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FOR 105

Enhancing Natural Resource Programs with Field Trips[1]

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Most educators are familiar with what has become a childhood ritual – the field trip. Taking youth to parks, school camps, nature centers, and other outdoor settings provides an important contribution to the learning process (See Figure 1). Researchers have documented the cognitive and affective benefits of field trips, including increased motivation for learning (Kern and Carpenter, 1984), a more positive attitude toward science and environmental concepts (Bitgood, 1989), and the acquisition of knowledge and skills (Mackenzie and White, 1981). Further, field trips can stimulate interest for natural resource-related careers and result in an improved attitude toward the site visited (Knapp, 2000). But, not all field trips result in these benefits. A field trip can easily turn into nothing more than a day off from school. This fact sheet explains how to maximize learning during the field trip to ensure that cognitive and affective benefits are gained.

1. Ensure that the field trip is an integral part of the broader curriculum

Field trips are often treated in isolation from the rest of the school curriculum. Research, however, has shown that there is less transfer of learning and less meaning when the field trip is not related to classroom teaching (Ferry, 1995). The field trip should be integrated into the broader instructional program and be used only when it is the most effective and efficient procedure for fulfilling the learning objectives. When working within the formal education setting, make sure field trips are relevant to the school's curriculum and support state education standards and current reform efforts.

Florida's Sunshine State Standards provide a statewide guide to curriculum in public schools. While science standards may be most readily met on natural resource field trips, it is possible to develop a field program that also helps teachers meet standards in language arts, mathematics, and social studies. For example, a trip to a nature center for fifth-grade students that includes an exploration of the forest ecosystem, collecting impressions to write a story, and calculating how many insects might be in a rotting log could address the following standards:

> SC.G.1.2. The student understands the competitive, interdependent, cyclic nature of living things in the environment.
>
> LA.B.2.2. The student writes to communicate ideas and information.

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Figure 1. Field trips provide youth with new experiences, like walking across a beaver dam. Credits: Photo courtesy of M. Monroe and used with permission.

MA.A.4.2. The student uses estimation in problem solving and computation.

2. Integrate the field trip into an instructional unit

Orion (1993) offers a three-part model that can be used for integrating field trips into the curriculum. Each part is a structured independent learning unit, yet each serves as a bridge to the next part of the model. The first part, the preparatory unit, uses concrete learning activities to prepare students for the field trip. Learners might work with materials and equipment that will be used during the field trip and gain the basic concepts and skills necessary for the completion of field activities.

The field trip is the second and central part of the model. It serves as a concrete bridge toward more abstract learning levels. Using field trips as the central part of the instructional program, rather than as a summary or enrichment activity, aids in the concretization necessary for higher levels of cognitive learning following the field trip.The third part, the summary unit, includes more complex and abstract concepts, aiming toward the application and transfer of field trip learning.

While this does not appear to be profound, this model advocates a significant difference from the typical stand-alone field trip. By including pre- and post-trip elements, the teacher becomes involved in the instruction of the field trip concepts and connections to other topics in the curriculum are more likely.

3. Familiarize students with the field trip site and trip expectations

The relative novelty or familiarity of the field trip setting affects learning. Settings that are too novel cause fear and nervousness; settings that are too familiar cause boredom, fatigue, and diversionary activities (Falk and Balling, 1980). Learning is maximized when the field trip setting is of moderate novelty. This can be accomplished by showing slides or a video of the field trip site and locating the field trip area and route on a map. Educators can also provide students with an itinerary of activities and details regarding the type of work at each learning station, possible weather conditions, safety hazards and precautions, location of restrooms, and lunch or snacks (Figure 2).

Staff at the field trip site can provide teachers with pre-trip materials, maps, and resources that can help teachers introduce and prepare students for the field experience. In addition to suggesting content-based activities that would introduce topics, vocabulary, and concepts (see section 2), staff can provide a map of the route the bus will take and a map of the facility's trails that will orient students to the site. Teachers may be able to provide a slide show of last year's field trip, or readings from those student's reports. A letter to parents is another strategy to prepare youth for the upcoming field trip. It alerts parents to the event and encourages them to make sure students have appropriate clothing and necessary equipment. If the bus route passes an area of interest – a river, a former wildfire site, or a wetland – teachers may be able to point out these landmarks as students make observations.

Figure 2. Water quality testing equipment can be introduced before the trip to make more efficient use of time in the field. Credits: Photo courtesy of J. Athman and used with permission.

4. Design the field trip as a learning experience based on educational theory

The main instructional strategy of the field trip should be hands-on experience, focusing on activities that cannot be conducted in the classroom or laboratory (Orion, 1993). Rather than passively absorbing information through guided tours or participating in simulations, students need to be actively constructing knowledge through concrete interactions with the environment. This involves the use of a process-oriented rather than a content-oriented approach, incorporating activities such as observing, identifying, measuring, and comparing (Figure 3). This also involves building in opportunities for structured exploration, such as scavenger hunts or sensory awareness activities. Further, the actual site of the field trip should be conducive to learning. Terrain that is too difficult, learning stations separated by great distances, extreme weather conditions, and constant pestering by mosquitoes makes learning difficult.

The "stop and talk" approach of many naturalists is not very engaging. Consider asking students to find examples of insect feeding, three different shades of green, or animal homes. Readily-available activities from Project Learning Tree, Project WET, and Project WILD offer ideas for outdoor games and exercises that bring concepts like camouflage, watershed, and population growth to life.

Figure 3. Youth at this Environmental Education Center play a game to reinforce the concept of energy flow. Credits: Photo courtesy of M. Monroe and used with permission.

5. Provide students with multiple exposures to and experience in natural settings

Some students, often from urban backgrounds, arrive at the park or natural area with negative preconceptions and fears that interfere with the effectiveness of the field trip program (Bixler, Carlisle, Hammitt, and Floyd, 1994). Repeated positive exposures to natural settings are needed to lower the novelty of these settings and aid in the unlearning of misconceptions. Direct experiences can be planned to counter perceived threats, such as dirt and germs, getting lost, and dangerous animals. When possible, field trips should be provided to young children (as young as preschool and kindergarten) so that the development of these fearful attitudes can be preempted.

With the rising cost of bus transportation for field trips, it can be difficult for teachers to make multiple trips to natural settings. It may be wise to help teachers develop natural areas on their school sites. Also called "outdoor classroom" and "land

lab," these nearby locations can give teachers a place to conduct a variety of environmental activities. Similarly, a city park or cemetery can also provide areas to explore insects, plants, soil, and trees.The more youth become comfortable with these familiar nearby locations, the better they will be able to appreciate more wild environments.

Figure 4. What better way to explore aquatic organisms than to wade in after them? Credits: Photo courtesy of M. Monroe and used with permission.

Summary

Field trips can be a valuable method of instruction, providing students with important cognitive and affective benefits. To help ensure that students actually gain these potential benefits, factors that influence the educational effectiveness of field trips must be considered: integrate the field trip into the curriculum using pre-and post-visit activities and aligning it with national and state education standards; familiarize students with the field trip site and trip expectations; base the field trip on solid educational theory; and provide students with multiple experiences in natural settings. Through acknowledging the implications of these factors, extension agents, club leaders, agency staff, and classroom teachers can collectively plan and implement field trips that achieve optimal cognitive and affect results, as well as provide youth with the opportunities to enjoy and explore an outdoor environment.

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