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## Outdoor nature program for Azalea Trails Girl Scout Resident Camp

Diana Lynn Robinson

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OUTDOOR NATURE PROGRAM FOR AZALEA TRAILS  
GIRL SCOUT RESIDENT CAMP

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A Project  
Presented to the  
Faculty of  
California State University,  
San Bernardino

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts  
in  
Education:  
Environmental Education

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by  
Diana Lynn Robinson

June 2004

OUTDOOR NATURE PROGRAM FOR AZALEA TRAILS  
GIRL SCOUT RESIDENT CAMP

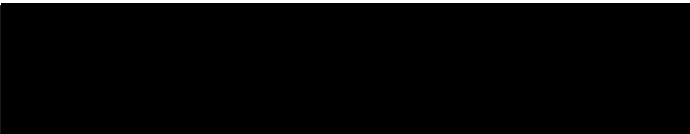
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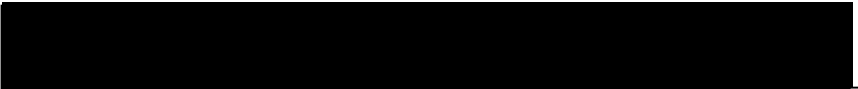
by  
Diana Lynn Robinson  
June 2004

Approved by:



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Dr. Gary Negin, Second Reader

June 2, 2004  
Date

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## ABSTRACT

There exist a place of growing popularity where students are exposed to outdoor experiences 24 hours a day. Outdoor resident camps which are run by nonprofit youth organizations, like girl scouts and boy scouts, offer children outdoor experiences lasting from 5 to 14 days. This project offers a nature program that can be implemented into the camp program. The nature program can be used with little staff training and few supplies.

A review of the literature indicates that children who have experiences in outdoor environmental activities tend to show a greater sense of environmental responsibility. Yet school districts are cutting outdoor programs in the schools. Standards based tests are emphasizing reading/language arts and math curriculum in schools. Shrinking budgets further influence the curriculum and field trips. Districts use textbook funds to purchase newly adopted reading/language arts and math materials. Leaving less money for new materials in science, social studies, the arts, and field trips including residential outdoor school programs.

Outdoor Residential Camp programs offered by youth organizations provide an outdoor camp experience for many children in the community. This project was written

specifically for Azalea Trails Girl Scout Camp located in the San Jacinto Mountains. However, the project can be adapted to be used at any residential camp setting.

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## CHAPTER ONE

### BACKGROUND

#### Introduction

Throughout history it has been said by many that the future of the world is dependent on the education of the young. Thus, educators have produced a population of highly educated adults. These graduates have developed and invented a variety of objects that make our lives more efficient and more comfortable. People have produced products that are more effective than the products of centuries past. People travel farther and faster than 50 years ago. Factories produce more products at a faster and more efficient rate than ever before. Advances in medicine have enabled people to live much longer and more productive lives than their grandparents. But with all these advances the Earth is also experiencing higher levels of pollution in the air and the water. Many ecosystems are being destroyed to make room for the increased population. Natural resources are being destroyed or depleted. Species of animals are being driven to extinction due to habitat destruction. One can only ask: Are we truly a well-educated society? Does our educational system include environmental education?



In *Earth in Mind* (1994), Orr stated:

If today is a typical day on planet earth, we will lose 116 square miles of rain forest, or about an acre a second. We will lose another 72 square miles of encroaching deserts, the results of human mismanagement and overpopulation. We will lose 40 to 250 species, and no one knows whether the number is 40 or 250. Today the human population will increase by 250,000. And today we will add 2,700 tons of chlorofluorocarbons and 15 million tons of carbon dioxide to the atmosphere. Tonight the earth will be a little hotter, its waters more acidic, and the fabric of life more threadbare. By year's end the numbers are staggering...The truth is that many things on which our future health and prosperity depend are in dire jeopardy: climate stability, the resilience and productivity of natural systems, the beauty of the natural world, and biological diversity. (p. 7)

Orr (1994) continued to point out that there is a problem with our educational system today. Our children are highly educated but this education is not complete. Instead he pointed out that our educational system has emphasized theories, not values. Education dealt in abstractions rather than consciousness. We expected neat answers instead of asking more questions. We looked for technical efficiency over conscience.

A common myth of education, pointed out by Orr (1994), is that if we provide people with enough knowledge and technological expertise then the people will be able to make sound decisions to manage affairs on Earth. But what good is all this education if we cannot solve some of

the major problems that affect the quality of life on this planet? The educated scholars of colleges and universities are able to read and write. These scholars are highly skilled in their respective areas of science, arts, social sciences, technology, etc. But they tend to want to be successful and make life better for all without thinking about the affects of their work on the whole environmental picture. As an example, aerosol cans were developed to make life easier and more efficient. But no one asked the question: What effect does the insecticide have on the environment? Only people with an understanding of the world around them, would know to question the effects of a product on various parts of the environment. People with an understanding of the interdependence of the world would think beyond the obvious benefits of a product.

Environmental education brings understanding and relevance to education. In the words of Orr (1994), "all education is environmental education. By what is included or excluded, students are taught that they are part or are apart from the natural world" (p. 12).

Environmental education is not a new concept. In October 1977, an Intergovernmental Conference on Environmental Education met in Tbilisi, Georgia (former USSR). At the close of the conference the delegation

purposed the Tbilisi Declaration. The Tbilisi Declaration proclaimed that "Environmental education should be provided for all ages, at all levels and in both formal and nonformal education. The mass media have a great responsibility to make their immense resources available for this educational mission" (1977, p. 13). The declaration continued, "Environmental education, properly understood, should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world." Another important aspect of the declaration states that:

Environmental education must look outward to the community. It should involve the individual in an active problem-solving process within the context of specific realities and it should encourage initiative, a sense of responsibility and commitment to build a better tomorrow. By its very nature, environmental education can make a powerful contribution to the renovation of the educational process. (p. 14)

We live in a time when improving test scores is the prime directive of the State of California. In addition, recently the federal government of the United States (Kauerz, 2002) has mandated that every student be a reader by the third grade. This is forcing the formal education system to emphasize the basics of reading and math at the expense of other curricular areas. But is this truly the answer? Are we producing scholars who have no idea about

the whole picture? Are we producing students who have a comprehensive picture of the world and the interdependence of all its parts? Can schools deal with both the state directive and educating students for the environment? Is it time to supplement the formal education process with informal based education implemented by youth groups?

If formal education is choosing to emphasize only part of a person's education then it is time to turn to the informal teaching of environmental education. Summer camps offer children a chance to experience the world around them. They give children a time to observe the interdependence of life on earth. Camps give them the chance to experience nature first hand. Summer camps offer children of the city a chance to visit, observe, explore, and question the world around them. Youth organizations in the cities can also offer children an opportunity to explore their environment and its role on planet earth.

The idea that environmental education can be both formal and informal education is the inspiration for this project. This project grew from my own personal love of the out-of-doors and my frustration as an educator in not being able to incorporate an environmental education component into my school curriculum. For years I have implemented bits and pieces of a fragmented environmental

education program. Recently more directives from administration have increased the amount of time spent on reading and math. In addition these directives have also stipulated how to teach language arts and math. Scripted lessons have become more prevalent in recent years, leaving less time for the sciences and the arts.

There are many youth organizations in our society that help children grow, develop, and contribute to their communities. Although their programs vary widely, their goals and objectives are generally very similar. Specifically, one goal deals with contributing to society and the world around them. In answer to the Tbilisi challenge, youth organizations and their camps can be an avenue to teach environmental education. It is the intention of this project to design a camp program that would be comprehensive and yet easy to implement. The project would include a nature center, nature trail, and program activities ranging in length from two hours to a comprehensive two-week specialty program.

## CHAPTER TWO

### REVIEW OF THE LITERATURE

#### Introduction

Within the last century in the United States there has been a shift toward an urban society. What once was a rural society, where children and adults were exposed to the great outdoors, has become an urban society. Children and adults live in neighborhoods consisting of roads, sidewalks, low maintenance yards, and apartment buildings. Yet these people are making decisions that will affect the quality of their natural environment upon which life depends. These citizens need the knowledge to make well-informed decisions about products they use and their effects on the environment. The decisions these citizens make affect either directly or indirectly many aspects of their environment. The interdependency of all living things in the environment is a fragile balance of coexisting lives. How does an individual or a community make informed decisions concerning the health of the environment? In order to understand the objectives of this project one must have an understanding of environmental education.

## Environmental Education--What Is It?

In order to develop an outdoor program a person must first understand exactly what is environmental education (EE). Many people have attempted to define EE. Throughout history many, definitions have been presented, and although these definitions had similarities, one universal definition has not been totally agreed upon.

In an article by Stapp et al. (2001), a definition of environmental education was stated:

Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated toward their solution.  
(p. 34)

Stapp et al. (2001) continued by developing four major objectives associated with this definition. The first objective dealt with the idea that individuals cannot be separated from the place on earth in which they live. People, their culture, and the biophysical environment all interact together. Culture is defined as "organizational strategies, technological processes (political, legal, managerial, and education, etc." (p. 34). Stapp et al. explained that the biophysical environment includes both the natural and manmade elements of the environment. Ultimately people have the ability to

make decisions that will affect the quality of the biophysical environment. These decisions usually reflect an aspect of the culture in relation to perceived needs or services. One of the objectives of environmental education would be to teach people to make well-informed choices.

The second objective Stapp et al. (2001) made was that individuals would acquire a "broad understanding of the biophysical environment, both natural and manmade, and its role in contemporary society" (p. 34). Basically stated this objective deals with society's dependency on natural resources. People use natural resources in a variety of ways to benefit their quality of life. But an understanding of the effects on the environment that result from the use of natural resources is essential to making quality choices.

Stapp et al. (2001) continued with a third objective concerning the biophysical environmental problems. Environmental problems come from the interactions of people with culture and the environment. Often the interactions are not always good for the environment or ultimately the people. Stapp et al., continued that people need to be able to think through the effects of their actions. People need to consider how to determine the total effects of their actions and how to solve problems



that have resulted through their actions. Ultimately it is the responsibility of a community to work towards solutions that are well thought out and tested to insure a high quality of life.

Finally Stapp et al. (2001) stated that environmental education should help people acquire "attitudes of concern for the quality of the biophysical environment which will motivate citizens to participate in biophysical environmental problem-solving" (p. 35). This objective goes beyond factual knowledge. The word attitude implies that people will gain emotional motivation to do the right thing. People will develop a concern for the environment and their interaction with the environment.

It is important to note that within the parameters of environmental education there are several common related areas. These include nature study, conservation education, and outdoor education, according to Disinger (1983). Prior to 1940 nature study was interpreted as more of a program using art as a basis. This form of nature study faded as an emphasis in science education rose. More recently nature study has gained more prominence in the fact that nature study is more than just an art approach. Rather, it is a way for educators to put students into physical contact with the world around them.

Conservation education focuses on the conservation of our natural resources. According to Disinger (1983), this movement is concerned with the appropriate use and management of our natural resources. As the government realized the effects of destruction of our forest, overmining, drilling, and the polluting of the air, agencies were formed at a governmental level to deal with these and other environmental problems. These agencies brought about legislation and the enforcement of legislation. As these agencies became aware that the legislation was not as effective as desired, a realization came about that it was important to educate the population. There became a need to educate the population to understand the consequences of their actions and thus be willing to obey the environmental laws. There has been over the years some concern about the effectiveness of conservation education programs taught in the schools.

Disinger's (1983) third component is that of outdoor education. Traditionally this has been a program where instruction of environmental education takes place outside the traditional classroom. Outdoor education mixes nature study with conservation education. It becomes the optimum experience for teaching environmental education. Students learn by experiencing the curriculum first hand. Lessons

best taught outdoors are taken outdoors. The school camping experience has been widely implemented in many schools. Many school programs, including the camp experience, have been able to show cross-curricular ties to science, reading, writing, math, social studies, and art. Disinger (1983) also discussed that the school camp programs have some shortcomings. The experience is usually very expensive and thus it is a prime target in times of budget constraints. In addition, Disinger (1983) stated that many schools feel that the camp experience satisfies the schools duty to teach environmental education.

#### Environmental Literacy

According to Simmons (1996b), "we need an environmentally literate citizenry that is not only capable of taking individual action, but of making well-informed public policy decisions collectively" (p. 67). People are constantly making decisions that affect their lives, the lives of their families, communities, and the world in which they live. Every time people enter a store, plant a garden, turn water on, and even go to the poles and vote they make choices on complex issues. "Environmental literacy is an important goal for our society, ...environmental education must play an

integral role throughout our educational system,..."

(p. 68). Simmons continued:

Environmental literacy is predicated on the belief that if we educate our citizens so they are capable of making quality decisions, they will do so when the time comes. But this assumes that we are educating children to be able to take their places as environmentally literate citizens. To educate these children effectively, it also assumes that those who teach the children are themselves environmentally literate and knowledgeable about how to teach environmental education. (1996b, p. 68)

Simmons (1996a) pointed out in her article that in the past 20 years there has been an education reform movement. Standards, assessment, and accountability have become important aspects of education. She discussed that the 1983 publication, A Nation At Risk, pointed to declining test scores, poorly prepared high school graduates, declining enrollment in science and mathematics, low academic achievement in comparison to other countries, and low levels of literacy. Thus began a move toward educational reform. With the passage and signing of the Goals 200: Educate America Act in 1994, goals were set for the year 2000. This act had eight goals to change the education in the United States. However goals 3 and 4 have received the most attention. Goals 3 and 4 state that:

Goal #3 ...by the year 2000 American students will leave grades four, eight, and twelve having demonstrated competency in challenging subject matter, including English, mathematics, science, history, and geography; and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our modern economy. Goal #4: ...by the year 2000, U.S. students will be first in the world in science and mathematics achievement. (Simmons, 1996b, p. 65)

Even though these goals were written to address the needs of specific areas of education, they address environmental education interests also. For example understandings of measurement, patterns and relationships, and statistics and probability are not only part of curriculum evaluation standards for school mathematics but are also important for environmental literacy. And conversely, environmental education programs can be used to meet the standards.

In a related article by Volk and McBeth (1996), the authors did a comparison between where environmental literacy should be and the current status of environmental literacy. The review included 32 studies that had been published between 1977 and 1995. They based their comparisons on one or more of the components of environmental literacy. The desired state of environmental literacy used by the authors was that from the National

Project for Excellence in Environmental Education, developed by the North American Association for Environmental Education (NAAEE). It included the seven categories of affect, ecological knowledge, sociopolitical knowledge, knowledge of environmental issues, skills, additional determinants of environmentally responsible behavior, and environmentally responsible behaviors. Upon review of the studies it was found that the field of environmental education was far from meeting the major goal of environmental literacy. The overall assessment summary suggested that the dimensions of environmental literacy are at a moderate level. Ecological and sociopolitical knowledge, environmental issue knowledge, and environmentally responsible behavior rated low marks.

Palmberg and Kuru (2000) concluded that outdoor activities improve environmental responsibility in students. The activities in outdoor education stimulated environmental education and nature studies in a positive direction. At the same time, students learned and experienced nature, they also learned responsible actions to protect the environment. Thus, outdoor experience can help students develop a strong empathic relationship to nature.

Dettmann-Easler and Pease (1999) found that environmental education can occur in many forms including in-class programs, outdoor activities at school, day field trips to nature centers and natural areas, and outdoor residential programs. In their research they found that, although results varied, exposure to classroom environmental activities had a minimal effect on knowledge and attitudes of fifth and sixth grade students. The optimal combination for learning environmental concepts and awareness is outdoor activities with in-class reinforcement. Their outdoor school program offered the students exposure to the natural world. There was more instructional time available, greater flexibility in types of programs, and hands-on activities. According to Dettman-Easler and Pease, "When learning opportunities for students are maximized, schools can be certain their investment of time and other resources is worthwhile" (1999, p. 38).

#### Benefits of Outdoor Education

In a 1983 article Disinger attempted to define what is outdoor education. He pointed out that historically outdoor education refers to "the use of resources outside the classroom for educational purposes" (1983, p. 19). In

addition Disinger pointed out that outdoor education fits neatly into the philosophy of "learning by doing" (p. 19). He continued to point out that one of the important factors of outdoor education is its ability to incorporate all components and subjects of the educational curriculum. However some aspects of some concepts are just best taught outside the classroom.

There are many forms of environmental education: in-class programs, outdoor classrooms on school grounds, day field trips to nature centers and natural areas, and residential programs of 2 or more days. Dettmann-Easler and Pease (1999) studied the effectiveness of residential environmental education programs in fostering positive attitudes toward wildlife. A residential program had to meet the following criteria to be considered for the study. The students had to participate in the program with their class. Classes had to spend at least one night at the camp. And, thirdly, environment education program must take place. The experimental group consisted of 11 classes of fifth or sixth graders attending selected residential camp centers. An equal sized control group was selected from schools in equal geographic areas. The control group participated in a variety of experiences ranging from no environmental education to daytime school field trips, but



excluded the residential program. Pre and post interviews were given to students and parents to determine attitudes toward wildlife. According to Dettmann-Easler and Pease the "results of this study demonstrate that residential programs--even very different residential programs--are still more effective in fostering positive attitude changes toward wildlife than a single, in-class program" (1999, p. 38). It is important to note that the authors acknowledged that even though summer camp programs did not meet the criteria for this study that they could offer considerable environmental education experiences.

Palmberg and Kuru (2000) developed a study comparing outdoor activities to the development of positive relationship to the natural environment, environmental sensitivity, and outdoor behavior. The purpose of the outdoor activities was for students to experience outdoor activities in several various types of environments. According to the authors these "experiences are intended to give pupils in-depth knowledge of environmental issues and to develop their self-confidence, environmental sensitivity, action skills, responsible action in nature, and their social relationships" (p. 33). The authors divided 11 and 12 year old students into 3 groups. Groups A and B were made up of those students with the most

experiences with outdoor education activities including canoeing, hiking, sailing, tent overnights, and camp schools. Group C consisted of students with minimal outdoor program experiences. Researchers used questionnaires, individual interviews, drawings, photographs of landscapes, and participant observations during camps. The investigation netted the following results. Students' self-confidence and action skills was increased in the groups with more outdoor experiences. The experienced groups showed more independence from adults and were more spontaneously open-minded and cooperative. The inexperienced students were uncertain and required more help from the adults. Students' relationships to the natural environment found that students with more experience in the outdoors have a strong and clearly definable relationship to nature. In addition they exhibited better social behavior and higher moral judgments. Results of the study showed that the students' knowledge of, and values in the protection of nature was again higher in the experienced group as compared to the inexperienced group. The students were limited to very concrete environmental problems yet at the same time students have problems understanding the connections to

global problems and their consequences. In conclusion, Palmberg and Kuru stated:

Various activities in outdoor education can stimulate environmental education and nature studies in suitable ways so that pupils learn about and experience nature while, at the same time, they learn action strategies to protect it. Experiences in outdoor activities offer great possibilities for the development of a strong empathic relationship to nature among pupils (and their teachers!). (2000, p. 36)

In an article by Simmons (1998) the author explored the use of natural settings for environmental education by teachers. The study explored the benefits and barriers that motivate teachers to use different natural settings outside of the classroom. The author cited the 1977 UNESCO report on the goals and objectives of environmental education that "To be effective, the processes used to meet these goals and objectives should take many forms, including the exposure of children to direct, purposeful experiences in diverse natural settings" (p. 23). Since teachers design the method of environmental education programs, teacher perceptions of various outdoor experiences requires teacher commitment and preparation. Simmons found that although teachers recognized the benefits of using natural settings, barriers are presented, as teachers must rely on other specific skills and knowledge in order to take students to an outdoor

setting. As an example, teachers must schedule trips, acquire permission, arrange transportation, increase supervision, and oversee the safety of the students. These are perceived as barriers by many teachers. Simmons used four natural settings. Participants were shown pictures of deep woods and rivers, ponds, marshes, and urban parks. Teachers were interviewed using an 83-item questionnaire. In conclusion Simmons suggested that:

In general, the teachers believed that it was important to provide natural experiences as part of the curriculum, that their students would enjoy these experiences, and that participation in programs at natural areas would be educationally worthwhile. But with their strong endorsement came a concern over their own preparation . . . teachers expressed a great deal of confidence in knowing what to do with their students and knowing what teaching techniques to use in each setting . . . The results describe teachers who are both enthusiastic and somewhat confident, yet apprehensive, about teaching in natural areas. (1998, p. 31)

In 1995, Farmer and Wott published a study in the Journal of Environmental Education called Field Trips and Follow-Up Activities: Fourth graders in a Public Garden. In the study all groups were given a pre and post-test following a field trip to an arboretum. Each group was given a follow-up activity after the field trip. In two of the groups the follow-up activities were designed to reinforce the learning objectives of the field trip. The

authors of the study found significant test score increases in the test groups that had appropriate follow-up activities. However, it was also noted that the control group showed increased post-test scores. The authors point out that this increase suggested that, "the field trip program was a successful and complete educational activity" (1995, p. 35).

### Summary

The literature important to this project presented above indicates that students exposed to outdoor experiences develop a greater sense of responsibility to the environment. Historically this exposure to outdoor experiences came naturally from the home as families general lived in rural areas. As families moved off the farm and into urban and city communities, outdoor experiences were harder to attain. Schools gradually took on the job of teaching about the environment through the sciences. More recently, environmental programs have been dropped from the curriculum for both budget reasons and a return to the basics of reading, language arts, and math.

At a time though when increased population places stress on a world struggling to maintain a habitable environment the world needs a population that is concerned

and knowledgeable about the environment. The roll of developing environmentally responsible citizens is shifting again. The community and the family must now take on this responsibility.

The authors cited above have given strong support for the need to produce environmentally literate citizens of the world. Citizens who can make decisions that will preserve and maintain our Earth. Citizens who think through all the affects of human actions and inventions are needed on the Earth. Environmentally literate citizens care for the quality of life on earth for future generations.

Environmentally concerned citizens are not born this way. Their concern for the environment is learned and developed as they grow. It grows out of experiences in the outdoor environment. These outdoor experiences must be provided for our youth. It becomes a part of their growing up or education. Outdoor experiences, however gained, are important according to the literature above.

There are many ways in order to acquire outdoor experience. The literature addressed several ways, including school programs, family outings, and community programs. The message is clear. Outdoor experiences are important no matter how they are acquired. This project

addresses one of the ways generally overlooked as a way to deliver outdoor experiences.

Within our community parents seek out youth groups and after school programs and activities. Many of these offer participants resident summer camp programs. The camps are a perfect venue for outdoor experiences.

## CHAPTER THREE

### METHODOLOGY

The Girl Scout of San Geronio Council was approached for permission to set up a nature education program including a nature center, nature trail, and program boxes.

Receiving permission to design and develop the program was the easy part. The stipulations that went along with the permission proved to be more difficult. There is, at present, no place at the camp to house a nature center and the program pieces due to budget constraints. This meant that the project needed to be totally portable and fairly compact for storage during the winter. In addition, weather concerns had to be addressed since the program might be set up outdoors as well as indoors.

Funding for the project would come through personal donations. The project is designed so that components could be added as time and interest permit. It is hoped that older girls might elect to develop program boxes in fulfillment of their Gold Award projects. Each summer the program will have to be set up at the camp and the staff



will need to be trained in its usage. Set up and directions for each component are included.

Program boxes are designed around a theme. Inside each box will be the file folders, which include lesson plans, background information, and any black line masters needed to carry out the lesson plans. Also included in each box will be the materials needed to carry out each lesson plan. While choosing the activities, consideration was given to finding activities that used minimal materials to carry out the activities. Also care was taken to incorporate activities in which the consumables are items that are readily available. Suggested themes for the program boxes are habitats and ecosystem, animal and plant adaptations, camouflage, food chains, endangered species, life cycles, and environmental quality. Activities in Appendix A are samples of those included in the first three program boxes.

The nature trail was designed to accomplish two things. First, the trail takes the campers on a walk through the camp identifying and explaining the plants and points of interest throughout the camp. Second, the trail is an interactive trail where campers stop at certain points and through the use of an activity or game learn about environmental concepts. The games or activities

usually last about 20 to 30 minutes. Appendix B demonstrates the nature trail components.

The third component of this project is the nature center. The nature center is a series of posters and interactive activities. Posters help in identifying the plants and animals in and around the camp as well as explaining some of the environmental concepts. Interactive activities help campers to understand the concepts and explore their understanding. Activities include "feel-it" boxes and electronic matching games. This part of the project was completed in an earlier fieldwork class.

Finally, a list of resources has been included in Appendix C. The activities in the program boxes are intended to be starter activities. It is hoped, that as campers do these activities, their interest in the environment will grow. Staff will then be able to go to these resources and choose extension activities. This list is a guide to the development of a resource library. Many of these resources are already the property of the council.

## CHAPTER FOUR

### IMPLICATION FOR EDUCATION

As educators we have been given the task of educating the children of the earth. Over the years the course of education has varied with the times. The one room schoolhouse of the American frontier west taught reading, writing, and arithmetic emphasizing survival skills. Young boys often were excused to work the harvest. The industrial age brought about the idea of teaching a trade. Schools at the turn of the century began using the corporate organization model of organization incorporating the school superintendent, principals, and finally on the corporate ladder the teacher. At this same period educators were also faced with a growing immigration challenge. "America had to educate and assimilate more than one million immigrants a year in the years just before World War I" (Tompkins, 1969, p. 134).

In the early 1920s found the beginnings of the progressive movement in education. This movement would encourage schools in which "teachers and students would work together happily under wholesome and stimulating conditions, living in the fullest sense the life of today to be ready for tomorrow" (Tompkins, 1969, p. 140). With

the beginning of the space age and the launching of Sputnik in 1957, by the Russians, the emphasis of education focused on math and science. In the years following Sputnik, Americans realized that there was a lack of educated citizens to meet the technological challenge of modern society (Laymen, 1995). With the emergence of the technology age, schools implemented the teaching of computer skills.

During the mid 1980s President Reagan's bipartisan National Commission on Excellence in Education, published a shocking document A Nation at Risk. This publication gave the nation a sense of urgency to an education reform movement. The reform movement identified three areas of concern: 1) a comprehensive overhaul of the curriculum; 2) new management regimes for teachers; and 3) new business-education partnerships (National Commission on Excellence in Education, 1980).

More recently in the United States, education has take a turn toward accountability. Across the nation the people are demanding higher test scores and performance on grade level standards. President Bush now demands that every child be a reader by the end of the third grade. States including California have set up at the state level minimal educational standards for each grade level.

Teachers are held accountable for each of the their students.

Over these same years we have also seen changes in our society. During the one room schoolhouse era we saw a rural society. The majority of people lived in rural areas where families often raised much, if not all of their food on the land they lived. There were often large areas of open land between houses. People were in touch with the land and depended on the land. With the industrial age families moved into urban areas and worked inside large factories for long hours. There was a shift from farm life to the urban life. Products could be bought in stores rather than produced at home. Parents and children separated more of the time.

Now with the increase in population in the United States people live in large metropolitan areas. Families live in housing tracks with small yards or in large apartment housing. Many are families where one or both parents commute 25 or more miles to work each day. Children either attend day care programs or go to empty homes after school.

If we look again at the definition of educate given by the dictionary, it is evident that the education of our youth does not occur in only one institution. The

education of our youth is the responsibility of many institutions both formal and informal. Although schools, both public and private, continue as the main source of knowledge, a child's family and community play an important role in other aspects of education.

As our society changes there also occurs a shift in the educational responsibilities. With the current shift in the schools to "every child a reader" and "back to the basics," more time is spent on reading and math. English language development also has a high priority in our elementary school system as a result of high numbers of immigrants to our country. Add to this severe budget cuts and cuts in programs.

The family role in the education of children has also changed. With longer working hours, commute times, and the sheer stress of financial commitments, less time is spent on quality family time. Fewer families are finding the time and money for the family experiences of museum and zoo trips, picnics, camping, sports, or other family trips and vacations. Extended families, once an integral part of a family network, has for one reason or another in many families become less important. We have become a mobile society moving from state to state as spreading family all across the country. Discipline, character building, moral

education, and the physical health of our children were once considered to be the responsibility of the family. Yet these are imperative if children are to learn in a formal education setting.

During the early 1900s the community also played a roll in the education of our children. The community helped with, not only, knowledge but also wisdom, character building, moral development, and general competence. At this time family friends and the church were the main contributors within the community. As time progressed, the community has broadened its scope. At the century the community consisted of not only family friends and church, but also various youth organizations including boy and girl scouts, boys and girls clubs, 4-H clubs, campfire program, sports activities, and many others. These groups, although hit hard by the economic state of our nation, still strive to educate the youth of our nation. The goals of these groups in general emphasize good general health, good character, and sound moral judgment.

Given the difficult task of our public schools, this project could be one small way to help educators in our schools. Most of these youth organizations have summer camp experiences available to their members. Usually these

camps are located in wilderness or rural areas. The camps characteristically have a residential program lasting from 4 to 14 days. These are perfect setting to offer outdoor environmental experiences to the youth of our nation.

Environmental educators realize the value of including environmental education within school curriculum. Yet as educators we are pushed to increase test scores and the abilities of our students. But with the increased educational goals we must not loose sight of the idea that our earth is in a fragile balance. And the actions of our adult population can tip this balance for better or worse. It all boils down to their ability to think through the consequences of their actions thoroughly. Idealistically this should be incorporated into the formal education system. But the demands on educators in today's society all but prohibit environmental education inclusion into the formal education processes in our schools. It is time to look toward the family and the community to assist in the education of our youth. Sort of a return to the past.

Disinger (1997) wrote:

Environmental education has potential as an exemplary vehicle for what many believe all education should consider its primary function: furthering the development of higher-order skills--critical thinking, creative thinking,



integrative thinking, problem solving. Environmental education can provide real problems that can be studied or simulated, topics and problems that can be adjusted to the developmental levels of specific groups of students, and topics and problems that cut across the curriculum and enhance the integration of knowledge. (p. 32)

Environmental education is an attempt to educate our youth to become responsible citizens of the earth.

This project was written in response to the lack of formal education institutions ability (due mainly to time constraint and budget cuts) to incorporate the important field of environmental education into the education of our youth. By returning to the community to help educate our children we are able to expand their knowledge and skills needed to become responsible citizens. Youth organizations and their camps have the perfect opportunity to reach the youth that choose to attend their summer camp programs. This residential camp setting can offer outdoor experiences needed to "develop a conscience which guides man in making rational judgments regarding the environmental consequences of his actions" (Blyler, 1972, p. 1).

This project was written specifically for one Girl Scout camp. Yet it could be adapted to any camp in any area by slightly changing the activities.

APPENDIX A

SAMPLE LESSON PLANS FOR AZALEA

TRAILS GIRL SCOUT CAMP

## SAMPLE LESSON PLANS FOR CAMP AZALEA TRAILS GIRL SCOUT CAMP

The following lessons have been designed for use at Azalea Trails Girl Scout Camp. They could also be adapted for use at other locations.

Azalea Trails Girl Scout Camp is located in the San Jacinto Mountains at an elevation of 6,000 feet. The camp is located along the upper part of Dark Canyon in what is commonly called a Yellow Pine Forest. Dark Canyon stream runs along the East side of the camp. This stream runs year round except in extremely dry years.

Azalea Trails serves girls ages 6 through 18. The majority of the girls attending camp are of the ages 9 through 14. It is important to note that although the following lessons are written for the age range of 9 to 14 years, all lessons may be adjusted for both younger and older girls. The majority of the girls in attendance live in either Riverside or San Bernardino Counties, but Girl Scouts throughout southern California are invited to attend the summer program.

The camp is located on Lou Henry Hoover Grant Land. During President Hoover's term as President his wife set up this grant in order to offer youth organizations the opportunity to obtain forest service land. This land was to be used to establish camp programs for their youth. She did have one intention in mind: to teach youth the importance of the environment to the quality of life (in other words, to environmentally educate the youth of the United States). Part of the stipulations in order to keep the property the organizations must engage the youth of the camp in projects that will environmentally improve the camp property. Projects could be anything from marking

trails and cleaning the stream to planting trees and erosion control through laying logs on hillsides.

Girls attending the summer program could take some of the activities home for use at their troop meetings. The troops then will be able to also experience the outdoors during troop meetings, day field trips, and overnights. Thus spreading small bits of enthusiasm and interest in the outdoor experience to an even larger audience. In implementing the program staff training is important so campers will understand the following guidelines.

- The flora and fauna of the area were at the camp before the camp was established. It is their home. Treat the area with respect. The camp setting is like a puzzle. Its beauty is only as good as the complete picture. Take a small piece out of the picture and the hole could eventually change other parts of the picture. Special care has been taken so activities have minimal impact on the land.
- Collecting of natural specimens for activities is discouraged. In most cases the items collected will be observed and then returned to the area from which it was collected. In the national forest land where the camp is located federal law protects both the plants and animals from collection by people. Campers working in groups can minimize the impact on the land.
- Animals should be observed from a safe distant. They should not be teased, harassed, or chased. When cornered, threatened, or captured, animals may bite or scratch to protect themselves. Bites from some animals in the area are poisonous. Observing animals

in their habitat can be rewarding when done safely from a distance.

- Never taste or eat local plants. There are several plants in the area that are toxic when ingested.
- Good hiking etiquette is a must. Always stay on marked trails when hiking. Avoid walking or trampling on plants. Plants help hold the fragile soil together and keep it from eroding down the hillside.

(Activities that require more space should be done in specific areas chosen for the activity. These areas should be identified so that impact to the area is minimal.)

## Quick Frozen Critters

**Objectives:** By playing an active version of the game hide and seek, campers will be able to define adaptation in animals and this helps animals to survive.

**Materials:** blindfolds (5-10 bandanas), an outdoor area with lots of vegetation, fallen logs, or large rocks that is free of poisonous plants or other hazards.

**Duration:** 30 minutes

**Age group:** Ages 9 to 14

**Vocabulary:** adaptation, thicket predator, prey

**Procedures:** Take the group to the "thicket." Blindfold one student who starts out as the predator. All others begin as the prey. As the predator counts slowly to 20, the prey hide. The hiding prey must be able to see the predator at ALL times. After counting to 20 the predator takes off the blindfold, turns around and tries to identify as many prey as can be found without moving her feet. The predator may bend or squat but may not move her feet. Predator must identify the prey by identifying clothing or by her location. When identified the prey takes a place close to the predator and waits for the next round. The next round begins when the predator cannot identify any other prey. The identified prey become the predators. All predators put on their blindfolds and again count to 20. Remaining prey then find another place to hide that is closer to the predators. At 20 the blindfolds come off again and the predators identify as many prey as they can find as before. Play as many rounds as necessary until only one prey is left. The last prey hiding begins the next game as the single predator. Several games may be played.

**Discussion Questions:** Ask the following questions to direct the discussion. What made the predators and prey successful? Were they quiet, clever, camouflaged, or good listeners? What adaptation (clothing that blended into the environment) did the prey have that kept them from being found? What factors (colors that stand out, motion, talking) caused the first few prey to be caught? How can they change to be more successful predators and prey? (take off a bright jacket, don't move while hiding, less

talking.) Can animals make similar changes? (Over time animals coats can change or they can learn to freeze and be quiet or they will not survive.) What is a thicket? (An area with lots of brush or trees.) Why is the thicket important to both the predator and the prey.

**Adapted from Project WILD**

**California Science Content Standards:**

- Adaptations in physical structure or behavior may improve an organism's chance for survival.
- Living organisms depend on one another and on their environment for survival.

## The Unnature Trail

**Objectives:** Using a scavenger hunt on a section of a nature trail, campers will practice observational skills while learning the concepts of protective coloration (camouflage) and adaptation. Campers will also increase their awareness about the problems of outdoor littering.

**Materials:** 16-24 human-made objects found around the camp setting. These can range from large rusty nails to camp mirrors to brightly colored bandanas. Some objects should blend in with the environment and others should be very noticeable.

**Duration:** 30-60 minutes

**Age group:** All ages

**Vocabulary:** camouflage, coloration

**Procedure:** Prior to taking the campers on a hike choose a 65 to 100 foot section of the trail to plant the human-made objects. Find a section of the trail that has both large and small trees, leaf litter, rotting logs, and some plants. Avoid thick shrubs or tall grass. It might be helpful to map the location of the objects along the trail. This will help in recovery of the items at the end of the activity.

Tell the children that as they walk this section of the trail they will be able to locate several human-made items that have been carelessly left behind where they do not belong. Tell them not to pick up the items or to give away their identity or their location. The object is to see who can find all the items as they walk the trail. When they reach the end of this section of the trail let them whisper either the number of items they found or the identity of the items they found. Paper and pencil could be used, but encourage children to do their writing further down the trail so as not to give away the location of an item. Let the campers know how many items are on the trail. If desired campers may retrace this part of the trail to see if they can find more of the items. Finally walk the section of the trail one more time. As the leader passes by an object campers can identify what object was there and the item can be picked up. At the end of this



section of the trail, display the items and discuss the results.

**Discussion Questions:** Why were some items located easily and others were difficult to find? Was the location of items important? If you were going on a trail hike here, would you like to see these items on the trail? Just as with these objects, some animals are easy to see and some are not. What is this called? (camouflage) What coloration or locations could make animals difficult to see?

Adapted from Sharing Nature With Children by Joseph Cornell

**California Science Content Standards:**

- Adaptations in physical structure or behavior may improve an organism's chance for survival.

## My Stomach Is Full

**Objectives:** Through a simple game of tag, students will experience how many animals a piece of land is capable of sustaining. Students will also experience a sample of a food chain and how it works.

**Materials:** plastic baggies (one for each child), masking tape, 4-6 quarts of popcorn, strips of material (2" by 18" pieces in 3 colors, 10-12 of each color), bright colored yarn circles with a 4 to 5 foot diameter.

**Duration:** 45-60 minutes

**Age group:** ages 9 and up

**Vocabulary:** food chain, habitat, predator, prey

**Procedures:** Before taking the group to the playing area mark the baggies in the following way: 10 bags with a line drawn across the bottom of the bag about 1 inch from the bottom and label it "rabbit"; 10 bags with a line drawn across the bottom of the bag about 2 inches from the bottom and label them "coyote"; and 10 bags with a line drawn about 3 inches from the bottom of the bag and label them "cougar." Also pop enough popcorn to make 4-6 quarts of popcorn.

Take the group to a fairly clear and level playing area. Remove safety hazards such as logs, branches, rocks, etc. to enable the children to run safely. Explain to them that they are going to play a game of tag but there are some ground rules. Set the boundaries and explain that the yarn circles are safe zones for one kind of animal: the rabbit. Pick three trees to be safe zones for the coyote. Tell them that the rabbits can not tag anyone and that the rabbits are all to wear flags of the same color. One end of the flag will be tucked loosely into a pocket and at least 12" will be left hanging. Coyotes can only tag rabbits and they will wear a different color flag. Again 12 inches must be hanging. Cougars can only tag the coyotes and will wear the third color flags.

Divide the group into 3 equal groups to begin the game. Have each group put on their flags. Now give each person in each group a baggie and tell them that this is their "stomach." In order to be a survivor at the end of the

game they must have enough food in their stomach to be considered full (to the tape line). The food is the popcorn. Spread the popcorn all over the ground. Explain that only the rabbits may pick up the popcorn off the ground. When a coyote tags a rabbit, the rabbit gives the coyote the contents of their stomach. It is the only way a coyote may eat. Cougars may only tag coyotes. The coyote then must give the cougar the contents of their stomach.

The round ends when one group has no one left to tag. Call all animals over to discuss what happened. Explain that to survive the animal must have a full stomach and have not been tagged. For a stomach to be full, it must be filled to the tapeline with popcorn.

After the discussion, play another round. But first ask how the would change the number of animals, safe zones, etc. of the game to enable some of every animal to survive after playing at least 3 minutes.

Play another round with the new rules and discuss the results. Continue changing the set up and playing rounds until at least one of each animal survives.

**Discussion Questions:** In round one of the game what factors may have lead to the disappearance of one or more of the animals (Too many of one kind of animal, not enough places to hide, coyotes tagged the rabbits too early in the round)? How can the habitat (place where an animal lives) determine whether an animal lives or is eaten? What changes in the physical set up or the rules might change the outcome (fewer cougars, more safe zones, catch rabbits that have almost full stomachs)? What food chain is demonstrated in this game? Can you give an example of another food chain that might exist in the area. Can a predator (hunter) also be prey (food) for another animal? Is there a relationship between the number of offspring an animal has and their position in a food chain (animals that are lower on the food chain often have more offspring in a litter than those who are higher on the food chain)?

**Adapted from Obis (Outdoor Biological Instructional Strategies) developed at the Lawrence Hall of Science at University of California at Berkley.**

**California State Science Content Standards:**

- All organisms need energy and matter to live and grow.
- Living organisms depend on one another and on their environment for survival.

# Invent An Animal

**Objective:** Children will understand that camouflage, an adaptation, helps animals survive.

**Materials:** Assorted "junk craft" items (odds and ends left over from the arts and crafts center like beads, yarn, paint, etc.) Items should include brightly colored items and earth tone items, human-made items as well as things from nature, glue or paste.

**Duration:** 30-60 minutes for part A: Inventing the animal, and another 30 minutes for part B: Animal survival

**Age Group:** ages 9 - 14.

**Vocabulary:** adaptation, camouflage, survival, habitat

**Procedure:** Part A: Bring the children to an area where they can work. Tell the children the following. You have found a new species of animal that lives in the forest close to here. Instead of capturing the animal to show the scientist in the city you must make a model of the animal. Use the materials on the table to create a new, never before seen, animal. The animal can look any way you want it to look. Children need to finish their animal during the time allotted for Part A.

Part B: Take half of the children to a pre-selected area. Let them "place" their animal into the habitat where it lives. Have the other half of the children look for the new animals. As animals are found, place them in a row where all the children can observe them. When all the animals are found switch and let the other group hide their animals. Discuss the results according to the questions below.

**Discussion Questions:** What do the animals that were found early on have in common? What made them stand out? What do the animals that were found last have in common? What characteristics helped the animals to blend in with the surroundings? How does the color of an animal help to protect it (red can be a sign of a poisonous animal)?

Adapted from Obis (Outdoor Biological Instructional Strategies) developed at the Lawrence Hall of Science at the University of California at Berkley

**California State Science Content Standards:**

- Adaptations in physical structure or behavior may improve an organism's chance for survival.

# Shake It!!

**Objectives:** Children will learn about biodiversity by observing insects and other small animals that are associated with specific plants.

**Materials:** A white piece of material like a sheet, magnifying glasses, tweezers, bug boxes

**Duration:** About 30 minutes

**Age Group:** ages 11 and up

**Vocabulary:** community, camouflage, biological diversity, insects, invertebrate

**Procedure:** Find a tree branch or bush that the children can reach easily. Hold the material under the branch or bush as close as you can to the branch. Have someone else shake the branch as hard as possible for a minute. Place the material and the items that fell off of the branch on the ground. Observe the animals that fell out of the tree using the hand lenses and the bug boxes. Find a branch from the tree that you shook the animals out of. Observe the reaction of the animals as you place the branch near them on the sheet.

**Variation:** Show the children a mystery community that you shook out earlier. Challenge them to find the tree or bush that the community came from by shaking several trees or bushes in the area and comparing them to the mystery community. By comparing the mystery community with the known communities the children can guess which tree or bush they came from. When finished with each community place the animals near the host tree or bush. As another variation, try this activity at night. Compare the day community to the night community.

**Discussion Question:** Do animals return to the kind of plant out of which they were shaken? Do some animals seek protected places? Are they camouflaged? Do the spiders spin webs? Do any animals capture other animals and eat them? Do any of the animals eat the plant samples? Which plant seemed to host the richest, most diverse community? How many different kinds of animals were found in that community? Describe some of the interactions you observed

in you community. How do you think these interactions help to keep the community going? Which community had the most animals? The largest animal? Or the smallest? Are the nightttime communities the same as the daytime communities?

Adapted from 365 Outdoor Activities published by International, Ltd.

**California State Science Content Standards:**

- Living organisms depend on one another and on their environment for survival.
- Adaptations in physical structure or behavior may improve an organism's chance for survival.



# The Radar Game

**Objectives:** Children will be able to see what it is like to be "blind as a bat." They will experience a modification of echo location.

**Materials:** blindfolds (one for every 5 children), an area that is relatively flat and free of obstacles.

**Duration:** 30-60 minutes

**Age group:** All ages (more supervision for the young)

**Vocabulary:** echo location, high-pitched, echoes

**Procedure:** Begin by defining the boundaries of the playing field. Then blind fold one member of the group. This is the bat. The other players will then find a place on the playing field. Once the game begins they may not move. They are the insects or the "squeakers." Squeakers must continue to squeak at least once every 3-5 seconds. The bat must move around the playing field and try to tag the squeakers. The last person tagged is "it" for the next round.

**Variation:** Increase the number of bats.

**Discussion Questions:** How did you feel as the bat? How did you locate the squeakers? If you cup your hands over your ears what happens? How does this improve your hearing (cupping your hands over your ears directs sound into your ears)? Explain how echo location differs from how this game is played (With echo location the bat does the squeaking. The bat then listens for the squeak as the sound bounces back to the bat after hitting an object. In this game of radar tag the bat is listening for the equivalent of the rebounded squeak.).

**Adapted from The Kids' Wildlife Book: Exploring Animal Worlds through Indoor/Outdoor Experiences by Warner Shedd**

**California State Science Content Standards:**

- Adaptations in physical structure or behavior may improve an organism's chance for survival

# The "Don't Move" Scavenger Hunt

**Objectives:** To explore in depth an area of the forest by sitting quietly and observing for a long period of time.

**Materials:** Paper, pencils, or colored pencils, a clipboard, scavenger hunt list

**Duration:** 20-60 minutes (depends on the age of the children)

**Age group:** ages 10 and above

**Vocabulary:** Make sure that the children understand the items on the list of things to find

**Procedure:** Each person in the scavenger hunt is given a list of items to find while sitting in one place. The list could include (but not limited to) the following items: an animal that moves using wing power, an animal that has 8 legs, an animal that has three body parts, an animal that blends into the surroundings, an animal that is finding food, a bird cleaning itself, insects carrying something, an animal that is cleaning itself, an animal that is entering a home or den, an animal building a home, an evergreen tree, something in nature for every color of the rainbow, something that has the shape of a triangle, circle, cone, or trapezoid, something smooth, something rough, or an item for each letter of the alphabet. Each child should find own place in the forest to sit quietly. They might find a rock, a bed of pine needles, a log, or bring their own chair. Point out the following rules:

- Sit quietly moving as little as possible.
- Do not touch or move any objects.
- Draw or sketch only on your paper.

Direct children to observe items on list, write items down in words or pictures. After a given time have children share the results or their observations. Encourage the children to share what they observed and felt.

**Discussion Questions:** What did you see? How did you feel? Did the animals begin to appear as you sat quietly? If

someone moved or talk what was the animal's reaction? Did you observe any interaction between animals?

Adapted from 365 Outdoor Activities published by Publications International, Ltd

**California State Science Content Standards:**

- Scientific progress is made by asking meaningful questions and conducting careful investigation

## Many Bears Can Live In This Forest

**Objectives:** Through a game type activity students will be able to define a major component of the habitat and will be able to identify food as a limiting factor of the environment.

**Materials:** Pre-made food cards in five colors. Card distribution as follow:

- Orange - acorns, pecans, walnuts, hickory nuts - mark five pieces N-20, mark 25 pieces N-10
- Blue - berries and fruit - mark five pieces B-20, mark 25 pieces B-10
- Yellow - insects - mark five pieces I-12, mark 25 pieces I-6
- Red - meat from mice, rodents, peccaries, beaver, young deer - mark five pieces M-8, mark 25 pieces M-4
- Green - plants from leaves, grasses, herbs - mark five pieces P-20, mark 25 pieces P-10

Envelopes (one per person), one blindfold, note pad or scratch paper and pencils

**Duration:** 20-45 minutes

**Age Group:** ages 9 and above

**Vocabulary:** Limiting factors, habitat, shelter, cover, omnivore

**Procedure:** In a fairly large open area scatter the package of food squares appropriate for the number of children. Do not explain the food card colors; they are simply food. Since bears are omnivores (eats both meat and plants) the colors represent the variety of food that a bear eats. Each child will get an envelope which will represent own den site. Children will find a den site to place their envelopes on the perimeter of the playing field. Now give them the following directions: *"You are now all black bears. All bears are not alike, just as you and I are not exactly alike. Among you is a young male bear who has not*

yet found his own territory. Last week he met up with a larger male bear in the big bear's territory, and before he could get away, he was hurt. He has a broken leg." (Assign one student as the injured bear.) "He must hunt by hopping on one leg. Another bear is a young female who investigated a porcupine too closely and was blinded by the quills." (Assign one student as the blind bear.) "She must hunt blindfolded. The third special bear is a mother bear with two fairly small cubs. She must gather twice as much food as the other bears." (Assign one student as the mother bear.) "When given the signal bears must walk into the forest to find food. They may pick up only one piece of food at a time and then return it to their den site before picking up another piece of food. Bears do not run down their food; they gather their food. Continue until all food squares are picked up." Have children pick up their den site and find a table or rocks where they can work. Now explain what the colors and the numbers represent. Each color is a kind of food and the numbers represent pounds of food eaten. Have the children add on their pad of paper the amounts of each kind of food that they gathered. Include a total amount of food eaten. Record how much each bear collected, including results by the blind, injured, and the mother bear. Now tell them that a bear needs 80 pounds of food every ten days to survive. The bears must also have the following amounts in each category or color: 20 pounds of nuts, 20 pounds berries and fruits, 12 pounds of insects, 8 pounds of meat, and 20 pounds of plants. Record how many and which bears survived.

**Discussion questions:** Which bears survived? Was there enough food to feed all the bears? How many pounds did the blind bear collect? Did the blind bear survive? What about the mother bear? Did she get twice the amount needed to survive? What will happen to her cubs? (She will sacrifice the cubs to save herself in order to live and breed again) Will she feed her cubs first or herself? (Herself) What would happen to her if she fed the cubs first? (She would die possibly before the cubs are able to take care of themselves. Then the cubs would die.) What if she ate first? (She would survive and be able to breed again another year.) Did the amount of food limit the number of bears that could survive? Can the amount of food available change from year to year? What environmental factors can limit or increase the amount of food available to the bears? (During a drought less food is available. Rain can

increase the amount of food available. Lightning fires can cause loss of available food source.) What human factors can affect the availability of food? (construction sites, logging, poaching)

Adapted from Project WILD

**California State Science Content Standards:**

- Scientific progress is made by asking meaningful questions and conducting careful investigations.
- Organisms in ecosystems exchange energy and nutrients among themselves and with the environment.
- All organisms need energy and matter to live and grow.
- Living organisms depend on one another and on their environment for survival.

## INTERACTIVE NATURE TRAIL ACTIVITIES

The interactive nature trail combines structured hands-on activities while hiking along a nature trail. The nature trail has the components of a regular nature trail. As children hike along a marked trail they stop at regular intervals to observe identified points of interest. These points of interest could be plant identification, geological formation identification, or evidence of animals in the area. As children walk along the nature trail several interactive stops are marked along the trail. At these stations along the trail children may stop and participate in the activity chosen for that spot. Directions for the activity are supplied as well as any materials needed to complete the activity. These will be kept in a waterproof container at the site of the marker. In addition a staff member along on the hike will carry a backpack with additional materials and equipment that might be needed. The time spent on the nature trail can be variable. It depends on how many of the activities the children and staff choose to do along the way. It is possible for this relatively short distance nature trail to last an entire afternoon or a whole day. This appendix discusses the hands-on activities along the nature trail but does not include the normal identification stops along the trail.

## Bird Builders

**Objectives:** Children will learn about building and placement of bird nests.

**Materials:** Natural materials (do no damage to animals or their habitats while gathering materials)

**Duration:** 30-45 minutes

**Age group:** Any age group

**Vocabulary:** Predator, prey, leaf litter, bird beaks

**Procedure:** Explain to the children that they are going to pretend that they are birds. It is spring and they need to build a nest to raise their young. They must look for an appropriate place to build their nest. Remind them to "think like a bird." Before building their nest they should look over the area and consider the following points when choosing a location to build their nest. Is the location hidden and safe from predators? Does the location offer warmth and protection from the elements? Does the area provide ample materials (leaf litter) to build the nest? Is there a potential for adequate food sources close by?

Now show them the boundaries for building their nests. Before letting the children build their nest, tell them one last rule: A bird can only use its beak to place the nesting materials in their nest. Their beak is their thumb and first finger. When everyone understands the rules, let the children build their nests. Allow about 20 minutes to complete their tasks.

When everyone has finished their nest gather the group together. Instruct them that they have raised their young and it is time to move south for the winter. Before moving though, they must convince another bird to move into their home (nest). Each person is given a chance to sell own nest by telling the group why it is the best nest. Participants should include the characteristics mentioned above (how well hidden, safety from predators, warmth and protection from elements). Give each child the opportunity to sell their nest.



**Discussion Questions:** What predators might a bird be concerned about in the forest? What protection can the forest offer a bird? Does the location of your nest satisfy the basic needs of an animal (food, water, shelter, and space)?

Adapted from Project WILD

#### California State Science Content Standards

- Living organisms depend on one another and on their environment for survival.
- Adaptations in physical structure or behavior may improve an organism's chance for survival.

# Nature Observatory

**Objectives:** Campers will be given a place and a chance to observe natural animal behaviors of animals that live in the area around camp.

**Materials:** Old pie pans, ceramic bowls, broken ceramic flower pot or bowl, mosses and soft leaves, hummingbird feeders, card stock (white), petroleum jelly, magnifying glasses, hole punch, scissors, string with a hook on one end, dried corn on the cob (from feed or gardening stores), sturdy string, stepping stool, several homemade bird feeders (can be made in arts and crafts session), seeds and cut up fruit, suet, peanuts, rotting log.

**Duration:** This activity on the nature trail could last as long as campers are interested. Minimal time before animals will feel free and safe to show themselves will probably be 20 minutes. Once the animals feel safe to visit the sanctuary that has been set up for them, campers can watch quietly for several hours.

**Age group:** Any age group could find something of interest to observe at the nature observatory.

**Vocabulary:** Observatory, sanctuary, bird blind

**Procedure:** The physical setup of this activity will be done by interested camp staff, prior to the opening of the camp season. A quiet area away from the normal traffic of the camp is the best place to locate this station. The area should include both sunny and shady places, open areas, and areas with shrubs and trees. Around the edge of the area there should be places of dense shrubs and bushes. If this is not possible then several animal or bird blinds should be built and camouflaged. These will enable the campers to observe visiting animals without being detected.

Inside the area set up the following areas.

1. Area 1 should include several birdbath areas with bird feeders close by. The morning before taking a group on the trail fill the old pie pans or ceramic bowls with clean water. Make sure that the bird feeders have plenty of food. You might want to include some fresh berries or pieces of dried fruit.

2. Area 2 creates a toad habitat. Use broken clay pots or ceramic bowls turned with the curved side up as a toad shelter. Line the ground under the pot or bowl with moist mosses and leaves. In order to attract toads this area should be kept moist all the time. If possible a drip system can be set up on a timer that would moisten this area daily.
3. Area 3 is a pollution detector. Before settling down to observe the animals, make a pollution detector. Use a 3" by 5" piece of white cardstock. Punch a hole in the top with the hole punch. Place a small amount of petroleum jelly on the white cardstock. Find a string hanging from a branch with a hook on the end. Put the hook through the hole to hang the white cardstock. At the end of your observation time take down the cardstock. Use a magnifying glass to look for particles of dirt on the cardstock.
4. Area 4 attracts the abundant hummingbirds in camp. Place a few hummingbird feeders in some of the trees and watch the hummingbirds make daily stops at the feeders to feed. They may also visit the birdbaths. If possible include a manzannita bush in the nature observatory area. Hummingbirds also like the pink flowers of the manzannita.
5. Area 5 should attract squirrels and other small animals including mice, raccoons, or possibly a fox. Set out some feeding stations. Securely tie dried corn on the cob purchased from a feed store to the lower branches of some of the trees. These will need to be replaced periodically. Staff should visit the observatory the day of your hike and see if the cobs need replacing. This area might be a good place to visit just as it is getting dark or at dusk as many of these animals are nocturnal.
6. Area 6 contains bird feeders. Bird feeders that the campers make can also be hung from the tree branches to attract birds. Some feeders may also be placed on stands or stumps close to the birdbaths. Try using various types of seeds, suet, peanuts, cracked corn, and cut up fruits. What birds are attracted to the different kinds of foods?

7. Area 7 will allow campers to observe some of the smallest animals in the forest. Place a few totting logs, rocks, and clay pots around the edge of the observatory. After spending some time observing the larger animals, take time before leaving to carefully turn over the rotting log, rocks, or clay pats. Observe the small animals. Watch carefully because they don't like the light and will disappear quickly. When finished carefully replace the log, rock, and pots.

As campers arrive at this station of the nature hike they can set themselves around the edge of the nature observatory to quietly see what they can see. Give each person a clipboard, pencils, crayons, colored pencils, chalk, and paper or worksheet. Instruct campers to record their observations on this paper. Younger campers may need more guidance as to what to record. Campers may use pictures or words to record their observations. A printed worksheet may also be used to help guide the observations.

**Discussion Questions:** What did you see while you were behind the animal blind? How did you feel sitting behind the animal blind? Did you see evidence of a food chain? Were some of the animals aggressive to others? Did you see some animal behaviors that were surprising to you? Did you see evidence of animals helping others? Why do you think the animals would feel safe in an animal sanctuary? In addition to your eyes what other senses can you use to observe life in the observatory?

**Adapted from 365 Outdoor Activities published by Publications International, Ltd.**

#### **California State Science Content Standards**

- Scientific progress is made by asking meaningful questions and conducting careful investigations.
- Living organisms depend on one another and on their environment for survival.

## Oh Deer!!

**Objectives:** Campers will be able to identify and describe the essential components of a habitat; food, water, and shelter. Campers will also be able to describe the affects these components have as limiting factors of a population. In addition campers will be able to identify the influences of nature and human made factors on the essential components of a habitat.

**Materials:** an area that is large enough to run and cleared of hazards, habitat component tags

**Duration:** 30-45 minutes

**Age group:** ages 10 and up

**Vocabulary:** habitat, limiting factors, predator, prey, population, balance of nature

**Procedure:** Begin with a discussion of the three essential components of a habitat (food, water, and shelter). Next have the group count off in fours. Draw two parallel lines on opposite sides of the playing field. Have the one's line up on one line and the two's, three's, and four's on the other line facing each other. The children who are one's line become the deer. The campers on the two's, three's and four's line become the three components of the habitat.

Explain to both groups how to make the hand signs for food, water, and shelter. The sign for food is made by clamping their hands over their stomach. Shelter is made by holding their hands over their head. And water is made by cupping their hands over their mouths. A variation of the hand signal is to have them hold cards on which food, water, and shelter is written on them. During each round of the game the deer and the habitat will make a sign for one of the three essential components. Instruct children that they cannot change their sign during a round when they see what is available. But they may change at the beginning of a round. Have campers practice making the signs for food, water, and shelter.

Play a practice round. Have campers turn their backs to the other line and silently make the sign for food, water, or shelter. Instruct them to turn and face the other line.

Then, on your signal, have the deer run to the other line and pair up with someone who made the same sign that they had made. Both the deer and the habitat components must hold their signs until all who can match do. Campers may not change their sign in order to make a match. Each deer who finds their match then takes their matching habitat component back to the deer line. Finding a match means that the deer has successfully met its needs for that round and has successfully reproduced. Any deer that does not find its match fails to meet its needs and dies. It then becomes part of the habitat. If a habitat component is not matched up to a deer, it stays as the habitat. After successfully completing one practice round begin round one.

Begin playing the game with round one. At the end of each round have a discussion of the results. Ask the following discussion questions of the campers; Did the population of deer increase or decrease? What factors contributed to this increase or decrease in population? What is the definition of limiting factors? If a round is played where no one in the habitat chose water ask children what might have caused a year with no water? (drought, damming of a river,) A year with no food? (fire, development) A year with no shelter? (flood, logging) After several rounds ask campers if they think the population is static or if it fluctuates? Can you summarize the results of several rounds? And why did this happen?

**Adapted from Project WILD**

**California State Science Content Standards:**

- Adaptations in the physical structure or behavior may improve an organism's chance for survival.

## In The Dark, Under The Stars

**Objectives:** Campers will be able to acknowledge that there is an active nocturnal community in the forest. Campers will use their other senses of hearing and smell to attempt to identify the wide variety of nocturnal animals.

**Materials:** Each girl will bring: daypack filled with a change of clothes, jacket, canteen, sleeping bag and pad, tarp. Staff will bring for the group. Individual journals and worksheets from lesson box, alarm clock, pencil sharpener, crayons and markers, tape recorder and blank tapes, extra batteries, midnight snacks, several pencils, a couple of extra blankets, matches, small battery lantern, first aide kit.

**Duration:** About 18 hours to complete including set-up time, travel to sight, actual night watch activity, and conclusion and evaluation.

**Age group:** ages 12 and above

**Vocabulary:** cold-blooded, diurnal, nocturnal,

**Procedure:** This activity is an overnight for the girls at the nature observatory. Prior to the activity the camp unit must prepare for the overnight. This includes any permits needed for the site, planning and requisitioning food, and gathering and packing needed equipment. After dinner the group will hike to the overnight sight and set up camp. A campfire ring must be cleared and set up if one is not already available. Enough wood must be gathered and stacked in order to keep a small fire burning the entire night. The fire should be at least 40 yards from the sleeping area. If possible locate a couple of staff in the sleeping area and a couple of staff closer to the fire ring. Make a map of the sleeping area that includes the names of the campers and where they are sleeping. This will be used during the night watch activity. While setting up camp try to keep the noise level as low as possible in order not to scare away some of the nocturnal animals who might be in the area.

As night falls and it is almost dark gather the group around the campfire and explain the procedure for the night watch activity to the girls. Say to the girls: "The

group has been divided into small groups." (The number in each group will vary according to the number of girls on the night watch. The optimum number per group is 4.) "Each group will be on Night Watch for 2 hours." (Length of shift may vary). "During your watch very little if any talking should take place because you don't want to disrupt the normal nocturnal behavior of the animals. Sit quietly and focus your ears on the sounds of the night. You have a journal to record what you hear, what you smell, and how you feel. Record the time of each entry you make in you journal or on your reflective worksheets. During your Night Watch you may snack on your snack food quietly. And make sure your trash is throw n away in the appropriate place. When your Night Watch shift if over quietly go over to the sleeping area and using your map, wake up the next Night Watch group." (Staff supervision is required at this point.) Then make sure that everyone is familiar with their journals by going over the pages with the girls. Finally go over with the girls a quick reminder that as long as they stay close to the fire or the sleeping area they are safe. Do a little star gazing before sending the group to bed. Your Night Watch has begun. Change groups every 2 hours as scheduled until 6:00 am. At the end of the last shift have the campers pack up their bags, have a cold, easy breakfast and hike back into camp. Upon returning to camp give them time to reflect and discuss as a group their Night Watch. Have available the resources (books, posters, sound tracks, or videos) they might need to identify any of the night sounds on their watch.

**Discussion Questions:** Which sounds were most often heard? Which sounds were heard the least? Which sounds made you feel comfortable? Which sounds made you feel uneasy or uncomfortable? What other feelings did the experience give you? Could you identify any of the sounds you heard? Pretend that you were a deer mouse sitting by the fire. What feeling might you have had last night? Pretend that you were an owl perched in a tree last night. What feelings might you have had? If you could give an animal you heard last night a special adaptation for survival, what would it be? If you could put some of the sounds you heard last night into English, what do you think the animals were saying? What was you favorite sound? Which sound did you not like? Why do you think nocturnal animals are usually warm blooded? Explain the difference between



diurnal and nocturnal? From the sounds you heard last night can you develop a food chain?

Adapt from Azalea Trails Staff Manual dated 1967

**California State Science Content Standard:**

- Scientific progress is made by asking meaningful questions and conducting careful investigations.
- Organisms in ecosystems exchange energy and nutrients among themselves and with the environment.
- Living organisms depend on one another and on their environment for survival.

## Night Watch Journal Worksheet

Night sounds; As you hear a sound try to write (spell out—i.e. whooo) what you hear. Then for each sound describe first how it made you feel. Then write or draw what you think make that sound. Record the time you heard the sound. If you hear a sound more than once, go the first time you heard the sound and record another time.

1. First sound—

2. Second sound—

3. Third sound—

4. Forth sound—

5. Fifth sound—

### A Penny For Your Thoughts:

1. Sitting here in the dark with my friends around the campfire makes me feel—

2. The stars above my head make me feel—

3. The night noises make me feel—

4. At the beginning of my Night Watch shift I felt—

5. The night air smells like—

6. The flames of the campfire remind me of-
7. The thing that scares me the most about our Night Watch is-
8. The funniest thing that happened tonight was-
9. Instead of talking tonight my friend and I communicated by-
10. I felt secure tonight because of-
11. The silhouettes of the night took on the forms of-

APPENDIX C  
STAFF RESOURCES

The following list of resources would help camp staff extend the nature program at Azalea Trails Girl Scout Camp. They would offer more in-depth study or additional activities should a group of campers want to explore further the outdoor experience. This list is by no means a complete list of the resources available. Many of these resources are already owned by the council.

Acclimatizing

Steve Van Matre  
American Camping Association  
Bradford Woods  
Martinsville, Indiana 46151

Acclimatization

Steve Van Matre  
American Camping Association  
Bradford Woods  
Martinsville, Indiana 46151

The Earth Science Book: Activities for Kids

Dinah Zike  
John Wiley & Sons  
605 Fifth Avenue  
New York, N.Y. 10018-0012

Fun and Easy Nature & Science Investigations

Girl Scouts of the U.S.A.  
420 Fifth Avenue  
New York, N.Y. 10018-2798

Geology Crafts for Kids

Alan Anderson, Gwen Diehn, & Terry Krautwurst  
Sterling Publishing Co., Inc.  
387 Park Avenue South  
New York, N.Y. 10016

Geology Rocks!: 50 Hands-On Activities To Explore The Earth

Cindy Blobaum  
Williamson Publishing Co.  
P.O. Box 185  
Charlotte, Vermont 05445

The Kids' Wildlife Book: Exploring Animal Worlds  
Through Indoor/Outdoor Experiences

Warner Shedd  
Williamson Publishing Co.  
P.O. Box 185  
Charlotte, Vermont 05445

Nature With Children Of All Ages: Activities And  
Adventures For Exploring, Learning, and Enjoying The  
World Around Us

Edith A. Sisson  
Massachusetts Audubon Society  
Princeton-Hall, Inc.  
Englewood Cliffs, New Jersey 07632

Project WILD: K-12 Activity Guide

5430 Grosvenor Lane, Suite 230  
Bethesda, MD 20814-2142

Save The Earth: An Action Handbook For Kids

Betty Miles  
Alfred A. Knopf  
New York, N.Y.

Sharing Nature With Children II

Joseph Cornell  
Dawn Publications  
14618 Tyler Foote Road  
Nevada City, CA 95959

Teaching Kids To Love The Earth

Herman, M. L., Passinear, J. F., Schimpf, A. L., &  
Treuer, P.  
Pfeifer-Hamilton Publishers  
210 West Michigan  
Duluth, MN 55802

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