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Natural Classroom


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Outdoor Experiences For the Gifted
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This publication contains several ideas to get leaders and teachers started on a program of outdoor projects that will stimulate gifted youth. On-site study of trees, forests, wildlife, and the environment around them provide rich opportunities for gifted youth to learn beyond the confines of the classroom and beyond the limitations of textbooks and leader knowledge.

Gifted and talented young people are receiving long-overdue attention in youth organizations and schools. Often, they are challenged by perceptive teachers and 4-H and Scout leaders. However, too often they have been instructed along with the average student, causing them to lose some of the potential and excitement of their learning opportunities.

Use of the forest or other open areas for youth leadership can produce several desirable results. Children experience higher motivation levels. Activities and assigned tasks immediately gain new relevance. Also, problems appear to be more challenging and exciting than they do inside the classroom.

The open-ended nature of many outdoor activities allows leaders to build upon the experience when the group returns indoors. Curriculum areas such as art, music, and science begin to appear related and intertwined.

Use of the forest for programs with gifted youth need not be intimidating to the teacher. The forest offers diversity of mental challenges that are self-generating, leading the youth to new discoveries with a minimum of direction. With limited guidance, the gifted child can find personal challenges and opportunities in the natural environment.

Principles
There are three recognized strategies to encourage learning among gifted and talented children.

1. Accelerate them through activities at a faster pace than normal.
2. Reach above the grade level of the child for more challenging activities.
3. Expand and enrich activities by broadening the scope of learning.

The third approach is the major emphasis suggested here. Techniques for enriching include:

- relate activities to broad issues, themes, or problems
- encompass several disciplines (art, science, etc.) and find their interrelationships
- encourage the student to produce original, unique, and creative ideas or products
- stimulate complex, abstract, and/or high level thinking
- make activities open-ended in style
- allow the students to make choices and do independent investigations

The leader's role is important to put these techniques into action. The teacher or leader acts as a catalyst and facilitator. With gifted children this person does not need to be the source of information. Emphasis is on children do, not teacher tells. Often, students can be guided to develop the questions to be asked, the experiments to be run, and the goals to be reached.

1 (Feldhusen, 1982)
In addition, the leader can continually relate the knowledge gained from an outdoor experience with plants and animals to principles of human behavior: what have humans learned from animals? How do we use the principle of camouflage for protection? How do we exhibit the principles of territoriality in our social interaction?

Procedures
Prior to the outdoor experience, organize the students into small groups. Have them select specific areas of interest to investigate in depth. Possible areas include: birds, mammals, insects, soils, or water. Once topics are chosen, the students can research the appropriate methods for field investigation of their topic. The outdoor experience then involves students collecting data and reporting results based on their topic.

Each person or small group can adopt a plot of ground for study throughout the year. They map and inventory the area, identify the organisms living there, and study changes in their plot. Warn them that other people may make impacts on the plot. They should record those impacts. They may make observations during various seasons and at different times of day. At the end, pool class data. Results and conclusion can be drawn for concepts such as food webs and food chains, life cycles, and interdependence and intradependence.

Activities
The following suggestions offer guidance to leaders for getting started in the outdoors. They may be adapted to most grade levels. After trying a few, the group will probably come up with its own ideas for future activities or investigation.

- Apply mathematical principles throughout by the use of topographic maps of the area to be studied. Before going outdoors, study the topographic maps. Students then develop their own detailed topo map of their plot and of the whole woods. Gifted youths can design their own orienteering courses and develop competitive events. Map and compass activities might lead to later classroom research on maps used by pilots, oceanographers, city planners, and foresters.
- Each person can select a personal tree, identify it very specifically according to appearance, texture, and odor. Then, the group exchanges descriptions and attempts to locate each other’s trees. As a followup, list the characteristics that were used in identification; develop a key for tree identification.
- Students can write their own poetry about nature or locate favorite poetry or essays written by naturalists such as Thoreau, Frost, or Aldo Leopold. They can take photographs to illustrate these written words. Some students might tape natural sounds or music to be used with writing and slide shows.
- Outdoor experiences in winter are rewarding. Animal tracking is greatly facilitated by snow cover. You can easily study habitat, food chains, protection, and home range of animals. Seeking animals and insects in winter may lead to investigations of hibernation and dormancy.
- Children can research and compare the importance of the five senses to humans, birds, reptiles, mammals, and insects. Older students can develop science experiments to further investigate sensory perception and its many spinoffs.
- Encourage students to discover a natural mystery story. What are the clues? Can it be solved? Distinguish between real and circumstantial evidence. Retell the mystery as if it were a story written for children. Example: Find evidence of predation and reconstruct the crime. Develop a radio drama based on this crime.
- Develop questions to be investigated in the environment that focus upon proof or evidence. Examples are: locate a million of something and prove it. Find evidence of use of an area by some animal; use the evidence to estimate its home territory. Find something in the environment that increases and decreases, but not in numbers; prove it. Find evidence of a population that should be reduced. What kinds of evidence will man leave for future inhabitants of the earth?
- After an outdoor experience, encourage the group to develop what if questions. For example, what would happen if the insect population were controlled more effectively? After developing a set of such questions they can answer each other’s questions.
- Students can design and set up environmental study trails for their classmates. They can prepare different brochures for the same trail or design several different trails. Examples of topics are geology, edible plants, ferns, tree identification, textures, history, life cycles, and conservation. They might also develop a physical activities trail or a trail for people who are blindfolded.
- Observe and discuss how animals communicate. Students can develop a language system that goes beyond pig-Latin. What bright child has not invented a special language or code system? Some converse with reversed spelling and pronunciation. Others come up with various convolutions or substitutions. Try to get a communication system agree-
able to all students; encourage them to relate their system to survival in the woods.

- Describe bird songs in abstract, reproducible systems. Consider pitch, tone, quality, rhythm, and dynamics. One by one, these can be represented by using a computer or even a musical calculator. One team can write musical notations and another team can prepare computer abstractions to make interesting comparisons among approaches to communicating musical sounds.

- Solve specific problems or tasks using only natural objects. Examples are: raise a heavy object from a deep pit. Move a heavy object several meters. Remove a person from under a fallen tree. Move a heavy non-rolling object several meters. Lift an object heavier than you are, higher than your head. Remember not to damage the environment. Establish and observe safety limits and supervise carefully.

- Encourage development of a classification system that aids in determining the manner in which an organism protects itself. Then let the children locate organisms to be classified at a particular outdoor site. Be sure not to ignore human classification. A beginning example might be:

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PROTECTION
  escape  concealment  defense
run  burrow  hide  camouflage  odor  teeth
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- After discussions and research concerning dendrochronology (the study of tree rings), the students can locate stumps or logs. Then they can relate the tree's history to their own personal history or to the history of their city, town, or state. This technique is used in a creative manner in Aldo Leopold's Sand County Almanac.

- Look for patterns in bark. The art and physiology of bark can be questioned. Why does it split and furrow characteristically for each species? How do these change over the life of the tree of any one species? Document and describe changes.

- Seek to define mathematical patterns in trees. Select a species for each student. Then they can map out the branching pattern, the leaf pattern, anthers, and carpels. What is the symmetry or asymmetry in each one? How are the different parts of a tree numerically related to or different from each other?

- Look at leaf shape and mathematics. What algebraic or geometric expressions describe the curve of leaf margins? Is there a pattern in the differences among margins? Is there something in leaf shapes that tells us anything about natural rhythms?

- Study soil moisture and precipitation patterns. How deeply and how rapidly does precipitation penetrate soils of different types? What are some of the physics principles involved? Encourage experimentation.

References
