ii. Study Opportunities

Observation of different types of environments begins with learning to observe details (See Figure 38). Our urban residential street scene tells us in a general scene survey how these people differ from suburbanites. Discovery sessions within a new environment finds new study opportunities. Frost heave and root upheaval have broken this sidewalk concrete. Although roots grow slowly, they obviously exert pressure. If a sidewalk is pushed up, where does displaced soil go? Sidewalk upheaval is a comparative geologic study with the pressure exerted from plate techtonics.

Further up the street on our sidewalk discovery session, we find a tree stump. Tree ring counting is a standard lesson, however, do students know what sawdust is and how it is made? What does the outer bark tell us about protection of the inner wood? Did this tree die of old age or did it die because the asphalt/concrete road blocked the supply of water to its roots. Discovery session depend on the educator looking beyond the standard lessons and finding new ways to look at objects and environments.

Looking at our natural environment from a distance shows smooth slopes and a serene view (See Figure 37). Taking a closer look and observing the areas show a severe erosion problem from water drainage off the road surface. Placing one shovel of dirt in the gully can teach students about the force and pressure put on man-made dams. Aerial photos of the Mississippi delta are often used to explain the concept of deltas. This same gully can explain deltas in three dimensions. A concept of nature taught in a natural environment.

One type of environment we consider natural teaches use about history. Schools do not utilize the full potential of cemeteries possibly because we teach our children to be afraid of dying. A child's curiosity can be easily aroused in a cemetery. Different styles of tombstones tells us about the buried person. Was he wealthy or in the military? Was he married and did he have children? While studying historic battles, children could visit a cemetery to look for gravestones of soldiers who may have died in those battles. Seeing these gravestone brings to life the reality that people die in war and die in fighting. Responsibility for one's actions begins with realizing the consequences of those actions.

Cemeteries tell us about our social values. Older parts of cemeteries have trees (or tree stumps) whereas newer parts have been cleared and non-native vegetation planted (See Figure 38). We prefer the clean, crisp appearance rather than the natural one. Tombstones also differ in the older and newer parts of the cemeteries. Older stones tend to be smaller and give us less written information about the person. Newer stones are large and decorative. Both types of headstones are good for teaching the artistic technique of graphite rubbings. The potential for developing environmental education opportunities is only limited by the boundaries of imagination, resourcefulness, and enthusiasm.
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IV. Appendix
INTRODUCTION

"Why do I have to learn this stuff?"
"What good is it anyway?"
"When will I ever use it again?"

Heard frequently in schools, these cries reflect the need of children to justify their learning experience. Subjects are viewed as separate entities, and many times when the child leaves the class, the class leaves the child. The general meaning of the word "environment" also encompasses a variety of separate entities as we speak of the rural environment, the school environment, and the American environment. Lately, however, environment has taken on another meaning, a global one viewing the Earth as an entity with compound, interrelated parts. This new meaning is holistic and corresponds to the need to teach our children to think not only of themselves, but also of their counterparts in other countries. The holistic approach in teaching offers children the justification they need by interrelating subjects. Holistic teaching and the environment have been tied together in the school system under the title of environmental education. Environmental education is not restricted to one subject, can be taught in any setting with the material at hand, and, most importantly, can be related to the world through the interrelatedness concept.

PROBLEM STATEMENT

The Mount Pleasant School System at its Yorktown, Indiana location has incorporated an environmental education curriculum into its general curriculum because educators realized the growing importance of the holistic approach in teaching. Through an investigation of the Yorktown community, I will designate a system of significant areas within fifteen minutes walking distance of the Yorktown Elementary and Middle Schools which pose outstanding qualities for environmental education and will develop plans for these same schools' grounds to meet the goals outlined in the school's environmental education curriculum.

GOALS AND OBJECTIVES

I. To explore the Yorktown community for environmental education areas within fifteen minutes walking distance of the Yorktown Middle and Elementary Schools.
   A. By delineating time circles around the schools and classifying environment types within the circles.
   B. By making preliminary site inventories to determine usability.

II. To increase instructors' use of the school grounds for environmental education.
   A. By increasing and highlighting the variety of outdoor education experiences available.
   B. By providing a basic guide for discovering education opportunities.
DELIMITATIONS

Immediate recognition of the long-term nature of this project's plan will not allow measurement of future use by instructors. This study does not incorporate the current building renovation because until renovation is completed, the plans may change. The author also recognizes that a fifteen minute walk in one class period may be too much for the younger children, however older children do not require as close of supervision. Also, the community environmental education areas will not incorporate every available area; it will only highlight major ones leaving creativity of use to educators.

NOMINAL DEFINITIONS

Common Sense: pragmatic and shrewd, but not sophisticated as in looking both ways before crossing a street versus timing a street crossing to finish just before a vehicle passes
Ecology: 1) a branch of science concerned with the interrelationship of organisms and their environments; 2) the totality or pattern of relations between organisms and their environment
Education: formal education in the school system
Environment: 1) that which surrounds us at any given time; 2) the Earth's natural systems
Environmental Education: an experiential method for learning which takes place primarily in the outdoors, requires the use of all senses and domains, is based upon interdisciplinary curriculum matter, and is a matter of relationship involving people and natural resources (Priest, 1986). Components include nature study, outdoor education, camping education, etcetera.
Global Thinking: relating parts to a whole as in how disposable plastic trash bags affect the world supply of oil
Holistic: relating to or concerned with wholes or with complete systems rather than with the analysis of, treatment of, or dissection into parts
Living Skills: skills helpful in life, such as reading and writing
Mental Skills: analytical and judgmental skills
Sensuous Experiences: experiences which involve all of the senses
Social Skills: relating to the social development of a child as in learning to play with other children
System: a regularly interacting of interdependent group of items forming a unified whole

EXPECTED OUTCOMES

Upon completion of the project, Yorktown Middle and Elementary Schools will have a physical design to complement their environmental education curriculum inclusive of a community analysis and a guide for environmental learning discovery.
IMPORTANCE OF THE STUDY

Cultivating the fertile grounds of a child's mind is one goal of education. Through education, one hopes a child learns not only social and living skills, but also mental skills and common sense. Education should prepare a child to contribute to society. At one time, this contribution was measured only in terms of how the child fit into the work force. Reading, writing, and arithmetic were enough to survive in a world man knew little about.

Man's knowledge about this same world has increased dramatically and the three "R's" are no longer sufficient for survival. We have gone from thinking only about our family, to our town, to our state, to our country, to thinking about our world, global thinking. We are focusing on systems and patterns, abstractions which pull us away from reality. Losing touch with the only reality we know, our immediate environment, distorts our abstraction. As we teach broad concepts to our children, a necessity with the enormity of information they must learn, we must remember to base the concepts on reality, personal, specific things that can be observed.

Another result of increasing information is standardization; we try to equalize the education of our children by channelling the educators and education alike. Teaching styles can differ, but the same information must be presented. We lose the trivia that children so readily grasp and assimilate into concepts. Standardization of nature is difficult. Nature changes and is unchanging; the concepts are unchanging while the specifics are changeable. Standardization leaves nothing to chance; nature leaves room for chance, for change.

Chance, either good or bad, excites and interests people. Changes in routine add variety to everyday life. The standard answer to a parent's "How was school today?" inquiry is "O.K." A change in routine evokes descriptions and involves the parent in the child's education activities. A field trip outdoors to the school's science lab can be the change of routine that causes parent/child sharing and discussion; concepts become reality and are seen in a different light.

REVIEW OF LITERATURE

Environmental movements in America have prevailed under various names since colonial times with each name depicting the current outcry against the use or misuse of our natural resources. Most people are familiar with the terms conservation, nature study, and outdoor recreation; all are part of the evolution of environmental education. Recently, environmentalism has been focused on outcries against damage to the human race through misuse of natural resources. Building with Rachael Carson's Silent Spring in 1962, Adlai Stevenson's "Spaceship Earth" speech in 1965, and oil slicks near Santa Barbara, California in 1969, technology and environmental impact became enemies in the businessman's eye because business, responsible for direct impact, paid directly for most clean up efforts while Earth Day demonstrations showed public concern. In October of 1970, "the National Environmental Education Act Sailed through Congress almost without opposition" and interest in environmental education rallied to a new high point (McInnis & Albrecht, 1975). 1935 saw Wisconsin as the first state to enact a statute requiring certain teachers to have knowledge about conservation. Today, all future
Wisconsin elementary science, social studies, and agriculture teachers must achieve specific competencies in environmental education before they can receive a license to teach (Wilke, 1985). Wisconsin has taken a first step in management of a natural resource, people, and in learning about the environment.

**Education Through Whose Environment?**

But, what is the environment? According to Ralph G. Luttis (1985), there "is no such thing as 'the environment'; environment means everything and nothing because the concept is too broad." He suggest that when we refer to "the environment," we actually mean "my environment," that which is personally significant. J.B. Jackson once wrote:

> It is no use telling us that the world is our home and we should learn to love it, unless we have learned to love our own corner of it and until we have learned what that corner possess in the way of beauty and potential for human happiness (Relph, 1981, p. 195).

Both Luttis and Jackson strive to show us that before we can convert people to global thinking about the environment, we must educate them about their environment in a way that they can understand. (How does one explain "cow" to a ghetto youth?)

**Children and the Environment**

Ideally, environmental education should begin at birth; however, environmental educators realize that a transition time to the ideal is necessary. Studies have been conducted to determine the best time to incorporate environmental education into an existing curriculum. Moore (Pomerantz, 1986) found that "children have their deepest and most extensive relationship with the outdoors between ages eight and twelve" and "nature on a large scale reaches its highest level of behavior significance." Rejeski (Pomerantz, 1986), on the other hand, believes that nine and ten-year-olds are not able to acknowledge the effects of human intervention in the world. He believes the prime ages for acquiring knowledge and understanding about the environment are between ages ten and thirteen, middle school ages.

**Education Through Curriculum, Classes, and Workshops**

Initiating a change in attitude in a population require time and access to a majority of the population. Because the United States requires children to attend school until age sixteen, environmental education should logically begin in the school system. The International Schools Association (ISA) developed "A Curriculum for the Conservation of People and Their Environment" (Brennan, 1986). Introduced when the child begins kindergarten and learns about individuality or "me" and continuing through the twelfth grade where the child has progressed to interdependencies of populations on a global basis, the ISA curriculum touches not only future leaders and policy makers, but also, and more importantly, those who will not lead but must support the policies to make them effective. Stressing responsibility for the environment, or destruction of it, the ISA curriculum hopes to make a difference in attitude by contacting the child up through secondary education.

If ever completely accepted into a school system, the curriculum will take time to establish. Smooth transition can be brought about by adapting existing classes or integrating workshops on specific environmental topics into classes; the easiest group of classes to do this in is the sciences, but adaptation and integration should not be limited to just these areas. In the same respect, an outdoor science lab can provide facilities for many different kinds of classes.
Often mathematics teachers hear the cry "What good is math in the real world?" Problems based around environmental issues, such as population expansion and energy consumption, proved more interesting and more awakening to students than the number of kittens Mrs. Bumble's cat could produce according to a study done by Richard Schwarts (1985). Students learn how to work with numbers on a personal level when determining household energy use and cost and on a global level when looking at known resource reserves and energy consumption. Perhaps a forest could provide the basis for problems about timber production's relationship to paper manufacturing or a good chain example might show exponentiality.

A winter ecology class offered at Wood Lake Nature Center in Richfield, Minnesota, in 1981 narrowed ecological processes to a personal level. The class, prompted by families' complaints of not being able "to do things together" during winter, used children and parents as co-equal educators studying snow, wind chill, shelter, animals, ice acid precipitation, and travel methods. The class participants overwhelmingly agreed that the course caused parents and children to interact more. Parents said that the course gave them a shared learning experience with their children and that they could now do something outdoors with their children in the winter. Children suggested they shared more details with their parents while taking about the course because their parents knew what they meant. Both groups agreed that they learned about the magic of winter and that the winter season was as alive with nature and the other three seasons (Gennaro, Sigford, & Heller, 1983).

A research paper by Pamela A. Sommer (1981) for the degree of Master of Arts Education show how art education and environmental education can be combined by using art as a medium of expression to bring environmental issues to life. The lesson plans she includes allow children to learn about a topic and then to express what they have learned. Beginning with the sun as a basic energy source, Sommer continues her twelve point environmental theme through to the conclusion that each person is a steward of the earth. For the reader's benefit, Sommer has listed descriptions and addresses of relevant literature and publication and of interdisciplinary programs for strengthening environmental studies in schools.

Gennaro and Humphrey, from the University of Minnesota, a leader in environmental education, and Abraham and Bender (1979/1980), from the Minnesota Botanical Garden, worked together to generate curriculum material to prepare students for field trips to science centers. Apparently, maybe students go on field trips without background knowledge of what they will be seeing or what they should observe on the trip. Preparation, according to this team, could increase the field experience, should be used for all education, and may be extended into the classroom where instructors can inform the class to what point the lecture is leading.

Communication of Ideas

Communication of ideas takes place in many ways in formal education. Most instructors rely on lectures, films, and case studies or examples; some provide posters and bulletin boards, require research papers or projects, or suggest readings in books, magazines, or newspapers. Recently, computers have arrived in the classroom. Environmental Education: A Manual for Elementary Education (Robinson & Wolfson, 1982) includes methodologies for exploring environments and environmental issues. Using a step-by-step format, the authors of this manual try to put beginning educators at ease with environmental education by explaining basic ecological principles.

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One source of communication rarely used by instructors revolves around active student participation in learning overall concepts. This source, games, is used less frequently as one progresses up the ladder of education because games must increase in sophistication and complexity to correlate with students' minds. Playing with Energy (Carey, 1981) describes a skeletal framework for five simulation games for grades 9-12 for an "Energy-Enriched Curriculum." Instructors must "flesh out" the frame as they adapt the games to meet their own particular needs. Playing with Energy uses games that teach students about the complexities of social dilemmas.

A highly developed simulation game based on the tragedy of the commons also deals with social dilemmas because the only reward for helping preserve the common resource is extended use of the resource whereas exploiting the resource brings instant personal reward. Designed to teach students that resources which are not owned are overexploited and eventually destroyed, the game visibly shoes the frustration of short- and long-term gains and rewards (Powers, 1985/1986).

Awareness Versus Action

The 1981 Council on Environmental Quality stated that public awareness of environmental issues can help build a climate for responsive citizen and government action. However, "the public must also take an active part in the process of finding [necessary and long-term] solutions" to alter the present trends. Jordan, Hungerford, and Tomera (1986) studied high school students' knowledge of and participation in responsible environmental behaviors before and after a six-day environmental education workshop. While both groups received awareness education, one group also received instruction in action strategies. The results showed that the latter group showed increased knowledge and reported participation in a greater number of environmental behaviors; however, the types of programs they participated in were ones they were familiar with and did not require much effort. In discussing their findings, the authors suggested tailoring action strategies to suit the current lifestyles of the students.
REFERENCES


OUTDOOR EDUCATION GOALS, OBJECTIVES, AND ACTIVITIES

Grade 3

Goals

1. To instill an appreciation and understanding of the total environment.

2. To understand that the natural environment is continually affected by the interaction of living and nonliving things.

3. To develop an understanding of the interrelationship of man and his environment.

4. To equip students with knowledge and skills to enable them to evaluate their impact on the natural environment.

Objectives

1.1 Use a variety of senses to experience the environment.

1.2 Express feelings about the environment.

1.3 Gain exposure to environmental perceptions of others.

2.1 Identify characteristics of living and nonliving things.

2.2 Demonstrate knowledge of the cyclic nature of systems found in the environment.

2.3 Describe relationships among environmental factors.

3.1 Identify sociological, economic, political, and aesthetic issues.

3.2 Understand the impact of man's actions on the environment, i.e. industry, agriculture, technology, and utilization of the natural environment.

4.1 Develop the process skills needed to study one's environment.

4.2 Utilize problem solving methodology to understand and resolve real problems.

Activities

1.11 Sounds in City and Forest

1.21 Plant Personification

1.31 An Individual Experiment

2.11 Adopt-A-Tree

2.21 Evaporation of Water

2.22 Plant Growth and Temperature

2.31 Sunlight and Shades of Green

3.11 Plant Dyes

3.21 Another Way of Seeing

4.11 Classroom Conservation

4.21 A Tree From An Acorn Grows
GOAL 1: TO INSTILL AN APPRECIATION AND UNDERSTANDING OF THE TOTAL ENVIRONMENT.

OBJECTIVE: 1.1 Use a variety of senses to experience the environment.

Sounds in City and Forest

OBJECTIVE

Students will use their sense of hearing to determine differences between urban and forest environments and be able to describe these differences.

ACTIVITY

Take your class out to the school grounds and ask the students to close their eyes and listen silently for ten minutes. (The students may use blindfolds, if they wish. They might also divide into pairs, with one student wearing a blindfold and the other being a guide, taking turns leading each other on a "sounds walk.")

When the ten minutes are up, ask the students to write down what they heard and how it made them feel. How many sounds did they distinguish? Ask the students to share the feelings they had when listening.

Repeat the exercise in a city park and in a wooded area. Suggest that the students, alone or with a partner, repeat the activity at different times of the day and seasons of the year.

Discuss in class:
The number and kind of different sounds you heard.
Similarities and differences between sounds heard in the three locations — the school grounds, the city park, and the wooded area.
What these sounds might tell you about the school grounds, the city, and the forest as environments for human and wildlife habitation.
The feelings you had not talking for ten minutes in the presence of others.
The relationships between sounds, talking, and communication.

EXTENSIONS

1. Make your own musical instruments and music to represent the sounds of school grounds, cities, and forests.

2. Pick and listen to records that represent different sounds you have heard in school grounds, cities, and forests. Draw pictures of these sounds.

3. Make lists of the sounds you have heard in the school grounds, the city, and the forest. Pick colors to represent each of the sounds. Pick numbers to represent each of the sounds and add and subtract them.
GOAL 1: TO INSTILL AN APPRECIATION AND UNDERSTANDING OF THE TOTAL ENVIRONMENT.

OBJECTIVE: 1.2 Express feelings about the environment.

Plant Personification

OBJECTIVE

Students will be able to portray their feelings about the forest environment through creative dramatics.

ACTIVITY

Ask your students to use both large- and small-muscle activity to move like the emotions trees might feel when there is a:

- Gentle breeze
- Violent windstorm
- Gentle rain
- Hard rainstorm with thunder and lightning
- Snowstorm
- Forest fire
- Squirrel running up their trunks
- Bird nesting in their branches
- Person climbing them
- Person carving on their bark
- Person planting them
- Person harvesting them

Your students may participate as one large group during each of these different activities; in small groups with the others observing; or singly with the other students observing and possibly guessing what activity is taking place.
(Continued)

VARIATIONS

1. Read to your students, or have them create, a short story in which
trees experience events similar to those listed in the first activity.
Then, the students may substitute the appropriate dramatic inter-
pretive movements each time the word or event occurs in the
story.

2. Students may wish to create a puppet show in which plant and
animal characters portray their activities, impressions, and
emotions related to their home in the forest during different seasons
or during events like those listed in the first activity.

3. Play a recording of music which was composed to reflect events
such as those mentioned and ask students to respond with large-
muscle activities to the rhythms. Examples of musical selections
are:

   Appalachian Spring by Aaron Copland
   Peter and the Wolf by Prokofiev
   A Walk in the Black Forest by Horst Jankowski
   William Tell Overture by Rossini
   Thunder and Lightning Polka by Johann Strauss
   Nutcracker Suite by Tchaikowsky
   Woodland Sketches by MacDowell
   Finlandia by Sibelius
   Grand Canyon Suite by Ferde Grofé
   Beethoven’s Sixth Symphony
   Rocky Mountain Suite by John Denver
An Individual Experiment

OBJECTIVE

Students will be able to describe the feelings they experience during a few minutes solitude in a given outdoor environment.

ACTIVITY

Divide your class into small groups of four of five students each and pair each group with an older student in order to explore an outdoor setting.

Suggest that each group of students go into the forest or other outdoor setting and choose a quiet spot. Each group should remain in their quiet spot for a specified time (10 minutes is suggested), talking not at all or softly, and thinking their own thoughts. When the time is up, the older students should bring each student group back to a specified meeting area. Ask each group to share their experience with the others. Suggest that each person describe the things he or she heard, saw, smelled, touched. Ask each student to describe the feelings he or she had while in the quiet spot. (The option should also be open NOT to share one's thoughts.)

VARIATIONS

1. Ask one student to take another to the first person's favorite spot. Have the second student describe what he or she liked best about the other student's favorite environment. Then reverse the roles.

2. Ask each student to go off into a wooded area, alone but remaining within sight and sound. Each student is to pick an object such as a cloud, tree, or bird and pretend to be that object. Suggest that each student think of the survival needs of that living or nonliving thing; its life span; its territory, and who or what else depends on it. When students come back to the group at the end of a given time, they may, if they wish, describe their experiences and actions as that thing. Then they might describe their thoughts and feelings related to the activity.
GOAL 2: TO UNDERSTAND THAT THE NATURAL ENVIRONMENT IS CONTINUALLY AFFECTED BY THE INTERACTION OF LIVING AND NONLIVING THINGS.

OBJECTIVE: 2.1 Identify characteristics of living and nonliving things.

Adopt-A-Tree

OBJECTIVE

Students will be able to list the basic characteristics of a tree as determined by their own observations.

ACTIVITY

This activity may be conducted as a class project; with a class divided into groups of three or four students each; or with students working individually. Several related activities are included in the pages that follow. They are indicated by Adopt-A-Tree in the titles.

This activity begins with adopting a tree (or trees) near or on your school site. If there are no trees nearby you might bring a potted tree to your classroom or try to have a tree planted on the school grounds. "Adopting-a-tree" is a valuable way to initiate a unit of study on trees with any age group.

The first visit

Visit the adopted tree(s).
Describe the tree as it is right now, today.
Look at its physical characteristics (size, leaf shape, bark color, and other features).
Look to see whether it is alive. How can you tell?
Look to see whether it appears to be asleep (dormant) or awake. How can you tell?
Listen to find out whether it makes any sounds.
Smell to find out whether it has an odor. Do different parts of the tree smell different — like bark, old leaves, new leaves? Think about whether the tree and its parts might smell different to you at other times of the year.
Think about how the tree got where it is and how new trees might come to join it.
Think about what other living things might need this tree for survival. Think about what things the tree might need for its own survival. Think about how long the tree might live.

Warning: Do not taste any part of the tree.

Repeat the visits throughout the year and compare observations made each time.

Look to see how the tree has changed.
Look to see in what ways the tree has remained the same.
Think and talk about what the tree might look like the next time you visit it.
After the first or more visits

Once back in the classroom and now that you and your students have adopted a tree, you might ask your students to tell you what they think a tree is. Accept all statements offered and be careful to record the students' exact words and phrases. List the statements on the chalkboard; discuss and make any changes suggested. When statements have been agreed upon, you and the students can put them together in the form of a poster, chart, or bulletin board.

Here are some sample statements:

A tree is a living thing.
A tree has many parts, just as people have many parts to their bodies.
There is the trunk (main torso), bark (skin), branches (arms, legs), leaves or needles (hair).
Trees have names. [The children can mention some names of trees.]
A tree has many uses. [You and the students may wish to list some.]
A tree interacts with and is dependent upon many other organisms, such as insects, mammals, and birds.

These initial activities can help you decide on follow-up projects by indicating what the students already know, what their interests are, and the kinds of additional information they might acquire.

EXTENSIONS

1. Brainstorm from 10 to 15 adjectives that could be used to describe a tree. These words can be used to write a poem (haiku or cinquain) or short paragraph about the tree.
   (See Bibliography, numbers 125, 127, 128 and 345.)
2. Create and present a short story, puppet show, or play about the tree's parents and/or its offspring.

3. Imagine sounds you might hear near the tree. Can you hear leaves moving, animals, birds? Write a brief description of these sounds, inventing appropriate words, if necessary. Imagine you are looking at the tree. What colors and shapes do you see? Write a brief description, using your new words, of how the tree looks, smells, feels, and sounds.

4. Write a brief, imaginary conversation with your tree. What might your tree think, see, feel, hear, and smell? (You may wish to record the conversations on tape.)

5. Imagine you are a radio or television reporter interviewing a person, bird, or animal that lives in a forest or in a tree. Write down some questions you might ask, such as: How do you like your home? Who are your neighbors? What do you do for a living?

6. Take a tree to lunch. During lunch, consider these and other questions:
   - What is it like under the tree?
   - What animals visit the tree while you are there?
   - What kind of help is the tree getting from people, if any (watering, feeding, pruning), and does it need that help?
   - Why and when does it need help?
   - What kinds of things, if any, are damaging the tree?
   - Has the tree cast seeds? Have any seeds developed into seedlings?
   - How does the tree take care of itself?
   - How much of its history can you observe? Has it had any accidents (such as being hit by lightning)?
   - Is the tree crowded by other trees or by buildings?

7. See whether your tree makes a shadow. Watch the changes in your tree's shadow at different times of the day and during different times of the year.

8. See whether you can use your tree, without hurting it, to make a sundial. Can it help you keep time?

9. Make paintings, drawings, or photographs of the shapes and shades of color you find when sunlight and shadows can be seen on and around your tree.

10. Describe your tree in enough detail so that someone else can recognize it. Share what you have learned by inviting someone else to visit your tree — and be sure to visit your friend's tree, too.
GOAL 2: TO UNDERSTAND THAT THE NATURAL ENVIRONMENT IS CONTINUALLY AFFECTED BY THE INTERACTION OF LIVING AND NONLIVING THINGS.

OBJECTIVE: 2.2 Demonstrate knowledge of the cyclic nature of systems found in the environment.

2.21 Evaporation of Water

Objective: Students will be able to label the Water Cycle in the correct order.

Activities:
- Listen to the Wallensak Tape of the Water Cycle.
- Complete the worksheet that accompanies the tape.
- Observe a dish of water and explain the evaporation process.
- Observe a cold glass of water on a humid day to observe condensation.
- Have students draw pictures illustrating the 4 types of precipitation.

Discussion:
- The relationship of temperature on evaporation and condensation.
- Evaporation and how it takes place on different surfaces.
- The good and bad results from precipitation.
GOAL 2: TO UNDERSTAND THAT THE NATURAL ENVIRONMENT IS CONTINUALLY AFFECTED BY THE INTERACTION OF LIVING AND NONLIVING THINGS.

OBJECTIVE: 2.2 Demonstrate knowledge of the cyclic nature of systems found in the environment.

Plant Growth and Temperature

OBJECTIVE.

Students will be able to describe relationships between temperature and plant growth.

ACTIVITY

Late in winter, just before local outdoor plants usually begin to blossom, ask your students to select a bush or tree near your school. Ask them then to place an India ink or string marker near the terminal bud or bud scar and measure the distance from the marker to the end of the branch.

Ask the students to record the air temperature and measure the twig for growth every two or three days at the same time of day. After an extended period of time, they can graph the data collected showing temperature on the vertical axis of the graph and growth on the horizontal axis.

Discuss:
The relationship between air temperature and the amount of plant growth.
Any variables that may have influenced results, besides air temperature. (Soil moisture, cloud cover, etc.)
How further investigations could be conducted to determine the effect of each of these factors.
VARIATIONS

1. The graph may be done as a bulletin board with separate groups of students keeping track of specific bushes or trees so that comparisons may be made. This project can be ongoing throughout the school year, noting differences in growth at different times.

2. This activity may be conducted with dramatic results indoors as well as outdoors. Seeds from plants that grow rapidly, such as sunflowers and green beans, produce large, green leaves very quickly. Assist the students in planting such seeds in containers in the classroom. Once the plants have sprouted, you and the students can mark pen and ink reference points on a few leaves. For example, a 9-dot square works well, as does a grid. Each of these patterns will change dramatically in a few days, with the growth of the leaves.

Once the students have seen leaf changes with growth, you can add the temperature variable. Use at least three healthy and young sunflower or bean plants. Place one plant in a cool temperature, one in a warm place, and one at room temperature. Mark each of the plants with a new reference point. Tend the plants as you normally would, attempting to keep the temperature constant in each of the three places. Ask the students to record changes they observe in the growth of the plants. Discuss the results, asking the students to describe the relationships they observe between temperature and plant growth.
GOAL 2: TO UNDERSTAND THAT THE NATURAL ENVIRONMENT IS CONTINUALLY AFFECTED BY THE INTERACTION OF LIVING AND NONLIVING THINGS.

OBJECTIVE: 2.3 Describe relationships among environmental factors.

Sunlight and Shades of Green

OBJECTIVE

Students will be able to describe the effects of lack of sunlight on plant leaves.

ACTIVITY

Choose a small shrub or tree with leaves which are easily reached. Ask the students to cut out several circles or squares of cardboard, each just large enough to make a good-sized "patch" on a leaf of the shrub or tree.

Show the students how to use paper clips to attach a cardboard circle or square to each of several leaves. After four days, remove the pieces of cardboard and have the class observe the lighter-colored spot on each leaf where the cardboard deprived the leaf of light.

Engage the students in a discussion of the effects of the sunlight deprivation. For example, encourage the students to wonder what might have caused the spot. Ask if any of them has ever seen this happen before? What might have caused it then? (Some students may have observed this phenomenon when they moved objects that had been placed and left on growing grass for a period of time.) Consider why plants that live in the shade are not yellow-green. Compare two leaves from the same species of plant, one from a plant growing in full sunlight and the second from a plant growing in the shade. Which one is a deeper green? How can this be?

Once the students' observations and any spin-off investigations are complete, ask them to describe the effects of lack of sunlight on plant leaves.
GOAL 3: TO DEVELOP AN UNDERSTANDING OF THE INTER-RELATIONSHIP OF MAN AND HIS ENVIRONMENT.

OBJECTIVE: 3.1 Identify sociological, economic, political, and aesthetic issues.

Plant Dyes

OBJECTIVE

Students will be able to use plant materials to create various colored dyes and will be able to use these dyes to create a painting and/or dye cloth.

ACTIVITY

This is an activity designed to have students collect plant materials to make plant dyes. The students can use these dyes to paint pictures of the things they saw while they collected the materials or to dye cloth for later use in art projects.

Make use of the collecting time to teach conservation practices in collecting. The materials collected should not noticeably change the environment of the area in which they were found. In some parts of the country and in national parks, it is against the law to pick wild flowers and plants. Find out if this is the case in your area. Also investigate to avoid any poisonous plants. Be sure to supervise carefully your students throughout this activity. Make sure no students attempt to taste any of the plants or berries they collect.

The plant materials below may be available in your area:

<table>
<thead>
<tr>
<th>Color</th>
<th>Plant Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue-violet</td>
<td>Cherry roots</td>
</tr>
<tr>
<td>Purple</td>
<td>Elderberries, black raspberries</td>
</tr>
<tr>
<td>Reddish-purple</td>
<td>Pokeweed berries</td>
</tr>
<tr>
<td>Red-pink</td>
<td>Dandelion roots, cherries, strawberries, red raspberries, cardinal flowers, sorrel roots and bark, red oak bark, hemlock bark</td>
</tr>
<tr>
<td>Violet</td>
<td>Grapes</td>
</tr>
<tr>
<td>Blue</td>
<td>Blueberries (boiled)</td>
</tr>
<tr>
<td>Dark brown</td>
<td>Walnut husks (boiled)</td>
</tr>
<tr>
<td>Reddish brown</td>
<td>Buckeye husks</td>
</tr>
<tr>
<td>Yellow</td>
<td>Goldenrod (boiled), willow leaves, March marigolds, ash (inner bark), St. Johnswort flowers (boiled), onion skin, tulip trees' leaves, ragweed, burdock, Osage orange roots and bark (boiled)</td>
</tr>
<tr>
<td>Rose tan</td>
<td>Birch bark, willow bark, sassafras roots</td>
</tr>
<tr>
<td>Green</td>
<td>Plantain leaves and roots (boiled), nettle (roots, stalk, leaves), lily of the valley leaves</td>
</tr>
<tr>
<td>Yellow-orange</td>
<td>Bloodroot (boiled)</td>
</tr>
<tr>
<td>Salmon</td>
<td>Cherry bark</td>
</tr>
<tr>
<td>Black</td>
<td>Walnut husks, sumac leaves</td>
</tr>
</tbody>
</table>
Procedure:

Chop all materials. Boil each kind of material separately. Strain. Add alum — ¼ to ½ teaspoon (1 to 2 milliliters) to 2 cups (475 milliliters) of liquid. (Alum helps to make the dye colorfast.) If curdling occurs, add cream of tartar in the same amount.

Use these materials to paint with or to dye cloth. 100% wool is one of the best fabric materials to use for dyeing since it takes the dye easily. Your fabric should be simmered in the dye for at least 30 minutes. Wring out the dyed fabric. Wash repeatedly in baths of cold water; repeat until the water is clear. Hang the fabric to dry.

This activity could be valuable as a portion of a unit on early life in the United States.

EXTENSIONS

1. Make a color wheel using dyed material and indicating the plant sources of the colors represented.
2. Get some raw wool or unravel some wool yarn. Make a simple spindle. Spin the wool. Make a weaving.
GOAL 3: TO DEVELOP AN UNDERSTANDING OF THE INTERRELATIONSHIP OF MAN AND HIS ENVIRONMENT.

OBJECTIVE: 3.2 Understand the impact of man's actions on the environment, i.e., industry, agriculture, technology, and utilization of the natural environment.

Another Way of Seeing

OBJECTIVE

Students will be able to identify similarities and differences between their current lifestyles and those of some early Native Americans.

ACTIVITY

Take the students on an excursion in guided imagery.
Ask the students to relax and close their eyes.
The following phrases are suggestions; ( indicated a pause of a few moments).

_Imagine yourself where you were when you first woke up this morning_. . . . Put yourself in that place and tune in your senses to that moment . . . the sights, sounds, smells, feelings of where you were . . . .

_Get up and begin your day, making your preparations for school_. . . . Notice what running water, electricity, and other conveniences you use . . . again paying attention to all your sensations . . . .

_Still in your imagination, set out on your way to school, traveling the way you usually do_. . . . As you go, pay attention to smells . . . sounds . . . feelings . . . and sights. At some point along the way where you feel comfortable, stop. Turn around once, slowly . . . .

_Now, let the scene around you change. Let the buildings, the road, or sidewalk, the whole community seem to melt away_. . . . to the way it may have been a long time ago . . . . Imagine the day is just beginning once again . . . . Imagine yourself now as a member of a Native American tribe who lived in the area at least 200 years ago . . . . You are just waking up . . . . Notice your surroundings . . . . the sounds, smells, sights, and feelings which greet you . . . . Get up and begin your morning activities, paying attention to where you are and what you use to do each thing . . . .

_When you are ready, bring yourself back to the present_. . . . and open your eyes.

Invite the students to share their experiences.

*Note: Guided imagery can be a relaxing and quieting activity. Many people feel like keeping quiet afterwards, while others are bursting with eagerness to share what happened with them. Encourage, but do not require, participants to talk about their personal journeys. An alternative mode for sharing nonverbally — for example, drawing or pantomime — might prove useful and enriching.*
GOAL 4: TO EQUIP STUDENTS WITH KNOWLEDGE AND SKILLS TO ENABLE THEM TO EVALUATE THEIR IMPACT ON THE NATURAL ENVIRONMENT.

OBJECTIVE: 4.1 Develop the process skills needed to study one's environment.

Classroom Conservation

OBJECTIVE

Students will be able to suggest ways that paper and other natural resources can be reused and recycled in the classroom.

ACTIVITY

For one week, ask your students to save all waste paper generated by class activities. Assign groups to separate the papers into two stacks each day: One for paper that has been completely used and the other for paper that could be used again for some purpose.

At the end of the week, compare the amount of paper in the stacks and lead a class discussion on “Are we wasting paper?” Give each group some of the reusable paper, pencils, and one of these articles: grocery bag, shoe box, magazine, gift-wrap paper, Christmas cards, newspaper, lunch sack, milk carton.

Ask each group to list on the paper all the ways they can think of to reuse the article. After 10 minutes, share the ideas. Repeat this exercise with articles like ditto paper and other items commonly used in the classroom, such as pencils and crayons. You and the students can act on the suggestions you consider most worthwhile, making them a part of your classroom way of life.

Suggestions for a few classroom conservation activities:

1. Maintain a room recycling center (at Christmas time you might call it Santa’s Recycling Workshop). Make gifts, models, table decorations, collages, bookmarks, name tags, and anything else students can suggest out of products for recycling from school and from home.

2. Give each student a 12 by 12 inch (30 by 30 centimeter) piece of Masonite painted a slate color to use instead of paper for practicing writing and drawing skills. Use chalk and erase the markings with a damp cloth at the conclusion of each exercise.

3. Instead of using construction paper to teach color awareness, try using colors cut from magazine pictures.
VARIATION

Ask students to keep track of the natural resources they use in one day in the classroom. Begin with a general discussion of conservation and a brainstorming of materials typically used during a school day in the classroom. With the beginning of your list generated and pasted for all to see, you and the students can proceed engaging in other classroom activities you may have planned for the day. Stop these activities a few times during the day to take the time to add to your list any additional natural resources you and the students may have used. Let the list stay up overnight in the classroom. The next morning look it over to see if it seems complete and accurately reflects the previous day's activities. Make a list of specific things you can do to make use more wisely of the natural resources in your classroom. Begin immediately by practicing some of these suggestions. Share your lists of "Classroom Conservation Practices" with other interested students and teachers.
GOAL 4: TO EQUIP STUDENTS WITH KNOWLEDGE AND SKILLS TO ENABLE THEM TO EVALUATE THEIR IMPACT ON THE NATURAL ENVIRONMENT.

OBJECTIVE: 4.2 Utilize problem solving methodology to understand and resolve real problems.

A Tree From an Acorn Grows

OBJECTIVE

Students will be able to describe the ways in which their adopted tree propagates itself.

ACTIVITY

During a walk outside to observe their adopted trees, direct the students' attention, if at all possible, to whatever propagation method is used by the trees (such as cones, seeds, fruits with seeds inside, and suckers). Ask students if they would like to try to grow another tree from their adopted tree. Then, again if possible, bring seeds or seedlings back to the classroom for closer observation. Experiment with planting and caring for the trees. Try different soils—some from the area where the adopted tree is, some from other areas. Compare results. Once a new tree is well established as a seedling, it might be planted in an area the students choose, think appropriate, and determine is well suited to the tree's survival needs.

It might also be possible to visit a nursery where the students could see trees in various stages of growth.
1. Name (optional)

2. Grade(s) or subject(s) taught

3. Have you had any training in any area of environmental education through classes, workshops, in-service, self-taught, etc.? Yes No
   If so, what area(s) and how were you trained?

   Project Learning Tree
   Hired at Mary Gray Sanctuary for a summer
   Member of Audubon Society Greenpack, Nature Conservancy

4. Because it is a relatively new science, definitions of environmental education differ. What do you include in your definition? (Check as many as apply to you.)
   ✓ Plant and animal identification and habitat study
   ✓ Nature study (ecological systems on a ✓ local and/or ✓ global level)
   ✓ Camping education (resident environmental education)
   ✓ Cultural resource study (places and objects, both past and present)
   ✓ Conservation education (husbandry of resources)
   ✓ Outdoor education (curriculum-wide outdoor study)
   ✓ Citizenship education (commitment to action)
   ✓ Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)
   ✓ Environmental interpretation (viewing old environments in new ways)
   Other (please specify)

5. Which of these do you think are appropriate for your grade(s) level or subject(s)? (Check as many as apply to you.)
   ✓ Plant and animal identification and habitat study
   ✓ Nature study (ecological systems on a ✓ local and/or ✓ global level)
   ✓ Camping education (resident environmental education)
   ✓ Cultural resource study (places and objects, both past and present)
   ✓ Conservation education (husbandry of resources)
   ✓ Outdoor education (curriculum-wide outdoor study)
   ✓ Citizenship education (commitment to action)
   ✓ Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)
   ✓ Environmental interpretation (viewing old environments in new ways)
   Other (please specify)

   Other (please specify)
6. Which do you feel comfortable teaching? (Check as many as apply to you.)

- Plant and animal identification and habitat study
- Nature study (ecological systems on a local and/or global level)
- Camping education (resident environmental education)
- Cultural resource study (places and objects, both past and present)
- Conservation education (husbandry of resources)
- Outdoor education (curriculum-wide outdoor study)
- Citizenship education (commitment to action)
- Resource management education (protection, conservation, enhancement, utilization, development, resoration of renewable/non-renewable resources)
- Environmental interpretation (viewing old environments in new ways)
- Other (please specify) ____________________________________________
- Other (please specify) ____________________________________________

7. What methods of teaching do you feel comfortable using outdoors? (Check as many as apply to you.)

- Book preparation indoors and application outdoors
- Books and diagrams taken with you outdoors
- Team teaching
- Observation and discovery
- Play/games
- Sampling with instruments (research)
- Lecture walks
- Role playing
- Other (please specify) ____________________________________________
- Other (please specify) ____________________________________________
- Other (please specify) ____________________________________________
- Other (please specify) ____________________________________________

8. Are you willing to take your class (for one class period) on a walking tour of the surrounding community to study different environments?  
- Yes  ✔  No

9. If so, how far from the school building are you willing to travel one way to reach a certain type of environment?  
- 1-5 minutes
- 6 minutes
- 7 minutes
- 8 minutes  ✔  9 minutes
- 10 minutes
- 11-15 minutes
- 15 or more minutes
10. Please list the different types of environments you feel exist within the school grounds and the Yorktown community.

Aquatic, terrestrial, arboreal, sub-terrestrial

Comments
I feel that environmental issues must be a part of the curriculum at all levels. Awareness of the poisoning of our planet must be a priority issue that crosses all aspects of curriculum.
1. Name (optional)

2. Grade(s) or subject(s) taught

3. Have you had any training in any area of environmental education through classes, workshops, in-service, self-taught, etc.?  Yes  No  If so, what area(s) and how were you trained?

4. Because it is a relatively new science, definitions of environmental education differ. What do you include in your definition? (Check as many as apply to you.)

   Plant and animal identification and habitat study
   Nature study (ecological systems on a __local
   and/or __global level)
   Camping education (resident environmental education)
   Cultural resource study (places and objects, both past and present)
   Conservation education (husbandry of resources)
   Outdoor education (curriculum-wide outdoor study)
   Citizenship education (commitment to action)
   Resource management education (protection, conservation, enhancement, utilization, development, resoration of renewable/non-renewable resources)
   Environmental interpretation (viewing old environments in new ways)
   Other (please specify)
   Other (please specify)

5. Which of these do you think are appropriate for your grade(s) level or subject(s)? (Check as many as apply to you.)

   Plant and animal identification and habitat study
   Nature study (ecological systems on a __local
   and/or __global level)
   Camping education (resident environmental education)
   Cultural resource study (places and objects, both past and present)
   Conservation education (husbandry of resources)
   Outdoor education (curriculum-wide outdoor study)
   Citizenship education (commitment to action)
   Resource management education (protection, conservation, enhancement, utilization, development, resoration of renewable/non-renewable resources)
   Environmental interpretation (viewing old environments in new ways)
   Other (please specify)
   Other (please specify)
6. Which do you feel comfortable teaching? (Check as many as apply to you.)

- Plant and animal identification and habitat study
- Nature study (ecological systems on a __local and/or __global level)
- Camping education (resident environmental education)
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- Conservation education (husbandry of resources)
- Outdoor education (curriculum-wide outdoor study)
- Citizenship education (commitment to action)
- Resource management education (protection, conservation, enhancement, utilization, development, resoration of renewable/non-renewable resources)
- Environmental interpretation (viewing old environments in new ways)
- Other (please specify)
- Other (please specify)
- Other (please specify)
- Other (please specify)

7. What methods of teaching do you feel comfortable using outdoors? (Check as many as apply to you.)

- Book preparation indoors and application outdoors
- Books and diagrams taken with you outdoors
- Team teaching
- Observation and discovery
- Play/games
- Sampling with instruments (research)
- Lecture walks
- Role playing
- Other (please specify)
- Other (please specify)
- Other (please specify)
- Other (please specify)
- Other (please specify)

8. Are you willing to take your class (for one class period) on a walking tour of the surrounding community to study different environments?  
- Yes  
- No

9. If so, how far from the school building are you willing to travel one way to reach a certain type of environment?  
- 1-5 minutes
- 6 minutes
- 7 minutes
- 8 minutes
- 9 minutes
- 10 minutes
- 11-15 minutes
- 15 or more minutes
10. Please list the different types of environments you feel exist within the school grounds and the Yorktown community.

Comments: I would be good to have a well-planned education. I would like to understand more about the educational system and how it works.
1. Name (optional) Margaret McClellan

2. Grade(s) or subject(s) taught 2

3. Have you had any training in any area of environmental education through classes, workshops, in-service, self-taught, etc.? Yes No
If so, what area(s) and how were you trained?
Project Wild Conservation for Children, workshop

4. Because it is a relatively new science, definitions of environmental education differ. What do you include in your definition? (Check as many as apply to you.)

☑ Plant and animal identification and habitat study
☑ Nature study (ecological systems on a local and/or global level)
☐ Camping education (resident environmental education)
☐ Cultural resource study (places and objects, both past and present)
☑ Conservation education (husbandry of resources)
☑ Outdoor education (curriculum-wide outdoor study)
☑ Citizenship education (commitment to action)
☐ Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)
☐ Environmental interpretation (viewing old environments in new ways)
☐ Other (please specify)
☐ Other (please specify)

5. Which of these do you think are appropriate for your grade(s) level or subject(s)? (Check as many as apply to you.)

☑ Plant and animal identification and habitat study
☑ Nature study (ecological systems on a local and/or global level)
☐ Camping education (resident environmental education)
☐ Cultural resource study (places and objects, both past and present)
☑ Conservation education (husbandry of resources)
☑ Outdoor education (curriculum-wide outdoor study)
☑ Citizenship education (commitment to action)
☑ Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)
☐ Environmental interpretation (viewing old environments in new ways)
☐ Other (please specify)
☐ Other (please specify)
6. Which do you feel comfortable teaching? (Check as many as apply to you.)

- Plant and animal identification and habitat study
- Nature study (ecological systems on a local and/or global level)
- Camping education (resident environmental education)
- Cultural resource study (places and objects, both past and present)
- Conservation education (husbandry of resources)
- Outdoor education (curriculum-wide outdoor study)
- Citizenship education (commitment to action)
- Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)
- Environmental interpretation (viewing old environments in new ways)
- Other (please specify)
- Other (please specify)

7. What methods of teaching do you feel comfortable using outdoors? (Check as many as apply to you.)

- Book preparation indoors and application outdoors
- Books and diagrams taken with you outdoors
- Team teaching
- Observation and discovery
- Play/games
- Sampling with instruments (research)
- Lecture walks
- Role playing
- Other (please specify): classification of living and non-living things
- Other (please specify): collecting on nature walks
- Other (please specify)
- Other (please specify)

8. Are you willing to take your class (for one class period) on a walking tour of the surrounding community to study different environments? 
- Yes
- No

9. If so, how far from the school building are you willing to travel one way to reach a certain type of environment?
- 1-5 minutes
- 6 minutes
- 7 minutes
- 8 minutes
- 9 minutes
- 10 minutes
- 11-15 minutes
- 15 or more minutes
10. Please list the different types of environments you feel exist within the school grounds and the Yorktown community.

I'm not really sure. Plant, animal, living, non-living?

Comments: If you are interested in knowing specific types of activities we have done in the past in grades K-2, please let me know and I will share them with you. At the primary level, we do more classifying, observations, discovering, and rule playing.
1. Name (optional)  

Marilyn Swander  

2. Grade(s) or subject(s) taught   

Second  

3. Have you had any training in any area of environmental education through classes, workshops, in-service, self-taught, etc.?  

✓ Yes  

No  

If so, what area(s) and how were you trained?  

Project Wild - Self - Inservice  

4. Because it is a relatively new science, definitions of environmental education differ. What do you include in your definition? (Check as many as apply to you.)  

✓ Plant and animal identification and habitat study  

✓ Nature study (ecological systems on a ✓ local and/or _ global level)  

✓ Camping education (resident environmental education)  

✓ Cultural resource study (places and objects, both past and present)  

✓ Conservation education (husbandry of resources)  

✓ Outdoor education (curriculum-wide outdoor study)  

✓ Citizenship education (commitment to action)  

✓ Resource management education (protection, conservation, enhancement, utilization, development, resoration of renewable/non-renewable resources)  

✓ Environmental interpretation (viewing old environments in new ways)  

Other (please specify)  

Other (please specify)  

5. Which of these do you think are appropriate for your grade(s) level or subject(s)? (Check as many as apply to you.)  

✓ Plant and animal identification and habitat study  

✓ Nature study (ecological systems on a ✓ local and/or _ global level)  

✓ Camping education (resident environmental education)  

✓ Cultural resource study (places and objects, both past and present)  

✓ Conservation education (husbandry of resources)  

✓ Outdoor education (curriculum-wide outdoor study)  

✓ Citizenship education (commitment to action)  

✓ Resource management education (protection, conservation, enhancement, utilization, development, resoration of renewable/non-renewable resources)  

✓ Environmental interpretation (viewing old environments in new ways)  

Other (please specify)  

Other (please specify)
6. Which do you feel comfortable teaching? (Check as many as apply to you.)

✓ Plant and animal identification and habitat study
✓ Nature study (ecological systems on a local and/or global level)
✓ Camping education (resident environmental education)
✓ Cultural resource study (places and objects, both past and present)
✓ Conservation education (husbandry of resources)
✓ Outdoor education (curriculum-wide outdoor study)
✓ Citizenship education (commitment to action)
✓ Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)
✓ Environmental interpretation (viewing old environments in new ways)
Other (please specify)

Other (please specify)

7. What methods of teaching do you feel comfortable using outdoors? (Check as many as apply to you.)

✓ Book preparation indoors and application outdoors
✓ Books and diagrams taken with you outdoors
✓ Team teaching
✓ Observation and discovery
✓ Play/games
✓ Sampling with instruments (research)
✓ Lecture walks
✓ Role playing
Other (please specify)

Other (please specify)

Other (please specify)

8. Are you willing to take your class (for one class period) on a walking tour of the surrounding community to study different environments?
✓ Yes
✓ No

9. If so, how far from the school building are you willing to travel one way to reach a certain type of environment?

1-5 minutes
6 minutes
7 minutes
8 minutes

9 minutes
10 minutes
11-15 minutes
15 or more minutes
10. Please list the different types of environments you feel exist within the school grounds and the Yorktown community.


Comments


1. Name (optional)  

2. Grade(s) or subject(s) taught  
   ASST. PRINCIPAL  
   YORKTOWN MIDDLE SCHOOL

3. Have you had any training in any area of environmental education through classes, workshops, in-service, self-taught, etc.?  
   Yes  
   No  
   If so, what area(s) and how were you trained?  
   THROUGH A GRANT - BSU - A FEW YEARS BACK  
   OR, HUNAS - NATURAL RESOURCES CREDIT

4. Because it is a relatively new science, definitions of environmental education differ. What do you include in your definition? (Check as many as apply to you.)

   / Plant and animal identification and habitat study  
   / Nature study (ecological systems on a ___local  
   and/or ___global level)  
   / Camping education (resident environmental education)  
   / Cultural resource study (places and objects, both past and present)  
   / Conservation education (husbandry of resources)  
   / Outdoor education (curriculum-wide outdoor study)  
   / Citizenship education (commitment to action)  
   / Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)  
   / Environmental interpretation (viewing old environments in new ways)  
   Other (please specify)  
   Other (please specify)

5. Which of these do you think are appropriate for your grade(s) level or subject(s)? (Check as many as apply to you.)

   / Plant and animal identification and habitat study  
   / Nature study (ecological systems on a ___local  
   and/or ___global level)  
   / Camping education (resident environmental education)  
   / Cultural resource study (places and objects, both past and present)  
   / Conservation education (husbandry of resources)  
   / Outdoor education (curriculum-wide outdoor study)  
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   / Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)  
   / Environmental interpretation (viewing old environments in new ways)  
   Other (please specify)  
   Other (please specify)
6. Which do you feel comfortable teaching? (Check as many as apply to you.)

- Plant and animal identification and habitat study
- Nature study (ecological systems on a ___ local
  and/or ___ global level)
- Camping education (resident environmental education)
- Cultural resource study (places and objects, both
  past and present)
- Conservation education (husbandry of resources)
- Outdoor education (curriculum-wide outdoor study)
- Citizenship education (commitment to action)
- Resource management education (protection,
  conservation, enhancement, utilization, development,
  resoration of renewable/non-renewable resources)
- Environmental interpretation (viewing old
  environments in new ways)
- Other (please specify) ___________________________
- Other (please specify) ___________________________

7. What methods of teaching do you feel comfortable using outdoors? (Check as many as apply to you.)

- Book preparation indoors and application outdoors
- Books and diagrams taken with you outdoors
- Team teaching
- Observation and discovery
- Play/games
- Sampling with instruments (research)
- Lecture walks
- Role playing
- Other (please specify) ___________________________
- Other (please specify) ___________________________
- Other (please specify) ___________________________
- Other (please specify) ___________________________

8. Are you willing to take your class (for one class period) on a walking tour of the surrounding
  community to study different environments?  
  Yes ___ No ___

9. If so, how far from the school building are you willing to travel one way to reach a certain type of
  environment?  
  1-5 minutes ___ 9 minutes ___
  6 minutes ___ 10 minutes ___
  7 minutes ___ 11-15 minutes ___
  8 minutes ___ 15 or more minutes ___
10. Please list the different types of environments you feel exist within the school grounds and the Yorktown community.

RIVER  RIVER  BORDER  WOODS  OPEN  FIELD  POND  FENCE

Comments
1. Name (optional)    Stephen Back

2. Grade(s) or subject(s) taught  4th

3. Have you had any training in any area of environmental education through classes, workshops, inservice, self-taught, etc.?  Yes  No
   If so, what area(s) and how were you trained?
   Project: Learning Tree

4. Because it is a relatively new science, definitions of environmental education differ. What do you include in your definition? (Check as many as apply to you.)
   ✔ Plant and animal identification and habitat study
   ✔ Nature study (ecological systems on a __ local and/or __ global level)
   ✔ Camping education (resident environmental education)
   ✔ Cultural resource study (places and objects, both past and present)
   ✔ Conservation education (husbandry of resources)
   ✔ Outdoor education (curriculum-wide outdoor study)
   ✔ Citizenship education (commitment to action)
   ✔ Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)
   ✔ Environmental interpretation (viewing old environments in new ways)
   _ Other (please specify) ____________________________________________
   _ Other (please specify) ____________________________________________

5. Which of these do you think are appropriate for your grade(s) level or subject(s)? (Check as many as apply to you.)
   ✔ Plant and animal identification and habitat study
   ✔ Nature study (ecological systems on a __ local and/or __ global level)
   ✔ Camping education (resident environmental education)
   ✔ Cultural resource study (places and objects, both past and present)
   ✔ Conservation education (husbandry of resources)
   ✔ Outdoor education (curriculum-wide outdoor study)
   ✔ Citizenship education (commitment to action)
   ✔ Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)
   ✔ Environmental interpretation (viewing old environments in new ways)
   _ Other (please specify) ____________________________________________
   _ Other (please specify) ____________________________________________
6. Which do you feel comfortable teaching? (Check as many as apply to you.)

✓ Plant and animal identification and habitat study
✓ Nature study (ecological systems on a ___local
   and/or ___global level)
✓ Camping education (resident environmental education)
✓ Cultural resource study (places and objects, both
   past and present)
✓ Conservation education (husbandry of resources)
✓ Outdoor education (curriculum-wide outdoor study)
✓ Citizenship education (commitment to action)
✓ Resource management education (protection,
   conservation, enhancement, utilization, development,
   restoration of renewable/non-renewable resources)
✓ Environmental interpretation (viewing old
   environments in new ways)
   Other (please specify)
   Other (please specify)

7. What methods of teaching do you feel comfortable using outdoors? (Check as many as apply to you.)

✓ Book preparation indoors and application outdoors
✓ Books and diagrams taken with you outdoors
✓ Team teaching
✓ Observation and discovery
✓ Play/games
✓ Sampling with instruments (research)
✓ Lecture walks
✓ Role playing
   Other (please specify)
   Other (please specify)
   Other (please specify)
   Other (please specify)

8. Are you willing to take your class (for one class period) on a walking tour of the surrounding community to study different environments?  
   Yes  __ No

9. If so, how far from the school building are you willing to travel one way to reach a certain type of environment?
   1-5 minutes  9 minutes
   6 minutes   __10 minutes
   7 minutes   11-15 minutes
   8 minutes   __15 or more minutes
10. Please list the different types of environments you feel exist within the school grounds and the Yorktown community.

Community
Wilderness area (River + Woods area)
Water Treatment
Sewage Treatment

Comments
1. Name (optional)  

Marilyn Jo McCauley

2. Grade(s) or subject(s) taught  

4th grade

3. Have you had any training in any area of environmental education through classes, workshops, in-service, self-taught, etc.?  

☐ Yes  ☑ No  

If so, what area(s) and how were you trained?  

Project Wildlife workshops  

Science Ecology - 1 workshop

4. Because it is a relatively new science, definitions of environmental education differ. What do you include in your definition? (Check as many as apply to you.)

☐ Plant and animal identification and habitat study  

☐ Nature study (ecological systems on a ___ local and/or ___ global level)  

☐ Camping education (resident environmental education)  

☐ Cultural resource study (places and objects, both past and present)  

☐ Conservation education (husbandry of resources)  

☐ Outdoor education (curriculum-wide outdoor study)  

☑ Citizenship education (commitment to action)  

☐ Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)  

☐ Environmental interpretation (viewing old environments in new ways)  

☐ Other (please specify)  

☐ Other (please specify)  

5. Which of these do you think are appropriate for your grade(s) level or subject(s)? (Check as many as apply to you.)

☐ Plant and animal identification and habitat study  

☐ Nature study (ecological systems on a ___ local and/or ___ global level)  

☐ Camping education (resident environmental education)  

☐ Cultural resource study (places and objects, both past and present)  

☐ Conservation education (husbandry of resources)  

☐ Outdoor education (curriculum-wide outdoor study)  

☑ Citizenship education (commitment to action)  

☐ Resource management education (protection, conservation, enhancement, utilization, development, restoration of renewable/non-renewable resources)  

☐ Environmental interpretation (viewing old environments in new ways)  

☐ Other (please specify)  

☐ Other (please specify)
6. Which do you feel comfortable teaching? (Check as many as apply to you.)

☐ Plant and animal identification and habitat study
☐ Nature study (ecological systems on a ___local and/or ___global level)
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☐ Environmental interpretation (viewing old environments in new ways)
☐ Other (please specify)_________________
☐ Other (please specify)_________________

7. What methods of teaching do you feel comfortable using outdoors? (Check as many as apply to you.)

☐ Book preparation indoors and application outdoors
☐ Books and diagrams taken with you outdoors
☐ Team teaching
☐ Observation and discovery
☐ Play/games
☐ Sampling with instruments (research)
☐ Lecture walks
☐ Role playing
☐ Other (please specify)_________________
☐ Other (please specify)_________________
☐ Other (please specify)_________________
☐ Other (please specify)_________________

8. Are you willing to take your class (for one class period) on a walking tour of the surrounding community to study different environments?
☐ Yes  ☐ No

9. If so, how far from the school building are you willing to travel one way to reach a certain type of environment?

☐ 1-5 minutes  ☐ 9 minutes
☐ 6 minutes  ☐ 10 minutes
☐ 7 minutes  ☐ 11-15 minutes
☐ 8 minutes  ☐ 15 or more minutes
10. Please list the different types of environments you feel exist within the school grounds and the Yorktown community.

- Natural along the river
- Wildflowers
- Animals - fish
- Birds
- Water - pollution - etc.
- Trees
- Sounds
- Insects

Comments