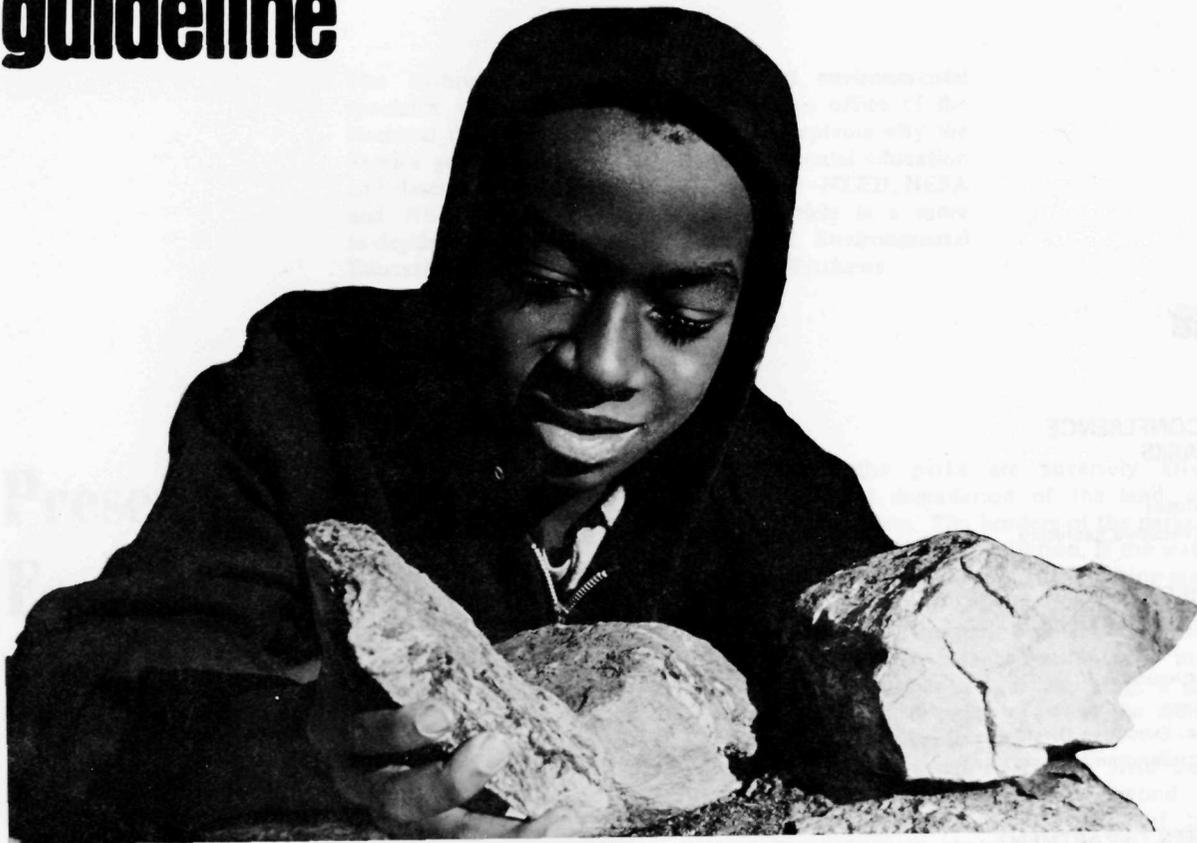


guideline

Photo by Cecil Stoughton



“What do rocks mean to me?”

This 7th grade student, one of 67 from Garnett Patterson Jr. High School in Washington, D.C., got a new view of his world in a NEED camp held this past December at the NPS Round Meadows Camp in Catoctin Mountain Park, Thurmont, Maryland.

(See story, page 3)

guideline

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The author, James R. Pepper, is an environmental specialist in the Environmental Education office of the National Park Service. In this article he explains why the Service got into the business of environmental education and describes the Service's three programs—NEED, NESA and NEEL. Following Mr. Pepper's article is a more in-depth discussion of NEED, National Environmental Education Development, by Jean Worth Matthews.

Preservation For A Purpose

The National Park Service is wholly committed to environmental education directed toward the establishment of a national environmental ethic. This commitment has two distinct philosophies and orientations.

The first is the strict constructionist or "wagons in a circle" philosophy. Its orientation is inward and backward. Its proponents see their mandate in historic terms as "park-tending," period! But even within this narrow construct, the impossibility of preserving park quality in a world where quality is running out has been accepted, and education is seen as a valid answer.

The second is the evolving park mission philosophy; its orientation is outward from the parks and forward into the future. Its proponents see an environmental crisis that demands every educative environment to be pressed into survival duty—like lifeboats—for the good of the parks, the people they serve, and the world that must serve them both. These are the park-tenders with a genuine desire to use the unique resources of the Service and the System to help solve the greater environmental problems.

Both groups are believers in preservation; the latter also believe in preservation for a purpose. The purpose they see as paramount today is to promote understanding and appreciation for the resources and processes that support life on earth; and beyond, to instill respect for life. The parks are prime examples of the resources and processes we must understand to survive. The Service is a repository of knowledge and experience and genuine desire to use these gifts for the greatest benefit of man.

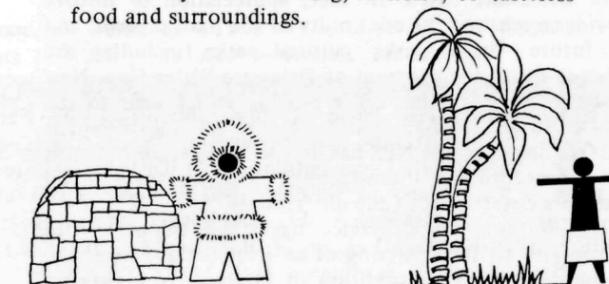
In reality, there never was a time when the National Park Service felt that the parks could be viewed as an isolated system, unaffected by the environmental traumas the rest of the country was experiencing. If there are any left who feel this isolationism ever was valid, they are ready to grant that it certainly is not now.

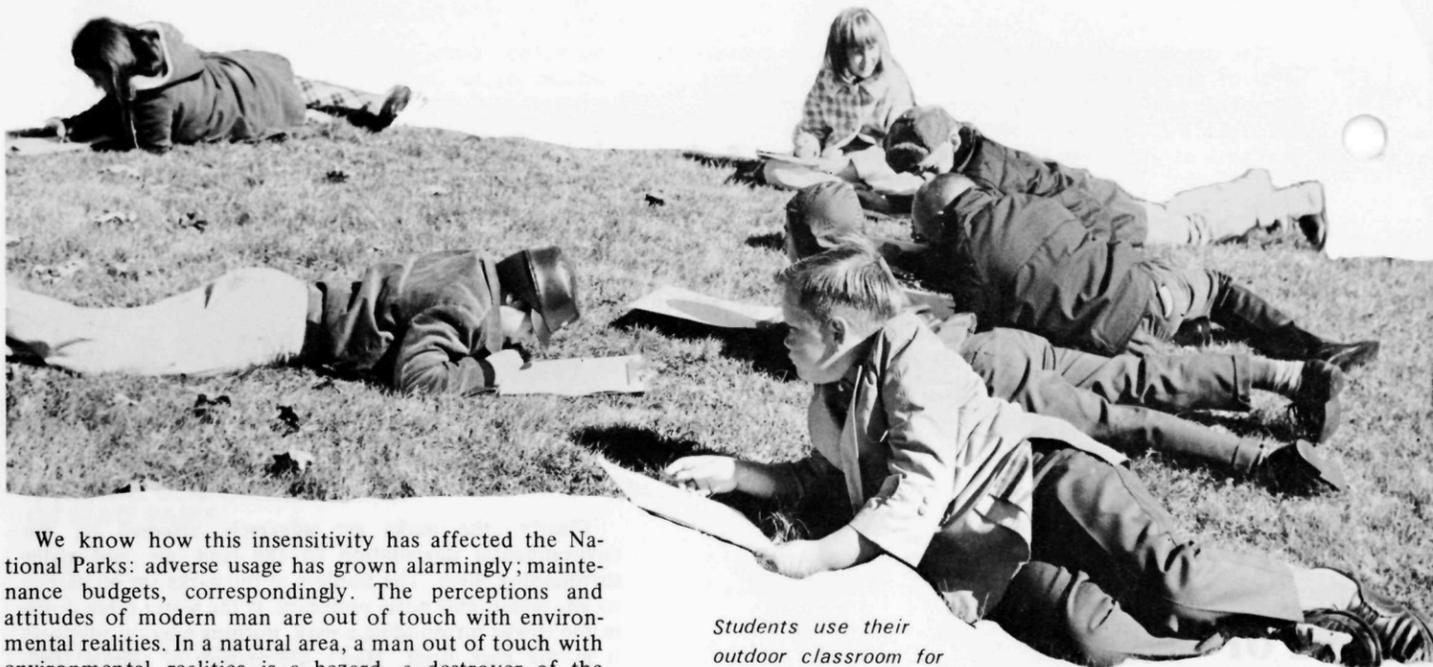
Clearly, the parks are adversely affected by the environmental degradation of the land, air, and water surrounding them. The borders of the parks are no barrier to air, water, and noise pollution. If the water table drops in the towns surrounding a park, nothing magical supports it in the park itself. Man's destruction of animal communities beyond the park boundaries has definite impact on the ecological balance within. His introduction of exotic plant species has, if anything, a greater impact. From a biological point of view, the walls of isolation around the parks are in ruins.

The visitor himself is a more vivid example of our interrelatedness with the world beyond. His behavior, values, and attitudes are products of his own community—not some abstract park ethic. His own community is probably an ecological mess, although he probably doesn't realize it. His is an era of overspecialization, which is reflected in his increasing insensitivity to worlds other than his own. As the guide for Homestead, Nebraska, National Environmental Study Area states:

By abandoning the countryside for the urban scene, man is proving that he can adapt to a completely man-made world, or so it seems. It often seems that he transfers his primal urgings to a new location or even retrogresses, as when a crowded urban environment nurtures street gangs not unlike primitive tribes.

One aspect of urbanization has far-reaching implications. Evolution and adaptation require a sensitivity to the environment in order for the organism to react. Man's extraordinary ability to adapt to changing conditions is based on his sensitivity; which is not quite the same thing as analytical intelligence. Survival in modern life seems to be dependent on developing a degree of insensitivity—to crowding, to noise, to tasteless food and surroundings.





Students use their outdoor classroom for an art lesson at the Big Meadows NESA in Shenandoah National Park, Virginia.

We know how this insensitivity has affected the National Parks: adverse usage has grown alarmingly; maintenance budgets, correspondingly. The perceptions and attitudes of modern man are out of touch with environmental realities. In a natural area, a man out of touch with environmental realities is a hazard, a destroyer of the natural processes upon which he depends for life. As an increasingly insensitive product of an over-specialized age, modern man cannot see the dynamic interrelationship of the natural, social and cultural environment; he cannot see his effect upon the world and how he is affected by it. If modern man, as a voter or in his personal affairs, cannot see these things about his world, he cannot act with genuine responsibility toward it. Learning how to see is what environmental education is all about.

When the National Park Service was established in 1916, it was charged with the preservation of the system for the use of future generations of Americans. If our citizens do not become sufficiently environmentally aware, if they do not learn how to see the dynamic interrelatedness of the total environment, our parks will become degraded and the National Park Service will have failed in its responsibility to the American people.

Therefore, to carry out our responsibilities under the 1916 Act, the National Park Service was obligated to encourage environmental education. To encourage effectively, we made a realistic examination of the assets we have to offer.

Assets

The most significant thing we have to offer, of course, is a resource. In many ways, this resource represents an amazingly comprehensive microcosm of our national environment. The NPS includes vast holdings of highly diverse natural areas. The historic areas are invaluable educational tools; one of the most unfortunate characteristics of over-specialized man is that he sees history as mere irrelevant dates. In fact, appreciation of history provides a sense of the continuity of the past, present, and the future. Urban parks, cultural parks (including the artists-in-residence program at Delaware Water Gap, New Jersey), and recreation areas provide enrichment to the daily cultural life of the nation. Unlike other government resource agencies, the NPS has no special relationship with particular economic interest groups, a significant point to educators covetous of academic freedom.

The National Park Service has other characteristics appropriate to the fostering of environmental education. We have a fifty-year tradition of interpretive programs.

Interpreters are not educators in the formal sense, of course. Yet they are experienced at making comprehensible the process in the park environment. Another: one-hundred million people visit the Service areas each year. The impact of their behavior, attitudes, and values, the way in which they interact with each other and the resource, and the accompanying managerial and institutional priorities and problems are all valid areas of study. Further, the experience of the NPS in managing this multi-faceted microcosm has taught us to view the environment holistically. Finally, it is important to note that the National Education Association report, **Environmental Education in the Public Schools**, stated that "more than half" of all school systems with outdoor conservation or environmental education programs have utilized National Park Service resources.

Programs

The three NPS environmental education programs are built around our resources and our experience. They are specifically intended to raise the level of environmental awareness throughout the nation. They are the National Environmental Study Areas (NESA), the National Environmental Education Landmarks (NEEL) and the National Environmental Education Development (NEED).

These programs are alike in four ways: first, as used in each, the word "environment" includes all things which affect us—natural, social, cultural, and perceptual—with the implicit understanding that all these factors are interrelated; second, there are five "environmental strands" which run through all things and which, as interdisciplinary organizational tools, make the interrelatedness easier to understand (the strands are variety and similarity, pattern, interrelation and interdependence, change and continuity, and adaptation and evolution); third, each program utilizes on-site, experiential learning; and fourth, each is a cooperative program, relying upon the joint effort and expertise of educators and resource people.

The programs are interdisciplinary, because the holistic view of the world demonstrates that the lines between disciplines are arbitrary. As such, uni-disciplinary methodologies may be obstructive as they mask the interrelatedness of all things. The strands, an interdisciplinary methodology, are applicable to large or small areas of study, enable the student to broaden his awareness by relating the things he understands with things he does not, and provide a personalized framework for life-long education by their continuing applicability to each additional experience.

Study Areas

The NESA program attempts to encourage the use of public and private lands for environmental education. Cooperatively, resource people and educators select a site which possesses high educational potential. Existing educational and National Park Service expertise is utilized at workshops to train those who would use these lands for environmental education. Materials and techniques specifically dealing with the site, or NESA, are developed.



An Environmental Education Council for the Shenandoah Region was established to expand environmental education.

As of November 1971, 548 workshops have been held by educators and NPS resource people. A total of 12,853 educators have attended. NPS resource people do not conduct classes on NESA sites. Rather, we advocate the teacher-resource people workshop as this approach ultimately exposes the largest number of students to this kind of environmental education experience.

Furthermore, our people are not usually trained as educators, but they do understand the resource. Through workshops with educators, resource people can demonstrate the potential of their sites. The educators, thereafter, can utilize that site independently in ways most suited to the individual classes, including follow-up in the classroom. It is our hope that, in each case, educators and resource managers can combine their unique talents most efficiently, thereby making a genuine contribution to environmental education. To date, 163,697 students have used the National Environmental Study Areas. A workshop model, intended to reduce the burden of running a

At Shenandoah National Park, Virginia, teachers attend a one-day workshop in one of the park's three NESA's. Here they examine the miniature environment of the meadow grass and apply the five environmental strands.



workshop while increasing its efficiency, is being developed by the National Education Association through a contract with the NPS. It is our hope that this model and the in-service training it can afford park personnel will markedly expand the impact of the NESA program.

These sites are not limited to natural or "pretty" areas. A town dump or a strip mine could teach a child as much about the environment as could a meadow. At present, there are more than 80 NESAs on NPS lands, and approximately 50 on private lands.

Landmarks

The NEEL program confers National Landmark status upon outstanding NESAs of national significance. A federal register of these landmarks is maintained. It is hoped that these environmental exemplars will encourage an environmental ethic as a standard of personal, governmental, and corporate behavior. All NEELs are on non-NPS lands.

The environmental imperatives with which these programs deal cannot be limited to parks or to nations. Their message is urgent and world-wide.

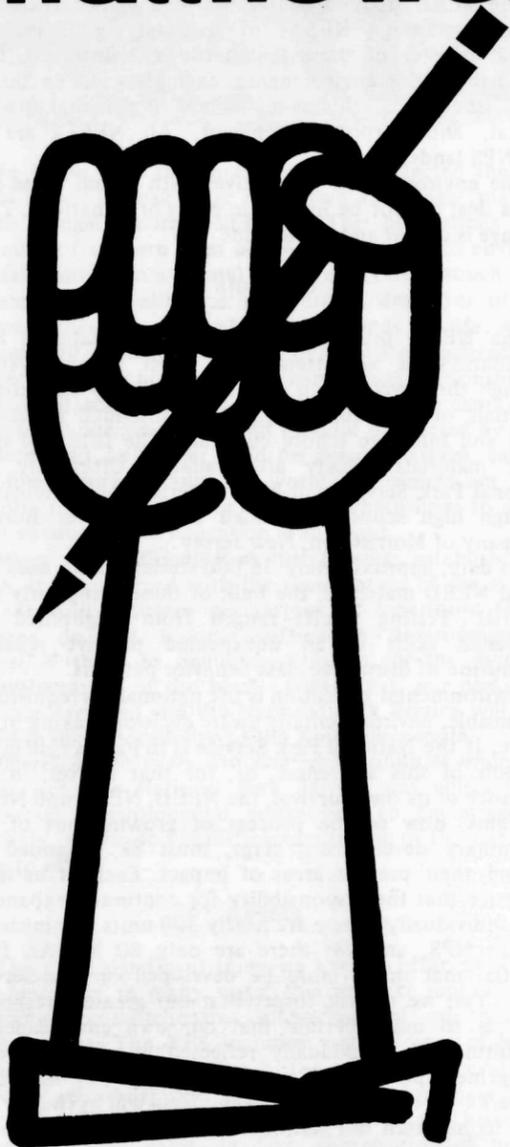
Curricula

The NEED program, funded by the National Park Foundation, is an attempt to assist school systems through the development of interdisciplinary educational materials of high quality which are intended to supplement and integrate school curricula. The fifth and sixth grade materials already are available. Ultimately, the National Park Service will have materials for kindergarten through high school, published by the Silver Burdett Company of Morristown, New Jersey.

To date, approximately 35,000 students have used and tested NEED materials, the bulk of these being early trial material. Testing results ranged from heightened and sharpened skills to an unexpected positive result—a diminution of disruptive class behavior patterns.

Environmental education is the national prerequisite to responsible, environmentally aware decision-making in the future. If the National Park Service is to have a role in the creation of this awareness, or, for that matter, in the assurance of its own survival, the NEED, NESA and NEEL programs, now in the process of growing out of the preliminary development stage, must be expanded far beyond their present areas of impact. Each of us must recognize that the responsibility for continued expansion is his individually. There are nearly 300 units administered by the NPS, and yet there are only 80 NESAs. It is essential that many more be developed on non-Service lands. Yet, we cannot forget that our greatest responsibility is to make certain that our own environmental commitment is individually reflected in sound resource management practices. If we all accept this responsibility, the parks—as environmental exemplars—will in themselves serve to heighten our national environmental awareness.

write on, jean worth matthews!



In reading Jean Worth Matthews' Trends Magazine article concerning environmental education, one cannot help but be touched by her sensitivity to the exploitive, bumbling attempts to educate the young about their environment . . . her interest in presenting environmental education as a method of teaching the cyclical, evolutionary processes of man and his environment as one ever-varying solution-set whose domain is infinite.

To present genuine education, to provide real learn-

ing opportunities, segmented subject areas must be incorporated—integrated into an inter-disciplinary approach to the study, the inquiry, the discovery of relationships between man and man; man and his environment . . . man and his micro-culture . . . man and his macro-culture.

At the present time, most school systems and most schools, both elementary and secondary, whether they be in self-contained, departmentalized, teamed or other structures like these nonetheless are segmented into spelling time, reading time, literature time, math time, science time, et. al. This segmentation provides pigeon holes for unrelated information, incoherent, incohesive, and therefore seemingly irrelevant. Why?

In recent decades taxpayers and educators have become aware of accountability factors in education. "John reads on a second grade level today. By the year's end, he must read on a third grade level." Courses of study with highly sequential, developmental steps have been meticulously devised as guidelines for teachers to perform their task of disseminating segmented information.

Why have these educational programmers not thought of integrating these concepts into an interdisciplinary approach? Environmental education involves the realization of, the discovery of, the inquiry into what so many fear—change.

Politicos on the left and on the right apply strong pressures upon institutionalized education to hold reign as their "right," possibly rightfully so. But, so long as that death grip eats away at the minds of the young, killing their thirst for knowledge, destroying their desire to participate in learning activities, eliminating the desire to function in educational institutions . . . genuine education cannot exist.

Jean Matthews' notions are echoes of what has been said by Bruner concerning incidental learning, what can be found in *Crisis In The Classroom*, in *How Children Fail*, in *How Children Learn*, *The Open Classroom*, *Death At An Early Age*, *Love and Will* and many other fairly recent publications. But even greater concern, even louder voices must be heard, it seems, since the necessary vast changes have not been affected in American education.

As we view the state-of-the-art in education in America today, one can only see failure in every area of the institution . . . possibly a rationale for such works of frustration of Ivan Illich's *Deschooling of Society*.

However, if the American educational institution should ever heed the call or be responsive to the need, then . . . and only then can we even begin to concern ourselves with true environmental education. For only then will we be able to mount such a program.

If parks can contribute to the needed revolution in education and in environment, then more power to the parks!

Mel Hodes
Sixth Grade Teacher
Southlawn Middle School
Rockville, Maryland

The author, Jean Worth Matthews, is staff writer in the Environmental Education Office of the National Park Service. "Parks and Process," also written by Mrs. Matthews, appeared in the July 1971 issue of *TRENDS*. This is a sequel, with emphasis on National Environmental Education Development (NEED).

A Word About **NEED** As Process

"Do you have any figures that prove environment is an effective aid in teaching math?"

This kind of question, posed by professional educators early in the development of the National Environmental Education Development (NEED) program of the National Park Service, revealed just how unfamiliar was the ground NEED was trying to break.

To NEED proponents, the answer seemed unbelievably obvious: "Our purpose is just exactly the opposite. We're trying to use math—or any other subject for that matter—to teach **environment**."

Within this question-answer exchange lay the heart of what separates NEED from "curriculum" in the sense that curriculum is generally understood by professional educators. To educators, what appeared obvious to park people presented real conceptual difficulties.

In all honesty, the discomfort quotient was about equal among park people and teachers. Resource interpreters felt at home leading their traditional taxonomic nature walks or describing their own historic areas. Teachers were most at ease portioning out information in the form of facts, by subject matter, whose grasp by students could be measured and graded. How did you handle a process that fitted neatly into neither of these familiar patterns?

Even the math question that opens this piece did not immediately bring the dawn. Teachers and park people alike became increasingly frustrated at their inability to "get a handle" on NEED.

What was NEED trying to do? And was there any single program that could "do" for both teachers and environmental interpreters? Why the emphasis on the five environmental ideas, called the NEED strands?

NEED developers within the NPS continued to grope, resisting park and education pressures alike, refusing to be sucked back into the cold "either/or" approaches. As they resisted, the nature of NEED began to take its own shape.

The emerging program was not a curriculum in any of the familiar meanings of the education world. When it fell into the trap of presenting information, no matter how skillfully or interestingly, it fell short of what it set out to accomplish.

Simply put, NEED is a way of presenting the regular school curriculum so that students become aware of the interlocking continuity of process that seems to flow through the total environment. Whether or not there is an actual flow of process in reality, flow is the way environment is perceived by people. Too often, regular

curriculum without the NEED ingredient tends to interrupt and negate this wholeness and flow.

The NEED strands are five: variety and similarity, pattern, interrelation and interdependence, change and continuity, and adaptation and evolution. These are the essence of NEED—the five ideas that knit together and add meaning to regular curriculum and that set the stage for meaningful visits to extra-classroom situations. These trips outside the school, whether to a park, a theater, a waterworks or a garbage dump, provide infinitely varied opportunities for observing the process of environment at work in the light of classroom information.

Seeing Things As a Whole

Environment is process; education is process. Both processes are in a state of crisis.

Man, being a cultural animal, is dependent upon education for guidance in handling his environment (which is both cultural and natural).

Therefore, education must no longer mislead man into the illusion that his environment is made up of separate



Photo by Cecil Stoughton

A sixth grader from a La Honda, California, school tests his sense of smell as one way of identifying a plant. The experience occurred at a NEED camp in the spring of 1971.

parts (presented in his education as separate subjects)—that his impact on environment can be as separate as his acquired conception of the parts he acts upon.

This education-created illusion has handicapped man in his pursuit of that most absolute necessity of any organism—the ability to “deal with” his environment. The deplorable results are all around us, in the parks as well as in the classroom. Failure to perceive environment and education as a whole, failure to implant awareness of the wholeness of process in people, seem to be the basic faults with which we must come to grips.

In large part, the environmental crisis in which man finds himself today can be viewed as a predictable outgrowth of this compartmentalized educative process. The unnatural fragmentation in the study of what in reality is a total, underlying life support system and an interacting human-wrought world of culture, technology and the artifacts they produce, is responsible in large part for the concomitant crisis in education.

other grouping of ways the world can be sorted out, organized, studied, and used.

NEED finds its five “strands” weaving through a meadow-to-forest succession and an inner city vacant lot—through the zip code, the area code and the genetic code.

Value judgments that appear in biology lessons in terms of life form “successes” and “failures” can be superimposed on cultural patterns and analyzed without “teaching” anything. The NEED strands simply suggest, and leave the rest to the individual child, the teacher, and class interactions.

As NEED continues to develop—both classroom lesson materials and teacher-park personnel methods of interacting at outside-the-classroom resource sites—the tensions and resistance in both parks and schools are diminishing. Each set of “specialists” finds that NEED is not an invasion of his preserve, but a new way of making his field more alive and meaningful—which is what both park people and teachers are seeking.

What the NEED strands offer children is a way of perceiving total environment so that it invites their personal participation in the whole process. One park interpreter, who works successfully with nearby teachers in environmental education uses of his area, discussed his feelings about why the NEED approach works:

“Children have an insatiable curiosity about themselves and their environment. The other way of pounding learning into them is through discipline. Frankly, I trust curiosity more than I trust discipline.”

The NEED strands are an endless resource for satisfying and renewing curiosity in a child—about his world, how it works, and what it means to him, personally.

Getting It Together

Educators continue to work with the NPS NEED developers on lessons designed for use along with the entire elementary curriculum. High school materials will also make use of regular curriculum but with a problem, project orientation that invites the student to “put it all together” in a relevant confrontation with his own real world, natural and/or cultural.

Park personnel are working along the same lines from the parks toward the schools. Eighty areas within the National Park System are designated as National Environmental Study Areas (NESAs), and local park personnel work with area teachers to use the particular site resources in exemplifying the strand approach. In many instances, teachers have helped park people write the NESA guide materials for their sites, and have shared with NPS personnel the conduct of teacher workshops.

Teachers and resource people outside the schools are beginning to lose the feelings of anxiety and threat which accompany change. They seem to be discovering that a free exchange of concepts and activities between classroom and environmental study areas *wherever* they occur outside the school, reinforces the successful operation in both spheres of learning and experiencing.

NEED is a tool for perception of wholeness. Its use can open up “a whole new world,” in every sense of that familiar phrase. The key to that world is strengthened respect and cooperation between those who reign in classrooms and the resource managers who must deal with the results of that reign.

(NEED materials are published by the Silver Burdett Co., 250 James Street, Morristown, New Jersey 07960.)



Photo by Cecil Stoughton

Students from the 7th grade in Garnett Patterson Jr. High School, Washington, D.C., learn about the NEED program symbol ENVIRONMAN. The long line stretching around the man represents the five “strands” that make up the NEED program. They and the man all run together in order to stress NEED’s theme that the world and man are one.

This education crisis is perceived by the young as “lack of meaning and relevance” in an education system that so ill-equips them for handling either their own lives or the world in which they must live.

It is the modest objective of the NEED non-curriculum, to supply a few sample lessons in each of the subject matter areas at the elementary level, to introduce the total environmental flow of process as it appears in all subject matter areas and in all environments to which the child could ever be exposed.

NEED does not aim to “teach” any other facts than this. Thus, information, as such, becomes only a tool of the NEED materials—not a goal. Every relationship that can be shown in and among any area or areas of knowledge becomes a way of demonstrating environmental process. The interrelations of words, their common roots and different shades of meaning, become one with the food web, the social organization of cities, states and nations, the tonal and textural sound intricacies that make up jazz and hard rock and classical music, and any