

Park Ranger Interpreter

Module 370

Developing Curriculum-based Programs and Services

PURPOSE

Parks offer many kinds of curriculum-based programs and services to organized groups. These programs and services may be developed in response to a request from a group whose educational objectives relate to the meanings/significance of the park, or as an attempt by the park to reach out to a particular group. The majority of curriculum-based programs and services are developed for K-12 school groups.

Curriculum-based programs include a ranger-led presentation that may occur in the park, in a classroom, or at another location. The elements of effective curriculum-based presentations are described in Module 270, “Presenting an Effective Curriculum-based Program.” Curriculum-based services provide group leaders with tools necessary for meeting their educational objectives through a connection with park resources and values. Curriculum-based services take many forms including traveling trunks, teacher self-guides, web-sites, and CD-ROMs, teacher workshops and other in-service professional development opportunities.

Programs and services of this type engage participants in a sequence of experiences that address objectives of both the group and the park. The experiences in curriculum-based programs and services provide both learning and interpretive opportunities and are developed as a sequence in order to build understanding, facilitate connections to meanings, and create opportunities for direct personal involvement. They are typically developed to meet recurring needs and usually require an extended development period in order to incorporate input from group leaders.

Developing curriculum-based programs and services involves identifying a group with curriculum-based needs and defined educational objectives; working with them to develop a role your park can play in meeting those needs and objectives; determining potential connections to park resources and interpretive themes related to those objectives; working with group leaders; developing a sequence of experiences; providing learning and interpretive opportunities within those experiences; applying proper techniques for the type and age of the group, and evaluating the program’s effectiveness.

(Note: There are many organized groups that do not have a curriculum such as tour groups, environmental groups, community and veterans organizations. The needs of these groups can be met through interpretive talks, conducted activities, demonstrations and other illustrated programs.)

Module 370 focuses on the body of knowledge and skills necessary for the development of a single curriculum-based program or service that addresses park goals, fits within the overall park Comprehensive Interpretive Plan or overall Education Plan (if they exist), and integrates the educational objectives of an organized group with the overall interpretive themes of the park.

The Module 470-series (under development) will address overall management of curriculum-based programs and services; including partnering relationships between parks and schools and/or other organizations; and sustainable education plans which comprehensively survey curriculum-based needs, and set priorities for the development of programs and services to meet those needs.

AUDIENCE

Full-performance interpreters responsible for developing curriculum-based programs and services, education specialists and others responsible for developing a curriculum-based program.

OBJECTIVES

At the end of the Module, learners will be able to:

- Demonstrate the “continuum of learning” is an important element of curriculum-based programs and services;
- Describe the characteristics of effective curriculum-based programs and services.
- Apply a variety of techniques for working with teachers or group leaders to develop effective curriculum-based programs and services;
- Develop an effective curriculum-based program or service;
- Create and apply an evaluation instrument to the program developed.

TOPICS

Learning opportunities, interpretive opportunities and stewardship opportunities.

Student-centered (constructivist) learning. The learning cycle. Different types of curriculum-based programs and services (including onsite / offsite programs with pre/post visit activities; interagency efforts such as Project WET and Project Learning Tree, etc.; traveling trunks; teacher self-guides and kits; web-sites, CD-ROMs, distance learning programs, AV productions and other kinds of educational technology, teacher workshops and other in-service professional development opportunities.). Working with teachers and other group leaders. Designing and applying a method of evaluation.

Other topics relating to developing curriculum-based programs and services are covered in Module 270.

DELIVERY

Classroom observations, labs, park, cluster or servicewide NPS courses, universities, NAI, museum education seminars, workshops, professional training organizations, training contractors, Cooperative Park Education Units (i.e. University of Massachusetts—Lowell), experiential learning, on-the-job training, and mentoring.

COMPETENCY ASSESSMENT

Develop an effective curriculum-based program or service for an organized group that meets both the park’s goals and the group’s learning objectives. *Note: A peer review process is under consideration for this module, but at this time is unavailable. In the event that this review becomes available it will be posted on the web, as will parameters for those wishing to participate in the review.*

COMPONENTS

The continuum of learning.

Characteristics of an effective curriculum-based program and service **(to be developed)**

Working with teachers and group leaders

Developing a curriculum-based program or service

Evaluating a curriculum-based program or service

TARGET

Within three years of appointment, if appropriate for the career goals of the park ranger or education specialist, or operational needs of the park site.

Component for Module 370

The Continuum of Learning

PURPOSE

All curriculum-based programs and services provide a sequence of experiences that include multiple opportunities for learning. Learning is a lifelong process in which new experiences are assimilated. This component plan introduces the role of sequencing in the process of learning and its importance in developing curriculum-based programs and services.

OBJECTIVES

At the end of this component, the learner will be able to:

- Describe interrelationships between learning opportunities, interpretive opportunities, and stewardship opportunities.
- Discuss several theories of learning.
- Apply concepts of sequencing in learning to the development of curriculum based programs and services.

APPROACH

Learning begins from the moment of birth and is a building process involving all the senses. It involves change in knowledge or abilities and is motivated by a variety of human needs. The continuum of learning includes all cognitive (intellectual), affective (emotional) and behavioral change throughout a lifetime as new experience modifies existing paradigms.

Learning plays an important role in resource stewardship. Preconceptions or lack of knowledge may block connections to meanings, and learning new behaviors may help to ensure long term resource protection. Learning more about the resource informs management decisions and deepens appreciation. Learning opportunities have the potential to build understanding, facilitate connections to meanings, and provide avenues for direct personal involvement. An interpretive opportunity is a special kind of learning opportunity.

Curriculums are structured plans for learning which define the scope and sequence of content to be learned by an organized group. A curriculum-based program or service is a structured plan for learning a particular set of objectives through a sequence of experiences. These experiences are designed to facilitate a developmentally appropriate sequence of learning for audiences ranging from pre-school to senior citizens.

A learning sequence begins with the prior knowledge and preconceptions of the learner. The sequence of experiences in a curriculum-based program or service typically involves preparation experiences which lay a foundation, experiences during a park visit, and follow-up experiences in which learners synthesize, apply, or extend their understanding. The sequence may include ranger-leader-or-teacher led presentations, as well as student-centered discovery and presentation. The exact sequence and amount of time apportioned to each step in the continuum may vary, but the "sequenced learning" foundation forms the basis for all effective programs.

Some curriculum based services such as study kits or travelling trunks provide sequences that do not include a ranger-led presentation or a visit to the park / site. Elements potentially common to all sequences are: establishing prior knowledge, concept introduction, concept application, resource connections, and personal extensions. The sequence should include both learning and interpretive opportunities, and may also include stewardship opportunities. It may involve up to ten or more experiences or as few as three. For comparison, a typical instructional unit in a school is 10-15 lessons in length, and may include a park provided sequence.

In designing a sequence of experiences to meet learning objectives, the interpreter might consider how the different senses could be engaged, and what concepts, processes, geography, perspectives, skills, events, and interactions must be understood in order to facilitate opportunities for emotional and intellectual connections to meanings inherent in the resource.

Experiences that may be part of a sequence include museum exhibits, trails, historic structures, creative writing, natural history specimens, dioramas, experiments, interviews, observations, collecting data, making / using tools, clothing / costumes, songs / music, dance, maps, diagrams, research projects, drama or reenactments, role playing, model making, collage, drawing, video, CD-ROMS and other media. Different kinds of experiences will be more effective with different learning styles and multiple intelligences. A successful sequence will include a diversity of learning opportunities that are related in a meaningful way.

The experiences in a curriculum-based program or service should be separated in time (occurring on separate days) and might also be separated in space (occurring in different locations). Sequencing through time allows individuals to assimilate experiences and is important in the process of learning. Other purposes of sequencing include building from simple to more complex understanding, providing a multi-disciplinary approach, increasing learners ability to manipulate information independently, and experiencing parts of a greater whole.

Constructivism, flow learning, the learning cycle, inquiry and service-learning are several learning theories which might be incorporated into the development of curriculum-based programs and services. Human developmental stages, learning styles and multiple intelligences are also important to consider and are discussed in Module 270.

CONTENT OUTLINE

- I. Learning is a lifelong process motivated by a variety of human needs.
 - A. Maslow's hierarchy of needs is one model for considering these needs.
 1. Physiological – food, water, air, shelter, comfort
 2. Safety – security, stability
 3. Love – meaningful relationships with others
 4. Esteem – self-esteem through accomplishment, recognition from others
 5. Self-Actualization – achieve potential, fulfillment, purpose
 - B. Other motivations for learning (brainstorm)
 1. School requirement
 2. Career development or advancement
 3. Contribute to a better world

4. Personal growth / enrichment
5. Decide on a college major
6. Earn a merit badge
7. Survival skill

- II. Curriculum-based programs and services provide a series of interrelated opportunities. Discuss possible distinctions between learning, interpretive, and stewardship opportunities. (Try to give examples from different park / sites.)
- A. Learning opportunity – opportunity to gain knowledge or skills which can be demonstrated
- Some opportunities such as vocabulary or concept building may not provide an interpretive opportunity, but may lay a foundation for an interpretive opportunity. Learning a behavior such as minimum impact camping may not form a connection to meanings of the resource if the learning opportunity isn't accompanied by an interpretive opportunity.*
- An interpretive opportunity can be viewed as a special kind of learning opportunity.*
- B. Interpretive opportunity –opportunity to form emotional or intellectual connections to meanings inherent in the resource
- Connections to meanings can happen very quickly, especially when an interpreter is skilled at conveying the essential significance of a resource. A visitor may grasp the profundity of what occurred at Gettysburg without being able to demonstrate much knowledge about why it occurred or the events that took place. An interpretive opportunity may provoke the desire for more learning opportunities.*
- C. Stewardship opportunity – opportunity to participate in the preservation and/or protection of a resource
1. opportunity to participate in resource monitoring, restoration or research
 2. VIP or internship opportunities
 3. job opportunities
 4. recycling bins or bear proof containers
 5. road or shoreline clean-up
 6. participation in and/or support of related resource protection issues
- III. Several learning theories may prove useful in designing a sequence of experiences for a curriculum-based program or service.
- A. Constructivism
1. learning is an active process in which learners construct new ideas and meanings based on existing knowledge
 2. existing knowledge is organized in cognitive structures (*paradigms*) which provide a framework for assimilating new experiences
 3. dialogue between learner and instructor (*interpreter*) reveals learner's current understanding
 4. considerations for instructional design include predisposition toward learning (*i.e. prior knowledge, learning styles, multiple intelligences*); ways to structure content for particular learners (*age, developmental*

- stage, special interests, etc.*); most effective sequences; nature of rewards for learning
5. successful sequences result in simplifying, learners generating new ideas, and increasing manipulation of content by learners

B. Flow Learning

1. developed by Joseph Cornell
2. 4 stages
 - a. Awaken Enthusiasm
 - develops full alertness
 - creates involvement
 - gets attention
 - develops rapport with leader
 - provides direction and structure
 - prepares for later, more sensitive activities
 - b. Focus Attention
 - increases attention span
 - deepens awareness
 - channels enthusiasm
 - develops observational skills
 - calms the mind
 - c. Direct Experience
 - personal discovery
 - provides direct, experiential, intuitive understanding
 - develops commitment
 - d. Share Inspiration
 - clarifies, strengthens personal experience
 - introduces role models
 - creates group bonding

***For more details on Flow Learning see *Sharing Nature with Children II*, by Joseph Cornell, or visit www.sharingnature.com/FlowLearning.html.

C. Service Learning

1. method in which participants learn and develop through active participation in service that:
 - a. meets the needs of a community
 - b. is coordinated with a school, a community service program, and the community
 - c. fosters civic responsibility
 - d. enhances core curriculum or community service program
 - e. provides structured time for participants to reflect on the service experience

D. The Learning Cycle

1. based in research on concrete and formal operational thinking

2. provides an opportunity for students to deal with objects on a concrete level before formal concepts are introduced
3. involves three stages which are repeated as a cycle: exploration, concept introduction, concept application; and assessment which occurs throughout the cycle
 - a. Exploration – open-ended exploration with physical objects in which students are encouraged to formulate explanations, predictions, experiments with their peers.
 - b. Concept introduction – active presentation of a concept by instructor
 - c. Concept application – students apply concepts to new situations
 - d. Assessment – students knowledge or abilities are reviewed during each phase

E. Inquiry

1. Phases of inquiry:
 - a. Learner poses question (or is posed with a question).
 - b. Evidence is collected.
 - c. Explanation is formulated based on evidence.
 - d. Other resources from previous investigations are consulted to add support to explanation.
 - e. Communication of explanation supported by evidence and the findings of others.
2. Research findings on inquiry
 - a. facts. Understanding science [or other subject] is more than knowing
 - b. Students build new knowledge and understanding on what they already know and believe.
 - c. Students formulate new knowledge by modifying and refining their current concepts and by adding new concepts to what they already know.
 - d. Learning is mediated by the social environment in which learners interact with others.
 - e. Effective learning requires that students take control of their own learning.
 - f. The ability to apply knowledge to novel situations... “transfer of learning” is affected by the degree to which students learn with understanding.

F. Some of the people behind the ideas

1. John Dewey (1859-1952) - Commonly regarded as the father of progressive education in America. Proposed that students learn by "directed living," with an emphasis on workshop-type projects so that learning is combined with concrete activity and practical relevance. He rejected the practice of rote learning which was the common mode of instruction in his day.

2. Maria Montessori (1870-1952) – The first woman physician in Italy. She developed an interest in the diseases of children and in the needs of those said to be 'ineducable'. Her work led to her ideas about education for all. This view 'decentered' the teacher who was primarily the 'keeper' of the environment. While children got on with their activities the teacher's task was to observe and to intervene from the periphery. Focused on self-realization through independent activity. *“first the education of the senses, then the education of the intellect...”* ; *“Looking becomes reading; touching becomes writing...”*
3. Jean Piaget (1896-1980) - Swiss psychologist and pioneer in the study of cognitive development. His theories became founding principles of the constructivist movement. Children evolve through specific stages in which cognitive structures become progressively more complex. Four levels of cognitive development: sensorimotor, preoperational, concrete operational, and formal operational. Learning occurs through adaptation to interactions with the environment. *Disequilibrium* (mental conflict which demands resolution) gives rise to *Assimilation* of a new experience which are added to existing knowledge, or *Accommodation*, which is modification of existing understanding to provide for the new experience.
4. Lev Vygotsky (1896-1934) – Russian psychologist. Social interaction plays a fundamental role in the development of cognition. Vygotsky believed everything is learned on two levels. First, through interaction with others, and then integrated into the individual's mental structure. A more experienced partner (peer or teacher) is able to provide "scaffolding" of the subject matter to support the student's evolving understanding. Potential for cognitive development is limited to a "zone of proximal development" -- the area of exploration for which the student is cognitively prepared, but requires help and social interaction to fully develop.
5. Jerome Bruner (1915-present) – American psychologist. Views learning as an active, social process in which students construct new ideas or concepts based on current knowledge. The student selects information, originates hypotheses, and makes decisions in the process of integrating experiences into their existing mental constructs. The teacher encourages students to discover principles by themselves. The teacher and students should actively discuss issues and concepts (i.e. Socratic learning). The teacher must translate information to be learned into a form appropriate to the learner's current state of understanding. A variety of teaching

methods, many choices available to the student, and multi-age peer groups all facilitate learning.

6. Joseph Cornell (present) – Internationally acclaimed nature educator. Developed Flow Learning Model for enhancing experience, awareness and understanding of nature through a sequence of activities. Author of several books, “Sharing Nature with Children”, “Listening to Nature”, “With Beauty Before Me” and “John Muir: My Life with Nature”; founded the Sharing Nature Foundation in 1978; works with the Japan Nature Games Association. Philosophy stems from experience as a classroom teacher, school district outdoor educator and Boy Scouts of America naturalist and certifier.

7. Howard Gardner (1943-present) – American psychologist who developed the theory of multiple intelligences. This idea stemmed from research focusing on cognitive and symbolic-using capacities in normal and gifted children and adults suffering from brain damage. Gardner and colleagues at Project Zero (Harvard University) have been working on the design of performance-based assessments, education for understanding, and the use of multiple intelligences to achieve more personalized curriculum, instruction, and assessment.

IV. Initial considerations for developing a sequence of experiences which include multiple learning opportunities:

A. What are the characteristics of the group?

1. reading level
2. physical abilities
3. analytical abilities
4. verbal abilities
5. attention span
6. subject being studied, special interests

B. What senses might be engaged to facilitate the formation of emotional and intellectual connections to the meaning(s) of the resource?

1. Sight
2. Sound
3. Touch
4. Smell
5. Taste

C. What concepts, processes, geography, perspectives, events, skills or interactions need to be understood in order to facilitate the formation of emotional and intellectual connections to the meaning(s) of the resource?

1. Concepts -

- e.g. gravity, poverty, tragedy, leadership, geologic time, rites of passage
- 2. Processes –
e.g. erosion, immigration, glaciation, exploration, commerce, speciation
- 3. Geography –
e.g. spatial relationships on different scales and through time; use of maps, GIS, aerial photos, diagrams relating archaeological or historical structures
- 4. Perspectives –
e.g. different points of view related to resource or topic
- 5. Events –
e.g. war, epidemic, invention, eruption, flood
- 6. Skills –
e.g. weaving, excavation techniques, GIS/GPS, diplomacy, sculpting
- 7. Interactions –
e.g. between species, groups of people, humans and environment

D. What types of activities are most likely to engage multiple intelligences?

1. Linguistic Intelligence (“word-smart”) – creative writing: letters, diaries, poetry, etc.; storytelling; word games
action: read, write, talk
2. Spatial Intelligence (“picture-smart”) – map activities, art projects, 3-D models
action: see, draw, visualize
3. Interpersonal intelligence (“people-smart”)- group projects, skits, mentoring, work with partners
actions: interact, collaborate, teach
4. Intrapersonal Intelligence (“self-smart”) – reflective writing, independent study
actions: personalize, reflect, choose
5. Musical Intelligence (“music-smart”) - songs, instruments, tape recordings
actions: sing, listen, rhythm
6. Logical-Mathematical Intelligence (“number/reasoning smart”) - graphs, data, number games, problem solving
actions: count, quantify, experiment, think critically
7. Bodily-Kinesthetic Intelligence (“body-smart”) - hiking, using tools, dance
actions: build, touch, dance, climb

8. Naturalist Intelligence (“nature-smart”) -_classifying shapes, nature observations
actions: connect, observe, find patterns

E. Considerations for building relationships between the experiences provided in the sequence:

1. How will prior knowledge of the subject be determined?
 - a. discussion, questioning
 - b. diagnostic activity
2. How will an introduction or foundation for new experiences be provided?
 - a. grabbers, provocation, awaken enthusiasm
 - b. concepts and park resources which illustrate concepts
3. How will learners be immersed in the resource?
 - a. park visit
 - b. photographs
 - c. activities involving specimens, artifacts, archives, replicas
 - d. autobiography, biography
 - e. data collected in park
4. How will multiple learning styles and intelligences be engaged?
5. What transitions or linkages will be provided to connect the experiences?
6. Are there opportunities for learners to transfer the experience to new situations?
7. What opportunities are provided for emotional and intellectual connections to meanings inherent in the resource?
8. Are the experiences provided developmentally appropriate?
9. Will any stewardship opportunities been provided?
10. Does the sequence of experiences cohesively develop a relevant idea or ideas?
11. Are there opportunities for learners to synthesize, apply or extend the connections they have made to the resource?

SUGGESTED DEVELOPMENTAL ACTIVITIES

1. Obtain information about the group you are developing a curriculum-based program or service for by contacting teachers or group leaders who know what is most effective with the group, and / or by requesting to observe classes or activities the group participates in. (application?)
2. Find examples at other parks or museums of the type of program or service you are designing. Make a flow chart of the sequence of experiences provided. Identify what learning and interpretive opportunities are provided throughout as well as what types of learning styles and multiple intelligences will be most effectively engaged. Are there any stewardship opportunities provided? Could any be included?

3. Use a library or consult with a school district office about obtaining examples of published teaching materials or instructional units that contain sequences of lessons. These will provide insights on how to organize the sequence you are developing.
4. Reflect on experiences you have learned the most from throughout your life in different settings or contexts. Write about them from memory. What did you learn? Did a person or activity facilitate the process? Why did the experience have such an impact? How did it connect with previous and subsequent experiences? Exchange reflections with others.

RESOURCES

Armstrong, Thomas. Alexandria, 1994. *Multiple Intelligences in the Classroom*. VA: Association for Supervision and Curriculum Development.

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National Research Council, 2000. *Inquiry and the National Science Education Standards—A Guide for Teaching and Learning*, Washington, DC: National Academy Press.

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Tobin, Kenneth, ed. *The Practice of Constructivism in Science Education*. Washington, DC: American Association for the Advancement of Science, 1993.

EXAMPLES

Example of a sequence involving a park visit:

“Change in the Making Activity Guide”, Lowell National Historical Park.

Example of a sequence without a park visit:

“Hands on the Land” (website), Olympic National Park.

Component for Module 370

Working with Teachers and Group Leaders

PURPOSE:

To successfully develop an effective education program the interpreter must know the audience. Schools, teachers, and community groups have different schedules, interests, expectations, and motivations for visiting than do general public audiences. This component introduces this new audience, describes ways to identify, understand, interest, and target schools, teachers, and community groups.

OBJECTIVES:

Upon completion of this component, the learner will be able to:

- List three advantages of working closely with schools, teachers, and organized group leaders;
- List at least three sources of information about educational or community groups.
- Describe the steps and strategies for conducting a successful group leader/teacher workshop.

APPROACH:

Working closely with schools, teachers, and community groups is essential for any park education program to be successful. Developing programs in a vacuum can lead to disappointments and wasted time, effort, and money. Park staff may develop a program based on park goals or needs, for example, only to find that local schools have no buses or funding available for field trips! Or the park may have only one employee available to work with each school bus and find out that the school districts require buses used on field trips to be full (two classes, up to 72 students)! Or a park program may target grade 4 and staff will wonder why more classes do not attend until they realize that the local school curriculum does not include the same subject until grade 6? Perhaps demand far exceeds what the park staffing levels or resources can handle? These are issues to be considered when developing a new education program.

This component addresses all organized groups with *education* as a central goal or purpose. Educational groups are grouped in three categories: schools, youth groups, and adult groups. While many park rangers are most familiar with school curriculum and teacher's lesson plans, other organized groups also use a curriculum or a structured plan for learning. Likewise it is important that field rangers know education reform and current issues, especially contemporary opinions on standardized the impact of standardized tests and education standards. Examples of educational groups include schools, boy scouts, girl scouts, Elderhostel, after-school programs, home schoolers, summer camps, Hosteling International, Sierra Club work groups, international service groups, religious groups, and Junior Rangers. As with any interpretive effort, knowing the audience is key to your success.

CONTENT OUTLINE

I. Successful education programs start by working with schools, teachers, and community groups.

A. Ensures park program feasible for local schools, community group

1. Interest
2. Field trip policies
3. Funding
4. Bus scheduling
5. Average class size
6. Average number of students per trip

B. Ensures park program relevant to school curriculum, organizational goals

C. Involving teachers/community group coordinators in planning gives sense of ownership

D. Markets program- creates school, teacher, community group endorsement

E. Provides important insights for program development/presentation

1. Teaching/presentation strategies
2. Developmental appropriateness
3. Match program and park resources to school curriculum, teacher's lesson plans, or community group goals

F. Finds out teachers' needs/community group goals

G. Helps NPS staff remain/become current on what's going on in schools/community

1. Learn teacher lingo
2. Classroom/daily problems and concerns
3. Creates mutual respect for each other as professionals, resources

H. Provides mutual benefits

1. Grants
2. Special projects
3. Visitation
4. Important audience for park story/goals- builds community support

II. Know your audience

A. Schools

1. Background
 - a. Type and mission of each (public, parochial, private, home school, charter)
 - b. School organizational Structure (ex. K-5, 6-8, 9-12; K-6, 7-9, 10-12;)
 - c. Teaching as a Profession: Course of study, certification requirements
 - d. Education reform/current issues in education/community schools

B. Youth Groups

1. Boy Scouts
 - a. Mission/goals/purpose
 - b. Organizational structure
 - c. Program examples
2. Girl Scouts
 - a. Mission/goals/purpose
 - b. Organizational structure

- c. Program examples
- 3. Boys Clubs/Girls Clubs/Other
 - a. Mission/goals/purpose
 - b. Organizational structure
 - c. Program examples

C. Adult Groups

- 1. Elderhostel
 - a. Mission/goals/purpose
 - b. Organizational structure
 - c. Program examples
- 2. American Association of Retired Persons (AARP)
 - a. Mission/goals/purpose
 - b. Organizational structure
 - c. Program examples

III. Where to find information

A. Local schools

- 1. State departments of education school directories
- 2. Library reference books on public school listed by state
- 3. Use phone book listings by town or in government pages to contact school district administrations
- 4. Superintendent's office can provide overview information on the school district school names, addresses, principals, organization, goals, map - ask for information.
- 5. Parent Information Center often has useful information to send out or be picked up
- 6. Curriculum specialist is often a good contact to start with - can help identify specific teachers/programs by name and school district-wide.
- 7. Department chairperson by subject or gifted and talented program coordinator can also be helpful first contacts
- 8. Other district-level/individual school contacts
 - a. School site coordinators
 - b. Staff meetings
 - c. Focus committees active in districts
 - d. District mail, school newsletters/bulletins
 - e. Parent-Teacher Organizations
 - f. Teacher's Union Organization
- 9. Educational resource fairs/conferences
- 10. Professional journals, magazines

B. Local community groups

- 1. Often they come to you- check guest registers, group reservation logs
- 2. Local town directories of organizations
- 3. Telephone directory
- 4. Local Chamber of Commerce

5. Public Library Bulletin Boards, Information Center
6. Local school contacts
7. Local newspaper listings, events reported
8. Organization web site listings
9. Request current brochure/program /registration material/information from group
10. Purchase Handbook/badge program information

IV. Involving teachers/group leaders in program development

A. Workshops

1. Define objectives, goals
2. Three Types
 - a. Program-specific
 - b. Informational
 - d. Subject matter-specific (specific to park resources, themes, issues)

B. Treat teachers /group leaders as professionals

1. Define objectives, goals
2. Provide agenda
3. Offer stipend when you ask for time and expertise
4. Value their time: respect their schedules/anticipate needs when scheduling
5. Present activities/ideas you will use feedback on (Don't present only a finished product)
6. Start and end on time
7. Feed them
8. Provide opportunity for them to socialize with each other
9. Give them something to take back to school
10. Thank them and follow up

C. Other avenues for teacher/group leader involvement

1. Attend district/committee/town meetings
 - a. Gather information
 - b. Run ideas, program outlines/objectives before group
 - c. Get feedback
2. Investigate participating in teacher in-service meetings
3. Ask teachers to evaluate current programs

RESOURCES:

School Directories, Educational Publications

Books

Voris, Helen H., Maija Sedzielarz, and Carolyn P. Blackmon. *Teach the Mind, Touch the Spirit, A Guide to Focused Field Trips*. Chicago: Field Museum of Natural History, 1986.

Articles

Gennaro, Eugene, Shirley ann Stoneberg, and Sandy Tanck. "Chance or the Prepared Mind." *Roundtable Reports*, 7(4):16-18, 1982.

Gottfried, Jeffry. "Do Children Learn on School Field Trips?" *Curator*, 23(3):165-174, 1980.

Mitsakos, Charles L. "An Educator," in "As Others See Us." *Museum News*, May/June, pp. 22-23, 1982.

National Park Service. *Programming for School Groups: An Interpreter's Guide*. 1990. Especially pertinent is chapter "Planning with Teachers."

Video

National Park Service. *Parks as Classrooms*. 28- and 12-minute versions available. 1992. Videocassette.

Lesson Plans

Backlund, C. and R. Morris, "Working with Educators/Teacher Workshops," *Interpretive Skills Curriculum*, National Park Service, 1986, 1992.

Computer Networks

EE Link, the Environmental Education Server, a project of the National Consortium for environmental Education and Training to support, enhance, and extend effective environmental education for a K–12 audience. <http://environlink.org/envirok12.html>

Inter-Disciplinary Education Access (IDEA). Accessible via modem or the Internet. An electronic bulletin board that connects educators and rangers. Must set up account first with Elizabeth Hoermann at (508) 970-5021.

Using gopher services on the Internet: A good place to find teachers is K12.chat.teacher.

SUGGESTED DEVELOPMENTAL ACTIVITIES:

1. Using the local library, conduct a search for information identifying the local schools/teachers or community groups appropriate for an identified project/program. What do you want to know? Who is the appropriate audience for your proposed program/project? How do you identify and interest appropriate community groups or school groups in your program/project? How do you identify and interest appropriate community groups or school groups in your program/project? Search the reference section, telephone books, local papers, town meeting notes, curriculum guides, etc. Document the procedure used and create a file of information. Make note of any leads for communications you discover. Create a mailing list.
2. Make telephone calls - organization's home office or local Chamber of Commerce for community groups, parent information center, Superintendent of Schools office, Curriculum Coordinator, Subject Department chairperson, Union office for schools. Ask for information about the community group, school system, or individual school; find out about communications within the school or organization. Carefully read and survey the

information that comes to you in the mail. Make a list of the facts you find about your targeted group/audience to consider in planning your project/program/workshop.

3. Look at college catalog courses of study for teacher certification and graduate level course offerings for teacher continuing education and certification maintenance. Call the State Office of Education to find out about teacher certification requirements. What do teachers study to prepare for the elementary level vs. secondary? If certified, what studies are they required to do - what are they interested in? Survey other area museums and/or parks- what do they offer as teacher workshops/teacher information?
4. Visit a local school or community group meeting. To visit the school, call the principal and ask for an appointment or a contact person to help you with a particular project. Perhaps you want to visit the school library- to see what they have on your subject at appropriate grade levels- make an appointment with the librarian ahead of time. To visit a community group, find out how meetings work. If meetings are open to the public, attend. If not open to the public, contact the group leader when you have a specific project to propose and ask to attend. How does your visit inform you about how the school/group functions, what teachers or community group members are interested in, what their needs are, and how can you help or fit in?
5. Choose one educational group that comes to your park (or one you would like to attract). Research the group. For example, call or visit the local office of Boy Scouts or Girl Scouts to order a copy of the scout handbook for the age group that visits your park/site most. Handbooks include valuable information about the group and often outline many activities that could be completed at your park/site. Share this information with other interpreters and brainstorm ways that this information could be used to increase the success of programs.
6. Use Internet/World Wide Web to research educational groups and resources. Share information with coworkers and supervisor at your park. Make follow-up calls or send letters for brochures, information, guidelines, and standards.
7. Observe a teacher workshop or teacher's advisory meeting at your site or another one nearby. Talk to the folks who organized it to ask "how to" advice. Keep notes about how the meeting was organized and conducted. Assess the outcome: how successful was it? What tangible and intangible products or benefits resulted? List ten tips for conducting a successful teacher workshop or advisory meeting.

COMPONENT for Module 370

Developing a Curriculum-based Program or Service

PURPOSE

The purpose of this component is to guide the interpreter through a process for developing a curriculum-based program or service. A step-by-step approach is suggested that will help the interpreter consider why a program or service should be developed, how the program/service will meet the needs of the park and the educational group, what type of program or service should be developed, and how the program or service will be implemented and evaluated. Although this approach is not the only process to follow, it identifies the key elements to ensure that the essential components of an effective curriculum-based program or service are included.

OBJECTIVES

Upon completion of this component the learner will be able to:

- identify the need for an effective curriculum-based program/service;
- describe a process for developing a curriculum-based education program for an organized group;
- create a complete curriculum-based program/service that includes the all the elements of an education program/service.

APPROACH

Curriculum-based education programs for organized groups incorporate all the elements of good interpretive programs. However, these programs are fundamentally different from programs for the general public in several ways:

- 1) Audiences are identified prior to the program;
- 2) Groups have specific educational goals and objectives they are trying to accomplish by participating in this program;
- 3) Pre- and post-program activities are planned;
- 4) Methodology and content reflect audience developmental age;
- 5) Contact with the audience continues after the program concludes.

Using this information, interpreters can develop programs using techniques and activities specifically geared for the audience's needs that meets their curricular objectives and furthers the park mission. Effective education programs help learners make connections with park resources on cognitive, affective, and physical levels.

CONTENT OUTLINE

(This is an *example* of a step-by step process for developing a curriculum-based program or service. The key elements in the development process are identified. However, this is not the *only* process to follow. Every park is unique and the best development process should be determined based on individual park situation and circumstances.)

I. Review and know the primary reason(s) why the park was established and the significant resources and stories.

- A. Refer to park documents and resources
 - 1. Park enabling legislation and legislative history
 - 2. General Management Plan
 - 3. Comprehensive Interpretive Plan or Education plan
 - 4. Purpose and significance statements
 - 5. Interpretive themes
 - 6. Natural and cultural resource inventories

II. Identify a group or audience type with specific curriculum-based needs and defined educational objectives.

- A. Organized groups that attend interpretive programs
- B. Requests for special programs
- C. Requests (phone or written) for park information from groups or schools
- D. Groups that visit the park and use their own study materials
- E. Entrance station and interpretive program records and statistics
- F. Fee waiver requests
- G. Staff observation and knowledge of groups
- H. If multiple audiences with multiple purposes are identified, determine which audience type uses the park the most AND which educational purpose best matches with the park mission and resources.
 - 1. Example: If third grade groups predominate special program requests AND most of these groups are studying an historic time period that is directly related to the park's purpose, significance, and interpretive themes, this would be a good candidate for curriculum-based program development.
 - 2. If a group routinely visits the park to do leaf identification but the park's *primary* purpose and significance is to preserve an historical event, this is probably *not* the best topic for curriculum-based program development. Leaf identification may meet the group's objectives but it may *not* meet the park's goals and objectives.

III. Analyze staff, time, and budget availability and limitations

- A. Staff availability for program development
 - 1. Is there other park staff available to help in the development process?
 - 2. Are outside partners available and willing to help in the development process?
- B. Determine funding availability for the development process.
 - 1. Have park funds been authorized for the project?
 - 2. Are outside partners willing to help with funding?
 - 3. Is there grant funding available (Parks As Classrooms, etc.)?

- C. Determine the time commitment necessary for project development
 1. Can the work be accomplished along with performing regular duties?
 2. Will project development time be set aside?

- D. Program or Service Implementation
 1. Once the program or service is developed, can it be implemented with existing staff and budget?
 2. Will the program or service be self-sustaining or will it require annual funding?

IV. Identify partners who could assist in the development process. (See “*Working with Teachers and Group Leaders*” component in this module)

- A. Contact potential partners
 1. Teachers or group leaders already using or requesting to use park resources
 2. Curriculum specialists
 3. School principals
 4. Education specialists
 5. Science or history coordinators
 6. Other school district administrators
 7. State departments of education.
 8. Informal contacts between individual rangers and teachers/educational group leaders
 9. Formal advisory groups such as PSTA's, etc.

- B. Determine interest and availability to work with the park in the development process.
 1. Offer professional development credit for teachers
 2. Offer stipends if funding is available.

- C. Establish a project team to work on program/service development.

V. Through the project team, determine the park goals, objectives, and resources that best match with school or group curriculum needs (See *Module 270: Role of NPS Curriculum-based Programs.*)

- A. Compare the park’s goals and resources with the educational needs and curriculum requirements of the identified group.
 1. Refer to park documents and resources
 - a. Comprehensive Interpretive Plan or Education plan
 - b. Strategic Management Plan
 - c. General Management Plan
 - d. purpose and significance statements
 - e. interpretive themes
 - f. tangible resource/intangible meanings/universal concepts
 - g. critical resource issues

 2. Refer to the school or group’s educational requirements and objectives
 - a. national, state, and local curriculum standards.
 - b. curriculum planning documents

- c. Classroom lesson plan learning objectives

VI. Determine the type of curriculum-based program or service to develop (See “*Characteristics of an Effective Curriculum-based Program or Service*” in this module).

A. Considerations

1. availability of development assistance
 - a. teachers
 - b. curriculum specialist
 - c. resource managers
 - d. technical experts
2. time allotted for development process
3. participation of partners
4. funding
5. implementation strategy and sustainability

B. Select the format that will best meet the goals and objectives with the resources available

1. Ranger-led program in the park
2. Program conducted in the schools
3. Teachers led program with park staff providing the necessary training
4. Traveling trunk
5. Curriculum guide
6. CD-ROM
7. video
8. Other non-personal program or service

C. Develop specific learning objectives that meet the needs of both the park and the group.

1. *Example:* Third grade groups were identified as the primary audiences desiring an education program or service. The park has an identified goal of protecting the significant diversity of habitats found within the park. A 3rd grade curriculum requirement states “The students will understand that living things are part of a system; habitats change over time.” Based on this comparison of park goals and curriculum requirements, a program learning objective is developed those states “Students will be able to describe how natural and human changes to a habitat may affect the plants and animals that live in the habitat.”

D. Determine who will do the work, assign duties, and establish a project timeline.

VII. Design program components/lesson plans (See *Module 270: Elements of Curriculum-based Programs*)

A. Include the elements of an effective curriculum-based program including.

1. Pre-visit activities
 - a. Purpose
 1. Background information
 2. Orientation/NPS and site information
 3. Introduce concepts/skills needed for program
 4. Create a framework

5. Motivate students
- b. Characteristics of effective pre-visit activities
 1. Developmentally appropriate
 2. Relevant to group's objectives
 3. Engages learners without impacting program
 4. Offers a variety of activities
2. The curriculum-based program or service (on-site or off-site) (See *Module 270: Meeting the Needs of Organized Groups* and *The Continuum of Learning* component in this module)
 - a. Actively immerses learners in resource: hands-on activities
 1. on-site activities should involve park resources when possible, i.e. activities that cannot be done at the school or off site.
 2. make emotional connections with the resource
 3. lead students to assess personal values
 - b. Addresses a variety of learning styles: include cooperative learning techniques and critical thinking skill development.
 - c. Activities are developmentally appropriate
 - d. Content is appropriate for learners.
 - e. Develops concepts/skills needed for program
 - f. Assessment--monitor and adjust
3. Post-visit activities
 - a. Purpose
 1. Check level of learner understanding of goals and objectives
 2. Reinforce concepts/skills
 3. Apply learned concept to local resources
 4. Encourage resource stewardship action skills
 5. Encourage higher-level critical thinking
 6. Continue involvement with park
 - b. Characteristics of effective post-visit activities
 1. Developmentally appropriate
 2. Relevant to groups objectives
 3. Engages learners without impacting program
 4. Offers a variety of activities
4. Develop an evaluation strategy to measure program effectiveness in meeting learning objectives (See *Evaluating a Curriculum-based Program or Service* component in this Module).
 - a. Monitor and adjust throughout program cycle
 - b. Choose appropriate type(s)
 1. Group leader feedback
 2. Student performance
 3. Student feedback
 4. Self evaluation

5. Supervisor/mentor feedback
6. Peer audits

B. Elements of a lesson plan

1. States program objectives
2. Lists related park interpretive theme(s)
3. Lists group's educational objectives
4. Identifies audience age/developmental level
5. Lists equipment/materials needed
6. Determines safety issues and states logistics
7. States length of program and sequence timing
8. Plans for behavior management
9. Selects pre-visit activities
10. Outlines program activities
11. Selects post-visit activities
12. Determines program assessment
13. Cites sources
 - a. Content
 - b. Methodology

VIII. Pilot the program design with a group and get feedback.

- A. Pilot the program design with an organized group.
- B. Get feedback from teachers/group leaders.
- C. Revise as necessary.

IX. Produce "final" program design.

- A. Monitor evaluations and plan for periodic review to ensure continued relevance and appropriateness
- B. Considerations:
 1. Changes to curriculum requirements and standards
 2. Changes in educational practices
 3. New technology or new research
 4. New critical resource issues

RESOURCES

Course Design: A Guide to Curriculum Development for Teachers. 3rd edition. Posner, George J., and Alan N. Rudnitsky, Longman, 1986. This curriculum model offers step-by-step instruction to developing a curriculum from idea to evaluation. These steps can be used to develop a single lesson plan.

I.T.I.P. Instructional Model (Instructional Theory Into Practice), Hunter, Madeline. This model is attached to the resource packet contained in this 270 Competency. Further information may be found at your local county education office or through I.T.I.P. workshops.

IAA Instructional Model (Information, Assimilation, Application). May be found in the book *Sunship Earth* by Steve Van Meter and workshops available through The Institute For Earth Education, Greenville, WV, (304) 832-6404.

“Flow Learning” Instructional Model. May be found in the book *Sharing the Joy of Nature* by Joseph Cornell and workshops available through the Education for Life Foundation, 14618 Tyler Foote Road, Nevada City, CA 95959, (916) 292-3775.

Spiral Curriculum Model. May be found in *Science Teaching and the Development of Thinking*, Anton Lawson, Wadsworth Publishing, 1995.

National Science Education Standards, National Research Council, National Academy Press, 1996.

Pathways To the Science Standards, National Science Teachers Association, 1996
Programming for School Groups: An Interpreter’s Guide, Tevyaw, Kathleen, National Park Service, 1995.

Benchmarks for Science Literacy, American Association for the Advancement of Science, Oxford University Press, 1993.

In Search of Understanding: The Case for Constructivist Classrooms, Jacqueline Grennon Brooks and Martin G. Brooks, association for Supervision and Curriculum Development, 1993.

Teach the Mind, Touch the Spirit: A Guide to Focused Field Trips, Voris, Helen H., Maija Sedzielarz, and Carolyn P. Blackmon, Chicago Field Museum of History, 1986.

Assessing Parks as Classrooms- A Model for Program Evaluation, Hoerman, Slez, and Heald, National Park Service, Washington Office, 1995.

Module 270: Presenting Curriculum-based Programs Available at www.nps.gov/idp/interp.

The Geography of Childhood, Gary Paul Nabhan and Stephen Trimble, Beacon Press, 1994.

Earth Child: Games Stories, Activities, Experiments & Ideas About Living Lightly On Planet Earth, Kathryn Sheehan and Mary Waidner, Ph.D., Council Books, 1994.

Earth Education: A New Beginning, Steven Van Matre, Institute For Earth Education, 1990.

Sharing Nature with Children, Joseph Cornell, Dawn Publications, 1979.

Talking with Young Visitors in the Parks, Donald H Ecroyd, Ph.D., Eastern National Park & Monument Assoc., Inc., 1989.

Play Lightly on the Earth, Jacqueline Horsfall, Dawn Publications, 1997.

Hands-On Nature, Jenepher Lingelbach, Vermont Institute of Natural Science, 1986.

The Curious Naturalist, John Mitchell, Massachusetts Audubon Society, 1996.

Hug a Tree and Other Things To Do Outdoors With Young Children, Robert E Rockwell, Robert A. Williams, and Elizabeth Sherwood, Gryphon House, Inc., 1990.

Nature With Children of All Ages, Edith A. Sisson, Prentice Hall, 1982.

Teaching Kids To Love the Earth, Marina Lachecki Herman, Joseph Passineau, Ann Schimpf, Paul Treuer, Pfeifer-Hamilton Publishers, 1991.

More Teaching Kids To Love the Earth, Marina Lachecki and James Kasperson, Pfeifer-Hamilton Publishers, 1995.

Project Learning Tree, American Forest Council, 1990.

Project Wild, Western Regional Environmental Education Council, 1983.

Project Wet, Western Regional Environmental Education Council, 1995.

Environmental Education Materials: Guidelines for Excellence, The North American Association for Environmental Education, 937-676-2514.

Values and Teaching, Louis Raths, Charles E. Merrill Company, Columbus, Ohio, 1966.

Values Clarification, Simon, Howe and Kirschenbaum, Hart Publishing, New York, 1972.

The Piaget Primer, E. Labinowicz, Addison Wesley Publishers, 1980. *Taxonomy of Education Objectives*, Benjamin Bloom, David McKay Company, 1984.

Multiple Intellegences in the Classroom, A review of Howard Gardner's Theories by Thomas Armstrong, Association for Supervision and Curriculum Development, 1994.

The Outdoor Classroom - A Guide for Schools and Resource Managers, Nine minute videotape, Pictured Rocks National Lakeshore, P.O. Box 40, Munising, MI 49862.

SUGGESTED DEVELOPMENTAL ACTIVITIES

1. Match park resources/themes to a group's educational objectives. Select a group that is coming to the park in the near future. For this program, research park planning documents, including the education plan, tangible/intangible links, universal concepts, interpretive plans, natural/cultural resource management plans. Then research the educational group's curriculum planning documents. Look for connections/links between park resources universal concepts, and the group's learning objectives.

2. Review a curriculum-based program design from your site or a neighboring park. Examine the connections between the program and the pre- and post-program materials. Compare these three items by answering: What are the elements of effective programming as evidenced in this program? What is the purpose of the pre-program materials? How do the pre-program materials support the program? What is the purpose of the post-program materials? How do the post-program materials support this program?
3. Observe a curriculum-based program presentation at your site or from a neighboring park. Identify the elements of an effective program from both your observation and talking with the presenter of the program. Based on your observation and discussion, construct a lesson plan that reflects the program observed. Share this lesson plan with the presenter of the program to gain feedback on your lesson plan.
4. Read the state or local school curriculum guides in the subject area most related to your park themes and for the age or grade that you have identified as your target audience. Make arrangements with the local school district to observe a class of this age group. Record the developmental characteristics you observe and note how much the students may already know about your subject. Use this information to help you choose vocabulary, examples, references, etc., which will relate to what your group already knows and what is relevant to them. Incorporate this knowledge and observations into your program design.
5. Contact other sites (museums, parks, education centers) or search the Internet and collect samples of pre- and post-program materials, evaluation forms, and lesson plans. Analyze these materials based on their purpose. How do these materials introduce and follow-up a program?
6. Attend a workshop or training course on learning styles, critical thinking skills, or human development. Incorporate that information into your program design. Present a brief training session to your coworkers on what you learned in the workshop.
7. Develop a lesson plan for a program or service you are developing. If possible, have a teacher or curriculum specialist review your lesson plan and provide feedback. Present the program or service. Review your lesson plan and consider what worked and what did not work. What would you change in this lesson the next time?

Component for Module 370

Evaluating a Curriculum-based Program or Service

PURPOSE

One of the essential elements of every curriculum-based program/service is evaluation. The purpose of this component plan is to help the interpreter think through the development of a tool to evaluate his/her curriculum-based program.

OBJECTIVES

Upon completion of this component the learner will be able to:

- Articulate the role evaluation plays in the development of a curriculum-based program;
- Describe the process and rationale for the type of evaluation tool developed; and
- Create an evaluation tool for the program/service developed.

APPROACH

Understanding the role that program evaluation plays in an effective curriculum-based program/service is key to developing an effective evaluation tool. Program evaluation assesses the program's structure as well as its strengths and weaknesses. To develop the evaluation tool, the interpreter needs to have basic understanding of the role of evaluation in the development process. The three key evaluation questions provide a structure to understand the why, what, and so what of evaluation tools. An explanation of different types of evaluation data collection tools provides the interpreter with examples to assist with the development of the tool.

CONTENT OUTLINE

I. What is program evaluation?

Program evaluation is

- Systematic effort to develop information
- Designed to create understanding of processes and contexts,
- Helps the interpreter discover the strengths and weaknesses
- Helps produce reasoned judgments about the quality of program/service
- Assists with decision making
- Informs new efforts

Program evaluation is NOT

- A performance audit
- A way to point out only the weaknesses
- A way to point out only the strengths

II. Key Evaluation Questions

- help you structure your evaluation to:

- know why you are conducting the evaluation
- figure out exactly what you want to know (specific information)
- decide how you will use the information collected (improve program, marketing, funding, etc.)

The Three Evaluation Questions to ask and answer

- What is the purpose of the evaluation?
- What do you want to know?
- How will you use this information?

III. Different types of evaluation forms

- Group Leader Feedback – A short set of written questions that can easily be answered by the teacher or organized group leader and provides information from that point of view
- Presenter Feedback – A structured form that gives all presenters an opportunity to assess their program in a way that the data can be viewed across programs.
- Student Feedback – *Caution: written forms that all students are asked to complete are viewed in the same way as visitor surveys and require OMB approval.*
- Observations – Single or multiple observations require a format that allows the programs to be assessed using a set of criteria developed for that purpose.
- Focus Groups – A discussion among teachers, staff, developers, etc. that uses a standard set of questions about the program. Usually, focus groups contain 6-12 participants, last about 60 minutes and look at three areas of concern or issues.

IV. Additional Tips for Successful Tool Development

- Length – keep the form short enough so people will be willing to complete it but long enough to provide needed data
- Types of questions:
 - Yes/No – easy to answer but do not always provide enough information
 - Open-ended – take longer to complete; provide additional information; don't use too many on the form
 - Likert Scale – strongly disagree to strongly agree; scale of 1 – 5; good for attitude or opinion questions
 - Multiple choice
 - Writing the questions
 - Carefully word the questions so that you are not leading the participant to a particular question
 - Pilot test the questions so that participants interpret them in similar ways
 - Administer Tool
 - Figure out best time for administering tool
 - Send it out ahead or time is helpful
 - Give instrument at the end of program/service
 - Provide a stamped envelope for return
 - Let people know that you will be providing an evaluation tool