in the midst of a ghetto playground?
And yet a common solution for introducing environmental education into
a school curriculum is for a school district to adopt a new science
series and call it environmental education. If that is what environ-
mental education is all about, then teachers will have real problems.

The second misconception is that environmental education is a
separate subject to be added to an already over-crowded curriculum. A
normal response of a teacher might be, "I'm already teaching six hours
a day in an over-crowded classroom; I don't want to add another subject
about which I know nothing." The superintendent may well respond, "Now
I'll have to hire additional staff to meet state requirements to offer
environmental education." Environmental education need not be offered
as an additional course, but rather as an integral part of the existing
curriculum.

The third misconception about environmental education is that it
has nothing to do with schools anyway, but is basically a political and
economic problem. "Look at the Alaskan pipeline, or the crosstown
expressway. It's suburban Whites trying to divide up their world. It's the wealthy oil executives wanting more. It's the
suburban family wondering how to buy gas to commute thirty miles on an
empty tank. It is all political or economic anyway." Environmental
education is not limited in scope to such a small segment of
society.

Each of these misconceptions has some validity, but they are
false premises based on a lack of understanding of environmental
education. They are only partial or half-truths. Dr. Clark goes on
to examine each of the misconceptions.

To suggest that environmental education is primarily or solely
concerned with biology, science, ecology, or nature study is a very
limited view. While the natural environment is an integral part of
environmental education, it is only one of many environments. Every
classroom, home, office, and street corner is an environment. As Noel McInnis of the Center for Curriculum Design suggests, environment is nature, culture, technology, people, ideas, and feelings toward one's environment.

Social disorder is as much of an environmental problem as pollution or energy. Poverty, hunger, housing, jobs, transportation, and rats are as integral a part of our environmental problems as are air pollution, the destruction of Lake Erie, or too many cars. Indeed, someone has suggested that it is just as important that an environmental impact statement be written on the President's decision to phase out the Office of Economic Opportunity as on the building of a new nuclear power plant or the Alaskan pipeline.

Why then has environmental education been so closely associated with the natural environment and the out-of-doors? One reason may be that the natural environment provides such a good learning tool. The out-of-doors is an excellent teacher because it treats everyone alike, be they Black or White, rich or poor, young or old, ignorant or brilliant, scientist or artist. Each individual may bring something different to the encounter with the natural environment, but its response makes no distinctions.

A second reason for the identification of environmental education with the natural environment is the rapid growth in the past several years of outdoor education programs. However, there is a major distinction between outdoor education and environmental education. Outdoor education refers both to the subject and the method utilized in this special mode of teaching/learning. It is an extremely important part of education, but is not synonymous with environmental education. As has been suggested, environmental education deals with relationships with one's total environment.

Every teacher can introduce environmental education by beginning with the environment with which the children are familiar—the classroom, the school, the home, the city, and hopefully the natural world around them.
Also, to suggest that environmental education must be a separate subject with a specialized curriculum is to miss the heart of what it is all about. Dr. Sidney Marlant, when he was United States Commissioner of Education, suggested that environmental education could be the key which would unlock the door to true interdisciplinary education because it starts with man and moves into every area of life. If this is true, it would be accurate to say that, rather than being a separate subject, environmental education is relevant to and a part of every academic discipline taught from kindergarten through graduate school.

Noel McInnis has related environmental education to the various disciplines. He suggests that the natural sciences tell us important things about the natural environment, ecological principles, and natural ecosystems; in other words, they tell us how the world fits together. The social sciences tell us important things about human interaction and human ecology. The creative arts give us a means of expression for man's response to his total environment; language arts provide a framework for understanding and communicating our knowledge, ideas, and feelings without which there would be no way to deal with our environment beyond mere existence.

If the above is true, then no teacher has to become a specialist in order to teach environmentally. Nor is there the need for a new or specialized curriculum, though it might be helpful, if it seeks to relate some basic environmental concepts to the various academic disciplines. There are some basic concepts, borrowed from ecology, which can provide an environmental context and thus become environmental. For this reason, any teacher can teach environmentally if he or she is so motivated.

Finally to suggest that environmental problems do not belong in the school curriculum because they are political or economic, is to deny the reality of what education is all about. It is precisely because these problems are political, economic, social, and often religious, and thus related to all of life, that they do belong in the
Decisions are being made daily which irrevocably lock our society into commitments for generations to come. In years ahead, children in school today will become the decision-makers of tomorrow. They should not be as unaware, as ignorant, as uncaring, and as parochial as those making the decisions today. The only concern is whether there is time enough left to wait for another generation of decision-makers. Certainly, these ideas can be one of the main thrusts of environmental education.

One of the most basic and positive statements about environmental education concerns interrelationship and interdependence: everything is related to and dependent upon everything else. There are many different ways to say the same thing. Francis Thompson, the 19th century poet, put it this way: "That thou canst not stir a flower without troubling a star." Garrett Hardin, famous biologist from California, says, "You can never do merely one thing." Barry Commoner of St. Louis puts it in terms of "There is no such thing as a free lunch." A homely illustration is the waterbed - touch one part and the whole bed responds.

This concept is relevant whether you are talking about the Colorado sheep rancher who poisons coyotes and thus has to poison prairie dogs because their predators are gone; or the slum landlord who does not repair his building because the tenants will not take care of it because the landlord does not make repairs. The idea that all things are related can be applied to any situation or subject. This and other such concepts can become the content for any course. In doing so, a teacher teaches environmentally. A child who learns the many ways in which this theme can be understood and related to life's experiences will always be asking the following question as an informed adult: "If this is done, what else will occur?" It is the absence of such conceptual thinking and questioning which has guided our world into a long series of environmental crises.

Environmental education takes the holistic view which is both
long-range and comprehensive. On the other hand, the technological approach, reflected by the computer, is practical, short-range, and discreet. By use of the binary model, the computers force us into yes/no/off/on and right/wrong answers. Technology has been developed specifically to solve discreet problems of specialized sub-systems. With such discreet, closed-system thinking, one is seldom inclined to look for the impact one particular solution to a problem makes on other systems. Environmental education is a process as well as a content. It is an interaction with environments, not just a discussion of them. Hopefully, environmental education is a combination of environmental interaction with awareness and understanding. It demands involvement; it is active, not passive; it is participatory and experiential; and it is learning to cope and interact creatively with any given environment.
III. ENVIRONMENTAL EDUCATION IN EVERGLADES NATIONAL PARK

A. OVERVIEW

The National Park Service in an effort to fulfill its responsibilities to the promotion of environmental education has established several environmental education programs. Three of these programs are alive and well here in Everglades National Park. They are:

1. The National Environmental Study Area Program (NESA);
2. The Students Toward Environmental Participation Program (STEP);
3. The National Environmental Education Development Program (NEED).

The NESA program provides physical sites (both natural and cultural) where students can apply their classroom experiences to actual surroundings outside the classroom.

The STEP program provides high school students with the opportunity to become aware of the wholeness of the earth and learn to relate to nature in a personal manner. They in turn share this knowledge and their experiences with younger groups of students and other special groups.

The NEED program is a curriculum-integrating program. It is a process for developing environmental awareness, environmental understanding, and environmental values through the use of existing course studies at participating schools. Because the NEED program is curriculum-integrating, its success in any school depends upon the teachers, the principal, and the area director.

B. NESA vs. NEED

The NESA program is the day-use program here at the park. Qualifications for participation are simple - an interest, a desire, and a one-day workshop every other year entitles a fourth or a sixth-grade teacher to use the park as a resource. Entrance fees are waived for a class, and assistance from Park Rangers is provided. Fourth-grade teachers schedule their visit to Shark Valley, while sixth-grade teachers schedule for Long Pine Key. Bussing is arranged for Dade County Schools. Other schools must arrange their own transportation.
So, how is NEED different from NESA? Well, the philosophy is the same, but requirements and logistics are quite different.

The first step to becoming a part of the NEED camping program is to participate in NESA. At the end of each school year, NESA evaluations are scanned for potential NEED participants. These records give the park an idea of a teacher's ability to communicate with his or her students, teacher initiative, and the teacher's ability to effectively handle disciplinary problems should they occur.

The second step is for the school to adopt a formal curriculum which incorporates the philosophy behind the NEED curriculum materials. This philosophy revolves around five concepts known as the SPICE strands. These strands are explained fully in the next section, but briefly they are: similarities and varieties; patterns; interaction and interdependence; continuity and change; and evolution and adaptation. Each of these strands support one another— it is felt that they can be applied to nearly all situations in life. Such curriculum materials should be interwoven into the school's existing curriculum. Several agencies publish such materials which incorporate these five strands. They are listed in section V along with price lists.

The third step is to attend a NEED workshop. Even though you have attended a NESA workshop, it is still necessary to attend a NEED workshop. Why? In NESA workshops, the primary concern is to introduce the NESA areas through the SPICE strands and other methods of using the natural world as a classroom. A NEED workshop builds upon the NESA workshop by exposing teachers to a smorgasbord of acclimitizing and sensitizing techniques as well as to the SPICE strands. It also allows participants to become familiar with the sites they will be utilizing during the school campout. Rudiments of camping are discussed and demonstrated while the participants actually camp over-night during the workshop. Finer points of the program are discussions of responsibilities for the school coordinator, the principal, and the National Park Service during the actual school campout. Camping regulations, canoeing, Seton
watching, and other surprises often surface at NEED workshops.

C. SPICE STRANDS

(1) THE STRAND APPROACH TO ENVIRONMENTAL EDUCATION

There are many productive ways in which to make use of the environment as an educational vehicle. One approach is strictly taxonomic: everything has a name and a specific way of interacting with the universe. Scientists describing unique objects use the taxonomic method as a principal operational procedure in their investigations. This method, however, has a drawback for the teacher with a limited scientific background, who may not know the multitude of specific names and conditions with which to describe the environment scientifically.

Another way of approaching environmental study is through an investigative, completely open-ended method. The teacher guides students in their attempts to discover what is present in their surroundings and to place their discoveries into some kind of perspective. The advantage of this method is that it provides the kind of study that activates sensory awareness and enables the student to develop creative problem-solving techniques. The difficulty rests with the development of research skills. Research skills are another tool of the scientific investigator, and although they would provide a good background in problem-solving for the student, it takes time to develop them.

The strand approach draws upon the advantages of both of these methods while eliminating the disadvantages. It incorporates both the specific and the investigative approaches into a third approach with which both student and teacher can feel more comfortable. It requires identification and classification, but on a modified basis. It also requires open-ended investigation leading to problem-solving. Yet all of its requirements can be taught by a teacher and fulfilled by a student who has little of the rigorous scientific training demanded by the other approaches.

The strand approach makes necessary a reorganization of thinking into unfamiliar patterns, which may at first be difficult. The valuable,
unifying characteristic of the strand approach, however, makes whatever initial effort may be necessary unquestionably worthwhile.

The strand approach uses five broad, universal concepts as a way of drawing the environment under a total, integrated "umbrella". They are known as the SPICE strands because the first letter of each concept makes up one of the letters of the word "spice". These concepts or strands are:

SIMILARITIES AND VARIETY: Many likenesses and differences occur among living and nonliving things. A variety of functions, sizes, and structures exist in plants and stars, rocks and animals, processes and people. Yet there are sufficient similarities to permit their classification into orderly patterns. These classifications increase one's understanding of this world.

PATTERNS: Organizational patterns are kinds of structures that may be found in rock formations as well as in social groups of people and animals. Functional patterns include traffic movements and classroom schedules. Spatial arrangements are patterns that often please us. Such patterns occur both in nature and in artistic design.

INTERACTION AND INTERDEPENDENCE: Nothing exists in isolation. Each individual is constantly interacting with living and nonliving things: his family, his belongings, his friends, his world. These people and things also depend on the individual in order to function properly. The process is continuous (as part of the life cycle) even after death, for dead life forms nourish the living.

CONTINUITY AND CHANGE: Both living and nonliving things are constantly changing—whether among galaxies and planets or within body cells and body systems. Some things remain the same in spite of change. Matter and energy may change in form, but they can never be created or destroyed.

EVOLUTION AND ADAPTATION: Over centuries and centuries of time, living and nonliving things alter and develop in the process
called evolution. Probably the greatest number of changes over the longest periods of time come about in order to enable an organism to adapt to the environment. Hereditary factors then preserve the continuing elements. The characteristics that enable the organism to adapt best (for example, the best food finder) are apt to be the traits passed on from generation to generation, thus ensuring survival of the species.

Similarities and variety means the simple recognition of each organic and inorganic thing. A classification is derived by noting similar characteristics in distinct objects. Once a classification is made an object can be identified. What is the nature of its design? Of its function (what does it do)? Of its organization? The functional pattern leads directly to Interaction and Interdependence. How does the specific variety interact with air, water, earth, (other) populations? As it continues to change, it is constantly undergoing Evolution and Adaptation, according to how it fits into the Pattern of existence. If a substance does not adapt in its present form, it evolves, through Continuity and Change, into a new Variety, with a new Pattern of Interaction and Interdependence.

Using these large concepts, or strands, teachers who have had no particular scientific or ecological training can instruct or guide students toward open-ended, purposeful activities. The scope of the strands can be focused on the specific at almost any level of detail or sophistication. Within the strands there is a synthesis of environmental relationships. This synthesis makes the strands applicable to the wide range of disciplines within the school program, yet the strands provide a vehicle for study that can be specifically related to the most widely differing ecological situations. For example, Patterns can be applied to the arrangements of beach fauna (biology), mountain ecology (Natural history), or people living in an urban area (social sciences).

Teachers should think of themselves as catalysts—permitting the students to develop the answers themselves whenever possible, which will
result in a greater retention of the basic understandings. Once the basic strand understandings are established with the students, they will continue to seek new examples in new environments, leading to a keen awareness of man's interactions with the world.

(2) FROM OUTHOUSE TO COMFORT STATION, A' LA' THE SPICE STRANDS

Now that you are familiar with the strand approach, let's have some fun. The developers of this approach maintain that the five strands can be applied to all situations in the natural or man-made environments. To prove this to a recent teacher workshop, the environmental education group at Everglades National Park applied the strand concepts to the common, everyday comfort station (restroom) found in the park camping and picnicking areas. It was felt that applying them to a comfort station would illustrate to teachers that the strand approach could be applied to all situations. Here then, are those observations in relation to the aforementioned comfort station.

SIMILARITIES AND VARIETY: If you compare our comfort station with others around the country, many obvious similarities exist. The purpose is similar for all such edifices—to sanitorily dispose of human waste. Also, they usually contain stalls of some sort with an open seat to sit upon. Sinks, towels or blowers, and mirrors are other common features.

Yet, a variety of comfort stations can be found. One variety is the closet-sized, wooden structure with a simple hole in the ground and a half moon on the door. Another variety is the septic-tank type. And a third, the flush type connecting to a disposal plant. All such structures can be classified into a variety of types, having many similarities.

PATTERNS: All three types of patterns can be found in a typical Park Service comfort station. Examples of organizational patterns would include the rectangular shape of the building, the location of personal stalls, and plumbing networks. Functional
patterns are represented by the ventilation slats, the squiggly roof which sheds rain, and the male-female symbols. Spatial patterns would include the painting arrangement, the low profile of the building, and the texture of the stucco and cement materials.

INTERACTION AND INTERDEPENDENCE: Almost everyone who visits the park inevitably interacts with a comfort station during their stay. Other animals interact with the station as well as humans. Look under the ventilation slats and you are sure to find a few tree frogs, spiders, and wasps using the area for a home.

More importantly, the comfort station interacts and is interdependent with the water environment. Its flushing supply comes directly from the everglades. When you use a toilet, you are interdependent with the comfort station, the everglades, and the natural water cycle. In turn, the quality of the everglades and its water depends on the treatment rendered as it is returned to the everglades environment.

CONTINUITY AND CHANGE: Over the years, comfort stations have changed considerably. Years ago, they were made only of wood. Now, modern materials are used including cement, plastics, and two-ply toilet paper (versus Sears-Roebuck catalogs). Despite all these changes, a comfort station still retains its time-worn function of sanitary disposal. Even the 21st-century comfort station will predictably have this continuity of function, no matter what modern materials or designs are utilized.

EVOLUTION AND ADAPTATION: Many adaptations can be located in a comfort station which allow it to interact more efficiently with the natural and human environments. For instance, the ventilation slats allow the air to circulate freely. The angles of the roof and ventilation slats prevent rain from entering the building. Light colors on the outside of the building reflect the Florida heat, keeping inside temperatures reasonable. Inside, sinks are just the
right height for those humans using them. And toilet seats are miraculously just the right shape for the derrières which set upon them.

Finally, all of these similarities, varieties, patterns, interactions, interdependencies, continuities, changes, and adaptations add up to an evolution of the modern comfort station. From the humble one-seater has evolved today’s structure. Even the name has evolved. First it was outhouse, then toilet, then restroom, and now comfort station. Refinements in all the strands over many years have spurred this evolution in a cultural sense. Undoubtedly, comfort stations will continue to evolve as the various strands of this model continue to influence such structures. The same influences occur throughout all environments.

(3) SPICE ME

At a recent NEED workshop, participants introduced one another in terms of SPICE strands. Perhaps you can adapt this exercise for your classroom or some other situation. Here is the way to play "SPICE ME".

PART I: Here are some questions for you to explore with a partner. They are presented within the SPICE format. Choose at least five out of each ten, and be sure to come up with two of your own for each category. Try to answer them with one another. Hopefully, you will get to know one another in this manner. Developers of the SPICE idea maintain that all situations, natural or cultural, can be "spiced". So, "spice" one another now.

SIMILARITIES AND VARIETY
1. What and where do you teach?
2. How long have you taught?
3. What are your two favorite TV programs? What program on TV would you never watch?
4. Do you check the coin return after a call on a public phone?
5. What brand of soap, toothpaste, detergent, and shampoo do you use?
6. What kind of car do you drive?
7. Have you done anything toward improving the environment in the last couple of years?
8. What is your ethnic background?
9. Are you married? Do you have a family?
10. What university(s) did you attend?
PATTERNS
11. What percent of your day is devoted to work, TV, housework, sleeping?
12. How are houses arranged in your neighborhood?
13. What do the clouds remind you of today?
14. Do you have any completely whorled fingerprints?
15. Do you part your hair? If so, on which side?
16. What streets and highways did you use to get here today?
17. How do you recognize a trouble-maker in the classroom?
18. How do you distinguish between a returnable and non-returnable bottle?
19. How does the sun move across the sky?
20. Which side of your shirt or blouse are your buttons?

INTERACTIONS AND INTERDEPENDENCE
21. What school supervisors do you have in common?
22. Have your paths ever crossed before today?
23. How did you end up teaching in Miami?
24. Did you affect the everglades when you flushed your toilet today?
25. When was the last time you voted for a school bond issue?
26. Are you interacting with your partner right now? How many ways?
27. What would happen to your class if you were ill for a week?
28. Can you set up a 10' X 14' tent by yourself?
29. How would you feel if you had not eaten breakfast this morning?
30. Do you need glasses to see? Under what conditions?

CONTINUITY AND CHANGE
31. How many new gray hairs have you obtained in the last year?
32. Has your job or income changed in the last year?
33. How many different homes have you lived in?
34. Does your car look the same as when you bought it?
35. When was the last time you quit a bad habit?
36. Has the personality of your classroom altered much over the years?
37. Do you own more synthetic or cotton clothing: Was it this way 10 years ago?
38. The year is 1876—does your neighborhood look anything like the everglades?
39. Has the NEED program affected you in any way? If not yet, will it in the future?
40. Can you build a better mousetrap or a better "plumber's helper"?

EVOLUTION AND ADAPTAATION
41. What tricks do you use to survive last period and lunch hour?
42. How did you spend your last teacher workdays?
43. How are you coping with present weather conditions?
44. Why are your eyes on the front of your face like an owl's rather than on the sides like an egret?
45. How do you manage to scratch the very center of your back when it itches?
46. What parental features do you possess?
47. Why don't you have a "thumb" on your feet?
48. Why are you wearing clothes?
49. Are you a better teacher now than when you started? Why?
50. Are you a product of your similarities, varieties, patterns, interactions, interdependencies, continuities, changes, and adaptations?

PART II: YOU BET YOUR SPICE. You will now be divided into five teams per group. Each team within the group will receive a marker with their particular SPICE strand. Your group will be known as either the Turkeys or the Duckies.

A series of rapid-fire statements will be presented by Grouchy, your quizperson. After the statement is read, each group will have 15 seconds to decide which strand best applies to the statement; one team within the group must hold their marker up as the answer agreed upon, before the 15 seconds are up. If more or less than one marker is in the air, no points are scored. One point will be scored for each correct answer. Correct answers will be determined by Grouchy; the arguments will have no effect upon Grouchy's decision; that's why the quizperson is named "Grouchy". Fenny will be official time and scorekeeper. Say the secret word and split a hundred bucks and earn 2 extra points for your group. Turkey and Ducky, your official cheerleaders will be listening for the secret word (or words). The losing group will sweep the tents on Saturday.

(GROUCHY'S QUESTIONS ARE AVAILABLE UPON REQUEST; IT IS BETTER TO CREATE YOUR OWN).
D. LOGISTICS OF CAMPING

Groups participating in the NEED program for the first time camp at Shark Valley. The camp-out and experience last two and one-half days. Shark Valley is the northern entrance to Everglades National Park, about 38 miles west of Miami. It is accessible from U. S. 41 (The Tamiami Trail).

First year groups are assigned to Shark Valley for the following reasons:

(1) Participants receive additional clarification on the goals of the program.
(2) They gain basic information on the everglades.
(3) They receive individualized assistance on planning a well-balanced program.
(4) And they gain experiences and confidence in using the natural environment as an educational vehicle.

Second and third-year groups camp at the Flamingo campground, in the southern section of the park. They stay for five days and four nights.
Fourth-year groups are considered veterans and are encouraged to try areas outside of Everglades National Park. This allows experienced schools to continue their environmental programs. At the same time, new schools can enter the NEED program.

Assistance from park rangers is offered at several stages in the NEED program. At Shark Valley, the park is involved in all steps of the camping experience, from planning to implementation. At Flamingo, teachers are expected to initiate and carry out the bulk of the program. The park supplements the activities at various stages throughout the week.

E. REGULATIONS AND EXPECTATIONS

(1) CAMPGROUND REGULATIONS AT FLAMINGO

Flamingo has 235 drive-in sites, 60 walk-in sites for tents only, and a group area. Group sites three and four (15 campers per site) are reserved for NEED groups. Camping fees are waived for participating groups. A letter will be mailed to the school coordinator outlining the procedure for having fees waived.

The following rules and regulations must be observed by all campers:

1. Registration for campsite use is required prior to occupation of the site.
2. Place all refuse in proper receptacles.
3. Do not dump sewage or waste water on the ground.
4. Camping is allowed in designated areas only.
5. The speed limit in campground areas is 15 m.p.h.
6. Garden hoses may not be connected to the water outlets in the campground.
7. The collection or burning of driftwood in the Flamingo area is not permitted.
8. Small power generators are permitted in the campgrounds provided they are equipped with mufflers and are operated only between the hours of 6:00 a.m. and 10:00 p.m.
9. Vehicles must be parked on the paved parking strips provided and are not allowed off the pavement.
10. Fireworks are not permitted.
11. Quiet hours are from 10:00 p.m. to 6:00 a.m.
12. Hanging clothing from vegetation, or the attachment of wires, rope etc., to the vegetation is prohibited.
13. Adults accompanying the groups on motorcycles should ride them to and from the campground only. Please respect other people's rights to quiet by not "cruising" in the campground.
14. Please do not wash dishes or clothing in the restroom wash basins.
15. There are no showers in the restrooms near the group sites. Two showers are in A loop—they are cold water showers.
16. Evening programs are for the public. In many instances, the group will have its own special program. Under no circumstances should the children disrupt any regularly scheduled program. Check the program schedule to see if it is relative for your students. The school coordinator must attend any evening programs with his or her group.
17. No children should be allowed in the maintenance area when getting ice or canoes.
18. Ice should be obtained early in the morning or late in the afternoon before 5:00 p.m.
19. If your school canoes, one adult should be in each canoe at all times, as well as a life jacket for everyone.
20. A special snake demonstration will be given for NEED camps on Wednesday's from 1:30-3:30 p.m. Do not attend the regularly scheduled one for the public.
21. If you want milk delivered, pay in advance or C.O.D., and have it delivered to the cafeteria, clearly marked for your school.
22. Recreational equipment such as frisbees and footballs are discouraged. Environmental activities should be planned instead.
23. Fishing is discouraged. The danger of hooks makes other alternatives more desirable.

(2) REGULATIONS AT SHARK VALLEY

The public is not permitted to camp at Shark Valley. In general, rules pertaining to Flamingo are to be observed at Shark Valley. In addition, a few special rules must be observed.

Camping for NEED groups is located at the Shark Valley observation tower. Private vehicles are not permitted beyond the parking area near the Shark Valley entrance. Transportation is provided in the form of a tram (a mass-transit, open-air bus).

(3) IMPORTANT REGULATIONS FOR ALL PARTICIPANTS
1. The coordinator for the school is selected by the school principal and area director. The coordinator is responsible at all times for the conduct of the group.
2. Qualified teachers and parents who wish to accompany the group and participate in the program are the responsibility of the coordinator and the principal.
3. The total group size is limited to 30 people in either area. This includes both students and adults.
1. Food of any kind is not allowed on any hikes or on any trails. The temptation to feed animals is simply too great. Violation of this rule will result in immediate dismissal from the park.

5. Collecting of any type within the park is not permitted.

6. Throwing or skipping rocks or other objects at wildlife is not permitted. Violation of this rule will result in immediate dismissal from the park.

7. Transportation to and from the park must be arranged by the school.

(4) RESPONSIBILITIES OF THE PRINCIPAL AND COORDINATOR

Coordinators of NEED camps have the following responsibilities:

1. Staff development (if principal delegates)—all faculty members are invited to be part of the experience. Many teachers can be involved without actually going on the trip. Explain the necessary training needed to assure a safe, rewarding trip.

2. Request a date from the area director (if in North Central Area) or from the Environmental Education Coordinator at Everglades N. P.

3. Make arrangements for transportation to and from the park (if principal delegates).

4. Coordinate itinerary with the park's EE Coordinator.

5. The coordinator is responsible for the entire group during their stay in the park.

6. Distribute and collect parent permission slips.

7. Coordinate meals with dietician at school (if principal delegate)

8. Arrange an evening program prior to the campout for teachers, parents, and students to be introduced to the program.

9. Arrange and organize the necessary equipment (if principal delegate)

10. Make sure students have proper clothing and other necessities for the experience.

School principals for NEED camps have the following responsibilities:

1. Educational
   a. Justify that the selection of a camping experience has educational worth.
   b. Demonstrate that planning procedures were made by principal and staff.
   c. Assure that camping experience makes a contribution to cognitive as well as affective objectives.
   d. Arrange pre-site experiences to maximize learning of on-site experience.
   e. See that camping experiences contribute to total school program.
   f. Includes total staff in the planning experience.
   g. Assures appropriate post-site activities.
2. Student participation
   a. Assure non-discriminatory practices and student rights.
   b. Develop a process used to determine which students will participate.
   c. Include minorities in the experience.
   d. Afford equal opportunity to students in selection.
   e. Provide opportunity for children with exceptionalities to be chosen.

3. Administration
   a. Be responsible for safety and physical health of students.
   b. Provide inservice and pre-planning sessions for all persons involved in camping experience (students, teachers, cafeteria staff, chaperones, and bus drivers).
   c. If from Dade County Schools, implement school board policy 3545.32 and 6153 as well as "Guidelines for Field Trips" memorandum dated January 3, 1975, from the Division of Elementary and Secondary Education.
   d. Issue written directives concerning safety measures and guidelines for the program including travel to and from the park and within the camping area.
   e. Collect and disburse funds.
   f. Transport, service, repair, and store all equipment.

4. Evaluations—Evaluate the total program and recommendations for improvement.

(5) PARK EVALUATION

Each NEED camp will be rated as excellent, good, fair, or unacceptable by the park staff in six categories. This evaluation if meant only to allow schools to make future field trips even better. These six criteria are:

1. School exhibits pre-site preparations for campout; written records of materials covered in class should be submitted one week in advance, as well as, proposed schedule of activities for Flamingo area (At Shark Valley, M.P.S. will prepare schedule).
2. School consistently assumes responsibility for discipline of students by preparing them ahead of time and actively remaining in control at all times while in the park.
3. Teachers and counselors exhibit an active participation in all program activities.
4. All teachers and counselors demonstrate complete understanding of program logistics, expectations, and requirements.
5. Schools conduct classroom follow-ups after the program and submit a written outline of post-site work.
6. School display ability to use properly and to care for all equipment (i.e., tents) used during experience.
IV. EQUIPMENT, SCHEDULES, AND HINTS FOR THE CAMPOUT

A. CAMPING EQUIPMENT

Everglades National Park can provide six 10x12-foot tents, stakes, and hammers for the NEED campouts. All other equipment must be furnished by the schools.

The North Central Area of the Dade County Public School System has purchased most of the necessary equipment for a NEED campout. If your school is in the North Central Area, the following equipment is supplied. If your school is not, the following list can serve as a guide in planning.

North Central Area Equipment List

<table>
<thead>
<tr>
<th>Number</th>
<th>Description of Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Coleman Oasis tents, poles, and stakes</td>
</tr>
<tr>
<td>4</td>
<td>48-quart Igloo ice chests</td>
</tr>
<tr>
<td>2</td>
<td>Coleman propane lanterns</td>
</tr>
<tr>
<td>2</td>
<td>5-gallon Igloo water coolers</td>
</tr>
<tr>
<td>2</td>
<td>dining canopies, ropes, and stakes</td>
</tr>
<tr>
<td>2</td>
<td>hammers</td>
</tr>
<tr>
<td>6</td>
<td>pails</td>
</tr>
<tr>
<td>1</td>
<td>propane gas grill with wind guard</td>
</tr>
<tr>
<td>2</td>
<td>propane gas tanks with hoses—20-pound capacity</td>
</tr>
<tr>
<td>2</td>
<td>deluxe model Coleman propane stoves (schools at Shark Valley have priority use)</td>
</tr>
<tr>
<td>4</td>
<td>14.1-ounce propane cylinders</td>
</tr>
<tr>
<td>1</td>
<td>Trail-blazer propane refillable adapter</td>
</tr>
</tbody>
</table>

The following additional equipment is necessary and must be obtained by each school:

- 4 mantles for propane lanterns
- 1 additional propane tank (20-pound capacity)
- 2 refills for propane tanks

Most of these items can be purchased from Campers Paradise in Miami. Propane tanks can be refilled at a number of propane gas
companies. Two of these are County Propane Sales, 1244 NW 79 Street, or Propane Sales Equipment, 2691 E 11 Avenue in Hialeah. Costs vary from $3.50 to $5.00 for a 20-pound refill.

Other equipment that a school will probably need includes:

<table>
<thead>
<tr>
<th>Number</th>
<th>Description of Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>ice chests</td>
</tr>
<tr>
<td>6</td>
<td>insect repellants (Cutters liquid is recommended)</td>
</tr>
<tr>
<td>6</td>
<td>extra flashlights</td>
</tr>
<tr>
<td>2</td>
<td>brooms and dustpans</td>
</tr>
<tr>
<td>1</td>
<td>roll of plastic tape (for gas hose repairs)</td>
</tr>
<tr>
<td>1</td>
<td>box of long wooden matches</td>
</tr>
<tr>
<td>1</td>
<td>first aid kit</td>
</tr>
<tr>
<td>1</td>
<td>fire extinguisher</td>
</tr>
</tbody>
</table>

B. COOKING EQUIPMENT AND SUPPLIES

The following list will serve as a good guide for cooking equipment and supplies:

| 3      | large soup pots                                         |
| 1      | frying pan                                             |
| 2      | sauce pans                                             |
| 2      | large serving dishes                                    |
| 1      | ladle                                                  |
| 6      | large serving spoons                                    |
| 1      | collander                                              |
| 2      | can openers                                             |
| 4      | plastic storage containers                              |
| 6      | extra mess kits (for unexpected guests)                 |
| 4      | pot holders                                             |
| 4      | dish towels                                             |
| 1      | bag of charcoal                                         |
| 6      | coat hangers (for toasting marshmallows)                |
| 1      | package of aluminum foil                               |
| 1      | large bottle of dishwashing detergent                   |
| 1      | gallon bleach                                           |
| 1      | grill cleaning stone                                    |
| 1      | box of trash bags                                       |
C. PERSONAL GEAR

Each student will want to bring the following list of items.

It is suggested that students carry their supplies in a pillow slip or cloth sack. Radios and other entertainments are discouraged.

1. Personal toilet articles, such as toothbrush, toothpaste, soap, wash cloth, towel, brush, and deodorant. These items are best stored in a plastic bag.

2. Clothing: 2 pairs of sneakers
   3 pairs of underwear
   3 pairs of pants
   3 T-shirts
   2 long-sleeved shirts
   1 sweater
   1 jacket
   1 raincoat
   1 hat

3. Sleeping Equipment: 2 blankets or sleeping bag
   1 pillow
   1 small flashlight
   1 insect repellent
D. SAMPLE PERMISSIONSLIP

Below is a copy of the permission slip and explanation of the NEED camp used by Charles R. Drew Elementary School. It can serve as a useful model.

SCHOOL ADDRESS

Dear Parents,

Through the cooperation of the National Park Service, the North Central Area, and Charles R. Drew Elementary School, plans are being made to take twenty-five boys and girls for the Environmental Education Program at Everglades National Park. We are indeed fortunate to offer this opportunity to our children. Transportation will be provided by Charles Drew Elementary School.

A meeting for parents, students, and teachers is scheduled for Thursday, December 25, at 7:30 p.m. in the school library. An Everglades National Park Ranger will be present to answer any questions. Tents and other equipment will be demonstrated. The following Monday, students will leave for Everglades National Park. They will stop to view a U-pick field in South Dade and then continue into the park. Students will camp at the Flamingo Campground Monday through Thursday nights.

Experience in camping, canoeing (in shallow water wearing life jackets), slough slugging (a wading experience), hiking, and other related activities will be carefully supervised by teachers and a Park Ranger.

The teachers and aides of Charles Drew Elementary who will accompany the students are Mr. Smith, Mrs. Brown, Ms. Jones, Mr. Stark, Mr. Roberts, and Miss Ford. Mrs. Robinson, Mr. Dolar, and Miss Crosland of the Center for Expressive Arts are also acting as chaperones. An Everglades National Park Ranger will also be with the group to assist with the program.

May I suggest that you carefully read the attached sheet before filling out the necessary information.

Sincerely,

School Principal
has been selected to participate in the Environmental Education Program. Transportation will be furnished by the school. Children will bring their own camping gear such as sleeping bags or blankets. More information will be forthcoming. There will be a fee of $10.00 to pay expenses. The trip will be carefully supervised by teachers especially trained for this camping experience, and a park ranger.

Your signature on the space provided below is your permission for your child to go on this camping trip under the conditions stipulated above. You understand, of course, precaution will be taken to safeguard your child from accidents, but you should consider carefully certain hazards involved, before granting your child permission to go. If you have any question, please call the school at 247-6211.

There is certain information needed before the school can allow your child to attend. Please complete the blanks below and return the entire form to the school.

Parents home phone __________________ Address __________________

Parents phone at work __________________

If parent cannot be reached, whom do we contact? __________________

Phone __________________ Relationship to pupil __________________

Student Insurance ____________ Other Insurance ____________

Pupil health data that should be known in case of emergency, such as allergies or any special medical instructions __________________

I will give __________________ my permission to participate in the Environmental Education Program being offered at Everglades National Park at Flamingo on February 27-31, 1976.

Date __________________ Parent's Signature __________________
E. HOW TO SET UP TENTS

(1.) Setting up the Green Colemen Oasis Tent

Once you learn how to set up the tent, these instructions will make more sense. Until you have the tent at your feet, you will never know the joy of first frustration, and finally success. Anyway, there are four basic steps in setting up the tent:

(a.) Staking tent into position
(b.) Separating tent poles into four piles
(c.) Connecting tent poles and placing into position
(d.) Raising the tent to a completed position

(a.) Staking tent into position

1. Take the tent out of its bag, placing stakes and poles to one side. Spread the tent out on selected site with front or back (they are identical to one another) facing the direction you want.

2. Hammer four corner stakes in while being careful to hold stakes at an angle with the top of the stake away from the tent. Hammer in the remaining stakes with the exception of the one in front of each door. Do not stretch or tear stake loops.

(b.) Separating tent poles into four piles

1. Pile 1 (8 sections)--Four sections have a black rubber cap on one end, a black hand running around the middle, and a slot running lengthwise toward the other end. (See Figure 1.) The other four sections in Pile 1 have a series of notches on one end and a blue bullet-like tip on the other. (See Figure 2.)
2. Pile 2 (6 sections)—Four sections have a blue plastic extension with a hole in it on one end. (See Figure 3.) Two of these four sections will be longer than the other two. The remaining two sections in this pile have a black band around the center, and a slot running lengthwise toward one end. These two sections do not have any springs or rubber caps at the end. (See Figure 4.)
3. Pile 3 (5 sections)--Two sections have a yellow cap on one end, a small hole in the side, and nothing on the other end. (See Figure 5.) One section has a black band around the middle and a slot running lengthwise toward the other end. (See Figure 6.) This section is of different length than the two similar sections in the previous pile. The final two sections in this pile are plain short poles, one about a foot longer than the other.

4. Pile 4 (6 sections)--Two sections have a red rubber cap on one end and a push-button near the other end. (See Figure 7.) The next two sections of this pile are easily identified by a yellow bullet-like tip on one end and a series of notches toward the other end. (See Figure 8.) The last two sections have a black band around the middle, a slot running lengthwise toward one end, and a spring compartment toward the other. (See Figure 9.)
(c.) Connecting tent poles and placing into position

Go to Pile 1. The section with the blue tip (A) and the section with the black rubber cup (B) connect together. The end with the series of notches on A fits into the slotted end of B. Push in and twist, locking A and B into position. (See Figure 10.) This "push-together and twist-lock mechanism" is used on a number of other connections and should be practiced until it can be easily done. Lock poles A and B together so that connected section AB will be at shortest length possible. Follow the same procedure for the other sections in Pile 1. Place one completed section of AB on the ground at each corner of the tent.

Next, go to Pile 2 and pick up one longer section with a blue
extension on one end and the "twist-lock" notches on the other (C).

Pick up the section with a black band around the middle (D) and repeat the "twist-lock" technique used before, connecting C and D. Take the shorter section with a blue extension (E) and insert the plain end into the empty end of CD to make completed section CDE. (See Figure 11.)

![Figure 11](image1.png)

This completed section (CDE) will support one side of the roof. The blue extensions at the ends of CDE fit into grommets located at the front and back sides of the tent roof. (See Figure 12.) Section CDE also must fit through a loop in the side of the tent roof. This section must be adjusted to fit securely between the grommet holes. Using the "twist-lock" mechanism, lengthen CDE until it fits securely between the
grommets and stretches the side wall of the tent roof. Do not force.

Using the same procedure, connect the other side roof support.

Next, go to Pile 3 and pick up the section with the yellow cap on one end and the notches on the other (F). Insert F into the section with the black band (G). Adjust and lock at shortest possible length. Pick up the longer of two plain sections (H) and insert it into the open end of FG. The shorter of the plain sections (I) fits into FGH. Finally, the one remaining section with a yellow cap (J) should be placed into the open end of FGHI. When completed, this section (FGHIJ) will resemble Figure 13.

Completed section FGHIJ supports the center of the tent roof. This long section must be inserted into a pocket running across the center of the roof. Start from a position at the front of the tent and slide the yellow capped end under the front awning flap and into the pocket located just past the awning. Push this section all the way through. Measure the pole to fit from rear pocket to front pocket and adjust the length accordingly. This section is in position when the yellow capped ends are securely in the front and back pockets. Do not force into position. (See Figure 14.) After FGHIJ is in position,
check to be certain the small holes at either end are facing down and are exposed through the bottom openings.

Finally, go to Pile 4. Pick up a section with a yellow tip on one end (K) and connect it to a section with a black band in the middle (L). (See Figure 15.) Adjust this section to the shortest possible length. The final piece with the red cap (M) will be connected later. Place KL and M at both the front and rear areas of the tent.
(d.) **Raising the tent into position**

Have two students hold the ends of side horizontal section CDE and lift to a position five feet above the ground. Be certain the blue rubber extensions with the hole in them remain inside the grommet fittings. Take section AB (blue-tipped) and insert its blue tip into the hole in either end of CDE, keeping the black bottom cap near the ground stakes. (See Figure 16.)

![Diagram of tent setup](image)

Figure 16

Next, have two students lift the front and rear ends of the center roof support (FGHIJ) to a position five feet above the ground. Take section KL and insert the yellow tip into the hole facing downward in section FGHIJ at either end. Be certain to keep this supporting section vertical to avoid possibility of damaging the yellow tip. After this is performed on both sides, the tent will be standing, but lower than when completed. (See Figure 17.)
Finally, lift KL up to a position high enough to attach section M with the red cap toward the ground. Insert the end with the button into KL until a click is heard. (See Figure 18.)

Now, using the "twist-lock" mechanisms on both vertical center roof supports, elevate the roof of the tent to the highest position without forcing or stressing the fittings. Check adjustments so that tent looks like Figure 18.

Congratulations! If something looks wrong, contact a ranger or Rube Goldberg. And hope for calm winds.

(e.) Tent safety and maintenance suggestions

1. Zippers are very fragile and should be opened and closed carefully.

2. Use only door and zipper for traffic in and out of tent. Keep back door closed.

3. No fires or flames should be allowed near or in tents, including cigarettes.

4. Avoid running near tents; tent stakes are dangerous if fallen upon.
5. Dry tents before rolling up and putting in tent bags.

(2.) Those Other Tents

A few of the park tents are not green Coleman tents, but rather are brown in color and are slightly different. Suffice it to say that once you can erect a green tent, you are 99% familiar with brown tents. One difference is in the center roof support. Instead of five sections, there are three. Colors of fittings will vary slightly. But the differences are small and can be unscrambled easily once you master the green tents.
F. TIPS ON COOKING

The first thing to remember is that the "cook" is not just the "cook," but an active participant in the whole experience--involved menus that require someone staying behind to cook should not and are not necessary. Plan menus that are easy and fast to prepare, as well as nutritious and enjoyable.

When figuring quantities, allow a large enough portion for each child and adult to be satisfied but not stuffed. Your cafeteria manager can give you measurements for each dish you plan to serve. PLAN FOR EXTRAS. Visitors do have a way of dropping in.

Plan to use your perishable meats, such as hamburger, the first night. After that, rely on dishes that use canned products. These are easy to store, are raccoon-proof, and simple to prepare. Ready-made meals, such as canned spaghetti, can be doctored up with a few spices, and make a meal the children really enjoy. Tuna can be used in a variety of ways. Be creative!

Food may be packed in boxes by meals, and marked clearly on ALL sides. (For example: BREAKFAST, TUESDAY.)

Students are an invaluable asset while preparing meals, and this, too, is part of their learning experience. Rotating tents to help with the meal preparation gives all students a chance to participate, and lightens the load on the "head cook."
Following is a menu used in the past at Flamigo. It should help you in your planning whether at Shark Valley or Flamigo.

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>Lunch</th>
<th>Dinner</th>
<th>Snack</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MONDAY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At home</td>
<td>Bag lunch from home</td>
<td>Corn on cob</td>
<td>Pretzels Sliced Tomatoes</td>
</tr>
<tr>
<td><strong>TUESDAY</strong></td>
<td>Cheese sandwich</td>
<td>Ham</td>
<td>Hard candy Cookies</td>
</tr>
<tr>
<td>French toast-jelly</td>
<td>Chips-pickles</td>
<td>Green beans</td>
<td></td>
</tr>
<tr>
<td>Chunk cheese</td>
<td>Milk or juice</td>
<td>Potatoes</td>
<td></td>
</tr>
<tr>
<td>Orange juice or milk</td>
<td>Fruit or any leftover veg. from Monday</td>
<td>Applesauce Bread Drink</td>
<td></td>
</tr>
<tr>
<td><strong>WEDNESDAY</strong></td>
<td>Hamburgers-rolls</td>
<td>Beef &amp; macaroni</td>
<td>Rockets Marshmallows</td>
</tr>
<tr>
<td>Cereal-milk Toast-butter-jelly</td>
<td>Celery-carrots</td>
<td>Peaches</td>
<td></td>
</tr>
<tr>
<td>Orange juice or milk</td>
<td>Cookies</td>
<td>Bread</td>
<td></td>
</tr>
<tr>
<td><strong>THURSDAY</strong></td>
<td>Juice or milk Milk</td>
<td>Beef stew Bread</td>
<td>Fruit Cheese</td>
</tr>
<tr>
<td>Pancakes-jelly Fruit cocktail Milk</td>
<td>Beans Vegetable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chunk of cheese Milk or juice</td>
<td>Orange Bread Pudding</td>
<td>Milk or juice</td>
<td></td>
</tr>
<tr>
<td><strong>FRIDAY</strong></td>
<td>Peanut butter-jelly At home Apple or orange Milk or juice</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SAMPLE SCHEDULES

1. **Shark Valley**—Following is a typical three-day program for a NEED program at Shark Valley. Park personnel are largely responsible for its development and implementation.

#### First Day

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 am</td>
<td>Arrive at Shark Valley</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Hike to Otter Cave Hammock (transporting vehicle meets group at mouth of hammock)</td>
</tr>
<tr>
<td>12:30 pm</td>
<td>Drive to tower for lunch (brown-bag lunch)</td>
</tr>
<tr>
<td>1:15 pm</td>
<td>Set up camp</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Short hike</td>
</tr>
<tr>
<td>4:00 pm</td>
<td>Back to camp for art work</td>
</tr>
<tr>
<td>5:00 pm</td>
<td>Dinner</td>
</tr>
<tr>
<td>6:00 pm</td>
<td>Sunset tram (school coordinator will be responsible for conducting some type of activity either at the pier or on the tram)</td>
</tr>
<tr>
<td>8:00 pm</td>
<td>Evening program (when story-telling is the task for the evening, the school coordinator will be responsible for telling at least one story)</td>
</tr>
<tr>
<td>9:00 pm</td>
<td>Bathroom brigade--snack (optional)</td>
</tr>
<tr>
<td>10:00 pm</td>
<td>Bedtime</td>
</tr>
</tbody>
</table>

#### Second Day

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00 am</td>
<td>Sunrise ceremony</td>
</tr>
<tr>
<td>7:00 am</td>
<td>Breakfast</td>
</tr>
<tr>
<td>8:00 am</td>
<td>Hike to Paradise Hammock (teachers devise some kind of sensory activity for this hike)</td>
</tr>
<tr>
<td>Noon-1:30 pm</td>
<td>Clean up camp</td>
</tr>
<tr>
<td>1:30 pm</td>
<td>Acclimatizing experiences (such as micro-trails, blindfold walks, quiet walks, etc.)</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Mirage Zone (a time to reflect or form images in one's mind which will demand genuine concern and grave thought)</td>
</tr>
<tr>
<td>5:00 pm</td>
<td>Dinner</td>
</tr>
<tr>
<td>6:00 pm</td>
<td>Living history program/campfire program/star watch</td>
</tr>
<tr>
<td>8:30 pm</td>
<td>Bathroom brigade/snack/clean-up</td>
</tr>
<tr>
<td>10:00 pm</td>
<td>Bedtime</td>
</tr>
</tbody>
</table>

#### Third Day

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am</td>
<td>Breakfast</td>
</tr>
<tr>
<td>8:00 am</td>
<td>Demonstration on skins, skulls, and snakes</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Break camp</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Lunch on site (optional)</td>
</tr>
<tr>
<td>Noon</td>
<td>Depart for home</td>
</tr>
</tbody>
</table>
Following is a typical five-day program for a NEED camp at Flamingo. School personnel are largely responsible for its development and implementation.

**First Day**

- **8:30 am** Load busses.
- **8:45 am** Depart school.
- **10:00 am** Stop to view U-pick field.
- **11:00 am** Arrive at Main Visitor Center—orientation film.
- **Noon** Lunch and planning session; review SPICE concepts.
- **1:00 pm** Visit Royal Palm—tour Anhinga Trail.
- **3:00 pm** Depart Royal Palm for Flamingo.
- **4:00 pm** Arrive at campsite; unload and set up camp.
- **5:30 pm** Dinner.
- **7:30 pm** Campfire program.
- **9:30 pm** Operation Nightwatch and bedtime.

**Second Day**

- **7:30 am** Depart campsite.
- **8:00 am** Breakfast and bird-watching at Coot Bay.
- **9:30 am** Snake demonstration by park ranger.
- **10:30 am** Curriculum team visit—instruction in the making of fishing equipment.
- **12:15 pm** Lunch at campsite.
- **1:00 pm** Depart campsite for Pa-Hay-Okee.
- **1:45 pm** Arrive Pa-Hay-Okee.
- **2:30 pm** Depart Pa-Hay-Okee for West Lake.
- **3:15 pm** Depart West Lake for campsite.
- **3:45 pm** Arrive campsite; exercise, free play.
- **5:00 pm** Dinner.
- **7:30 pm** Campfire program.
- **9:30 pm** Operation Nightwatch and bedtime.

**Third Day**

- **7:30 am** Breakfast.
- **8:30 am** Visit from Expressive Arts Center Team; sand casting and sand candles.
- **11:15 am** Picnic lunch.
- **11:45 am** Clean-up and rest.
- **Noon** Music and drama activities.
- **2:15 pm** SPICE activities.
- **3:15 pm** Exercise and free play.
- **5:00 pm** Dinner.
- **7:30 pm** Campfire program.
- **9:30 pm** Operation Nightwatch and bedtime.
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 am</td>
<td>Breakfast</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Free play</td>
</tr>
<tr>
<td>9:45 am</td>
<td>Hike around Flamingo area</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Lunch at campsite</td>
</tr>
<tr>
<td>Noon</td>
<td>Hike to Bear Lake</td>
</tr>
<tr>
<td>1:00 pm</td>
<td>Canoeing demonstration</td>
</tr>
<tr>
<td>1:30 pm</td>
<td>Canoeing to Bear Hike</td>
</tr>
<tr>
<td>5:00 pm</td>
<td>Dinner</td>
</tr>
<tr>
<td>7:30 pm</td>
<td>Campfire</td>
</tr>
<tr>
<td>9:30 pm</td>
<td>Operation Nightwatch and bedtime</td>
</tr>
</tbody>
</table>

**Fifth Day**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 am</td>
<td>Breakfast</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Clean-up and break camp</td>
</tr>
<tr>
<td>10:00 am</td>
<td>Depart Flamingo Campground for controlled burn at Main Visitor Center</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Control burn</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Depart Everglades National Park</td>
</tr>
<tr>
<td>12:45 pm</td>
<td>Lunch at Redlands Fruit and Spice Park</td>
</tr>
<tr>
<td>1:30 pm</td>
<td>Depart for home</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Arrive back at school</td>
</tr>
</tbody>
</table>
I. ADDITIONAL FACILITIES AT FLAMINGO

Flamingo has a number of public facilities which may enter into the planning of your NEED camp activities.

1. Hotel and cabins--rates are variable, but $16 per person is a good estimate for planning.

2. Restaurant--the restaurant is open daily from noon until 9:00 pm.

3. Cafeteria--the cafeteria is open daily from 7:00 am to 7:00 pm. Box lunches can be ordered in advance for $2.50.

4. Service Station--gasoline and minor maintenance can be obtained daily from 9:00 am to 5:00 pm.

5. Marina--canoes, skiffs, and bicycles can be rented at the marina. Advance reservations are recommended. Canoe rentals are $10 per day or $6 per half day. A carrier is available for $2 more. Deposits of $20 per canoe are required.

Bicycles rent for $8 per day or $4.50 per half day. A deposit of $20 is required. All bikes are single-speed, available in boys, girls, and children's styles.

6. Gift Shop--the gift shop is open daily 8:30 am to 7:30 pm. Boat tickets and postage stamps can be purchased there.

7. Sight-seeing Boat Tours--several boat tours are available:

   The Whitewater Bay tour lasts for two hours and is conducted several times daily. Rates are $4.95 for adults and $2.50 for children under twelve. The Cape Sable or Hell's Bay rides depart at 9:00 am and return around 3:00 pm. A minimum of 20 people is required. Rates are $7.50 for adults, $4.75 for children. The Sunset Cruise into Florida
Bay lasts one hour and departs around 5:00 pm. Rates are $3.00 for adults, $1.50 for children.

The concessionaire usually gives discounts to school groups having over 20 students. Tours may be cancelled due to weather or break-downs. Tickets should be purchased at the gift shop one-half hour before the boat departs.
J. INFORMATION ON BUYING TENTS AND CANOES

(1.) Tents

If you are going to purchase tents for your school camping program, here are a few things to consider. Lodge tents which can comfortably hold 6-8 people are probably best suited for school groups. They are relatively easy to erect, have good ventilation, and stand abuse well. Normal floor sizes are approximately 10x14 feet. Wall heights are usually five feet, center heights around eight feet.

There are many brands of such tents, all of them about the same style. It is impossible to single out one brand as being best. Many minor differences can be found which might make you opt for one brand over another. Nylon floors are common—some tents come with the nylon floor extended up the sides for a foot, which is advantageous when it rains. Poplin material on the sides and roof will dry quicker and will remain more odor-free than canvas or army duck materials. Light-colored tents will reflect more sunlight than dark-colored ones. Most lodge tents have an external, aluminum-pole frame, a big advantage over internal poles. Some tents have a pole in front of the doorway; some do not. Some are flame-retardant; some are not. Tents for school programs must be flame-retardant.

Many outdoor equipment companies supply such tents. Often an institutional discount is offered to schools. To give you an idea for comparison, two companies which carry lodge tents are Flaghouse, Inc., 18 W 18 Street, New York, NY 10011, and Don Gleason's Campers Supply, 9 Pearl Street, Northampton, MA 01660. Flaghouse offers a
13x10-foot flame-retardant for $205. Gleason’s has a 14x10-foot flame-retardant tent for $220. These companies are not being endorsed by the National Park Service; they are listed only to give you an idea of costs. Local suppliers might be a better situation for your school regarding service and warranty. Other suppliers are Coleman Company, 250 North Saint Frances, Wichita, KA 67201, and L. L. Bean, Freeport, MA 04032.

If you should happen to obtain tents that are neither water-repellent nor flame-retardant, gallon containers of water-repellent and flame-retardant solutions can be obtained. A gallon of either costs about $6.00 and covers 120 square feet of material. Such mixtures can be obtained locally, such as Camper’s Paradise in Miami.

(2.) Canoes

Canoeing has become an integral part of some school experiences in the NEED program at Everglades National Park. It pays to buy quality canoes with a reputable name. Many off-brand canoes simply will not stand up to repeated use and punishment.

Normal canoes are around 17 feet long. This size will accommodate 3-4 people comfortably. Aluminum and fiberglass canoes are comparable in price, and are virtually maintenance-free. Aluminum can usually be repaired more easily if damaged than fiberglass. fiberglass canoes are generally more easily maneuvered and are quieter. Wooden canoes are beautiful, but are not suited for school programs.

The cost of a canoe is hard to estimate. Shipping and crating charges can add up to $40 more to the basic cost. Substantial discounts
are usually available when six or more canoes are purchased. It is probably best to find a local supplier for the type of canoe you finally decide upon.

Grunman aluminum canoes are well-known, and can be used as a standard of comparison for aluminum canoes. A standard 17-foot Grumman canoe lists at $328. Local dealers are easily found. Write Grumman Boats, Marathon, NY 13803. The standard fiberglass canoe is Sawyer. Their standard 17'9" "Cruiser" lists at $330. Write Sawyer Canoe Company, 234 South State, Oscoda, MI 48750. Of course, paddles, life jackets, carriers, and other accessories can add $50 per canoe.
V. CURRICULUM MATERIALS AND OTHER AIDS

The Park Service strongly recommends structured pre-site and post-site materials in conjunction with the NEED campouts. If you do not have structured pre-site or post-site curriculums to incorporate into your regular curriculum, it is suggested that you adopt one of the following curriculum programs.

A. BREVARD COUNTY ENVIRONMENTAL LEARNING PACKETS AND CEL BLOCKS

Brevard County environmental learning materials were developed and tested by classroom teachers working under the guidance of a project staff. The learning materials were found to be an effective tool for teaching environmental education.

CEL Blocks is interdisciplinary. The Blocks include activities and skills from the areas of art, language arts, math, music, science, and social studies. They are an activity-based program, a "hands-on" approach to environmental education. They incorporate process and subject area skills with knowledge and concern for the environment. The program offers the student opportunities to explore and learn about the environment and to develop a set of values toward the environment.

CEL Blocks consists of two nongraded sets of activity cards, primary and intermediate. Each set offers opportunities for learning at varied levels and on varied topics. The primary cards focus on sensory awareness, basic ecological concepts, and developing positive attitudes toward the environment. The intermediate cards offer these same opportunities but add the dimension of investigating and structuring solutions to environmental problems.
If you wish to examine or purchase these materials, write to: Center for Environmental Learning
705 Avocado Avenue
Cocoa, Florida 32922

Inquire about the **Primary CEL Blocks** ($5.50 for student set and teacher's guide), and/or the **Intermediate CEL Blocks** ($6.00 for student set and teacher's guide).

### B. NATIONAL ENVIRONMENTAL EDUCATION DEVELOPMENT MATERIALS

NEED materials were produced by the National Park Service Foundation program in cooperation with the National Park Service to supplement the formal NEED programs in the national parks across the country. NEED helps teachers tie environmental awareness into their everyday lessons in the social studies, science, language arts, and mathematics *without* adding a new subject to the curriculum. Materials exist for all elementary levels at this time, and other materials are in the process of being developed.

For prices and information, write the Silver Burdett Company,

Box PM-S, Morristown, NJ 07960.
C. SUGGESTED FILM LIST

Following is a list of films pertaining to the Everglades. They might be of use in preparing your NEED program. Your resource center should be able to help you locate them. If you cannot locate a film, contact the Environmental Education Group at Everglades National Park for information.

Alligator—Produced by Goodway Films. Excellent photography covering the story of the alligator, the Everglades, and the flood control district.

Death of a 'Gator—FCD Productions. Shows poaching and actual slaughter of alligators.

Environmental Awareness—Producer unknown. Fingerpainting of a boy's feelings toward factory pollution—pollution that kills plants and animals. Shows the frustration built up by the growth of cities.

The Everglades—Produced by Jamison Films. Introduction to park. Very suitable for children; shows NESA area and compares Everglades to man-made ecosystems.

The Everglades: Conserving a Balanced Community—Produced by Encyclopaedia Britannica Films. Excellent film describing the basic areas inside the park.

Everglades Kite (Flight into Oblivion)—Produced by Goodway Films. Story of the Everglades Kite and its dependency on the environment. Excellent photography.

Everglades Region (Ecology of the Everglades Region)—Produced by John Wiley & Sons.

The Last Stand—Produced by Canadian Broadcasting Company. Good photography showing effects of hurricane damage at Flamingo.

Long Pine Key—Environmental Study Area—Produced by National Park Service and Dade County Schools. An excellent introduction to the NESA trail at Long Pine Key.

Prowlers of the Everglades—Produced by Walt Disney. Tells the story of the alligator and his neighbors through fair to excellent photography. While it is excellent viewing for all ages, the facts are distorted to make a good story.

Quality of Man—Produced by the National Park Service. Story of Frank Masland and the Everglades.
Seminole of the Everglades--Producer unknown. Non-Indian's magnanimous generosity save the noble savage from his stone age upbringing. Our monumental egotism really shines in this mini-spectacular of the 1950's.

Shark Valley Fire of 1962--Producer unknown.

Under the Sable Palm--Produced by National Park Service and Dade County Schools. Deals with cooperative environmental education programs between Everglades National Park and Dade County Schools.

World in a Marsh--Produced by Canadian Film Board. Excellent photography of the chain of life in a northern marsh. Applies to the everglades directly because of the similarity of environments.
D. SUGGESTED READING LIST

Following is a list of books pertaining to the Everglades and environmental education. They might be of use in preparing your NEED program. If your resource center cannot locate them for you, contact the Environmental Education Group at Everglades National Park.

Brown, Vinson. Knowing the Outdoor in the Dark.

Carr, Archie. The Everglades.

Carter, Luther. Florida Experience.

Dickson, Laura. Everglades Wonderland for Boys and Girls.

Emerson, William. The Seminoles: Dwellers of the Everglades.


McCluney, William. The Environmental Destruction of South Florida.

Robertson, William. The Everglades Story.

Simon, Sidney. Values Clarification.

VanMatre, Steven. Acclimatization.

Resource materials have been developed incorporating the SPICE concepts by the following groups. For information, write,

Center for Environmental Learning
705 Avocado Avenue
Cocoa, FL 32922

Environmental Studies
Box 1559
Boulder, CO 80302
E. SUGGESTED PRE-SITE ACTIVITIES

Following is a group of activities that are appropriate for students before attending a NEED camp. They or others like them should be utilized in the school curriculum wherever possible.

(1) TOUCH BAGS—The objective of Touch Bags is to help students familiarize themselves with textures found in the environment. It is based on the SPICE theme of Similarities and Differences. You will need a touch bag for every four students; newsprint; pencil; crayons; construction paper; glue; and one paper bag for each student.

Before class, prepare touch bags. Try to include a variety of objects having different textures. Be sure to include natural and man-made objects. Include objects of metal, cloth, and wood.

Originate the activity by organizing the students into groups. Let each student take turns feeling and describing the things in the bag. Either record the words the students use to describe the objects or list them on the board. Have groups swap bags and repeat the procedure.

Ask each student to make up a touch bag for the rest of the class. Caution them not to include objects which might harm someone else. Allow time for exploring the bags.

Next, group students in pairs. Blindfold one student. Remind the students that they are responsible for the safety of their blindfolded partner. Have the other student lead the blindfolded student in touching common objects such as desks, walls, books, carpet, etc. Let the students reverse roles and repeat the procedure.

Follow up these activities by letting the students make rubbings of different textures outdoors. Have them make a touch book, putting a different texture on each page.

(2) THE GROWING TREE—The young pine tree becomes the focal point for this activity because it directly relates to all of us in its youth. We are all in the process of growth: physical, mental, and spiritual. With "growth" there is always thought of "future." We will consider the future of the young pine tree. For the moment, listen to a very famous tree remark about its future:

I do not like worrying about the future. I am not altogether on anybody's side, because nobody is altogether on my side, if you understand me: nobody cares for the woods as I care for them.

—from *Trees* by J. R. R. Tolkien
Well, we care hopefully, so let's consider the future of this pine tree. Fire and hardwood trees interact very much with the pine tree. Now, because this pine is in Everglades National Park, it will probably reach its full growth. If fire does not interact with hardwoods and pines, pines will eventually disappear from the everglades. How?

- if hardwoods are allowed to grow unchecked by fire, they will shade the pine and kill it;
- if hardwoods are allowed to grow before the "shading out" point fire may rage through the area and having so much fuel kill the pine tree as well as the hardwoods;
- if fire comes at regular intervals, the young hardwoods will die out and the pine trees survive because they are fire-resistant.

With this background in mind, try these activities: the pine tree will be the center of the circle (or a student may be selected to play the pine tree). One child is chosen as fire. The rest of the children form a circle around the pine tree to represent young hardwoods. The fire on the outside of the circle attempts to break through the hardwoods to the pine. The fire is only stopped if tapped by two hands (of same tree or two different trees). The fire gets three minutes to accomplish its task. If the fire gets through, he becomes the pine tree (pines increase and hardwoods are reduced in number). If the fire does not get through, then the fire becomes a hardwood and the game must start all over.

(3) OF BABY PICTURES AND THUMBPRINTS—In this activity, the student will explore the concept of change as it relates to him or her and the environment. Given a list of characteristics, the student will correctly classify those that change and those that do not. For this activity, the following items are needed: student baby pictures from home; stamp pad; newsprint or construction paper; magnifying glasses; crayons or markers.

Start by asking students to bring in pictures of themselves when they were younger. Baby pictures are best, but all students may not have them. Use them to make a bulletin board. You can make this a game by not identifying the pictures. Have a contest to guess the identity of the pictures. As a class, discuss the ways people have changed since the pictures were taken. Make a list for the class.

Now have the students make thumbprint pictures by pressing their thumbs first on the stamp pad and then on the paper. You can make "bugs" from the prints by adding legs and antennae. Color in a background. Use the magnifying glasses to examine the thumbprints. Students may want to compare their own thumbprints with their classmates.

The thumbprint activity can serve as an introduction to a discussion of things that have not changed. Again you may wish to make a list. Weather is probably the most obvious change in the environment that affects us. Seasonal changes are also fairly obvious. Other agents of natural change include fire, earthquakes, hurricanes, tornadoes, disease. The list of man-made changes in the environment that affect us is almost endless. Examples include air pollution,
filling in marshes to build houses, building roads. Allow students time outside to identify something that is changing. They may want to explain their choice to the rest of the class.

(4) A HULA-HOOP STUDY AREA—In this activity, the student will become aware of living and nonliving things in a small environment. Based upon observation, the student will collect data on a closed system and classify the things found as living and nonliving. Materials needed are a hula-hoop (or coat hanger) for each group, a data card, pencil, hand lenses (optional), newsprint, and markers.

The object of this activity is to have students concentrate their observations on a very small area. This can be accomplished in a number of ways. The method suggested here is tossing a ring of some sort into an area and then having the students collect data only in that area. Even in the limited environment of the school yard, the students should be able to see that variation in environmental conditions causes a variation in the type of life found in an area.

You may want to prepare the students for this activity by reviewing living and nonliving things. You can play a game: have one student name something; let the class guess if it is living or nonliving.

If you cannot find hula-hoops, coat hangers bent in a circle will do. Bend the hook into the circle to prevent injuries. Divide the students into teams and assign each group an area to investigate. The students should close their eyes and toss the hoop. Once it has landed, the students should list everything they observe in the circle. You may wish to have them do a list or use the data in other ways. If the students are young, you may wish to have them talk about what they see, while you act as a recorder. Each group should complete observations in two different areas.

Have each group post their lists. Talk about what they found and the differences in the areas they were investigating. Try to reach some conclusions as to why some plants and animals were found in certain areas, but not in others. Factors that may account for these differences should include amount of sunlight, rain, wind, type of soil, presence of people, buildings, etc.

(5) WATER CYCLE DEMONSTRATIONS—In this activity, the students will be introduced to the principles of the water cycle and how it affects their daily lives.

Nature's way of cleaning water is the water cycle. Remind the students that the word "cycle" means wheel.

1. Water, in the form of rain, hail, snow, or sleet falls to the earth (precipitation).

2. Some water soaks in the earth and is stored there (ground water). Wells use this water. Other water runs off into streams, lakes and oceans.

3. Heat from the sun, or other sources, turns the water into gas, water vapor. This is called evaporation.
1. The water vapor gathers in clouds. This is called condensation. Condensation can be shown by placing a glass of ice cubes in the classroom. The air around the glass is cooled and moisture from the air condenses on the glass. You can help students visualize these processes by simple demonstrations. For evaporation, heat water in a clear, open container. Some of the water will condense along the sides. Cut off the heat and cover the container. Some of the water vapor will condense and fall back (precipitate) into the container. Ask students to list all the ways that they use water in their houses. Make a class list. Have them try to guess how much water they use in a month. Have them ask their parents to look at their last water bill for the amount they really used. Consumption is usually listed on the bill in thousands of gallons. You may need to fill a gallon container for the class to help them visualize how much water they are using. If you do not know the source of water for your area, you can usually get this information by calling the water department that serves you. While the water cycle cleans water, it is a slow process. Man uses water much faster than it can be cleaned by nature. Thus, man must invent ways to clean water. Now that the students have an idea of how much water they use, ask them where the dirty water goes. Find out where the waste water treatment plants in your area are. Man cleans dirty water by speeding up nature's process. However, most waste water treatment plants do not clean the water completely.

(6) LEAF PRINTS—You will need the following materials:
1. Colored construction paper or assorted color tissue papers
2. Ink Rollers
3. Printing ink
4. Old newspapers (to keep picnic tables clean) or sponges to wipe tables clean.

Have students collect leaves of different shapes, sizes, and textures. Students should place the leaves face down (rough side up) and roll printing ink on them. Place the paper over the inked leaf (Do one at a time) and press down until clear print comes out. Discuss overlapping of prints and color. Contrast ink, paper, and composition.
F. SUGGESTED ON-SITE ACTIVITIES

The following activities are just a few examples of the many types you may wish to include during your camping experience.

(1) IDENTIFICATION WITH A NATURAL OBJECT—The purpose of this activity is to encourage the students to learn to identify with nature. It can also be used as an ice-breaker.

As the students walk along the trail ask each person to pick up a natural object that reminds him or her of themselves. Tell them that these objects will be used in an activity.

In a clearing have the group sit in a circle, talk about why activities are done in a circle. Ask the group what they usually say to a person when they are first introduced (name, school, etc.). Then ask them how much about themselves these things really tell (not very much). Tell them that this time they're going to introduce themselves a little differently. Ask them to tell what they are really like by comparing themselves to the object. The leader should go first, and every student in the group should have a turn. Encourage openness by being open yourself. Explain beforehand that you do not want scientific definitions and do not allow them. By asking leading questions, the leader may guide those participants who have trouble. Always be encouraging!

(2) ANGLES—This activity increases sensory awareness and illustrates that any object has more than one side to it.

Have the group sit in a circle. The leader picks up a natural object, such as a pine cone, and passes it around the circle. As each person receives the object, he must describe it from a different point of view. Encourage participants to use senses other than their sight. Imagination on the part of the leader is a must.

(3) PET ROCK—Students should increase their awareness of senses other than sight in this activity.

Ask each person to find a rock and to examine it carefully. Tell them to get to know their rock as if it were their best friend. Then ask everyone to pass their rocks to you. Pass the rocks back out to your right and have them identify their rock. After all the rocks have been identified, take the rocks back up. Now have the students close their eyes, and identify their rock by its texture. Do not tell them in advance why they are feeling the stone and emphasize the importance of not looking at the stone. After everyone has his or her rock, tell them that this is their pet rock, and they may do whatever they want with it. Suggest that they give it to a special friend without that friend knowing where the rock came from.

As they become more familiar with their friend, they may even wish to put them on an incline and teach them to roll over and other tricks.
(4) SCAVENGER HUNT—One's awareness to detail is stimulated by some of the items to be discovered on this scavenger hunt. Depending on the size of the group, have the students divide themselves into groups of 2, 3, or 4 people. Give them about 20 minutes to collect their things. When all the groups have returned, let them share with the others what they found. You may have to elaborate a bit on some of the articles listed depending on the age and sophistication of your students. For best results make up your own list.

Each group will collect evidence of the following phenomena:
1. A simple machine
2. Three simple shapes
3. A sweet and sour taste in Nature
4. A pleasant and unpleasant smell in Nature
5. A trace from an animal
6. Three primary colors and two secondary colors
7. Three different textures
8. One sound from Nature
9. An example of non-biodegradable litter being degraded
10. Something older than you and something younger
11. A producer, a consumer, and a decomposer

(5) DRAWING WHAT YOU FEEL—This exercise encourages students to sharpen their sense of touch.

Introduce this activity by having the students go on a texture walk. They should be encouraged to feel most of these surfaces:
- Prickly
- Hilly
- Slick
- Hard
- Mushy
- Scratchy
- Solid
- Stringy
- Bumpy
- Hot
- Warm
- Tickly

After a brief discussion on natural textures, have the students draw what they felt not what they saw. They should try to duplicate the texture as best they can.

(6) SANDPAINTING—The following materials will be needed:
1. Bottles of Elmer's glue
2. One piece of black tag board per child (size 6" X 8"
3. Food coloring if different colored sand is desired

Have the students discuss the people who first inhabited the Everglades—how they lived, played, and their art forms. Explain how Indian designs often employed shapes within a border to tell a story. (Example: Seminole jackets & skirts). One popular form of this art is sandpainting.

Have the children pretend that they are Indians who will use these shapes to tell a story:
Next, pass out glue and tag boards. Have students draw horizontal lines across their papers with the glue. Then have them fill in the spaces between those lines with their "Indian" designs. (These are also drawn with glue). Pour sand over the boards and shake off excess. The sand which sticks to the glue will create raised designs. Let their boards dry before requesting them to relate their stories to the others.

(7) SAND CANDLES—Motivation for this activity can be created by announcing, "Tonight we will be eating by your candlelight". Have students go to the beach and dig a hole (four or five inches deep) in the sand. They might create their own designs or use the shape of a turtle, heart, etc. (REMEMBER to tell them that anything dug into the sand will project from their candle and anything built up on the sand will do the opposite).

Meanwhile, an adult places a pan of water on a stove. Another can containing wax and a few broken colored crayons to melt is placed inside the first can. When the wax reaches a liquid state, carefully pour it into the candle shapes. Each child is then given a wick to hold in the middle of their candle until it hardens enough to hold itself. (This takes about 5 to 8 minutes). When the wax has thoroughly hardened, it can be picked up. The contrast between the smooth colored wax and the rough sand makes for an attractive keepsake.

(8) SKETCHBOOK—Every child participating in the camping experience should make a sketch book to record whatever he sees, hears, feels, and wants to remember. Make sure to tell students that this sketchbook is for them and that no masterpieces are expected. It is to be used as a personal reference when they get back to civilization. Students should not feel threatened by the idea of having to draw. Perfect drawings are not expected. However spontaneous, free observations (both written and sketched) will provide them with a nice memory book of their camp out.

They will need two pieces of heavy, colored construction paper (12" X 18" is a good size) for the cover and newsprint for the filler. These should be stapled at the top to hold them together. In addition, a box of cray-pas-oil pastels should be provided as they are easier to use than crayons and much more colorful.
G. SUGGESTED POST-SITE ACTIVITIES

(1) AN EVERGLADES WALL—This is a project that will keep the lovely feelings experienced in the everglades alive for years to come. Choose a wall on the school building, with the principal’s approval, to paint a mural depicting an everglade’s scene.

Have students make sketches from memory or by using their sketch books that will represent their favorite everglade scene.

Suggestions:

a. An everglade’s sunset or sunrise
b. The everglades and its inhabitants
c. The alligator and his environment
d. The campground
e. Canoeing
f. Everglade plants and animals

Pick the best sketch or a combination of many sketches. Then with chalk, have students plan mural on the wall. Proceed to paint the mural with acrylic or enamel outdoor paints.

What a great way to cheer a dull school day, both for students and teachers who participated in this experience, and a great way to bring a little of the everglades back to share with others.

(2) THE WEB OF LIFE—This activity illustrates how plants and animals (including man) are dependent upon each other and upon the environment (sun, air, water, and soil) for survival through a "web" of interrelationships, and what happens if the web is damaged.

Players form a circle. Each student is given an "I belong" button which identifies him as some part of the environment, such as the sun, air, water, soil, different types of plants and animals. Next, the leader unwinds string from player to player, crisscrossing back and forth across the circle. When each player is connected, they are asked to explain their importance in the web. Then the leader lets go of his end of the string, resulting in an unraveled web. A discussion follows concerning the interrelatedness of all things in the web, and what happens when the web is upset.

(3) MOBILE OR WINDCHIME—A mobile is a free moving, hanging sculpture. Have students find the main part of the mobile first. It can be a piece of dried wood or a limb from a tree. Then suggest that they pick eight or ten items from nature with similar shapes, such as leaves, shells, interesting pieces of bark, or even an old, crushed beer can.

Next, discuss principles of construction—
a. the importance of delicate balance of the parts to achieve graceful movement.
b. arrangement of some items higher than others, etc.

Make holes on found pieces and hang with nylon string making sure they swing freely.

When completed, hang mobiles from a tree in the school yard. Not only will the tree look beautiful, but the chimes will sound with the blowing wind.
H. FIELD TRIP FOLLY (or HOW TO INSURE THE FAILURE OF YOUR FIELD TRIPS)

1. Do not bother preparing your students for what they are to see and experience.

2. Ignore until the last minute mere details concerning transportation, insurance, parental approval, school administration cooperation and sanction, and other mundane items such as suitable clothes.

3. If you travel by bus, do not take the trouble to look at things along the way. After all, if you do this, the students might learn something while travelling. What is better—"one-hundred bottles of beer on the wall," or an understanding of the area being driven through?

4. When a car caravan is used, you (in the lead car) should spring out at each stop, go to the particular instruction spot, and start talking at once to the few breathless students who have raced after you. If you do this properly, you can be finished and back in the lead car before the last car of the caravan has caught up and its students disembarked.

5. Since you are so good, you obviously do not need to go over the route carefully, prepare a route log with highlights and stops specified, or do other preparatory work. It is only those people who have run many field trips who persist in such silliness.

6. When hiking the trails, get the youngsters strung out as much as possible; then they will not be close enough to hear you or ask questions.

7. Do not pay any attention to the fact that there are resource people as close as the nearest telephone who would be glad to assist you with planning the trip.

8. After the field trip is over, put it out of your mind, and for Pete's sake do not review it with your students.

9. If you faithfully follow these instructions, you too can join the ranks of those who know from experience that field trips are nowhere near as valuable as cut-and-dried classroom instruction. Agassiz did not know what horrible things he started when he said, "Study nature, not books."

(from Wilson Clark at Eastern Montana State College, Billings)
I. FIELD TRIPS WITHOUT LEAVING SCHOOL

An Indoor Field Trip
You might ask your students to take a trip around the classroom to see how many objects they can discover that are made of substitution products rather than natural ones like wood or fiber. From what raw materials are these substitutes made? What is the effect of the use of man-made materials on the problem of natural resources?

Trip to the Utility Room
One of the causes of air pollution is the incomplete combustion of fuels. How is your school powered? With electricity? With fuel oil? "Let's find out" might lead to a trip to the school's power plant.

Why is this particular fuel used? How complete is its combustion? Is the school's power plant contributing an unnecessary amount of soot to the air?

On another trip you might want to investigate how and where water enters and leaves the school building.

How Clean is the Air Around School?
If you live in the city, a trip around the school grounds to discover the effects of air pollution might be in order. Dirty buildings, damaged vegetation, poor visibility are obvious evidences.

Your students might be interested in getting a rough estimate of the dustfall in the vicinity. This may be done quite simply: a large, clean bucket is filled a quarter full of water and placed in an exposed spot at least six inches above the ground. The solid particles that collect on the surface of the water after a day, a week, a month, are a measure of the dustfall on a small area in given lengths of time. For a city like New York, the monthly amount is more than fifty tons per square mile!

"Are there invisible particles, too, that pollute the air?" might be the question to start an inquiry into the various other air pollutants and the harm they do to property, to the beauty of a community, to the health of its people. The next question might be, "What can be done about it?"

The School Yard
Make frequent visits to the school yard to see phases of the water cycle: precipitation, evaporation, condensation, transpiration, absorption, run-off.

Make a plant and animal census of the area. Study the differentials in temperature and moisture (cobalt chloride paper indicator), between sunny and shady areas, grassy plots, and pavement.

Are the living things found in a heavily shaded area different from those in sunshine? Are your students beginning to see evidenced of plant-animal relationships? Effects of environment on natural communities?
VI. SUMMARY

To be effective, environmental education must be related to the school curriculum, and it must be a responsibility of teachers in all disciplines. Environmental education presents our educational system with a challenge to focus on issues that are vital and contemporary.

Teachers are facilitators of education. They can stimulate curiosity in their students. They can also provide tools the students can use in pursuing that curiosity throughout their lives. The teacher brings continuity to the learning process, enabling the student to see the interrelatedness of what he or she is learning, as well as what role he or she is playing in this interrelatedness. In the NEED program, continuity is essential. Without pre-site and post-site programs, on-site visits are little more than picnics and group camping.

Park Rangers serve a dual purpose in assisting in the execution of the program. They serve as resource managers and consultants. As resource managers, they make the study areas available for use by teachers and students. As consultants, they provide interpretive and technical assistance as the program dictates or by request. Their knowledge of the resource, its processes, and its problems are offered freely.