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ABSTRACT

This second volume of a four-volume evaluation of the 1988-89 New York City School Community Education Program (also known as the Umbrella Program) comprises reports evaluating nine innovative elementary school projects on social, ethnical, and environmental studies, four of which included staff development workshops. Evaluation sources included student preprogram and postprogram test outcomes, writing samples, teacher and student questionnaires, and the number of acceptances of participants into special high schools. Overall, the program was not as successful in meeting its stated objectives as in previous years. Each report contains a brief project overview, describes the research methodology, presents the findings, and provides recommendations for improvement. The following programs are evaluated: (1) The Museum Connection; (2) Peace Education Program; (3) E.C.O.L.E.--Education and Camping Opportunity Through Learning Environment; (4) Urban Environmental Program for Elementary School Pupils; (5) Star Labs; (6) Wave Hill Urban Environmental Program; (7) Lenox-Hill Environmental Education Program; (8) Goddard-Riverside Environmental Education Program; and (9) Ethnic Awareness Program. Statistical data are included on 14 tables. Each report also includes examples of evaluation instruments. (FMW)

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OREA Report

EVALUATION SECTION REPORT
SCHOOL COMMUNITY EDUCATION PROGRAM
IN NEW YORK CITY
1988-89

VOLUME II

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EVALUATION SECTION
John Schoener, Chief Administrator
April, 1990

EVALUATION SECTION REPORT
SCHOOL COMMUNITY EDUCATION PROGRAM
IN NEW YORK CITY
1988-89

VOLUME II

Prepared by
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1/1/90

April, 1990

SCHOOL COMMUNITY EDUCATION PROGRAM
IN NEW YORK CITY
EVALUATION SUMMARY*

BACKGROUND

The School Community Education Program (also known as the Umbrella Program), administered by the Division of Curriculum and Instruction, provides a variety of educational and training experiences to a wide range of participants, including pre-schoolers and their parents, and elementary, intermediate, and high school students, teachers, and supervisors. The program consists of 37 different projects designed to provide innovative solutions to local educational and school problems. Ten projects provide basic skills, English as a Second Language, and computer literacy instruction; ten focus on social issues and environmental studies; seven offer staff development workshops; five involve curriculum development, and three are designed for prekindergarten children. The remaining projects provide participants with a variety of educational experiences.

POPULATION SERVED

In 1988-89, the program served some 25,000 students, primarily elementary school pupils. In addition, the program served 1,100 teachers and supervisors and 100 prekindergarten children, as well as neighborhood adults in the 32 community school districts and selected high schools. Each project established different selection criteria for program participation.

PROGRAM OBJECTIVES

Although program objectives were designed for each specific project and therefore varied, most focused on increasing the competence of project participants through mastery of specific skills and abilities. Most objectives also set quantitative criteria to be met by a minimum percentage of participants for the program to be considered successful.

*This summary is based on the final evaluation report of the School Community Education Program in New York City 1988-89, prepared by the Office of Research, Evaluation, and Assessment/ Instructional Support Evaluation Unit.

EVALUATION METHODOLOGY

The evaluation of the program is based on a number of data sources: student performance outcomes on standardized or project-developed tests, pupil writing samples, teacher and student survey questionnaires, number of acceptances to special high schools, and review of five curriculum documents. These manuals and lesson plans were sent to different units of the New York City Board of Education's Division of Curriculum and Instruction for evaluation. Preprogram and postprogram test outcomes were compared to determine mean differences and, when appropriate, correlated t -tests and effect sizes were also computed to establish statistical significance and educational meaningfulness, respectively. The percentage of participants meeting quantitative project-set criteria for success was also determined.

FINDINGS

The 1988-89 evaluation findings indicate that the School Community Education Program was not as successful as it had been in previous years. Only 15 projects met their stated objectives, compared to 19 in 1987-88. In general, those projects providing staff development training and curriculum development were the most successful. In addition, two projects that provide remedial instruction (Harlem School-Community Tutorial Project, and Mathematics Improvement Program) were also found to be particularly successful. The evaluation also showed that although some projects met their objectives, these results should be treated with caution because of the vagueness of the objectives or because the evaluation instruments could not adequately measure project impact. This is a particular problem shared by staff development projects that seek to measure teacher ability to implement specific teaching skills in the classroom without including instruments which measure these skills.

Four projects were successful in meeting one of their objectives, yet unsuccessful in meeting a second objective. Sixteen projects did not meet their evaluation objectives, and two projects could not be evaluated because test data were lacking. As indicated in previous years' evaluations, a few of these projects need extensive modifications, such as revision of testing instruments to avoid ceiling effect, development of project activities appropriate for different grade levels, or establishment of more stringent participant selection criteria. Most of the unsuccessful projects, however, failed to meet their objectives because their criteria for success were too stringent or because the testing instrument could not adequately measure project objectives. In some of these projects, participants achieved large mean gains, but the percentage of successful participants remained below the percentage established in the project-set criterion for success. In some cases, this criterion was beyond what could be reasonably expected of program

participants.

RECOMMENDATIONS

In addition, to the recommendations made for each project, the following suggestions are made for the overall improvement of the School Community Education Program:

- Closely monitor those projects that fail to meet their stated objectives.
- Assist project staff in making necessary project modifications such as the revision of project activities, revision or replacement of testing instruments, establishment of adequate selection criteria of participants, or amendments in project objectives.

ACKNOWLEDGEMENTS

The production of this report is the result of a collaborative effort of full-time staff and consultants. In addition to those whose names appear on the cover, Maria Cheung undertook the analysis of the statistical data, and Sandra DuBose duplicated this report. The unit could not have produced this evaluation without their participation.

INTRODUCTION

In 1988-89, the New York City Public Schools received \$2,375,000 in funding from the New York State Legislature to operate the School Community Education program (also known as the Umbrella program). It consisted of 37 different projects designed to provide innovative solutions to local educational and school programs.

The program provided services to about 25,000 participants in 32 community school districts and selected high schools. While most of these participants were elementary school students, the program also served some 1,000 intermediate and high school students, 100 preschool children, and 1,100 teachers and supervisors. Some projects also included parenting components and/or sought to involve the parents of participating students in project activities.

Evaluation reports are presented in four volumes. Volume I contains evaluations of ten projects that provided reading, mathematics, writing, English as a Second Language, and computer literacy instruction. Volume II includes evaluations of nine projects on social, ethnic, and environmental studies. Four of these projects also provided staff development workshops. Volume III contains evaluations of seven staff development and five curriculum development projects. The remaining six projects, presented in Volume IV, offered a variety of educational experiences to participants. Three of these projects were designed for prekindergarten children, and the other three projects were designed to teach students health maintenance concepts, to improve their acceptance rate to special high schools, and foster career awareness among students.

Each report contains a brief project overview, describes the evaluation methodology, presents the findings, and provides recommendations for improvement. The reports are listed in order of budgeted function number in the Table of Contents.

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VOLUME II

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THE MUSEUM CONNECTION, 1988-89

School-Community Education Program
Program Administrator: M. Morris Speiser
Project Coordinator: Heywood Feierstein

Prepared by:
Office of Research, Evaluation, and Assessment
Instructional Support Evaluation Unit
New York City Public Schools

PROJECT DESCRIPTION

The Museum Connection program is designed to enhance positive multicultural awareness among fifth grade students at P.S. 398 in Community School District (C.S.D.) 17. The project seeks to address problems in the school stemming from negative stereotypes, racism, and self-prejudice by developing inter-ethnic understanding and cooperation among pupils. Ultimately, the goal is that students, their families, and teachers will become aware of cultural differences, and that this increased understanding will reduce tensions in the school and the community.

In 1988-89, there were 148 participating fifth grade students. The school principal and teachers selected participants on the basis of students' interest in the program. Activities, which were followed up by relevant classroom lessons, took place in the Brooklyn Children's Museum. Five groups of about 30 students each visited the museum for two hours, one afternoon a week, for six-week cycles. At the museum workshops, children participated in hands-on exploratory experiences.

Classroom activities supplemented the regular social studies curriculum and focused on the study of various cultures, mythologies, rituals, and other cultural practices. In both settings, the emphasis was on culture and the ways in which it influences people's thoughts, values, and actions. The goal was that participants would gain an appreciation of the beliefs and customs of other people and increase their self-esteem. The specific project objective was for 80 percent of the participating students to improve by 25 percent their awareness and knowledge of cultural differences and similarities that exist in their local school community, as measured by a program-developed test.

Project staff consisted of an after-school teacher and a part-time supervisor who worked with museum staff to develop an appropriate curriculum and introduce it to other teachers in the school. The New York State Legislature provided \$2,400 to fund the project.

EVALUATION METHODOLOGY

The evaluation of the project focused on the analysis of students' pretest and posttest scores on a program-developed test (see Appendix A). The test consists of 25 true and false and multiple-choice items. It was administered at the beginning and end of each project cycle.

FINDINGS

Complete test scores were reported for 148 participants. Table 1 presents the results of comparisons of pre- to post-program differences in test scores. Overall, the mean pretest raw score was 12.8 points (51 percent correct responses) and the mean posttest raw score was 16.7 points (67 percent correct), for a mean gain of 3.9 points or 16 percent. Mean pretest scores ranged from 12 to 88 percent correct responses, and mean posttest scores ranged from 32 to 96 percent correct responses.

Only 17 percent of participants met the project-set criterion of improving their awareness and knowledge of cultural differences and similarities by 25 percent.

CONCLUSIONS AND RECOMMENDATIONS

The evaluation findings show that The Museum Connection project did not meet its objective of 80 percent of the participants achieving a 25 percent gain. This failure to meet program objectives could be partly due to a ceiling effect. The ceiling effect occurs when a test is too easy. Those participants who failed to meet the project-set criterion received pretest scores as high as 88 percent. Such high pretest scores leave little room for improvement.

In 1987-88, the testing instrument was revised, replacing the essay questions used in previous years with multiple choice questions. This revision was made because it was felt that the previous test had been too difficult for fifth grade students.

TABLE 1

Students' Mean Raw Scores^a on a Project-Developed Test
The Museum Connection, 1988-89

	<u>Pretest Mean</u>		<u>Posttest Mean</u>		<u>Mean Gain</u>	
	Raw Score	Percent Correct	Raw Score	Percent Correct	Raw Score	Percent Correct
Students Meeting Criterion (N=25)	9.5	38.0%	16.2	64.8%	6.7	26.8%
Students Not Meeting Criterion (N=123)	13.4	53.6	16.8	67.2	3.4	13.6
Total (N=148)	12.8	51.2	16.7	66.8	3.9	15.6

^aPerfect raw score=25.

- Seventeen percent of participants met or surpassed the project-set criterion of a 20 percent increase.

It would appear that this revision has resulted in a test that is now too easy for some fifth grade students. In 1987-88, the program was also found to be unsuccessful as a result of the ceiling effect. It is recommended that the project staff should revise the testing instrument. The test should remain multiple choice but the number of questions should be increased and questions of a higher difficulty level added to ensure that the students will not receive such high pretest scores that they are unable to improve their performance as per the stated objective.

THE MUSEUM CONNECTION

PRE- POST-TEST

NAME: _____

DATE: _____ CLASS: _____ ROOM: _____

Directions - for questions 1-8: Darken in the parentheses that give the correct answer.

1. The U.S.A. was the first country to practice democracy.
T () F () DK ()
2. Modern scientists never apply knowledge obtained from past civilizations to resolve contemporary problems.
T () F () DK ()
3. The American culture tends to change more rapidly than other countries.
T () F () DK ()
4. Natural environment helps shape culture.
T () F () DK ()
5. Art does not reflect the traditions of a culture.
T () F () DK ()
6. Museums use primary and secondary sources to analyze cultural patterns.
T () F () DK ()
7. Through migration and immigration people of different cultural backgrounds influence one another.
T () F () DK ()
8. There are universal similarities among all cultures.
T () F () DK ()

GO ON

THE MUSEUM CONNECTION PRE- POST-TEST

Directions for questions 9-22: Darken the letter that gives the correct answer.

9. Every culture:
- (A) has common values and traditions
 - (B) must solve problems of establishing relations with other groups
 - (C) makes adaptive choices based on environment
 - (D) all of the above
10. Which one of the following statements are false about the eating customs of a culture:
- (A) Orthodox Jews will not eat pork or shellfish
 - (B) many Japanese people sit on the floor to eat
 - (C) americans are taught to eat 2 meals a day
 - (D) in some cultures, noise shows an appreciation for food, and quiet eating is considered rude
11. The most obvious thing you could learn about a culture from examing its pots and pans is:
- (A) their form of government
 - (B) materials available to its people
 - (C) their religious customs
 - (D) their level of communication
12. All of the following are true about a culture except:
- (A) cultural traits are learned from birth
 - (B) geography and climate account for differences between cultur s
 - (C) cultures do not borrow ideas from one another
 - (D) all cultures must meet the basic needs of shelter, food, and clothing for its people

GO ON

THE MUSEUM CONNECTION PRE- POST-TEST

13. In studying the language of a culture, we can learn:
- (A) about migrations of people
 - (B) how much cultures have borrowed from each other
 - (C) stories about things that happened to people who lived long ago
 - (D) all of the above
14. Technology describes how:
- (A) people educate their young.
 - (B) people make the things they use.
 - (C) people study the effect of law on crime.
 - (D) none of the above.
15. The word below that best describes a person who moves to a new country to live is a(n):
- (A) nomad.
 - (B) follower.
 - (C) immigrant.
 - (D) tourist.
16. An example of a cultural custom is:
- (A) the methods people use to predict weather.
 - (B) the material used by factories to produce valuable machinery.
 - (C) the manner in which people eat their meals.
 - (D) none of the above.
17. Technology affects a culture by:
- (A) preventing it from developing into a modern society.
 - (B) changing the way people make things and spend their leisure time.
 - (C) decreasing the need for people to get an education.
 - (D) none of the above.

GO ON

18. One correct statement about culture is that:
- (A) people refuse to follow and use it in their lives.
 - (B) children receive no benefits from learning about it
 - (C) children learn about culture with very little help from their elders.
 - (D) elders teach the younger generation about the need to use and understand it.
19. The possible result of two different cultures interacting with each other is:
- (A) sharing of ideas and beliefs.
 - (B) people trying to understand each other.
 - (C) changing ideas about each other.
 - (D) all of the above.
20. One important factor that determines how well a society develops is the:
- (A) geography of the region where the society develops.
 - (B) type of weights people use to measure pounds and grams.
 - (C) number of capital cities found in the society.
 - (D) none of the above.
21. The primary role of an anthropologists is to:
- (A) construct new buildings.
 - (B) study and neglect important ideas from the past.
 - (C) avoid understanding customs of a society.
 - (D) study how people get along in a society.
22. A scientist could learn this about a society by studying one of its statutes:
- (A) the kind of religious beliefs the people had.
 - (B) the kind of clothing they wore.
 - (C) the kind of jewelry they owned.
 - (D) all of the above.

GO ON

Directions for questions 23-25:

Study the diagram below to answer questions 23-25. It is a diagram that shows a place in Africa that scientists are studying to learn more about the past. The diagram is divided into five levels. Each level has special items left behind by people who lived there over a period of a million years. Remember to answer questions 23-25, you must study the diagram.

Level A	◀ w	w	M	*	P
Level B	T	T	T	T	T
Level C	O	O	O	O	O
Level D	~	~	~	~	~
Level E	1.	1.	1.	1.	1.

23. The level which has the oldest items is:

- (A) Level A
- (B) Level B
- (C) Level C
- (D) Level D
- (C) Level E

24. The level which has the newest items is:

- (A) Level A
- (B) Level B
- (C) Level C
- (D) Level D
- (C) Level E

25. The items left behind here were made by people, therefore, they are examples of:

- (A) rocks
- (B) fossils
- (C) skeletons
- (D) artifacts

END END END END END END END END END

PEACE EDUCATION PROGRAM, 1988-89

School-Community Education Program
Program Administrator: M. Morris Speiser
Project Coordinator: Linda Lantieri

Prepared by:
Office of Research, Evaluation, and Assessment
Instructional Support Evaluation Unit
New York City Public Schools

PROJECT DESCRIPTION

The Peace Education Program sought to implement a conflict resolution curriculum in Community School Districts (C.S.D) 15, 27, and 29 that was specifically designed for elementary school students. By emphasizing peace education in the classroom, the goal of the project was to help students understand conflict in the schools and society at large, and to find creative and nonviolent ways to cope with it. The New York State Legislature contributed \$35,000 to fund the project.

In 1988-89, 40 teachers and supervisors from each district were recommended for program participation by their school principals and were selected by the district superintendent. After-school teacher workshops were conducted regularly at the district offices. Project activities involved both the training of participants in the use of a peace education manual and the development of methods to implement this curriculum in the regular classroom. A draft version of this manual, Resolving Conflict Creatively, was developed in 1985-86 by district personnel and expert consultants. The manual includes objectives, activities, evaluation information, and suggested

materials and strategies for implementation.

The Peace Education Program had two objectives for 1987-88. The first objective was for 80 percent of the participating teachers to assign a rating of at least 15 out of a maximum of 20, as measured by a project-developed teachers survey on the training they received to implement the Peace Education Curriculum. The second objective was for 80 percent of the participating supervisors to assign a rating of at least 20 out of a maximum of 35 on the educational value of the Peace Education's Curriculum as measured by a project-developed administrator survey.

EVALUATION METHODOLOGY

Evaluation consisted of an analysis of teachers' and administrators' ratings on project-developed surveys. The teachers' survey asked teachers to rate the training they received on a scale of 1 (poor) to 5 (excellent). Teachers rated four different components of their training: training sessions, curriculum implementation, staff development, and special projects (see Appendix A).

The administrators' survey required administrators to rate the educational value of the Peace Education's curriculum on their respective schools on a scale of 1 (poor) to 5 (excellent). Administrators rated the program on areas such as organization, ease of use, clarity of language, content usefulness,

appropriateness, numbers of activities, and teaching strategies (see Appendix B).

FINDINGS

Complete survey scores were reported for 77 teachers and six administrators. Table 1 presents the results of the teachers' survey. Teachers rated all areas surveyed positively. Training sessions received the highest rating, with a mean of 4.4 out of a possible five points. Mean combined score for all four components surveyed was 16.4 out of a possible score of 20.

Results of the survey for administrators are presented in Table 2. Mean scores for each component surveyed ranged from 4 to 4.5 points out of a possible five points. Administrators rated the Peace Education's Curriculum highest in the areas of organization, teaching strategies, and activities. Mean combined score for all seven areas surveyed was 30 out of a possible 35 points.

CONCLUSIONS AND RECOMMENDATIONS

In 1988-89, the Peace Education Program was successful in meeting its objectives. One hundred percent of administrators surveyed rated the educational value of the Peace Education's curriculum good to excellent, and eighty-two percent of the teachers rated their training in the program good to excellent.

Table 1
 Mean Ratings on Teachers Survey^a
 Peace Education Program, 1988-89

Component	Mean Ratings		
	C.S.D. 15 N = 20	C.S.D. 27 N = 20	Total N = 40
Training Sessions	4.5	4.3	4.4
Work With Staff Developers	4.3	4.2	4.2
Curriculum Implementation	3.9	3.6	3.7
Special Projects	4.2	4.0	4.1
Total Score ^a (For all four components)	16.9	16.1	16.4

^aTeachers rated the above four components of the training on a scale of 1 (poor) to 5 (excellent). Possible total score for all four components ranged from five to 20.

- Teachers rated all four areas positively.
- Mean ratings for teachers at C.S.D. 15 were higher than teachers at C.S.D. 27.

Table 2.

**Administrators' Mean Ratings of Curriculum
on Project-Developed Survey^a
Peace Education Program, 1988-89**

Component	Mean Ratings		
	C.S.D. 15 N = 2	C.S.D. 27 N = 4	Total N = 6
Well Organized	4.0	4.5	4.3
Easy To Use	4.0	4.3	4.2
Clearly Written	4.0	4.3	4.2
Content Covers Useful Skills and Topics	4.0	4.3	4.2
Age/Grade Appropriate	4.5	4.3	4.3
Has Sufficient Activities	4.0	4.5	4.3
Suggests Effective Teaching Strategies	4.5	4.5	4.5
Total Score ^a (For All Components)	29.0	30.7	30.0

^aAdministrators rated the above seven components of the curriculum on a scale of 1 (poor) to 5 (excellent). Possible total score for all seven components ranged from seven to 35.

TABLE 3
 Percentage of Program Participants Meeting
 Project-Set Criterion^a
 Peace Education Program, 1988-89

Survey	N	Meeting Criterion	
		N	%
Teacher	40	33	82.0%
Administrator	6	6	100.0

^aTeacher participants will assign a rating of at least 15 on the teachers' survey. Administrative participants will assign a rating of at least 20 on the administrative survey.

- Eighty-two percent of the teachers and 100 percent of the administrators met the program objective.

On the Teachers' survey, curriculum implementation received the lowest ratings of all four areas. It would appear from the results of this evaluation that the Peace Education program has a good strong curriculum, yet training teachers in the use of this curriculum could be improved. It is recommended that future project staff identify the weaknesses the teachers saw in their training and use this information to strengthen the training sessions.

In addition to the evaluation completed by the Office of Research, Evaluation, and Assessment, a private evaluation firm completed a more extensive survey including interviews with participating teachers and students. That firm's evaluation of the program was very favorable. It reported that teachers noticed a positive change in their students' attitudes and behaviors as a result of participation in the project.

Peace Education Teacher Survey
B/E #5001-48-83401

APPENDIX A
93407

Name: _____ School: _____

District: _____ Grade Level: _____

Directions: Please indicated your overall rating of the four components of the Peace Education Program by circling one number on a five point scale ranging from 1 (Poor) to 5 (Excellent).

Components	Scale				
	Poor				Excellent
1. Training Sessions	1	2	3	4	5
2. Work with staff developers	1	2	3	4	5
3. Curriculum implementation	1	2	3	4	5
4. Special projects	1	2	3	4	5

Raw Score: _____

Peace Education Administrator Survey APPENDIX B
B/E # 5001-48-93407 93407

Name: _____ School: _____

District: _____ Grade Level: _____

Directions: Please indicate your overall rating of the educational value of the Peace Education Curriculum by circling one number on a five point scale ranging from 1 (Poor) to 5 (Excellent).

The curriculum	Poor Excellent				
1. is well organized	1	2	3	4	5
2. is easy to use	1	2	3	4	5
3. is clearly written	1	2	3	4	5
4. content covers useful skills and topics.	1	2	3	4	5
5. is age/grade appropriate.	1	2	3	4	5
6. has sufficient activities.	1	2	3	4	5
7. suggests effective teaching strategies.	1	2	3	4	5

Raw Score _____

E.C.O.L.E.-EDUCATION AND CAMPING OPPORTUNITY
THROUGH LEARNING ENVIRONMENT, 1988-89

School-Community Education Program
Program Administrator: M. Morris Speiser
Project Coordinator: Marshall Sholtzow

Prepared by:
Office of Research, Evaluation, and Assessment
Instructional Support Evaluation Unit
New York City Public Schools

PROJECT DESCRIPTION

Project Education and Camping Opportunity Through Learning Environment (E.C.O.L.E.) is a training program in environmental science for elementary school teachers in Community School District (C.S.D.) 19. The project uses the facilities and staff of the William H. Pouch Environmental Center on Staten Island, the Nature's Niche science facility in C.S.D. 19, and the Intrepid Air and Space Museum to provide instruction in environmental science and staff development training in the teaching of science. Teachers and their students in grades four through six take part in the program's activities.

In 1988-89, 30 teachers and approximately 900 students participated in Project E.C.O.L.E. Teachers from ten elementary schools in C.S.D. 19 were selected by their principals on the basis of their need for assistance in science instruction. Teachers and students traveled to Camp Pouch every six weeks for a total of five times. Camp staff provided instruction in areas such as map reading, first aid, pollution, soil conservation,

the life cycle of plants, basic astronomy, and environmental protection. Teachers were assisted in developing instructional units in science that incorporated work in other curriculum areas such as mathematics and social studies. District science staff developers provided follow-up training in the teachers' classrooms and at the Nature's Niche facility.

The objective for 1988-89 was for teachers to improve their ability to develop and implement lessons in environmental science. Specifically, 75 percent of participants were to show an improvement of at least 25 percent in these skills as measured by their pre- and posttest scores on a project-developed test.

The staff of project E.C.O.L.E. consisted of a program coordinator, science staff developers, and a school aide paid by C.S.D. 19. Camp Pouch also provided instruction at no cost to the project. Funding of \$48,000 from the New York State Legislature was used to cover the cost of transportation to Camp Pouch and the Intrepid Museum, and for the purchase of instructional supplies and equipment.

EVALUATION METHODOLOGY AND FINDINGS

Project impact was assessed by analysis of teachers scores on a project-developed test (see Appendix A). The test combined multiple-choice, short essay, fill-in, and matching questions to assess knowledge of science concepts. The test was given on a pre- and posttest basis at the beginning and end of the program.

The maximum raw score was 100 points.

Complete test scores were reported for 30 teachers. Mean pretest raw score was 21.2 points, mean posttest raw score was 50.3 points, for a mean gain of 29.2. Eighteen participants (60 percent) met the project set criterion for success (see Table 1).

CONCLUSIONS AND RECOMMENDATIONS

In 1988-89, Project E.C.O.L.E. was not successful in meeting its stated objective. Only sixty percent of participating teachers met the project set criterion for success. The low mean posttest score (50 percentage points) indicates that the test is either too difficult or that it does not reflect project activities.

Recommendations based on previous evaluation findings pointed to similar problems with the testing instrument and the project objective, and included suggestions for revision. Although project staff acted upon these recommendations, the test needs further revisions in order to better assess the impact of the program. The new instrument should reflect project activities and include items that measure the environmental science skills and teaching techniques developed during the course of the program. An alternative and possibly better assessment method would be the direct observation and evaluation of teacher performance in the classroom.

TABLE 1

Distribution of Teachers' Gains on a Project Developed Test.
E.C.O.L.E., 1988-89

	<u>Pretest Mean</u>		<u>Posttest Mean</u>		<u>Mean Gain</u>	
	Raw Score	Percent Correct	Raw Score	Percent Correct	Raw Score	Percent Correct
Teachers Meeting Criterion (N=18)	22.5	22.5%	60.8	60.8%	38.3	38.3%
Students Not Meeting Criterion (N=12)	19.2	19.2	34.7	34.7	15.5	15.5
Total (N=60)	21.2	21.2	50.3	50.3	29.2	29.2

^aPerfect raw score=100.

- Sixty percent of participants met or surpassed the project-set criterion of a twenty percent increase.

Even though the project was not judged successful from a quantitative stance, it was viewed as an enlightening and enriching experience by the participants. Many teachers wrote letters expressing their gratitude for being included in the program and stating that the children had found it an enjoyable learning experience.

Select the letter of the answer that best completes each of the following.

1. The sun is a (a) planet (b) star (c) comet (d) galaxy.
2. An example of a natural resource is (a) water (b) oil (c) iron (d) all of the above.
3. Water changes to water vapor when it (a) evaporates (b) condenses (c) melts (d) freezes.
4. The line of zero degrees longitude is called the (a) equator (b) prime meridian (c) North Pole (d) South Pole.
5. Warmed air moves upward mainly by (a) conduction (b) convection (c) evaporation (d) condensation.
6. A unit used to measure energy amounts is the (a) gram (b) degree (c) calorie (d) meter.
7. Clouds that indicate fair weather are (a) stratus (b) cumulus (c) cirrus (d) cumulonimbus.
8. An element is a substance made entirely of one kind of (a) molecule (b) solution (c) compound (d) atom.
9. Closely spaced contour lines on a topographic map are a sign of (a) a mountain top (b) a great plain (c) a steep slope (d) a gentle slope.
10. Contour lines on a weather map usually show the pattern of (a) air pressure (b) wind speed (c) rainfall (d) clouds.
11. Rain that freezes before it hits the ground is (a) slush (b) drizzle (c) hail (d) sleet.
12. When the air is saturated its relative humidity is (a) 100% (b) 75% (c) 50% (d) 0%.
13. A powerful cyclone formed over the ocean in tropical air (a) thunderstorm (b) hurricane (c) tornado (d) blizzard.
14. The water supply is constantly renewed by (a) precipitation (b) the water cycle (c) plants (d) oceans.
15. A common feature of sedimentary rocks is (a) smooth texture (b) glassy texture (c) fossils (d) small holes

Complete the following.

1. A natural resource is _____.
2. A vertebrate is an animal with a _____.
3. List the five major groups of vertebrate animals _____, _____, _____, _____, and _____.
4. The three forms of matter are _____, _____, and _____.
5. The three layers of the earth are _____, _____, and _____.
6. An object's size is its _____.
7. Parallel lines north and south of the equator are lines of _____.
8. When contour lines are close together then the shape or elevation of the land is _____.
9. A boundary between two different air masses is a _____.
10. The main source of energy is the _____.
11. Soil is a mixture of weathered rock and _____.
12. The breaking down of rock by changing its chemical composition is called _____.
13. Three groups of rocks are _____, _____, and _____.
14. A stream will begin to deposit as its speed _____.
15. Seventy percent of the earth's surface is covered by _____.

Matching Questions

93408

Put the letter in column B next to the best definition in column A.

- | A | B |
|--|------------------|
| 1. A line on a map connecting places that have the same elevation | (a) erosion |
| 2. Boundary between two different air masses | (b) ore |
| 3. A puffy cloud | (c) climate |
| 4. Sum of all weather occurring over many years | (d) conservation |
| 5. A single solid element or compound occurring naturally in the earth's crust | (e) fracture |
| 6. A beautiful non metallic mineral | (f) front |
| 7. A mineral resource that can be mined for profit | (g) gem |
| 8. The tendency to break along smooth surfaces | (h) magma |
| 9. The tendency to break unevenly | (i) contour line |
| 10. Hot molten rock underground | (j) lava |
| | (k) cumulus |
| | (l) mineral |
| | (m) cleavage |
| | (n) environment |
| | (o) stratus |
| | (p) vertical |

Short Answer

1. Show a diagram of the water cycle and explain.
2. What kind of environment would be created if any part of the water cycle was interrupted?
3. Describe a directional compass, its proper use and how it works.
4. Describe four different environments. How are they the same? how are they different?
5. What is pollution? How can we control pollution?
6. What is erosion? Describe three natural forces of erosion and how each force erodes the land.

URBAN ENVIRONMENTAL PROGRAM
FOR ELEMENTARY SCHOOL PUPILS, 1988-89

School-Community Education Program
Program Administrator: M. Morris Speiser
Project Coordinator: Charles Monaco

Prepared by:
Office of Research, Evaluation, and Assessment
Instructional Support Evaluation Unit
New York City Public Schools

PROJECT DESCRIPTION

The Urban Environmental Program for Elementary School Pupils provided instruction on natural and man-made environments to elementary school students in Community School Districts (C.S.D.s) 13, 15, 17, 18, 20, and 22. Each district designated at least four schools which, in turn, selected at least four classes to participate in the program. Participating classes were selected by school principals on the basis of student and teacher interest, and readiness to participate in the program.

Some 1,400 elementary school students participated in the program in 1988-89. Instructional activities included an orientation school visit by project teachers, and four two-hour fields trips to Prospect Park in Brooklyn between September and June. These field trips combined nature walks and street tours in the nearby neighborhood of Park Slope with follow-up lessons at the park's Environmental Center. In addition, teachers offered an in-school environmental program, called Neighborhood Streetscapes, and a Built Environment program, focusing on urban architecture and urban history, planning, and design. The New York State Legislature contributed \$41 thousand to support this

program.

The project objective was for 80 percent of the participants to demonstrate an increase in their awareness and appreciation of natural and urban environments by achieving a gain of at least 25 percent from pretest to posttest on program-developed tests.

EVALUATION METHODOLOGY

Evaluation activities focused on analyses of student performance on three different project developed tests (see Appendix A). The first test, Neighborhood Streetscapes, consists of 15 multiple choice items concerned with architectural features and materials. The other two tests, Park for All Seasons, and Changing Seasons, consist of multiple choice questions on natural and man-made environments. A sample of approximately 20 percent of the total student participants were administered one of the three tests at the beginning and end of project activities. The test administered to the students depended on the emphasis of the program for those students.

FINDINGS

Complete test scores were reported for a total of 123 students on the Neighborhood Streetscapes test. Table 1 presents students' mean raw scores and mean gains on the Neighborhood Streetscapes test, by school. Pretest scores ranged from 28 to 53 percent correct responses, with a mean of 41.3 percent.

Table 1
 Student's Raw Scores on the
 Neighborhood Streetscapes Test
 by School
 Urban Environmental Program, 1988-89

School	N	Pretest Mean		Posttest Mean		Mean Gain	
		Raw Score	Percent Correct	Raw Score	Percent Correct	Raw Score	Percent Correct
P.S. 97	19	6.3	42.0%	9.9	66.0%	3.6	24.0%
P.S. 112	26	7.9	52.7	9.5	63.3	1.6	10.7
P.S. 124	28	5.8	38.7	9.1	60.7	3.3	22.0
P.S. 249	40	5.7	38.0	10.5	70.0		32.0
P.S. 287	10	4.2	28.0	6.6	44.0	2.4	16.0
Total	123	6.2	41.3%	9.6	64.0%	3.4	22.7

*Perfect raw score=15.

- Overall, students achieved a 22.7 percent gain from pretest to posttest.
- Students at P.S. 249 achieved the largest mean gain.

Posttest scores ranged from 44 to 70 percent correct responses, with a mean of 64 percent. Mean gains ranged from 11 percent to 32 percent correct responses, with a mean of 22.7 percent. P.S. 249 had the highest mean gain. The percentage of students meeting the project-set criterion of a 25 percent gain on the posttest of Neighborhood Streetscapes is presented in Table 2. Overall, 48.8 percent of the program participants sampled met or surpassed the project set criterion. Students at P.S. 249 had the highest success rate, 65 percent.

CONCLUSIONS AND RECOMMENDATIONS

In 1988-89, the Urban Environmental Program was not successful in meeting its objective of 80 percent of participating students achieving a 25 percent gain from pretest to posttest. Overall, only 48.8 percent of the students met this criterion. P.S. 249 had the largest percentage of students, 65 percent, who met or surpassed the project-set criterion, whereas P.S. 112 had the lowest, 23.1 percent. One possible explanation for the variation in scores across schools is the grade levels of the sampled students. P.S. 249 sampled fifth grade students and P.S. 112 sampled third grade students. This would suggest that the test may be too hard for some third grade students. Students at P.S. 112 showed the largest variation in scores with gains ranging from a loss of 2 raw score points to a gain of 8 raw score points.

In 1987-88, it was recommended that the number of tests used to evaluate the program be reduced, because it is difficult to make meaningful comparisons across the different tests. Instead of following the above recommendation, in 1988-89, only those students taking the Neighborhood Streetscapes test were sampled. Although this does facilitate comparisons between students on this test, it ignores those students participating in the other two components of the program, Changing Seasons and Park for All Seasons. In the future, it is recommended that, if possible, one test be developed to test all students of a given grade level for all components of the program combined. In addition, several levels of the test should be developed to enable the evaluation of all participating grades.

In 1988-89, scores were reported for only third through fifth grade students in one component of the program, Neighborhood Streetscapes. Considering that the program is designed for all elementary school children, it is important to examine its impact on all participating grades. It is also important to assess the impact of all three components of the program. Therefore it is recommended that, in the future, program staff provide a sample of students from all grade levels participating in each of the three components of the program.

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NEIGHBORHOOD STREETSCAPES PRE-TEST/POST-TEST

School: _____ Class: _____ Date: _____

Name: _____
(Last) (First)

DIRECTIONS: Read each of the questions below carefully and choose the letter of the answer you think is correct and write it on the line in front of the question.

- _____ 1. Examples of building parts that can be used as decorations are a) brackets
b) dentils c) panels d) columns e) all of these.
- _____ 2. The facade is located along the a) front of the building b) sides of
the building c) back of the building d) front door e) none of these.
- _____ 3. Brooklyn neighborhoods have a) changed very little b) changed a great deal
c) become industrialized d) become run down e) stayed the same - over
the past eighty years.
- _____ 4. All of the following words describe patterns except a) repeated b) striped
c) checked d) solid e) wavy.
- _____ 5. Bay is a word used to describe a) a door b) the roof c) a stairway
d) a window e) none of these.
- _____ 6. A circle, a rectangle, and a square are examples of a) colors b) shapes
c) patterns d) textures e) all of these.
- _____ 7. Building ornaments which are shaped like teeth are called a) arches
b) columns c) dentils d) shingles e) all of these.
- _____ 8. Rough, smooth, and scratchy are examples of a) designs b) patterns
c) textures d) structure e) all of these.
- _____ 9. A stone inscribed with the date of construction of the building is called
a) a) cornerstone b) keystone c) cornice d) column e) all of these.
- _____ 10. Streetscapes have a) buildings b) sidewalks c) signs d) lamp posts
e) all of these.
- _____ 11. The steps at the front of some buildings are called a) a facade b) a stop
c) a bay d) a bracket e) all of these.
- _____ 12. By studying buildings in a neighborhood we can learn about a) history
b) architecture c) social studies d) art e) all of these.
- _____ 13. The first job in constructing a building is
a) digging the foundation
b) deciding its use
c) drawing the plans
d) connecting the water pipes
e) pouring the concrete.
- _____ 14. The age of a building is sometimes shown by its. a) cornerstone b) shape
c) decorations d) materials e) all of these.
- _____ 15. Brooklyn contains many
a) neighborhoods
b) cities
c) states
d) counties
e) all of these.



PROSPECT PARK ENVIRONMENTAL CENTER

Celebrating the urban environment: exploring its nature, appreciating its architecture, discovering its history, and conserving its future.

93414

NAME Umbrella Program B/E# 5001-48-83414 CLASS _____
SCHOOL _____ DATE _____

CHANGING SEASONS/CHANGING PATTERNS: 1987-88 ARIES IN EDUCATION

Directions: For each of the following questions, choose the best answer and write the letter of that answer on the line at the left.

- _____ 1. Trees move food and water through their (a) bark, (b) arteries, (c) xylem and phloem, (d) heartwood.
- _____ 2. Prospect Park does not have _____.
(a) oak trees, (b) pine trees, (c) wild onion, (d) sugar cane.
- _____ 3. A directional compass points north because of _____.
(a) the earth's magnetism, (b) wind from the north, (c) solar energy, (d) chemical reactions.
- _____ 4. Squirrels _____ in winter.
(a) hibernate, (b) forage, (c) migrate, (d) shed their fur.
- _____ 5. A map's legend or key shows _____.
(a) who drew the map, (b) cardinal directions, (c) the meanings of the symbols on the map, (d) the history of maps and mapping.
- _____ 6. Clover, dandelion, and plantain would most likely be found in a _____ habitat.
(a) meadow, (b) woods, (c) marsh, (d) pond.
- _____ 7. Willow and cypress trees grow best in a _____ habitat.
(a) meadow, (b) rocky hilltop, (c) swamp, (d) dry.
- _____ 8. Which food chain would you find in Prospect Park?
(a) plankton → copepod → fish
(b) oak tree → squirrel → hawk
(c) grass plant → beetle → frog
(d) all of these.
- _____ 9. In an ecosystem, _____ make their own food.
(a) producers (b) consumers (c) decomposers (d) all of these.
- _____ 10. In an ecosystem, _____ eat living plants or animals.
(a) producers (b) consumers (c) decomposers (d) all of these.
- _____ 11. Seasonal changes influence the lives of (a) green plants, (b) pond animals, (c) squirrels and birds, (d) all of these.
- _____ 12. Parks are used by (a) young children, (b) senior citizens, (c) adults, (d) all of these.
- _____ 13. Snow is (a) frozen water vapor crystals, (b) frozen rain, (c) ice pellets, (d) none of these.
- _____ 14. Soil is made of (a) rocks, (b) leaves, (c) roots, (d) all of these.
- _____ 15. Which of the following could be called a work of art?
(a) a poem, (b) a painting, (c) Prospect Park, (d) all of these.
- _____ 16. Trees drop their leaves because they (a) are at the end of their life cycle, (b) are dying, (c) are fully grown, (d) all of these.
- _____ 17. The change in seasons is caused by: (a) the sun moving closer to the earth, (b) the position of the earth in its orbit around the sun, (c) the pull of gravity on the earth, (d) all of these.



- _____ 18. Who should keep the park clean? (a) park workers, (b) children who visit the park, (c) people who have picnic, (d) all of these.
- _____ 19. The temperature of a pond is (a) always higher than the air temperature surrounding it, (b) always lower than the air temperature surrounding it, (c) the same as the air temperature surrounding it, (d) none of these.
- _____ 20. People use parks in the city (a) to play, (b) for exercise, (c) to relax and enjoy the outdoors, (d) all of these.

PROSPECT PARK ENVIRONMENTAL CENTER

SCHOOL _____, GRADE _____

Name _____
LAST FIRSTPARK OF ALL SEASONS PROGRAM FOR ELEMENTARY SCHOOL STUDENTS

Directions: For each of the following questions, choose the best answer and write the letter of that answer on the line at the left.

- _____ 1. The skin of a tree is called its
(a) leaves (b) stem (c) shell (d) none of these
- _____ 2. Prospect Park has
(a) deciduous trees
(b) evergreen trees
(c) deciduous and evergreen trees
(d) all of these
- _____ 3. In the winter, the deciduous trees in Prospect Park are
(a) resting
(b) without any leaves
(c) no longer making their own food
(d) forming buds for the spring
(e) all of these
- _____ 4. In late summer, trees
(a) start producing buds
(b) start changing colors
(c) are in full bloom
(d) begin to store food in their roots
(e) all of these
- _____ 5. During the autumn months, squirrels
(a) collect and store food for the colder weather
(b) prepare their nests
(c) migrate to warmer climates for the winter
(d) all of these
(e) all of these except (c)

_____ 6. Insects are found in Prospect Park

- (a) only in the spring
- (b) during the summer
- (c) all year round
- (d) none of these

_____ 7. Birds found in Prospect Park

- (a) migrate during the winter months
- (b) hibernate all winter
- (c) stay as long as they can find food and shelter
- (d) none of these
- (e) all of these except (b)

_____ 8. The meadow in Prospect Park has

- (a) grass
- (b) clover
- (c) plantain
- (d) dandelions
- (e) all of these grow in it.

_____ 9. Evergreen trees

- (a) stay green all year round
- (b) drop a few leaves at a time
- (c) have needle-shaped leaves
- (d) produce cones
- (e) all of these

_____ 10. Prospect Park is owned buy

- (a) the mayor of New York City
- (b) the City of New York
- (c) the Parks Department
- (d) the people of New York City

_____ 11. Seasonal changes influence the lives of

- (a) green plants
- (b) pond animals
- (c) squirrels and birds
- (d) insects
- (e) all of these

_____ 12. Soil is made of

- (a) broken down rocks
- (b) living organisms
- (c) remains of dead plants and animals
- (d) all of these

_____ 13. In order for trees to produce new young trees, they make

- (a) soil
- (b) tree rings
- (c) seeds
- (d) birds
- (e) none of these

_____ 14. The change in the seasons is caused by

- (a) the sun moving closer to the earth
- (b) the path of the moon's orbit around the sun
- (c) the pull of gravity on the earth
- (d) the position of the earth in its orbit around the sun
- (e) none of these

_____ 15. Who should keep the park clean?

- (a) park workers
- (b) children who visit the park
- (c) runners and bicyclists in the park
- (d) people who picnic in the park
- (e) all of these

STAR LABS, 1988-89

School-Community Education Program
Program Administrator: M. Morris Speiser
Project Coordinator: Valerie Cavallero

Prepared by:
Office of Research, Evaluation, and Assessment
Instructional Support Evaluation Unit
New York City Public Schools

PROJECT DESCRIPTION

The Star Labs program is designed to introduce elementary school students to the major concepts in astronomy. A mobile Star Lab planetarium was utilized to assist in instruction. The State Education Department provided \$35 thousand in funding for this project.

In 1988-89, 75 teachers and 1500 students from all elementary schools in community school district (C.S.D.) 20 participated in the project. Three fourth grade classes from each school were chosen to participate by the principals of each school and the district superintendent. The program emphasized astronomy and the earth's relation to the sun, moon, planets, and other solar systems. Students received classroom instruction followed up by visits to the mobile Star Lab Planetarium. Each class visited the planetarium at least five times.

The objective was for 80 percent of the participating students to demonstrate a 30 percent increase in knowledge of astronomy and related topics in science as measured by a district-developed test.

EVALUATION METHODOLOGY

The evaluation consisted of an analysis of participating student's pre- and posttest scores on a district-developed test (See Appendix A). The test consisted of 15 multiple choice items and was designed to measure students' knowledge of astronomy and related topics in science.

FINDINGS

Complete test scores were reported for 75 participating teachers. Table 1 presents a comparison of participants mean pre- and posttest scores, and the percentage of participants meeting the project-set criterion of a 30 percent increase. Program participants scored a mean of 31 percent correct responses on the pretest, and 58 percent correct on the posttest, for a mean gain of 26 percent. Twenty-nine out of the 75 participants (39 percent) met or surpassed the project set criterion of a 30 percent increase on the posttest.

CONCLUSIONS AND RECOMMENDATIONS

During the 1988-89 school year, the Star Labs project was not successful in meeting its objective of 80 percent of the participants achieving a 30 percent gain in knowledge of astronomy. Only thirty-nine percent of students met the project-set criterion.

From the information provided to the Office of Research, Evaluation, and Assessment, it is impossible to adequately assess why the project did not meet its objective. One possible

explanation is that the test does not reflect what is being taught in the program. Another explanation is that the objective is too ambitious. It is recommended that project staff review the testing instrument to assure that it is correlates with what the students are learning in the program. In addition, project staff may wish to revise the objective to "75 percent of students will achieve a 25 percent gain."

explanation is that the test does not reflect what is being taught in the program. Another explanation is that the objective is too ambitious. It is recommended that project staff review the testing instrument to assure that it is correlates with what the students are learning in the program. In addition, project staff may wish to revise the objective to "75 percent of students will achieve a 25 percent gain."

Directions: Please choose the answer which best completes the statement or answers the question. Mark the letter answer on the separate answer sheet.

1. The sun seems to be moving across the sky because:
 - a) it is moving around the earth.
 - b) the earth is revolving around the sun.
 - c) the earth is rotating on its axis.
 - d) the sun moves to the other side of the earth.

2. The sun's path across the sky is called the:
 - a) horizon.
 - b) meridian.
 - c) ecliptic.
 - d) equinox.

3. How long does it take for the earth to revolve around the sun once?
 - a) 3 months.
 - b) 24 hours.
 - c) 365 days.
 - d) 6 months.

4. How long does it take the earth to rotate once on its axis?
 - a) 3 months.
 - b) 24 hours.
 - c) 365 days.
 - d) 6 months.

5. How often can you see the moon in the daytime during the month?
 - a) always.
 - b) most of the time.
 - c) 3 times.
 - d) never.

GO ON

6. Approximately how many stars can we see with our eye from our homes in the city?
- a) 3000.
 - b) 10,000.
 - c) 100,000.
 - d) 1,000,000.
7. The reason we are unable to see as many stars from the city as we are able to see in the country is:
- a) air pollution.
 - b) the horizon is blocked by buildings.
 - c) light pollution.
 - d) that people are unable to see in the dark.
8. How much of the sky can we see from our homes in the city?
- a) $1/2$.
 - b) $1/4$.
 - c) $3/4$.
 - d) the whole thing.
9. The highest point above us that we can see is called the:
- a) horizon.
 - b) zenith.
 - c) ecliptic.
 - d) meridian.
10. What is the brightest star that we can see in the night sky?
- a) Sirius.
 - b) Betelgeuse.
 - c) Rigel.
 - d) North Star.
11. The pointer stars in the Big Dipper point to:
- a) the North Star.
 - b) the Great Bear.
 - c) Orion.
 - d) Draco the Dragon.

GO ON

12. Another name for the North Star is:
- a) Polaris.
 - b) Vega.
 - c) Sirius.
 - d) Beteleguse.
13. A picture made by connecting the stars is called a :
- a) myth.
 - b) constellation.
 - c) planetarium.
 - d) cluster.
14. How many stars make up the Big Dipper?
- a) 6
 - b) 9
 - c) 7
 - d) 5
15. We are unable to see the same constellations in the sky all year around because:
- a) the earth is revolving around the sun.
 - b) the sun is moving around the earth.
 - c) the stars are moving around the sun.
 - d) the stars are moving around the earth.

END END END END END END END END END END

ANSWER KEY - STUDENT EVALUATION STAR LAB

1. C
2. C
3. C
4. B
5. B
6. A
7. C
8. B
9. B
10. A
11. A
12. A
13. B
14. C
15. A

WAVE HILL URBAN ENVIRONMENTAL PROGRAM, 1988-89

School-Community Education Program
Program Administrator: M. Morris Speiser
Project Coordinator: Maria Caban

Prepared by:
Office of Research, Evaluation, and Assessment
Instructional Support Evaluation Unit
New York City Public Schools

PROJECT DESCRIPTION

The Wave Hill Urban Environmental program is a training project in urban environmental science for elementary and junior high school teachers in Community School Districts (C.S.D.s) 9, 10, and 11. The project goal is for teachers to gain confidence in their teaching of science and for students to view science as a living subject. The project received \$26 thousand in funding from the New York State Legislature.

Schools and teachers were recommended for project participation by district superintendents and school principals. Teachers and their students visited the Wave Hill Environmental Center for workshops and training in local geology, botany, and mapping. They also participated in workshops designed to help them make use of urban scientific resources. Wave Hill staff supplemented these activities with classroom visits in which they assisted teachers in planning lessons and implementing in-class projects.

The objective for 1988-89 was for 80 percent of teacher participants to demonstrate a 40 percent pre- to posttest increase in their knowledge of environmental science instruction.

EVALUATION METHODOLOGY AND FINDINGS

Project impact was assessed by an analysis of teachers' scores on a project-developed test of scientific knowledge given at the beginning and end of the project (see Appendix A). The test included identifications, matching columns, and short essays. The posttest included an additional section that covered the specific topics taught in the training sessions and field trips. Teachers who studied different topics were required to take a section that addressed that area. The maximum score possible was 100 points.

Pretest and posttest data were reported for the seven teacher participants at C.S.D. 10. Overall, pretest mean raw score was 40.7 points, and posttest mean raw score was 85.4 points, for a mean gain of 44.7 percent (see Table 1). Overall, fifty-seven percent of the participating teachers met or surpassed the project-set criterion of a 40 percent gain.

CONCLUSIONS AND RECOMMENDATIONS

The Wave Hill Urban Environmental Project did not achieve its objective of improving 80 percent of teachers performance by 40 percent on the project developed test. Overall, only 44.7 percent of participants achieved a gain of 40 percent from pre- to posttest. Those participants that did not meet the project-set criterion had a mean pretest score of 63.5 percent correct responses. Such high pretest scores preclude a 40 percent gain

TABLE 1

Teachers' Mean Raw Scores^a on a Project Developed Test,
Wave Hill Urban Environmental Program, 1988-89

	<u>Pretest Mean</u>	<u>Posttest Mean</u>	<u>Mean Gain</u>
Teachers Meeting Criterion ^b (N=4)	23.7	84.1	60.4
Teachers Not Meeting Criterion ^b (N=3)	63.5	87.2	23.7
Total (N=7)	40.7	85.4	44.7

^aPerfect raw score=100.

^bParticipating teachers will achieve a 40 percent gain at posttest.

- Overall, fifty-seven percent of the teachers met or surpassed the project-set criterion.

on posttest and indicate that the test is too easy (ceiling effect). The instrument should be revised, eliminating those questions that most participants know before their participation in the project and adding more difficult items. It would also be better if only one test served as both a pretest and posttest rather than administering two different forms. The present instrument raises the question whether pretest and posttest scores can be meaningfully compared.

In 1988-89, complete test scores were recieved for participating teachers in C.S.D. 10 only. In the future, project staff should include test scores for all teachers participating in all districts.

Finally, the objective should be revised. A 40 percent gain is too ambitious. A more realistic objective would be for "75 percent of participating teachers to achieve a 25 percent gain from pre- to posttest".

SCIENCE ENVIRONMENTAL PROGRAM
DEPARTMENT OF EDUCATION

APPENDIX A
93424

WHEN THE WELL'S DRY,
WE KNOW THE WORTH OF WATER.
-- BENJAMIN FRANKLIN

1. THE AVERAGE AMERICAN DRINKS _____ QUARTS OF WATER EACH DAY. A. 80
 2. WE USE _____ GALLONS OF WATER FOR EACH 5 MINUTE SHOWER. B. 3,000,000
 3. EACH TIME YOU FLUSH THE TOILET, YOU CONTRIBUTE _____ GALLONS TO YOUR LOCAL SEWAGE PLANT. C. 1.5 - 5
 4. WE EACH ACCOUNT FOR _____ GALLONS OF SEWAGE EACH DAY. D. 578
 5. NEW YORK CITY HAS _____ OPERATING SEWAGE TREATMENT PLANTS, _____ UNDER CONSTRUCTION, AND _____ % OF ITS SEWAGE NOW TREATED. E. 75
 6. NEW YORK CITY'S DRINKING WATER IS IMPORTED VIA AQUEDUCTS FROM OVER _____ MILES AWAY. F. 320
 7. NEW YORK CITY HAS _____ MILES OF SHORELINE, _____ MILES OF PIERS AND BULKHEADS, AND _____ MILES OF DEVELOPED BEACHES. G. 200,000,000
 8. A WASTEWATER TREATMENT PLANT IN NEW YORK CITY CAN COST AS MUCH AS _____ AND TREAT AS MUCH AS _____ GALLONS PER DAY. H. 7
 9. NEW YORK CITY TREATS _____ GALLONS OF WASTEWATER EACH DAY, ENOUGH TO FILL YANKEE STADIUM _____ TIMES. I. 18,000,000,000
 10. THERE ARE _____ MILES OF STREAM IN THE U.S. J. 3
 11. THERE ARE _____ MUNICIPAL WATER SUPPLY SYSTEMS IN THE COUNTRY. K. 100
 12. U.S. EPA PAYS _____ % OF THE TOTAL COST OF A SEWAGE TREATMENT SYSTEM. L. 4 - 7
 13. U.S. EPA IS IN THE PROCESS OF SPENDING OVER _____ DOLLARS TO CLEAN UP OUR NATION'S WASTEWATER. M. 17
- N. 1,400,000,000
O. 15 - 20
P. 22,000
Q. 14
R. 125
S. 70,000,000

AFTERTHOUGHT: WHY ARE MANHOLE COVERS ROUND?

SCIENCE ENVIRONMENTAL PROGRAM
DEPARTMENT OF EDUCATION

1. OF THE TEN (10) PLANTS DISPLAYED WHICH ONE IS IMPORTANT IN THE MONARCH CATERPILLARS LIFE CYCLE?
2. HOW MANY YEARS DO DANDELION PLANTS LIVE (IF NOT ELIMINATED BY UNNATURAL CAUSES.)
3. FIND 5 (FIVE) EXAMPLES OF MONOECIOUS PLANTS FROM THE GROUPING PROVIDED.
4. GIVE THREE CHARACTERISTICS OF AN INSECT.
5. NAME AN INSECT WITH NO METAMORPHOSIS.
6. FIND AND COLLECT LEAVES FROM FOUR TREES WITH OPPOSITE ARRANGEMENTS AND FOUR WITH ALTERNATE ARRANGEMENTS AND KEY OUT THEIR GENUS AND SPECIES.
7. WHAT IS THE NORTHERN MOST POINT AT WHICH THE SUN'S RAYS STRIKE THE EARTH DIRECTLY ON THE FIRST DAY OF SUMMER?
8. WHAT ARE THE TWO BASIC COMPONENTS OF SOIL?
9. DEFINE CHLOROPHYLL
10. NEW YORK CITY HAS HOW MANY OPERATING SEWAGE TREATMENT PLANTS IN OPERATION TODAY?
11. THE AVERAGE AMERICAN DRINKS HOW MANY QUARTS OF WATER EACH DAY?
12. HOW WERE INDIAN CANOES IN THE EASTERN PART OF THE COUNTRY MADE?
13. WHEN MANY EASTERN AMERINDIANS SPOKE OF THE 3 SISTERS, WHAT DID THEY MEAN?
14. DEFINE MELANIN.
15. WHAT ARE THE 3 TYPES OF ROCKS?
16. CHOOSE FROM THE ROCK SAMPLES THE THREE MAJOR BEDROCKS OF NEW YORK CITY.
17. WHAT IS THE DOMINANT ROCK OF THE BRONX? HOW WAS IT FOUND AND NAME ONE MINERAL THAT IS VISIBLE IN THIS ROCK.
18. NAME THE SMALLEST FLOWERING PLANT AND ONE PARASITE FLOWERING PLANT.
19. LIST THREE FACTORS THAT CONTRIBUTE TO THE ENVIRONMENTAL QUALITY OF A FRESH WATER POND.
20. HOW MANY CENTIMETERS LONG IS THIS PAGE? HOW MANY INCHES WIDE?

SCIENCE ENVIRONMENTAL PROGRAM
DEPARTMENT OF EDUCATION

93424

1. WHAT PLANTS DO MONARCH CATERPILLARS FEED ON?
2. WHAT IS POTABLE WATER?
3. HOW MANY YEARS DO DANDELION PLANTS LIVE
(IF NOT ELIMINATED BY UNNATURAL CAUSES.)
4. WHAT ARE THE FOUR ELEMENTS THAT ARE FOUND IN ALL PROTEINS?
5. WHAT IS THE NORTHERNMOST POINT AT WHICH THE SUN'S RAYS
STRIKE THE EARTH DIRECTLY ON THE FIRST DAY OF SUMMER?
6. WHAT IS AN ANNUAL (BOTANICALLY SPEAKING?)
7. WHAT ARE THE TWO BASIC COMPONENTS OF SOIL?
8. WHAT IS A MONOECIOUS PLANT?
9. HOW WERE INDIAN CANOES IN THIS PART OF THE COUNTRY MADE?
10. DEFINE CHLOROPHYLL.
11. BONUS: WHEN MANY EASTERN AMERINDIANS SPOKE OF THE 3 SISTERS,
WHAT DID THEY MEAN?
12. DEFINE MELANIN.
13. WHAT ARE THE 3 TYPES OF ROCKS?
14. HOW MANY CENTIMETERS LONG IS THIS PAGE? HOW MANY INCHES WIDE?
15. NAME A DIOECIOUS TREE.

NAME. _____ DATE: _____

LENOX HILL-ENVIRONMENTAL EDUCATION PROGRAM, 1988-89

School-Community Education Program
Program Administrator: M. Morris Speiser
Project Coordinator: David Stern

Prepared by:
Office of Research, Evaluation, and Assessment
Instructional Support Evaluation Unit
New York City Public Schools

PROJECT DESCRIPTION

The Lenox Hill Neighborhood Association and Community School Districts (C.S.D.s) 1 and 2 jointly conducted an environmental education program for elementary school students. Instruction on urban and rural ecology was provided through planned activities in the city in the vicinity of each school, and at Lenox Hill Camp in Bantam, Connecticut. The project seeks to develop positive attitudes and behavior toward environmental issues as well as toward ethnic, cultural, and racial diversity.

In 1988-89, some 600 students in kindergarten through grade six from 20 schools participated in the program. Elementary school classes rather than individual students were selected for program participation. Classes were selected according to the following criteria: classes with large numbers of economically deprived students who did not have the opportunity to visit rural communities; classes where some of the students were bused in from other neighborhoods; and classes with teachers willing to participate in a program involving in-service training, trips to the city, and a five-day residence at a camp.

Instructional activities involved an in-city program based

on a multidisciplinary approach that integrated mathematics, language skills, social studies, arts, music, and physical education in the study of environmental science. Students also participated in a resident camping experience where environmental concepts were applied to rural ecosystems and group living. The project objective was for 80 percent of participating students to demonstrate a 20 percent increase in their knowledge of environmental science, energy conservation, and ecological concepts as measured by a criterion-referenced test.

Project staff included a coordinator, an environmental education specialist, the camp director, an urban ecology counselor, environmental and camping skills counselors, and three camp staff employees. The environmental education coordinator was responsible for the orientation sessions given to all participating teachers both in the city and at the camp. The New York State Legislature contributed \$71 thousand to support project activities.

EVALUATION METHODOLOGY

Evaluation activities focused on analysis of students' raw scores on a project-developed test (see Appendix A). The test, designed to measure knowledge of environmental terms and concepts, consists of two equated forms of 33 items each. One of them was administered as a pretest, and the other as a posttest.

FINDINGS

Complete test scores were reported for 443 students from 20 different schools, eleven in C.S.D. 1 and nine in C.S.D. 2. The majority of the students were in the fifth grade, although roughly twenty percent of the students were in grades four or six. Table 1 presents students' mean raw scores by C.S.D. Overall, mean pretest raw score was 18.3 points (55.4 percent correct responses), and mean posttest raw score was 20.5 points (62.1 percent correct), for a mean gain of 2.2 points (6.7 percent correct). Although the mean scores for the C.S.D.s varied little, there was a marked difference in the performance of certain schools. P.S. 137, in C.S.D. 1, received the highest mean gain with 9 score points whereas P.S. 6, in C.S.D. 2, showed the lowest mean gain with a loss of 7.5 score points.

Table 2 presents the percentage of students who met the project-set criterion for success. Twenty-four percent of the students increased their knowledge of environmental issues by 20 percent from pretest to posttest. Only one school, P.S. 137 in C.S.D. 1, met the program objective, with 83.3 percent of participants meeting or surpassing the project-set criterion. P.S. 6, in C.S.D. 2, had the lowest success rate, with only one student meeting the project set criterion.

Table 1
 Students' Mean Raw Scores^a on a Project-Developed Test,
 by C.S.D.
 Lenox Hill-Environmental Education Program, 1988-89

C.S.D.	N	Pretest Mean		Posttest Mean		Mean Gain	
		Raw Score	Percent Correct	Raw Score	Percent Correct	Raw Score	Percent Correct
1	214	18.4	55.8%	20.8	63.0%	2.4	7.3%
2	229	18.2	55.2	20.1	60.9	1.9	5.8
Total	443	18.3	55.5	20.5	62.1	2.2	6.7

^aPerfect Raw Score = 33

* Overall mean gain was 6.7 percent.

TABLE 2

Percentage of Students Meeting Project-Set Criterion^a
 Lenox Hill-Environmental Education Program, 1988-89

C.S.D.	N	Meeting Criterion	
		N	%
1	214	46	21.5%
2	229	60	26.2
Total	443	106	23.9

^aEighty percent of students will demonstrate a 20 percent increase in their knowledge of environmental science, energy conservation and ecological concepts.

- Twenty-four percent of participants met the project-set criterion for success.

CONCLUSIONS AND RECOMMENDATIONS

In 1988-89, the Lenox Hill Environmental education program was not successful in meeting its objective. Overall, only 24 percent instead of 80 percent of participating students achieved a 20 percent increase in their knowledge of environmental issues from pretest to posttest. One school, P.S. 137 in C.S.D. 1, had 83 percent of participating students meeting the project-set criterion. This school has also shown high success rates in previous evaluations. In 1987-88, one hundred percent of the students met the project-set criterion. It is not possible, with the information provided to the Office of Research, Evaluation, and Assessment to determine why this school had such a high success rate. All that is known about these students is that they were in the fifth grade, as were the majority of the other students. In the future, project staff should examine the implementation of the project throughout the various schools in an attempt to discover why there is such a variation in scores.

In addition, the fact that a different test form was administered as posttest raises the question of whether the pretest and posttest outcomes can be meaningfully compared. In the future, project staff should review and, if possible, replace the tests used to measure student growth. One test rather than two different ones should be considered. In addition, the project was designed to serve students in kindergarten through

grade six, although the majority of scores submitted were for fifth grade students. Previous evaluations have also focused on fifth grade students. If other grades are participating in the project, a sample of scores from all grades should be submitted for evaluation to measure the impact of the program across grades.

8. THE MAIN PRODUCER IN A FRESH WATER POND IS
- (A) FISH
 - (B) TURTLE
 - (C) ALGAE
 - (D) YEAST
9. A PLACE IN A CITY THAT LOOKS MOST LIKE A VILLAGE GREEN IS
- (A) A SCHOOL PLAYGROUND
 - (B) AN EMPTY LOT
 - (C) A SHOPPING CENTER
 - (D) A PARK WITH GRASS AND TREES
10. A PLANT GETS ENERGY FOR PHOTOSYNTHESIS FROM
- (A) FOOD
 - (B) SUNLIGHT
 - (C) CHLOROPHYLL
 - (D) OXYGEN
11. THE CHIEF CAUSE OF AIR POLLUTION IN A CITY IS
- (A) EXHAUST FROM CARS.
 - (B) BURNING LEAVES.
 - (C) FACTORIES.
 - (D) BURNING FUEL IN HOMES.
12. AN EXAMPLE OF FOSSIL FUEL IS
- (A) OIL
 - (B) WOOD
 - (C) ELECTRICITY
 - (D) WATER
13. A FRESH WATER AQUARIUM IS MOST LIKE
- (A) A RIVER
 - (B) AN OCEAN
 - (C) A POND
 - (D) A BAY
14. A POND WILL BECOME A SWAMP; A MEADOW WILL BECOME A WOODLAND. THIS IS CALLED
- (A) ADAPTATION
 - (B) EVOLUTION
 - (C) SUCCESSION
 - (D) WATER CYCLE

PLEASE TURN TO NEXT PAGE

8. THE MAIN PRODUCER IN A FRESH WATER POND IS
- (A) FISH
 - (B) TURTLE
 - (C) ALGAE
 - (D) YEAST
9. A PLACE IN A CITY THAT LOOKS MOST LIKE A VILLAGE GREEN IS
- (A) A SCHOOL PLAYGROUND
 - (B) AN EMPTY LOT
 - (C) A SHOPPING CENTER
 - (D) A PARK WITH GRASS AND TREES
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 - (C) FACTORIES.
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- (A) A RIVER
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- (A) ADAPTATION
 - (B) EVOLUTION
 - (C) SUCCESSION
 - (D) WATER CYCLE

PLEASE TURN TO NEXT PAGE

15. AN AQUARIUM TANK CONTAINS WATER, GRAVEL, A GREEN PLANT, A FISH, AND A SNAIL. THE WATER GETS OXYGEN FROM THE AIR AND FROM THE
- (A) GRAVEL
 - (B) GREEN PLANT
 - (C) FISH
 - (D) SNAIL
16. GREEN PLANTS ARE DIFFERENT FROM MOST OTHER LIVING THINGS BECAUSE THEY
- (A) MAKE THEIR OWN FOOD
 - (B) GROW RAPIDLY
 - (C) CONTAIN MANY KINDS OF CELLS
 - (D) DIGEST THEIR OWN FOOD
17. AN INSTRUMENT WHICH YOU WOULD USE TO MAKE SOMETHING LOOK BIGGER IS A
- (A) PERISCOPE
 - (B) KALEIDOSCOPE
 - (C) MICROSCOPE
 - (D) KINESCOPE
18. MOST FUNGI, SUCH AS MUSHROOMS AND MOLDS, GET THEIR FOOD BY
- (A) ABSORBING WATER FROM THE SOIL
 - (B) CAPTURING AND EATING INSECTS
 - (C) EATING TINY ANIMALS IN POND WATER
 - (D) LIVING ON OTHER PLANTS AND ANIMALS
19. GAME REFUGES AND BIRD SANCTUARIES ARE SET UP IN ORDER TO
- (A) RAISE ANIMALS FOR HUNTING
 - (B) GIVE ANIMALS A SAFE PLACE TO LIVE
 - (C) KEEP HARMFUL ANIMALS TO THEMSELVES
 - (D) FATTEN ANIMALS FOR SALE
20. THE PLANT WHICH WOULD MOST LIKELY GROW IN THE WOODS IS A
- (A) CACTUS
 - (B) FERN
 - (C) WATER LILY
 - (D) CORN
21. THE PERSON WHO IS NOT POLLUTING THE ENVIRONMENTS IS
- (A) A WOMAN DRIVING A CAR
 - (B) A MAN SMOKING A CIGARETTE
 - (C) A GIRL RIDING A BICYCLE
 - (D) A BOY DROPPING A CANDY WRAPPER ON THE GROUND

PLEASE TURN TO NEXT PAGE

22. SOME PLANTS CANNOT GROW UNDER THE TREES IN A FOREST BECAUSE THERE IS TOO LITTLE

- (A) WATER
- (B) SOIL
- (C) SPACE
- (D) SUNLIGHT

23. WATER FREEZES AT

- (A) 100 DEGREES C.
- (B) 32 DEGREES C.
- (C) 212 DEGREES C.
- (D) 0 DEGREES C.

24. THE FOOD OF AN OWL IS MOSTLY

- (A) SEEDS
- (B) INSECTS
- (C) MICE AND OTHER SMALL ANIMALS
- (D) WILD BERRIES

25. A MICROSCOPE CAN MAKE THINGS LOOK BIGGER BECAUSE IT HAS

- (A) LENSES
- (B) A MIRROR
- (C) A TUBE
- (D) CLIPS

26. TAKE A LOOK AT THIS FOOD CHAIN:

SUN GRASS COW PERSON

THE PRODUCER IN THIS FOOD CHAIN IS

- (A) GRASS
- (B) SUN
- (C) COW
- (D) PERSON

27. WHEN AIR PRESSURE IS HIGH AND THERE ARE ONLY CUMULUS CLOUDS, THE WEATHER WILL BE

- (A) STORMY
- (B) FAIR
- (C) COLD
- (D) HOT

PLEASE TURN TO NEXT PAGE

28. AN EXAMPLE OF NATURAL RESOURCE THAT IS CONSTANTLY BEING REPRODUCED IS
- (A) A TREE
 - (B) COAL
 - (C) OIL
 - (D) GOLD
29. MANY ACORNS ARE ON THE LAWN. THE TREE WHICH YOU WOULD EXPECT TO FIND ON OR NEAR THE LAWN IS
- (A) MAPLE
 - (B) ELM
 - (C) OAK
 - (D) PINE
30. BEES ARE
- (A) NOT HELPFUL TO MAN BECAUSE THEY STING
 - (B) ONLY GOOD FOR MAKING HONEY
 - (C) NOT HARMFUL OR HELPFUL TO MAN
 - (D) HELPFUL BECAUSE THEY MAKE HONEY AND HELP TO CROSS POLLINATE FLOWERS
31. A LIVING THING WHICH CAN PRODUCE ITS OWN FOOD IS A
- (A) PIG
 - (B) ROBIN
 - (C) TREE
 - (D) MUSHROOM
32. THE COLOR OF SOME ANIMALS HELP TO PROTECT THEM. THIS IS CALLED
- (A) HIBERNATION
 - (B) MIGRATION
 - (C) CAMOUFLAGE
 - (D) NONE OF THESE
33. THE MOST IMPORTANT REASON FOR PLANTING TREES AND GRASS ON A BARE HILLSIDE IS TO
- (A) PREVENT EROSION
 - (B) PREVENT FOREST FIRES
 - (C) PROVIDE FOOD FOR WILDLIFE
 - (D) PROVIDE FOOD FOR FARM ANIMALS

END

LENOX HILL POST-TEST

PAGE ONE

PLEASE DO NOT PUT ANY MARKS IN THE BOOKLET

1. A CROSS SECTION IS CUT FROM THE BOTTOM OF A LIVING TREE.
THE CROSS SECTION HAS 40 ANNUAL RINGS. THE AGE OF THE TREE
 - (A) IS 40 YEARS
 - (B) IS LESS THAN FORTY YEARS
 - (C) IS MUCH MORE THAN FORTY YEARS
 - (D) CANNOT BE DETERMINED

2. A COMMON WEED THAT CAN BE FOUND GROWING ON A LAWN IS A
 - (A) ROSE
 - (B) PANSY
 - (C) DENDELION
 - (D) WATER LILY

3. GREEN PLANTS ARE THE MOST IMPORTANTT PARTS OF A POND FOOD
CHAIN BECAUSE THEY ARE
 - (A) PRODUCERS
 - (B) CONSUMERS
 - (C) DECOMPOSERS
 - (D) PARASITES

4. THE PART OF TREE WHICH HELPS PROTECT IT FROM INSECTS THAT
CAUSE DISEASE IS THE
 - (A) ROOT
 - (E) BARK
 - (C) FLOWER
 - (D) FRUIT

5. WHEN A FROG IS A TADPOLE IT BREATHEs WITH
 - (A) LUNGS
 - (B) GILLS
 - (C) ITS HEAD
 - (D) ITS FINS

6. THE MOST IMPORTANT REASON FOR PLANTING TREES AND GRASS ON
A BARE HILLSIDE IS TO
 - (A) PREVENT EROSION
 - (B) PREVENT FOREST FIRES
 - (C) PROVIDE FOOD FOR WILDLIFE
 - (D) PROVIDE FOOD FOR FARM ANIMALS

PLEASE TURN TO NEXT PAGE

7. MOST FUNGI, SUCH AS MUSHROOMS AND MOLDS, GET THEIR FOOD BY
- (A) ABSORBING WATER FROM THE SOIL
 - (B) CAPTURING AND EATING INSECTS
 - (C) EATING TINY ANIMALS IN POND WATER
 - (D) LIVING ON OTHER PLANTS AND ANIMALS
8. A BIRD WHICH IS FOUND IN GREAT NUMBERS IN THE CITY IS THE
- (A) BLUEBIRD
 - (B) JUNCO
 - (C) PIGEON
 - (D) BALTIMORE ORIOLE
9. THE PART OF A PLANT THAT USUALLY HAS SEEDS IN IT IS THE
- (A) BUD
 - (B) LEAF
 - (C) STEM
 - (D) FRUIT
10. WILDLIFE REFUGES AND BIRD SANCTUARIES ARE SET UP IN ORDER TO
- (A) RAISE ANIMALS FOR HUNTING
 - (B) GIVE ANIMALS A SAFE PLACE TO LIVE
 - (C) KEEP HARMFUL ANIMALS TO THEMSELVES
 - (D) FATTEN ANIMALS FOR SALE
11. A BIRD THAT HAS A SHARP CURVED BEAK AND STRONG CLAWS (LIKE A HAWK OR AN OWL) FEEDS MOSTLY ON
- (A) MEAT
 - (B) ACORNS
 - (C) WHEAT AND CORN
 - (D) INSECTS
12. THE ENVIRONMENT OF A PAVED SCHOOLYARD IS MOST LIKE THAT OF A DESERT BECAUSE
- (A) IT HAS CRACKS IN THE PAVEMENT
 - (B) IT IS DRY AND HAS POOR SOIL
 - (C) VERY FEW PLANTS GROW IN IT
 - (D) IT IS MADE OF CEMENT
13. THE PART OF THE PLANT WHICH HOLDS IT IN THE SOIL IS THE
- (A) BRANCH
 - (B) LEAF
 - (C) ROOT
 - (D) TRUNK

PLEASE TURN TO NEXT PAGE

14. THE PLANT WHICH COULD GROW BEST IN A FOREST IS
- (A) CATTAIL
 - (B) MOSS
 - (C) CACTUS
 - (D) MILKWEED
15. THE ANIMAL WHICH DOES NOT BELONG IN A CITY STREET HABITAT IS A
- (A) DOG
 - (B) PIGEON
 - (C) DUCK
 - (D) GIRL
16. AN ANIMAL WHICH BREATHES WITH GILLS IS A
- (A) BIRD
 - (B) SNAKE
 - (C) CAT
 - (D) FISH
17. AN EXAMPLE OF A FOSSIL FUEL IS
- (A) PAPER
 - (B) WOOD
 - (C) COAL
 - (D) WATER
18. DURING THE SUMMER A SQUIRREL LIVES IN A NEST WHICH IS
- (A) ON A BRANCH OF A TREE
 - (B) ON THE ROOTS OF THE TREE
 - (C) ON THE GROUND
 - (D) UNDER THE GROUND
19. THE PART OF A CITY STREET IN WHICH WATER FLOWS TO THE SEWER IS CALLED THE
- (A) CURB
 - (B) GUTTER
 - (C) SIDEWALK
 - (D) CROWN
20. THE GREEN COLOR IN GRASS IS CALLED
- (A) GLUCOSE
 - (B) CYTOPLASM
 - (C) CHLOROPHYLL
 - (D) CELLULOSE

PLEASE TURN TO NEXT PAGE

21. THE MOST IMPORTANT REASON FOR CONSERVING TODAY IS THAT
- (A) OUR SUPPLY OF FOSSIL FUELS IS LIMITED
 - (B) IT SAVES THEM
 - (C) FOSSIL FUELS ARE HARD TO FIND
 - (D) THERE ARE TOO MANY CARS AND TRUCKS
22. IF YOU WANT TO LOOK AT A SPECIMEN UNDER A MICROSCOPE, YOU PUT IT ON A
- (A) LENS
 - (B) SLIDE
 - (C) DROPPER
 - (D) MIRROR
23. THE PART OF A TREE WHICH CAN MAKE FOOD IS THE
- (A) BRANCH
 - (B) LEAF
 - (C) ROOT
 - (D) TRUNK
24. A TYPE OF PLANT THAT HELPS BREAK DOWN A ROTTING LOG IS
- (A) FUNGUS
 - (B) CACTUS
 - (C) DANDELION
 - (D) CATTAIL
25. AN INSTRUMENT USED TO MEASURE AIR PRESSURE IS A
- (A) WEATHER VANE
 - (B) THERMOMETER
 - (C) BAROMETER
 - (D) ANEMOMETER
26. THE ENERGY IN OIL, COAL, AND ELECTRICITY COMES FROM
- (A) MUSCLES
 - (B) THE MOON
 - (C) THE SUN
 - (D) WATER
27. ECOLOGY IS
- (A) THE STUDY OF FOSSILS
 - (B) THE STUDY OF LIVING THINGS AND THEIR ENVIRONMENT
 - (C) THE STUDY OF PLANTS
 - (D) THE STUDY OF ANIMALS

PLEASE TURN TO NEXT PAGE

26. AN EXAMPLE OF NATURAL RESOURCE THAT IS CONSTANTLY BEING REPRODUCED IS

- (A) A TREE
- (B) COAL
- (C) OIL
- (D) GOLD

29. A POND WILL BECOME A SWAMP: A FIELD WILL BECOME A FOREST. THIS IS CALLED

- (A) ADAPTATION
- (B) EVOLUTION
- (C) SUCCESSION
- (D) THE WATER CYCLE

30. THE COLOR OF SOME ANIMALS HELPS TO PROTECT THEM. THIS IS CALLED

- (A) HIBERNATION
- (B) MIGRATION
- (C) CAMOUFLAGE
- (D) NONE OF THESE

31. AFTER A HEAVY RAIN, THE WATER AT THE EDGE OF A LAKE MAY HAVE A BROWN COLOR. THIS IS MOST LIKELY DUE TO

- (A) REPRODUCTION OF PLANTS
- (B) SOIL BEING WASHED INTO THE LAKE
- (C) ANIMALS IN THE WATER
- (D) ROCKS IN THE WATER

32. DANDELION SEEDS ARE USUALLY CARRIED AWAY FROM THE PLANT BY

- (A) WIND
- (B) WATER
- (C) MAN
- (D) NONE OF THESE

33. THIS IS A KIND OF FOOD CHAIN:

SUN LEAF CATERPILLAR BIRD

THE PRODUCER IN THIS FOOD CHAIN IS THE

- (A) LEAF
- (B) BIRD
- (C) CATERPILLAR
- (D) NONE OF THESE

END

GODDARD-RIVERSIDE ENVIRONMENTAL EDUCATION PROGRAM, 1988-89

School-Community Education Program
Program Administrator: M. Morris Speiser
Project Coordinator: Robert Kanegis

Prepared by:
Office of Research, Evaluation, and Assessment
Instructional Support Evaluation Unit
New York City Public Schools

PROJECT DESCRIPTION

The Goddard-Riverside Environmental Education program provides instruction in environmental science and experiences in the natural and urban environments for elementary school pupils in Community School Districts (C.S.D.s) 3 and 6. The goal of the program is to promote awareness of and concern for environmental issues.

In 1988-89, some 552 pupils from 16 elementary schools took part in the project. Students from fourth through sixth grade classes were eligible for participation. Classes were selected if their teachers were interested in environmental science, willing to attend special orientation and training workshops, able to spend a week at the Goddard-Riverside Field Campus with their students, and willing to use the environmental education curriculum to promote student cognitive development in other learning areas.

Eighteen groups of students and their teachers spent one week each at the Goddard-Riverside Field Campus in Rifton, New York. Project instruction at the camp focused on the life support systems essential to the total environment. Participants

TABLE 1

Students' Mean Raw Scores^a on a Program-Developed Test, by School
Goddard-Riverside Environmental Education Program, 1988-89

School	N	Pretest Mean		Posttest Mean		Mean Gain	
		Raw Score	Percent Correct	Raw Score	Percent Correct	Raw Score	Percent Correct
<u>District 3</u>							
P.S. 9	31	13.2	40.0%	16.2	49.1%	3.0	9.1%
P.S. 76	21	7.3	22.1	17.2	52.1	9.9	30.0
P.S. 84	33	13.3	40.3	17.0	51.5	3.7	11.2
P.S. 144	30	15.2	46.1	17.3	52.4	2.1	6.4
F.S. 145	63	14.5	43.9	14.0	42.4	-0.5	-1.5
P.S. 166	66	15.5	47.0	16.3	49.4	0.8	2.4
P.S. 180	32	16.4	49.7	20.1	60.9	3.7	11.2
<u>District 6</u>							
P.S. 128	28	16.3	49.4	21.3	64.5	5.0	15.2
P.S. 132	60	11.9	36.1	16.1	48.8	4.2	12.7
P.S. 152	32	13.9	42.1	18.8	57.0	4.9	14.8
P.S. 153	29	10.6	32.1	15.2	46.1	4.6	13.9
P.S. 173	32	10.1	30.6	17.8	53.9	7.7	23.3
P.S. 189	61	12.0	36.4	20.1	60.9	8.1	24.5
P.S. 192	34	18.2	55.2	20.2	61.2	2.0	6.1
TOTAL	552	13.6	41.2	17.5	53.0	3.8	11.5

^aPerfect Raw Score = 33.

* Overall, mean gain was 11.5 percent points.

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* Overall, mean gain was 11.5 percent points.

percent increase. Analyzed by school, these data show that student performance varied considerably. Mean pretest raw scores ranged from 7.3 to 18.2 points, mean posttest raw scores ranged from 14 to 21.3 points, and mean gains ranged from -0.5 to 9.9 raw score points. In percentage points, these mean gains ranged from a loss of 1.5 percent to 30 percent.

Table 2 shows the percentage of students who achieved the project-set criterion for success. Overall, 34.8 percent of participants increased their knowledge of science concepts. P.S. 76 had the highest percentage of successful students (71.4 percent).

CONCLUSIONS AND RECOMMENDATIONS

In 1988-89, the Goddard-Riverside Environmental Education Program was not successful, since only 34.8 percent of participants increased their knowledge of science concepts by at least 20 percent. Previous evaluations have suggested that grade levels could be responsible for the variations observed in student performance. This year's evaluation found little difference in scores between grades.

In general, all students showed relatively small mean gains. One explanation for this might be that the evaluation instrument does not accurately measure project activities or that the activities themselves do not provide the necessary knowledge for students to perform better on the test. Project staff should

TABLE 2

Percentage of Students Meeting Project-Set Criterion,^a by School
Goddard-Riverside Environmental Education Program, 1988-89

School	N	Meeting Criterion	
		N	%
<u>District 3</u>			
P.S. 9	31	6	19.4%
P.S. 76	21	15	71.4
P.S. 84	33	10	30.3
P.S. 144	30	6	20.0
P.S. 145	63	6	9.5
P.S. 166	66	12	18.2
P.S. 180	32	7	21.9
<u>District 6</u>			
P.S. 128	28	13	46.4
P.S. 132	60	21	35.0
P.S. 152	32	14	43.8
P.S. 153	29	12	41.4
P.S. 173	32	20	62.5
P.S. 189	61	41	67.2
P.S. 192	34	9	26.5
TOTAL	552	192	34.8

^aEighty percent of pupil participants will demonstrate an increase of at least 20 percent in their knowledge of science concepts at posttest.

^bThirty-five percent of participants achieved the project-set criterion.

correlate skills developed through project activities and the skills included in the testing instrument to determine if both adequately match the stated goals and objectives of the project. While this recommendation is made to improve future evaluations of the project, it does not deny that the project may, indeed, provide children with the unique and exciting experience of spending a week at the Goddard-Riverside Field Campus. This might be one of the purposes of the project, but if it is it should be stated in the project description.

KNOWLEDGE AND CONCEPTS OF SCIENCE

PLEASE DO NOT PUT ANY MARKS IN THIS BOOKLET

1. THE BARK OF A TREE IS MOST LIKE
 - (A) A STOMACH
 - (B) A BRAIN
 - (C) SKIN
 - (D) BONES

2. MOST GREEN PLANTS TAKE WATER THROUGH THEIR .
 - (A) BUDS
 - (B) ROOTS
 - (C) FLOWER
 - (D) STEM

3. A HABITAT IS
 - (A) A TYPE OF RABBIT
 - (B) THE STUDY OF THE HABITS OF ANIMALS
 - (C) A PLACE WHERE PLANTS AND ANIMALS NATURALLY LIVE AND GROW
 - (D) SOMETHING AN ANIMAL EATS

4. CONSERVATION IS BEST DESCRIBED AS
 - (A) BUILDING OF HOMES IN NATURAL SURROUNDINGS
 - (B) SAVING MONEY TO BUY PARKS AND FORESTS
 - (C) SURVIVAL OF THE FITTEST
 - (D) CARE AND PROTECTION OF NATURAL RESOURCES

5. WITHOUT GREEN PLANTS WE WOULD DIE BECAUSE PLANTS PROVIDE US WITH
 - (A) A MAJOR SOURCE OF BUILDING MATERIALS
 - (B) A MAJOR SOURCE OF OXYGEN AND FOOD
 - (C) A MAJOR SOURCE OF SHADE

6. BIRDS HELP US BECAUSE THEY
 - (A) FIGHT WITH SQUIRRELS
 - (B) EAT INSECTS THAT DESTROY CROPS
 - (C) STORE NUTS FOR WINTER
 - (D) MAKE NESTS IN TREES

7. A FRESH WATER AQUARIUM IS MOST LIKE
 - (A) A RIVER
 - (B) AN OCEAN
 - (C) A POND
 - (D) A BAY

KNOWLEDGE AND CONCEPTS OF SCIENCE

8. WOOD IS USED BY PEOPLE IN MANY WAYS. WHICH FOUR OF THE FOLLOWING CAN BE MADE OF WOOD?
- | | |
|---------------|-----------|
| (A) FURNITURE | (E) HOUSE |
| (B) CEMENT | (F) GLASS |
| (C) BRICK | (G) PAPER |
| (D) FUEL | |
9. WHICH OF THE FOLLOWING CAN BE CONSIDERED PART OF OUR ENVIRONMENT?
- (A) AIR
(B) WATER
(C) SOIL
(D) CARS
(E) ALL OF THE ABOVE
10. SOME MAMMALS HIBERNATE (SLEEP THROUGH) THE WINTER BECAUSE
- (A) THEY ARE ALLERGIC TO SNOW
(B) THEY CANNOT FIND ENOUGH FOOD IN THE WINTER
(C) THEY NEED A REST
(D) ALL THE BIRDS HAVE FLOWN SOUTH
11. WHAT HAPPENS TO THE TRASH AND GARBAGE THAT IS LEFT ON THE CURB FOR PICKUP?
- (A) IT GETS DUMPED
(B) IT GETS BURNED
(C) IT GETS BURIED
(D) IT GETS IGNORED
(E) ALL OF THE ABOVE
12. THE ENERGY CRISIS HAS COME ABOUT BECAUSE
- (A) WE HAVE BEEN CONSERVING WISELY
(B) WE HAVE DEVELOPED OTHER FORMS OF RENEWABLE ENERGY
(C) WE HAVE BEEN USING UP OUR FOSSIL FUELS
13. WHALES ARE AN ENDANGERED SPECIES BECAUSE
- (A) THERE IS NOT ENOUGH WATER FOR THEM TO SWIM IN
(B) THEY ARE BEING KILLED BY HUMANS
(C) THEY DON'T HAVE ENOUGH FOOD TO EAT
(D) THEY ARE BEING KILLED BY CERTAIN KINDS OF FISH
14. A BIRD WITH A LONG, SHARP BILL WOULD BE BEST ADAPTED FOR
- (A) CRUSHING SEEDS
(B) STRAINING FOOD FROM MUD
(C) SPEARING FISH

KNOWLEDGE AND CONCEPTS OF SCIENCE

15. PEOPLE ARE A PART OF THEIR ENVIRONMENT. THIS MEANS
- (A) YOU ARE A PART OF EVERYTHING AROUND YOU
 - (B) YOU AFFECT THINGS AROUND YOU AND THEY AFFECT YOU
 - (C) YOU ARE RESPONSIBLE FOR WHAT HAPPENS IN THE WORLD
 - (D) ALL OF THE ABOVE
16. AN OWL THAT EATS A MOUSE THAT EATS CORN IS AN EXAMPLE OF
- (A) SURVIVAL OF THE FITTEST
 - (B) A BALANCED DIET
 - (C) A FOOD CHAIN
 - (D) EINSTEIN'S THEORY OF RELATIVITY
17. A DECOMPOSER IS
- (A) AN INSECT THAT EATS LEAVES
 - (B) A DETERGENT THAT CLEANS POLLUTED WATER
 - (C) A BACTERIA OR FUNGUS THAT BREAKS DOWN DEAD PLANTS AND ANIMALS
 - (D) A BIRD THAT BREAKS TWIGS TO MAKE ITS NEST
18. WHICH FOUR OF THE FOLLOWING WOULD BE CONSIDERED RENEWABLE AND CLEAN ENERGY SOURCES
- (A) SOLAR
 - (B) NUCLEAR
 - (C) WIND
 - (D) OIL
 - (E) WATER
 - (F) COAL
 - (G) GEOTHERMAL
19. WHICH MATERIAL IS NOT EASILY RECYCLED
- (A) PAPER
 - (B) GLASS
 - (C) PLASTIC
 - (D) METAL
20. THE BEST WORD TO DESCRIBE THE RELATIONSHIP IN A COMMUNITY IS
- (A) HIBERNATION
 - (B) INTERDEPENDENCE
 - (C) INDUSTRIALIZATION
 - (D) ADAPTATION
21. BEING HEALTHY IS
- (A) EATING RIGHT
 - (B) BEING ENERGETIC AND ACTIVE
 - (C) KNOWING YOU CAN DO GOOD THINGS AND DOING THEM
 - (D) FEELING GOOD
 - (E) ALL OF THE ABOVE

GODDARD-RIVERSIDE ENVIRONMENTAL
EDUCATION PROGRAM

PRE- AND POST-TEST

KNOWLEDGE AND CONCEPTS OF SCIENCE

22. RAIN FALLING INTO A LAKE FROM WHICH WATER VAPOR THEN EVAPORATES TO FROM CLOUDS, FROM WHICH IT RAINS AGAIN IS A GOOD EXAMPLE OF
- (A) NATURAL TRANSPORTATION
 - (B) POLLINATION
 - (C) PHOTOSYNTHESIS
 - (D) NATURAL CYCLE
23. WHO IS NOT POLLUTING THE ENVIRONMENT?
- (A) A WOMAN DRIVING A CAR
 - (B) A MAN SMOKING A CIGARETTE
 - (C) A GIRL RIDING A BICYCLE
 - (D) A BOY DROPPING A CANDY WRAPPER ON THE GROUND
24. WHICH FOUR NATURAL COMMUNITIES ARE WE MOST LIKELY TO FIND IN NEW YORK STATE?
- (A) FOREST
 - (B) LAKE
 - (C) ARCTIC TUNDRA
 - (D) DESERT
 - (E) THICKET
 - (F) MEADOW
25. PEOPLE ARE GOOD EXAMPLES OF
- (A) OMNIVORES
 - (B) CARNIVORES
 - (C) PRODUCERS
 - (D) HERBIVORES
26. A POND TURNING INTO A MARSH, TURNING INTO A MEADOW, TURNING INTO A THICKET, AND THEN FINALLY INTO A FOREST OVER A LONG PERIOD OF TIME IS AN EXAMPLE OF
- (A) BIOLOGICAL SUCCESSION
 - (B) MAGIC
 - (C) A LOT OF DRY, HOT WEATHER
 - (D) FOOD CHAIN
27. WHICH OF THE FOLLOWING ITEMS CAN CAUSE WATER POLLUTION?
- (A) SEWAGE
 - (B) DETERGENT
 - (C) BACTERIA
 - (D) ALL OF THE ABOVE
 - (E) NONE OF THE ABOVE
28. IN A TROPICAL FOREST YOU WOULD FIND
- (A) TARZAN
 - (B) VERY TALL TREES
 - (C) LOW HUMIDITY
 - (D) GRASS
 - (E) NONE OF THE ABOVE

KNOWLEDGE AND CONCEPTS OF SCIENCE

29. POLLUTION CAN BE CAUSED BY
- (A) CARS AND BUSES
 - (B) FACTORIES
 - (C) NUCLEAR REACTORS
 - (D) ALL OF THE ABOVE
30. A GOOD EXAMPLE OF CAMOUFLAGE IS
- (A) A BIRD FLYING SOUTH IN THE WINTER
 - (B) A BEE TAKING POLLEN FROM A FLOWER
 - (C) A WHITE SNOW SHOE RABBIT IN THE SNOW
 - (D) A BEAR STANDING IN A MEADOW
31. ONE WAY BY WHICH PEOPLE DESTROY NATURAL CYCLES IN
- (A) PLANTING TREES
 - (B) GROWING VEGETABLES IN THEIR GARDEN
 - (C) SPRAYING PESTICIDES ON TREES
 - (D) COOKING IN A SOLAR SYSTEM
32. ANIMALS COMPETE FOR WHICH OF THE FOLLOWING RESOURCES:
- (A) FOOD
 - (B) WATER
 - (C) TERRITORY
 - (D) ALL OF THE ABOVE
33. DINOSAURS NO LONGER EXIST BECAUSE THEY COULD NOT:
- (A) ADAPT TO THEIR ENVIRONMENT
 - (B) FIND GOOD HOUSING
 - (C) HIDE FROM THEIR ENEMIES
 - (D) RAISE THEIR YOUNG PROPERLY

THE END

ETHNIC AWARENESS PROGRAM, 1988-89

School-Community Education Program
Program Administrator: M. Morris Speiser
Project Coordinator: Howard Levine

Prepared by:
Office of Research, Evaluation, and Assessment
Instructional Support Evaluation Unit
New York City Public Schools

PROJECT DESCRIPTION

The Ethnic Awareness Program is an after-school project about Afro-American and Hispanic-American history and culture designed for students in Community School District (C.S.D.) 9. The project seeks to improve pupils' skills, increase their awareness of diverse ethnic heritages, and foster their appreciation and respect for their own and other ethnic groups. In 1988-89, the program operated in four elementary schools, P.S. 28, 64, 70, and 90, serving 100 pupils in grades one through six. Students interested in the project and recommended by their school principals were selected for project participation.

Participants attended three two-hour sessions a week for a total of 26 weeks. Project activities included field trips to community facilities, meetings with leaders of cultural organizations, and the staging of dramatic and musical performances based on ethnic themes. The project objective was for 80 percent of participants to demonstrate an increase in their knowledge of Afro-American and Hispanic-American history and culture by achieving a gain of at least 30 percent from pre- to posttest. Project staff included four teachers and four

paraprofessionals. The New York State Legislature provided \$18 thousand to fund the program.

EVALUATION METHODOLOGY

Project impact was assessed by an analysis of students' scores on a 36-item project-developed test on ethnic awareness. The test consisted of multiple-choice items on history and culture, as well as identifications emphasizing map knowledge (see Appendix A) and was given on a pre- and posttest basis at the beginning and end of project activities.

FINDINGS

Complete test scores were reported for 30 students from P.S. 64. No data was submitted from P.S. 28, 70, or 90. Overall, mean pretest raw score was 15.3 points (42.5 percent correct responses), and mean posttest raw score was 26.6 points (73.9 percent correct), for a mean gain of 11.3 points or 31 percent points (see Table 1). Overall, 63.3 percent of participants met or surpassed the project-set criterion for success of a 30 percent increase.

CONCLUSIONS AND RECOMMENDATIONS

In 1988-89, the Ethnic Awareness program was not successful in meeting its objective. Sixty-three instead of 80 percent of participants demonstrated an improvement in their knowledge of Afro-American and Hispanic-American history and culture by achieving a 30 percent increase from pre- to posttest.

TABLE 1

Students' Mean Raw Scores^a on a Project-Developed Test,
by School
Ethnic Awareness Program, 1988-89

	<u>Pretest Mean</u>		<u>Posttest Mean</u>		<u>Mean Gain</u>	
	Raw Score	Percent Correct	Raw Score	Percent Correct	Raw Score	Percent Correct
Students Meeting Criterion ^b (N=19)	14.1	39.2%	27.3	75.8%	13.2	36.7%
Students not Meeting criterion ^b (N=11)	17.5	48.6	25.6	71.1	8.1	22.5
Total (N=30)	15.3	42.5	26.6	73.9	11.3	31.0

^aPerfect Raw Score=36.

^bEighty percent of participants will make a posttest gain of at least 30 percent.

Overall, 63.3 percent of participants met the project set criterion of success.

Following recommendations made in previous years, project staff revised the objective to include a quantitative measure of project success. This was stated as, "80 percent of participants will achieve a gain of 30 percent at posttest." Many of the students not meeting the project-set criterion received pretest scores as high as 30 score points. This makes an improvement of 30 percent impossible for these students (ceiling effect). It is recommended that the objective be revised. The revised objective could state, for instance, "Seventy-five percent of participants will increase their knowledge of Afro-American and Hispanic-American history and culture by achieving a gain of at least 20 percent." In addition, project staff may wish to expand the test by adding questions of various difficulty levels and deleting those questions students know the answers to before entrance to the program.

Program B/E #5001-48-83429

ETHNIC AWARENESS PRE - POST TEST

PART I

Directions for questions 1-25: Circle the correct answer.

EXAMPLE: What Civil Rights leader won the Nobel Peace Prize?

- a) Malcolm X d) Martin Luther King, Jr.
b) Marcus Garvey e) Adam Clayton Powell, Jr.

1. The first humans inhabited:

- a) Europe. b) South America.
b) Africa. d) Asia.

2. The Inhabitants of Puerto Rico, encountered by Columbus were:

- a) Tainos. c) Incas.
b) Carib. d) Mayas.

3. Reggae music originated in:

- a) Barbados. c) Trinidad.
b) Jamaica. d) Grenada.

4. The name of the Puerto Rican Anthem is:

- a) Mi Viejo San Juan. c) Preciosa.
b) La Borinqueña. d) El Jibaro.

5. The merengue is a popular dance of:

- a) Cuba. c) Puerto Rico.
b) Dominican Republic. d) Haiti.

6. The ancient stoneheads that were built in the Gulf of Mexico reflected the friendship between the Pre-Columbian people and the:

- a) Asians. c) Arabs.
b) Australians. d) Africans.

7. The first European colony in the New World was:
- a) Puerto Rico.
 - b) Cuba.
 - c) Dominican Republic.
 - d) Brazil.
8. A Puerto Rican composer was:
- a) Cervantes.
 - b) Matos.
 - c) José Martí.
 - d) Rafael Hernández.
9. The two countries that share the island of Hispanola are:
- a) Trinidad & Tobago.
 - b) Cuba & Puerto Rico.
 - c) Dominican Republic & Haiti.
 - d) St. Thomas & St. John.
10. Dances such as the rumba, the limbo and cake walk were influenced by:
- a) Puerto Rico.
 - b) Spain.
 - c) Africa.
 - d) Peru.
11. An instrument developed in Africa and used in Latin percussion ensembles is the:
- a) Conga.
 - b) Piano.
 - c) Guitar.
 - d) Flute.
12. What people were captured and forcibly brought to the New World?
- a) Europeans.
 - b) Aztecs.
 - c) Asians.
 - d) Africans.
13. The influential Muslim leader who was the National spokesman for the Nation of Islam during the late 1950's was:
- a) Luis Farrakham.
 - b) Franz Fanon.
 - c) Malcolm X.
 - d) Muhammad Ali.

14. A Major supplier of tropical produce to the northeast is:
- a) Dominican Republic.
 - b) Cuba.
 - c) Puerto Rico.
 - d) Argentina.
15. Combinations of African, European and Pre-Colombian cultures may be found in:
- a) Capreira.
 - b) Africa.
 - c) The Americas.
 - d) All of the above.
16. Langston Hughes was a:
- a) Painter.
 - b) Scientist.
 - c) Poet.
 - d) Haitian liberator.
17. Pablo Picasso was best known for his work in:
- a) Science.
 - b) Art.
 - c) Writing.
 - d) Politics.
18. Roberto Clemente was a:
- a) Famous scientist.
 - b) Famous opera singer.
 - c) Baseball player & humanitarian
 - d) Union leader.
19. Charles Drew was famous for his work on:
- a) Drawing cartoons.
 - b) Blood/Plasmare.
 - c) Writing short stories.
 - d) Television.
20. Herman Badillo is best known for his work in:
- a) Poetry.
 - b) Art.
 - c) Politics.
 - d) Medicine.

21. Brazil is a (n):
- a) Spanish-speaking American country.
 - b) French-speaking American country.
 - c) English-speaking American country.
 - d) Portuguese-speaking American country.
22. Harriet Tubman helped:
- a) Many slaves escape to freedom.
 - b) Develop a cure for cancer.
 - c) Capture runaway slaves.
 - d) Many slaves return to slavery.
23. Paul Robeson was a well-known:
- a) Doctor and lawyer.
 - b) Singer and civil rights leader.
 - c) Poet and doctor.
 - d) Civil rights leader and doctor.
24. Dr. Martin Luther King, Jr.'s first important step in the Civil Rights movement occurred after:
- a) John Carver was arrested.
 - b) He was arrested in California.
 - c) Booker T. Washington was arrested.
 - d) Rosa Parks was arrested.
25. Booker T. Washington was:
- a) The founder of Tuskegee Institute.
 - b) A lawyer in the Civil Rights Movement.
 - c) A Composer of music.
 - d) The scientist who discovered a cure for heart disease.

ANSWER KEY WITH TOPICS

	<u>ANSWERS</u>	<u>TOPICS</u>
Example	D	Black History
1.	B	African History
2.	A	Puerto Rican History
3.	B	Jamaican Culture
4.	B	Puerto Rican Culture
5.	B	Dominican Republic Culture
6.	D	African History
7.	C	World History
8.	D	Puerto Rican Culture
9.	C	Dominican Rep. & Haitain History
10.	C	African Culture
11.	A	African & Latin Culture
12.	D	African History
13.	C	Black History
14.	C	Dominican Republic Industry
15.	C	World History
16.	C	Black History
17.	B	Puerto Rican History
18.	C	Puerto Rican History
19.	B	Black History
20.	C	Puerto Rican History
21.	D	Brazilian History
22.	A	Black History
23.	B	Black History
24.	D	Black History
25.	A	Black History

ANSWERS

1. North America
2. Cuba
3. Jamaica
4. Haiti/Dominican Republic
5. Puerto Rico
6. The Lesser Antilles
7. Central America
8. South America
9. Europe
10. Africa
11. New York City

North America

1
2
3
4
5
6
11

Central America

7

South America

8

Europe

9

Africa

10

North America

1
2
3
4
5
6
11

Central America

7

South America

8

Europe

9

Africa

10