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ENVIRONMENTAL EDUCATION AND
HIGH SCHOOL BACKPACKING

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

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

by
David Russell Ficke

June 2005

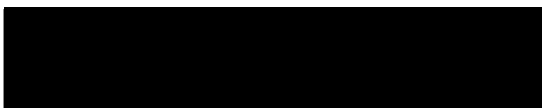
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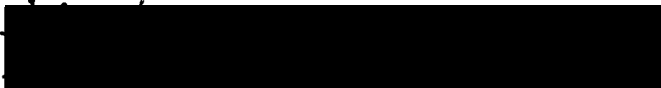
by
David Russell Ficke

June 2005

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Chaffey Joint Union High School District

May 17, 2005
Date

ABSTRACT

The call of the wilderness resonates in all of our hearts, with the desire to get in touch with nature and experience wilderness at some level. This project to gives the high school teacher the practical resources necessary to share the passion of being in the wilderness with high school students. Teachers will find guidelines to help organize, acquire equipment and lead high school backpacking trips to teach environmental education are included. Only through this unique opportunity can high school students experience an emotional and physical association with their environment that can become a significant life experience, shaping their meta-cognition of their role as global citizen in assuming responsibility for their environment.

ACKNOWLEDGMENTS

I would like to acknowledge Dr. Stoner for her more than 20 years of friendship, understanding, patience and support for my enrollment, completion of classes and the achievement of this project.

I would also like to thank my children, Joshua, Jonathan and Kathryn who have given me the support that I needed after the many years that I sacrificed and supported them.

Finally, I would like to thank my wife, Kathleen, who believed in me all along. It was her love and emotional support that gave me the drive to enter the program and complete this project. I love you with all my heart!

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CHAPTER ONE

INTRODUCTION

The traditional view of education today in the United States is of a crowded classroom in which a teacher attempts to engage students in the learning process. Exacerbating that process is the fact that all students are not at the same level of reading, writing, and mathematical skills or language acquisition, and the teacher must meet the needs of all of these students. What drives education across America today are state learning standards, standardized tests, school exit exams and No Child Left Behind (NCLB), a federal school reform law. Intense pressure is put on teachers to enable students with varying educational skills and cultural differences to perform well on ever-changing assessments.

Educators today are familiar with the works of John Dewey and his belief that education should be experiential in nature. Few will argue that Dewey's concept of experiential education has no merit; unfortunately, there is often little time or little funding for this type of pedagogy in today's educational climate. Yet education today, with its emphasis on standardized testing, is in direct contradiction to Dewey's pedagogy, and to research

which shows that when the environment is used as the basis for education, students tend to have "...better performance on standardized measures of academic achievement in reading, writing, math, science and social studies; reduced discipline and classroom management problems; increased engagement and enthusiasm for learning; and, greater pride and ownership in accomplishments" (Lieberman & Hoody, 1998, p. 22).

I began the journey toward experiential education, using our environment as the impetus, over 20 years ago, with the creation of Field Biology at Upland High School, for eleventh and twelfth grade students. In this class students learn about ecology and natural history of Southern California. A component of the class include taking students into the environment on an annual field trip to Yosemite National Park for a weeklong, five day, program in collaboration with Yosemite Institute (YI). After 12 years' participation in the YI program, I expanded the program to include a three-day, two-night, cross-country ski trip into the backcountry of Yosemite National Park making the entire trip 7 days long. For many years Upland High School students participated in this five-day wilderness experience until the initiation of the standardized testing and Academic Performance Index (API)

rating of the schools in the State of California. The pressure for Upland High School to score high on the API also curtailed the three-day cross-country ski part of the YI program. This was a setback for a few years until I created summer backpacking trips with high school students. Thus, for the past four years, students from several local high schools have participated in five-to seven-day backpacking trips into the Yosemite National Park wilderness. This author believes that when high school students take part in an extended, learning-filled backpacking trip into the wilderness, they develop a deeper sensitivity and understanding of their environment. This belief is supported by limited research on environmental sensitivity. (Sward & Marcinkowski, 2001, p. 277).

The purpose of this project is to give educators the curricular resources to engage their students in what many of my students have called a "life-changing experience." This project is based on the premise that, when high school students have opportunities to participate in backpacking trips into the wilderness, the experience will help them develop environmental sensitivity and a proactive attitude toward their world. This author hopes that this master's project will empower other educators to

break out of the confines of their contained classroom and begin exploring the wilderness with their students. High school backpacking trips not only have the potential to increase students' environmental literacy, but more importantly will make lifetime differences for these young adults, positively influencing their future and the choices they make.

CHAPTER TWO
RATIONALE FOR BACKPACKING AND
ENVIRONMENTAL EDUCATION

"Treat the earth well: it was not given to you by your parents, it was loaned to you by your children. We do not inherit the Earth from our Ancestors, we borrow it from our Children" (Ancient Indian Proverb). Since the dawn of life on planet Earth, people have always been closely connected to their environment. As people worked the land during the agricultural age, they understood that they had to take care of the land to maintain it, in order to continue to reap its benefits. Many eastern cultures as well as Native Americans had an intimate association with the land. Unfortunately, as people in America moved out from the East to settle the West, they brought a "conqueror" mentality, a desire to own and subdue the land. As the West was "won," clusters of populations sprang up all over the West as people created and settled in cities. As the west was settled, the same pervasive attitude of ownership of the land developed. Population centers like San Francisco and Los Angelus increased with time, and with the discovery of gold in California, the state's population exploded.

California has grown from more than 15.7 million people in 1960 to more than 33.8 million people in 2002, based upon statistics from the Negative Population Growth (p. 3). This represents a 50 percent increase in 42 years, a remarkable growth rate. Today as we look at our heavily populated state, specifically the area of Southern California, we see city after city strung from Ventura to San Diego County, with our wild lands disappearing at an alarming rate. We have moved away from our natural environment to an artificial one where the "wilderness" lies just outside our cities. Yet, there have always been people who understood that we need a relationship with our environment, to have a connection, a passion, for the care the wild places. John Muir wrote in his book *Our National Parks*:

Climb the mountains and get their good tidings.
Nature's peace will flow into you as sunshine
flows into trees. The winds will blow their own
freshness into you, and the storms their energy,
while cares will drop off like autumn leaves.

(1901, p. 56)

John Muir understood the need to be interconnected with the environment, the wild places, and the sanctuaries that rejuvenate our soul.

The question before us is how do we make the connections that John Muir and the Ancient Indian Proverb describe? How do students go from having the cognitive ability to solve environmental issues to becoming involved in the solutions? The confines of a classroom can only achieve a superficially tangible understanding of the subject. The Association for Experiential Education has a definition of what experiential education is:

"Experiential education is a philosophy and methodology in which educators purposefully engage with learners in direct experience and focused reflection in order to increase knowledge, develop skills, and clarify values" (Association for Experiential Education, 2004, p 47). It has long been understood that if students experience their education by being engaged in active learning, retention of the educational experience will last a lifetime. So, what is environmental education, and how does it relate to experiential education? Stapp related in his article, published in 1969,

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 to work toward their solution. (Stapp, 1969, p. 34)

Since the late 1960s, this has been a good working definition of what environmental education is; other definitions have come along, but they largely reiterate the same idea.

The California Department of Education, Office of Environmental Education, published a book called Education and the Environment: Strategic Initiatives for Enhancing Environmental Education in California. This publication defined environmental education as "focus(ing) on 'literacy': learning about and caring for the total environment, understanding how humans interact with and are dependent on natural ecosystems, and developing critical-thinking skills to resolve environmental issues" (2002, p. 5).

In 1977 the world's first intergovernmental conference on environmental education took place in Tbilisi, Georgia (USSR). The United Nations Education Scientific and Cultural Organization (UNESCO) organized the conference, in cooperation with the United Nations Environmental Programme (UNEP). During this UNESCO conference, goals and objectives for EE were developed. As a result the following objectives were established:

1. Awareness and sensitivity to the environment and environmental problems;
2. Knowledge and understanding of the environment and environmental problems;
3. Attitudes of concern for the environment;
4. Skills to identify and solve environmental problems; and
5. Participation for active involvement in solving environmental problems.

(The Tbilisi Declaration, 2001, p. 13)

A closer look at the five objectives reveals that students easily achieve goals 1-4 during their years of schooling. The most difficult objective to achieve is the last, where an individual becomes actively involved in solving environmental problems. In most cases objective five is never achieved for a number of reasons, all of which are valid. The reasons why people do not get involved are legion; nevertheless, the question remains, how do educators bring a heightened awareness to their students, to inspire them to become more environmentally engaged? Also, what are the conditions that will emotionally and intellectually motivate a person to become environmentally involved?

Environment-based education focuses on educational results: using the environment to engage students in their education through 'real world' learning experiences, with the goals of helping them achieve higher levels of academic success as well as an understanding of and appreciation for the environment. (California Department of Education, 2002, p. 5)

Sitting in a classroom and reading about the environment does not motivate a student to become actively involved. If anything, students may want to visit and "experience" that environment. Only when they experience their environment does it create a personal relationship, a love, an attachment to the environment and a passion to take action! When this happens, the person has a personal stake and will cross over to become more actively involved. Lindoldt (1999) understood the importance of passion when he stated, "Activism calls for passion, and true passion cannot be garnered from a book. Passions adequate for activism begin in place" (p. 5). The research of Tanner, Peterson and Palmer in the early 1980s affirmed that the significant life experiences (SLE) appearing to be associated with responsible environmental behavior were not developed by reading a book, but by having experiences

in natural areas over a period of time. For students to become responsible stewards of their environment, they must develop a sense of place, which then becomes a value with a sense of ownership to take action to protect it.

In the book Place-Based Education, written by David Sobel, the forward, written by Laurine Lane-Zucker, gives the following definition of the individual having a sense of place:

Place-based education might be characterized as the pedagogy of community, the reintegration of the individual into her home ground and the restoration of the essential links between person and her place. (2004, p. ii)

As educators, we must invoke within our students a passion and a nurturing respect for the environment, while also instilling within them their own individual responsibility to affect necessary change for the guardianship of their environment.

One's desire to act appears to be affected by a host of personality factors. ...locus of control, attitudes [toward the environment and toward taking action], and personal responsibility [toward the environment].
(Hungerford & Volk, 2001, p. 292)

Backpacking is an activity that immerses students into an environment while engaging them in learning.

Backpacking is an excellent example of experiential environmental education.

Backpacking needs to be distinguished from walking, hiking and mountaineering. Although I have not found any formal definitions what follows are some working explanations. Walking is an activity that allows someone to use both legs and feet to move from one place to another. Walking is an activity that most people are capable of doing. Hiking is the same activity as walking but it is usually associated with movement in a natural environmental setting or possibly a wilderness setting. Hiking can take place on a trail (path) within the forest, at the beach, or in the desert. One usually takes a daypack to hold water, lunch and some extra clothing. At the end of the day, that person returns indoors. Backpacking, on the other hand, is the same as hiking but the person carries their "house" on his back. This allows that person to stay over night out in the wilderness. Backpacking (hiking or walking with a backpack) is usually done on established trails. After arriving at the destination, camp is set up (sleeping bag with a tent),

and dinner prepared before sleeping overnight within the wilderness environment.

Mountaineering is a more complex, highly skilled recreation compared to walking, hiking and backpacking. Mountaineering is similar to backpacking but much more extensive technical skills are required. Mountaineering requires skills in rock climbing, the use of ropes and knots while climbing, possibly glacier travel, and possibly snow survival skills. Often people begin to take hikes into the wilderness and gradually progress toward backpacking because they want to enjoy their wilderness experience for longer periods. Mountaineering requires more expensive equipment as well as training on how to properly and safely use that equipment.

In conclusion, backpacking is nothing more than hiking (walking), usually on established trails, where students carries all the things that they will need to go camping in the wilderness. Backpacking is an activity that immerses students within their environment. The activity is more than carrying heavy loads up and down mountains passes and trudging through the wilderness. Backpacking is an experience that takes students out of their element, strips them of all the conveniences of home, and engages them with an environment that they are not familiar with.

With this in mind, the following curriculum has been developed for high school backpacking trips to enable teachers to help their students take ownership of their environment and become active participants in solving environmental issues.

CHAPTER THREE

DESIGN OF THE PROJECT

Utilizing 30 years of experience taking high school students on backpacking trips, this author has designed this project to introduce high school teachers to backpacking as a way of teaching environmental education within a wilderness setting. Within the Appendix A, teachers will find forms for planning and organizing group backpacking trips, as well as curriculum that can be used during a backpacking trip into a wilderness setting. This project is not intended to introduce the topic of backpacking for the teacher, but is designed for the teacher who has experience in backpacking and needs to know how to plan and organize a backpacking trip for high school students.

First, the planning stage of a backpacking trip must start several months before the actual trip. The planning includes where, when, how long, and degree of difficulty of the trip. It is recommended that the teacher do the trip before actually taking the students there. Familiarity with the entire trip would include, but not be limited to, conditions of the trail, elevation changes, camping sites, snow conditions based upon the snowfall

from last winter, possible weather conditions based upon the time of year, mosquito season and available water availability. The second part of planning involves securing a Wilderness Permit for the trip. There are often timelines for requesting a Wilderness Permit with different requirements, fees and parking regulations, depending on whether the trip is within a national park, national forest, or a wilderness or includes all of these areas. It is expected that the instructor know all rules and regulations pertaining to the trip and that the first and most important aspect of the trip is the safety of the students. A pre-planned emergency and evacuation plan is absolutely necessary in the event of a natural or human-provoked catastrophe.

The following steps are also necessary to insure a successful trip:

1. Make an inventory of required equipment that you will provide and what the students will need to have. The amount of equipment will determine how much community gear you have and what you will need. There are two ways to go about getting the needed equipment: (1) buying or renting it with your own money and then charging the students, or (2) obtaining donations. Appendix B contains

a list of the necessary equipment that will be required for a summer backpacking trip into the Sierras.

2. Write letters to obtain donations of equipment for the trip. This strategy has been very successful for me in the past, and I have procured much of our gear this way. From your inventory you know what items that you will need. Make a list of manufacturers who make what you need and try to find a contact person. Address your letter to that contact person and your letter should be in a proposal format. I have supplied copies of my letters in Appendix C.
3. Become well conditioned. As I was approaching the age of 50, I knew that the mind was willing, but the body would not be able to keep up with 16 year-olds on a backpacking trip. In any case, I knew that I must start getting into better shape early. At least six months in advance, I began fast walking for about three weeks and transitioned to jogging. Also, there is no better way to get in shape for backpacking than by backpacking. Starting in the spring I began

quota system, or that there is an opening for less than the number of people within your group. In either case there is a good chance you will not get a permit. A better way is to obtain your wilderness permit five months to the day in advance of your trip by calling the Wilderness Permit office at 1-209-372-0740. You can secure your wilderness permit at a cost of five dollars per person. Upon arrival all you need to do is check in at a wilderness office to pick up your permit.

6. Make camping reservations. It is best to make some kind of camping reservation for the day before your trip begins. This allows you to get a good night's rest before you start the trip. Another reason to is to allow your body to get acclimated to the elevation gain before the group actually begins backpacking. For example, to make reservations for Tuolumne Meadows campground, call campground reservations at 1-800-463-7275 at a cost \$16 each for two sites. Two sites will be necessary unless you can get a group site to accommodate everyone.

7. About five months before the trip, have a meeting with students and their parents to explain the trip and what is expected from each participating student. This is done after students have signed up to take part in the trip. If you have done the trip before, it would be helpful to include slides, video or pictures of your trip to reassure the parents and give them a sense of the various aspects of the trip. During the meeting, it is best to pass out a packet with an agenda of informational topics to be covered during the meeting, as well as all forms that need to be signed, including due dates. Topics covered are itinerary, student equipment, group gear, expectations of the members of the group, and team responsibility. Cover the cost of the trip and what the returns the students will receive for that money. Answer any questions and leave a contact number so parents can contact you later when they think of other questions.
8. Get back medical and liability forms on a prescribed date. The sooner this is done the sooner your total member count can be

determined. Some students may decide not to participate or may have medical problems that prohibit them going. An early due date for forms will give you time to involve other students. It is also important to know your students' medical history in order to make any adjustments necessary to accommodate them during the trip.

9. Plan for food and menus for the trip. Making out a daily calendar with the headings for breakfast, lunch, dinner, and snacks helps plan your food. Keep in mind that the students are going to be burning a lot of calories and they will be hungry all the time.
10. Hold pre-trip meeting and equipment check. This is done about a week before the trip. It is also important for the leader to check off the required equipment that each student brings, this gives time to make any adjustments for someone who is missing necessary items. After the equipment is checked in, have a demonstration on how to pack a backpack, which includes the group equipment and food and water. Students will have a tendency to want to bring unnecessary items; impress upon them that they

will be carrying everything they will need and they will be weighed down and uncomfortable with excess items. Another issue is that you want to be consistent with all of the students as to what is acceptable and not acceptable to bring on the trip.

11. During this time go through the trip by making a detailed daily itinerary planning out your trip. As you go through this process you need to take note of the difficulty of each day's hike and make plans for rest stops and areas that you know that would be great teaching spots. Remember, the fun of the trip is the trip; this is not a death march to reach each day's destination! I have supplied a list of ecological topics and environmental issues that I use while on a five day backpacking trip in Appendix E as well as reference material on backpacking and the natural history of California and the Sierras in Appendix D.

The day of the trip will come after much anticipation and excitement from all. Driving to Yosemite National Park from Upland will take about eight hours, which includes stopping for gas and eating. Upon arriving in Yosemite,

check into Tuolumne Meadows campground and set up camp to get ready to start the backpacking trip the following day.

The next morning, the students should get up early, eat breakfast, and pack to start the trip up Lyell Canyon. While on the trip, each morning's itinerary will remain the same: rising, starting stoves for boiling water, packing, airing out and pack tents, cooking and eating, and participating in morning meeting. Morning meeting is a time to check with the students on how their evening went, let them know what the plan is for that day, and have a lesson if weather cooperates. We hike for 15 to 30 minutes and adjust packs and clothing as the temperature warms up. Breaks are taken as needed, depending on elevation gained or lost and the difficulty of the hiking conditions. Teachable moments are not passed at any time. Lunch is a time for an extended rest, usually an hour, unless the students get restless, and if so, we move on. The total distance traveled is determined by how hard the hike will be, but we try to get in between five to seven miles a day. Making camp is a reversal of the morning's routine, where the first item is to take care of the students by making sure they are warm, eat a snack for energy, and filter water to drink. After that, the students' tents are set up, water is boiled for dinner, and we eat and clean

up for the evening. During dinner we make time to talk about the day and how things went. We review what was seen and learned on the day's hike. The last day of the trip, which ends back at Tuolumne Meadows, comes with a mixture of excitement and sadness. Students look forward to being out of the backcountry, taking hot showers and eating some "traditional" food, such as pizza and burgers. However, the students have developed an emotional attachment to each other and their environment and are reluctant to end a journey, which has made them more confident and mature.

About a week later after returning from our trip, we all convene at a chaperone or student's house, with parents invited, to share pictures and stories and for one last time of debriefing. Community equipment will have been cleaned and returned, and charges for lost or broken equipment paid.

CHAPTER FOUR

IMPLICATIONS FOR EDUCATORS

As the 21st century gets underway, environmental education becomes an increasingly important and integral tool for educators. Unfortunately, it is impossible to separate our environment from the political arena of today. According to Robert F. Kennedy Jr., a senior attorney for the Natural Resource Defense Council, during an interview with Jeff Fleischer of MotherJones.com, :

You simply can't talk honestly about the environment today without criticizing this president. George W. Bush will go down as the worst environmental president in our nation's history. (Fleischer, January 31, 2005, p. 1)

Nevertheless, we do not want to lose sight of our wild places, these islands of natural communities that are being subsumed by civilization and exploited at an alarming rate. It is imperative that we keep a balanced educational tone when we are teaching our students as we share the importance of having wilderness.

As an educator, I had an opportunity to travel to the north coast of California to Redwood country. While there, I visited a museum at Redwood State Park where I engaged

in a conversation with an old timer. He told me that he had been a logger, his daddy had been a logger and his grandfather had been a logger before him. He remarked that when he started his career he truly believed that there were enough trees for everyone. Unfortunately, he witnessed the logging industry evolve from a team of people who used saws and axes, to the gradual mechanization of the industry. He described a system that began with the use of chain saws and eventually progressed to the use of giant machines that grabbed the tree with powerful hydraulic clamps, cut it at its base with a built-in mechanized chainsaw, stripped the branches and cut the tree to specified lengths, all in about one minute. This old timer said that he witnessed miles of forest clear-cut by these machines in days and weeks, where it would have taken a lifetime in years gone by. This is the legacy we leave for our children. By turning a blind eye and deaf ear to these atrocities, we abandon our communities, our states, our country and our planet to a corporate greed which has no conscience or will to change.

As environmental educators we often see our students grasp the ideas and concepts that we teach, and pass tests that we give, but do not witness them cross that often-elusive threshold where they become environmentally

responsible citizens. When the students embrace a sense of responsibility, an ethic develops that leads them to become stewards of our environment, and this becomes part of their daily behavior. Unfortunately we cannot separate our environment and its effects on us from our daily lives. The question remains: how do we create an environmentally responsible citizenry? How do environmental educators "teach" a sense of stewardship for our environment? The environmental education that takes place in our schools fulfills that cognitive part which the student relies upon for facts and information. However, experiences such as working in the school garden or going on a field trip although are positive and fun-filled activities, they are only the foundation for a deeper sense of belonging toward their environment.

The impact of a backpacking trip upon students can be tremendous, but make no mistake, the responsibility of such an activity is equally enormous and requires experience and training. It should only be considered when the educator has sufficient experience to handle the many unexpected situations that can arise. For the environmental educator who wishes to share with students those reflective moments of a sunrise, the glimpse of a bear in the woods, or the opportunity to lie on one's

stomach to look at the beauty of a wildflower the size of a finger nail, a backpacking trip into the wilderness will begin that journey.

APPENDIX A
MEDICAL FORMS AND RELEASES

The information needed to develop the following documents have been obtained from the following: Upland High School Student Medical Form, Dr. Lothar McMillan, M.D., Dr. Domb, DDS, Colorado Outward Bound, and National Outdoor Leadership Schools as well as myself.

Upland High School Wilderness Program

Name _____

Daytime Phone () _____ Height _____ Weight _____

Permanent Phone () _____ Sex _____ Age _____

PHYSICIAN, F.N.P or P.A.: Please circle YES or NO for each item. Each question must be answered.

MEDICAL HISTORY

Does the applicant have a history of or has had or is:

- | | |
|--|--------|
| 1. Have you ever been hospitalized | Yes/No |
| 2. Have you ever had sugary? | Yes/No |
| 3. Respiratory problems? | Yes/No |
| 4. Asthma? | Yes/No |
| 5. Serious illness/accident/chronic condition (allergy, diabetes, heart condition, epilepsy, asthma, etc.) | Yes/No |
| 6. Are you currently taking any prescription or nonprescription (over-the-counter) medications or pills or using an inhaler? | Yes/No |
| 7. Do you have any allergies to (pollen, food, medications stinging insects)? | Yes/No |
| 8. Have you ever passed out during exercise? | Yes/No |
| 9. Have you ever been dizzy or had chest pain during exercise? | Yes/No |
| 10. Have you ever had high blood pressure? | Yes/No |
| 11. Has a family member or relative died of heart problems before the age of 40? | Yes/No |
| 12. Have you had a severe viral infection (for example mycoarditis or mononucleosis) within the last 6 months? | Yes/No |
| 13. Have you had oral sugary or a root canal in the last three months? | Yes/No |

- | | |
|--|--------|
| 14. Have you been told that you need oral sugary or a root canal within the past three months? | Yes/No |
| 15. Do you have diabetes? | Yes/No |
| 16. Do you have any gastrointestinal disturbance? | Yes/No |
| 17. Do you have diabetes? | Yes/No |
| 18. Do you have hypertension? | Yes/No |
| 19. Do you have a history of bleeding or blood disorders? | Yes/No |
| 20. Hepatitis or other liver disease? | Yes/No |
| 21. Neurological problems? Epilepsy? | Yes/No |
| 22. Seizures? | Yes/No |
| 23. Treatment or medication for menstrual cramps? | Yes/No |
| 24. Disorders of the urinary or reproductive tract? | Yes/No |
| 25. Any other disease? Please explain. | Yes/No |
| 26. Have you seen a medical or physical specialist of any kind? | Yes/No |

Name/address/phone number _____

- | | |
|-----------------------|--------|
| 27. Are you pregnant? | Yes/No |
|-----------------------|--------|

Examiner's specific comments:

MUSCLE/SKELETAL INJURIES

Does the applicant currently have or does he/she have a history of:

- | | |
|--|--------|
| 28. Knee, hip or ankle injuries (including sprains) and/or operations within the past 6 months. | Yes/No |
| 29. Shoulder, arm injuries (including sprains) and/or operations. | Yes/No |
| 30. Any back injuries (including sprains) Remember, student will be carrying a backpack that may weigh as much as 50 pounds. | Yes/No |
| 31. Head injury? | Yes/No |
| 32. Any other joint problems? | Yes/No |

COUNSELING/PSYCHIATRIC

33. Has he/she had treatment or counseling with a mental health professional? Yes/No

34. Is he/she currently in treatment or counseling? Yes/No

35. Name and address of therapist? _____

36. Hospitalization within the past year? Yes/No

37. Reason for treatment or counseling?

____ Suicide gesture, ____ Substance abuse/chemical dependency, ____ Eating disorder (anorexia/bulimia), ____ Academic/career, ____ Family issues/divorce, ____ Learning disability (please give specifics below), ____ Other _____

MEDICATIONS

Most of the time we will filter our water for drinking, but there may be times that we may treat the water with iodine or chlorine. Please make note that this will not cause complications with medication.

Is the applicant allergic to any medications? Yes/No

If yes, list _____

38. Is the applicant currently taking medications? Yes/No

	Medication	Dosage	(amt./feg.	Side effects/restrictions
1.	_____			
2.	_____			
3.	_____			
4.	_____			
5.	_____			

COLD, HEAT and ALTITUDE

Students will be backpacking and carrying as much as 50 pounds of weight. They will be hiking in elevations from seal level to 14,000 feet, possibly crossing snowfield and be in the elements of the weather where it may rain or even snow or within a desert environment where temperatures may exceed 100 degrees. Keeping warm or cool and being well hydrated is of prime importance. In your opinion, do you believe that the student will have any problems dealing with these kinds of conditions?

Comments: _____

FITNESS

38. Does the applicant exercise regularly? Yes/No

If yes, please answer the following:

ACTIVITY, INTENSITY LEVEL, HOW OFTEN/WK DURATION/DISTANCE

39. Does this person smoke? If so how much? Packs ____/day Yes/No

**There is no smoking allowed on the course.
I recommend you quit now.**

40. Is this person overweight? Underweight? Yes/No

If so, how much? _____

41. Swimming ability
(CHECK ONE): _____ nonswimmer _____ recreational _____ competitive

PHYSICAL EXAMINATION

Physicians must read and fill out pages 1-6.

Physical examination data cannot be more than a year old from the starting date of the course. (Please type or print legibly) Tetanus shot must be current.

Blood Pressure _____ Pulse _____ last Tetanus shot? _____

Blood Type _____ Height _____ Weight _____

A TETANUS IMMUNIZATION WITHIN 10 YEARS OF THE START DATE OF THE TRIP IS REQUIRED.

The person for whom this physical examination is for will be backpacking (carrying a backpack with a weight of around 50 pounds and will be hiking at elevations between sea level and 14,000 ft. for several days.

On the basis of the background information at the beginning of this form and your examination, do you feel that this individual can participate on this course?

The medical examiner must check:

_____ **YES, I think this person can participate.**

_____ **NO, this person should not participate at this time for reasons explained below**

Rational for decision:

Examiners Name _____

Address: _____

City _____

State _____ Zip Code _____

Phone () _____

PHYSICIAN, F.N.P. ORP.A. SIGNATURE _____

Date _____

PLEASE RETURN ALL PAGES.

In the event of any illness or injury, I hereby consent to whatever x-ray, examination, anesthetic, medical, dental or surgical diagnosis or treatment and hospital care from a licensed physician and/or surgeon is deemed necessary for the safety and welfare of my child. It is understood that the resulting expenses will be the responsibility of the parent(s), guardian(s), or participant. (Whenever possible, attempts will be made to contact the parent/guardian prior to taking any medical action.)

I AM AWARE THAT DAVID FICKE DOES NOT CARRY STUDENT ACCIDENT INSURANCE FOR THE UPLAND HIGH SCHOOL WILDERNESS PROGRAM.

Signature of Parent or Guardian _____

Date _____/Address _____

Home Phone _____

Signature of Student _____

Date _____

Father's work phone _____

Mother's work phone _____

Parent's Health Insurance Company _____

Policy Number _____

IN THE EVENT OF ILLNESS OR ACCIDENT AND IF UNABLE TO CONTACT ABOVE, PLEASE CONTACT:

Name _____ Address _____

Phone _____

**STATEMENT OF RISK,
ASSUMPTION OF RISK,
AND
RELEASE**

I, undersigned, am aware that the Upland High School Wilderness Program or outing may be physically and emotionally demanding.

Student Int. _____

Parent Int. _____

I understand that this course or outing involves activities be in rugged terrain in all extremes of weather, far from any professional or medical services. I understand that rescues may take more than 24 hours and all medical and rescue costs are my responsibility. I understand the importance of obtaining sufficient medical and accent insurance before participation in the activity.

Student Int. _____

Parent Int. _____

I understand that I may be exposed to real risks of injury, or even death, from such hazards or events as falls, rock falls, avalanches, lighting, river crossings, hypothermia, frostbite or cold injuries, bite and stings and accidents traveling to and from the activity site. I understand that equipment may fail, and that such failure could cause or contribute to my injury or death.

Student Int. _____

Parent Int. _____

I acknowledge that the leaders cannot foresee all of the risks and hazards associated with this course or outing.

Student Int. _____

Parent Int. _____

I acknowledge that my safety is my personal responsibility, and that my safety depends upon my alertness and my use of good judgment. I understand that I can reduce risks by paying attention to the environment, my physical and emotional state, the condition of all safety related clothing and equipment and by, participating only in those activities that are well within my mental and physical capabilities.

Student Int. _____

Parent Int. _____

I have been encouraged to develop a questioning attitude and to ask activity leaders to explain any decision with which I am uncomfortable, and I will not engage in any activity unless I have considered it carefully and accept responsibility for all related risks.

Student Int. _____

Parent Int. _____

I understand that the Upland Unified School District, Chaffey Joint Union High School District, its agents officers and employees shall assume no responsibility or liability for me for accident, illness, or loss of or damage to personal property resulting from participation in this course or outing.

Student Int. _____

Parent Int. _____

By my signature below, I hereby warrant that:

1. I am signing this document by my own free will.
2. I have read the above statement and understand the risks associated with participation in this outing and
3. I am aware of and have met all of the prerequisites to participation in this course or outing. This includes having fulfilled all of the requirements of all prerequisites courses or outings, and,
4. I assume full responsibility for the consequences of my choosing to participate in this course or outing, and
5. I Hereby hold the Upland Unified School District, Chaffey Joint Union High School District, its agents, officers and employees harmless for any and all liability, action, claims and damage of any kind of nature whatsoever.

SIGNED _____ DATE _____

NAME (Please print clearly) _____

PARENT OR GUARDIAN SIGNATURE (If under 18 yrs.):

_____ DATE _____

PHOTOGRAPH & VIDEO AUTHORIZATION

I agree that any photographs / videos taken by any person of my child as a participant shall be the property of the David Ficke, and may be used by the Upland High School Wilderness Program as its discretion, for any publicity, marketing and / or advertising purposes, and I hereby consent to and authorize such use without restriction.

Signature (parent/Legal Guardian, if under 18):

_____ DATE _____

APPENDIX B
EQUIPMENT LIST

Equipment List

This is a list of equipment that students would take on a summer backpacking trip in the Sierras.

Required clothing:

- Hiking boots
- Water shoes (Tevas)
- Hiking socks (3 liner socks and 3 insulating socks)
- Light pair of long underwear (top & Bottoms) **NO COTTON!**
- Lightweight jacket (high-tech synthetic 200 wt.)
- Light-weighted gloves (high-tech synthetic)
- Swimsuit
- Underwear
- 2 pairs of hiking shorts
- Rain Jacket and pants
- 2-3 pairs of shirts (one should be long-sleeved)
- Hat
- Bandana

Personal equipment students need to bring:

- Sleeping bag (**needs instructor approval!**)
- Headlamp (fresh batteries and pare bulb)
- 2 water bottles (2 liters)
- Sunglasses
- Personal first aid kit
- Insect repellent
- Medications
- Tooth brush and tooth paste
- Deoderant
- Eye drops
- Small towel
- 2 large plastic bags
- Suntan lotion
- Lip protection
- Toilet paper
- Cup
- Pocketknife (optional)
- Trekking poles (optional)
- Camera and film
- Journal

Supplied equipment:

Food (divided up in sacks for breakfast, lunch and dinner) As well as trail snacks.
Tents (2-3 person tents)
Backpacks – you may bring your personal backpack upon approval of instructor
Water filters
Maps and compasses
Group first aid kit
Sleeping pads
Stoves & fuel bottles
Cooking utensils
Cup, bowl, plate, fork, spoon and knife
2 carabiners for each student
Food sacks
Bear canisters
Journals, one for each student with pens and pencils (these are 8x6 inch or so ruled and bounded)

APPENDIX C
SAMPLE LETTER

Sample Letter

PROPOSAL

A STUDY AND SURVEY OF THE MOUNT LYELL GLACIER YOSEMITE NATIONAL PARK

By

**David Ficke, Field Biology and A. P. Environmental Science Teacher
Upland High School, Upland, CA.**

Background

In the summer of 1999, I was part of a team that took part in a study of the Mt. Lyell glacier in Yosemite National Park. The project consisted of two parts. The first part was to find photo stations that were located around the glacier and take photographs so there would be a comparison from the 1960's. The second part, if time allowed, was to survey the glacier. The survey would be done by stringing a line from two identified points that would span 1500 feet across the glacier and measuring up to the line. It took one day to get to base camp and the next two days were spent finding the photo stations. The final day we hiked out, unable to start the survey, and the project was never completed.

Current Status

This last fall, with the approval of Pete Devine, the study's original coordinator and Yosemite Institute education director, I have taken over the project. Our first goal was to somehow procure a laser transit, a much more accurate measuring tool, which will bring the project into the 21st century. This would enable us to create a detailed profile of the glacier, something that has never been done. In September of 2000 a local surveying company donated to Upland High School a total station Nikon laser transit along with a single prism target. Another company donated a 12-volt solar rechargeable panel to keep the charge on the battery.

I have contacted Russell Galipeau, Resource Manager for Yosemite National Park, and explained what I want to accomplish. He is supportive of the project and will secure the appropriate wilderness permits necessary to complete the project. I have sent my proposal to Peter West of the National Science Foundation and I now have a contact person from Sports Chalet, a sporting goods company, where I will be sending a proposal for accessory items for the students.

Gregory Mountaineering has donated backpacks. We have 6 stoves and fuel bottles from Mountain Safety Research. I have 2 Katadyn water filters as well Therm-A-Rest inflatable sleeping pads for all the students, and 5 tents from Sierra Design.

Plan

In August of 2001, I want to take twelve high school students to be part of the project. My desire is to take six from Upland High School, Upland Unified School District. I want to invite two students from Ontario High School and Alta Loma High School that are part of the Chaffey Joint Union High School District as well as two students from Claremont High School, which is part of the Claremont School District. Two additional adults would make a total of twelve hiking into the backcountry of Yosemite to survey the Lyell Glacier. Our itinerary is as follows:

- Day 1 – Arrive in Tuolumne meadows and stay the night.
- Day 2 – Leave for the Mt. Lyell glacier.
- Day 3 – one team locates the photo stations
Another team begins the surveying of the glacier
- Day 4 – Continue surveying the glacier
- Day 5 - Rest day
- Day 6 - Look for the Lyell Salamander, wild flower identification
- Day 7 - Leave for Tuolumne Meadows and staying the night.
- Day 8 - Leave for home.

Our Needs

Although I have all my personal equipment for backpacking, I do not have the necessary clothing for the students. All clothing will be kept for the 2002 trip to the Mc Clure Glacier study. Here is a list of what the students will need:

Long underwear, Polar fleece jacket, Rain jacket and pants, Gloves, socks, and hats for 12 students and one other parent.

- | | |
|---|-----------------------------------|
| 30 - Lexan water bottles, | 14 sets - eating utensils, bowls, |
| 3 - collapsible one-gallon water containers | 1 - extra water filter |
| Ditty bags, stuff sacks for food | three walkie-talkies |
| 2 spatulas | 2 - 10-in. frying pans |
| 2 - Large pots | Lexan containers various sizes |
| 2 - binoculars | 2 - 9mm ropes |
| 4 - climbing harnesses | 28 - carabiners |
| 4 - locking carabiners | 3 - ATC's |
| 13 headlamps | 4 - 50 foot cord for bear bags |

Additionally, discounts on hiking boots, Texas, sunglasses, and miscellaneous items that the students will need for the trip would help tremendously.

My Experience

I have been a Science teacher for the last twenty-five years, and have been teaching Field Biology, a course I designed, for the last 21 years. I am currently Asst. Chair, Advisory Board to the Office of Environmental Education for the California Department of Education. Every year my Field class and I have participated in

Yosemite Institute Program where we spend five days in the park, both in the Valley and the backcountry, under the supervision of a YI instructor. Many of these years I have included a three-day cross-country ski trip as part of the Yosemite Institute program. I have been a backpacker and hiker for 35 years, and have had snow and avalanche training. My backpacking and camping experience has included trips to the Wind River Indian Reservation in Wyoming, Mt. Rainer National Park, Grand Canyon National Park, as well as many trips in Yosemite and throughout the Sierras

Conclusion

My goal is to survey the Lyell glacier in the summer of 2001, and in the summer of 2002 start a study of the McClure Glacier. Needless to say, this is an exciting and somewhat ambitious proposition. We would be mapping the first profile of the glacier using modern technology to establish baseline data for future study and reference. I want to take high school students so they have the opportunity to do real research and collect data, something that is usually the purview of the scientist and their assistants. It will also be an opportunity for the students to learn wilderness and backpacking skills, and apply the science standards they have learned in the classroom to real world experience. And lastly, the expedition will allow them to immerse themselves in the wilderness experience, an activity that will encourage them to become stewards of our precious environment and spokesmen for its continuing preservation and study.

Thank you,

Dave Ficke

APPENDIX D
REFERENCE LIST FOR BACKPACKING

Reference List for Backpacking

Here is a list of books and a magazine that would be helpful for teachers who want to know more about backpacking and the natural history of the Sierras. It must be noted that all the reading does not compare to putting on the pack and getting out into the wilderness.

Backpacker Magazine, Portsmouth, NH: Rondale Press Publication.

Berger, K. (1997). Everyday wisdom 1001 expert tips for hikers. Seattle, WA: The Mountaineers.

Blanchard, J. & Ford, P. (1993). Leadership and administration of outdoor pursuits. Palo Alto, CA: (2nd ed.). Venture Publishing Inc.

Bonney, B. F., & Drury, J. K., (1994). The backcountry classroom: Lesson plans for teaching in the wilderness. Merrillville, IN: ICS Books Inc.

Coello, D., Harlin, J., Howe, S., Kesselheim, A. (1997). Making camp: A complete guide for hikers, mountain bikers, paddlers & skiers. Seattle, WA: The Mountaineers.

Cole, D. & Hampton, B. (1995). Soft paths: Hot to enjoy the wilderness without harming it. Mechanicsburg, Mechanicsburg, PA: Stackpole Books.

Curtis, R. (1998). The backpacker's field manual: A comprehensive guide to mastering backcountry skills. New York, NY: Three Rivers Press.

Derdish, D. (2000). 2000 wilderness risk management conference proceedings. Portsmouth, NH: Rondale Press Publication.

Graham, J. (1997). Outdoor leadership: Technique, common sense & self-confidence. Seattle, WA: The Mountaineers.

Graydon, D. & Hanson, K. (Eds.). (1997). Mountaineering: The freedom of the hills. Seattle, WA: The Mountaineers.

McGivney, A. (1998). Leave no trace: A guide to the new wilderness etiquette. Seattle, WA: The Mountaineers.

Miller, D. (1998). Backcountry cooking: From pack to plate in 10 minutes. Seattle, WA: The Mountaineers.

Pearson, C (Eds.). (1997). NOLS cookery. Mechanicsburg, PA: Stackpole Books.

Natural History References

Bakker, E. (1984). An island called California. (Rev. ed.). Berkeley, CA: University California Press.

Schoenherr, A. A. (1992). A natural history of California. Los Angelus, CA: University California Press.

Storer T.I. & Usiinger R.L. (1963). Sierra Nevada natural history: An illustrated handbook. Berkeley, CA: University California Press.

Whitney, S. (1997). The Sierra Nevada. San Francisco, CA: Sierra Club Books.

APPENDIX E
ENVIRONMENTAL LESSONS FOR HIGH SCHOOL
BACKPACKING TRIPS

Environmental Lessons for High School Backpacking Trips

It is hoped that if you plan to do backpacking trips with high school students, you will have the love and the desire to share this with your students. However, you will not be able to take your filing cabinet of lesson plans with you. Furthermore, students do not take kindly with porters carrying your backpack because you have filled it with books and notes. Your lesson plans must be condensed to fit within your pack, so planning, copying your notes, diagrams, charts and readings will be necessary and must be stored in a heavy duty zip-lock plastic bag.

It is difficult at best to “plan” on the occurrence of large animals and much less so on plants depending upon the season, snow melt from the winter, etcetera. As a result, when you are familiar with your hike, you can plan lesson topics that evolve around plants and rock formations and when the opportunity of large animals come by this becomes a teachable moment. Still, it is invaluable for the instructor to have hiked the trail beforehand to identify resting and lunch spots, with an idea of each day’s hiking destinations and the planning of your environmental lessons to be taught. That being said, the intent of the lessons is not to provide actual cookbook of recipe-type lessons for the instructor, but to give the topics of lessons that I have used on backpacking trips. Again I remind the reader that I have supplied the best references in Appendix D for you use.

Another very important factor is planning. There have been a few times that as the day progressed I had the intent to talk about a specific topic because I knew that there was going to be a stand of trees, rocks or something up ahead, only to be forced to change plans due to weather, lateness in the day, or any number of unfortunate things that come up. Fortunately for me, these stumbling block have been few and I have been able to take advantage of those teachable times. Also, it must be noted that although we may have an agenda of what we want to cover, the safety and security of the students are far more important than any lesson.

Teaching is more than the instructor talking or “lecturing,” but should include discussions and interaction. Another extremely important part of your trip is for your students to have quiet time. This gives them the opportunity to reflect about their experiences and write down their observations and feelings, and anything they want. Sometimes you can give them a prompt while other times they choose the topic. You will find as the trip progresses that the students will value this time.

Finally, there are two other aspects of your backpacking trip that, although not necessarily part of your environmental educational goals, are very important. The first is the teaching of backpacking skills, and the second is the development of team building and leadership skills. Examples of the skills required are interpretation of weather, emergency shelter preparation, preparing and cooking food in good and bad weather, “Leave no Trace,” recognizing skill levels within your students as well as challenges, conflict resolution, and motivation techniques when hiking conditions get tough. Safety considerations include knowledge of handling emergency situations involving bears, lightning, stream crossings, and snow. As a result, I have supplied a reference list for these topics and strongly encourage the instructor to become knowledgeable in these skill areas.

The last and probably most important component of your instruction is you, the educator; the students will remember your actions and behavior long after they have forgotten those inspiring words you spoke, so be careful out there in what you do. You are a role model and students look to you for guidance.

I have provided a list of topics that I have used while leading students on a multiple day backpacking trip. These topics are as follows:

Ecological Concepts:

1. Producers, consumers, herbivores and omnivores.
2. Wood webs and chains
 - a. Energy, food and number pyramids
 - b. Decomposers and detritus.
3. The roll of photosynthesis and cellular respiration (tie caloric intake while hiking)

4. Cycles: water, carbon at least. Nitrogen cycle as well as rock cycles would be great.

Effects of fire in the environment/ campfire ecology

Water ecology

1. Streams
2. Ponds and small lakes

Ecological impact while backpacking

1. Leave no trace camping
2. Setting up camp.
3. Elimination of waste (bathroom etiquette).
4. Sanitation (bathing, clean pots and pans and food preparation).
5. Food and water waste (disposal of).
6. Hiking on trails.
7. Hiking cross-country.
8. Drinking water.

Plant and Animal Natural History

1. Identification of undesirable plants of contact.
2. Identification of plants and animals.

Environmental Issues

1. Wilderness Act.
2. Clean Water Act.
3. Clean Air Act.
4. Road less.
5. Timber Harvesting.
 - a. Selectively cutting.
 - b. Clear cutting.
6. Mining and mineral rights.
7. Hunting and fishing.
8. Cattle ranging.
9. Horses.
10. ATV's and motorcycles & mountain bikes.
11. Ski resorts.

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Sward, L. L., & Marcinkowski, T. (2001). Environmental sensitivity: A review of the research, 1980-1998. In H. R. Hungerford, E. J. Bluhm, T. L. Volk, & J. M. Ramsey, *Essential readings in environmental education* (2nd ed., pp. 277-288). Champaign, IL: Stipes Publishing L. L. C.

The Tbilisi Declaration. (2001). In H. R. Hungerford, E. J. Bluhm, T. L. Volk, & J. M. Ramsey, *Essential readings in environmental education* (2nd ed., pp. 13-16). Champaign, IL: Stipes Publishing L. L. C.