Self contained multi-media kits for grades 1 through 6 involve students directly in the learning process. Emphasis is on non-verbal learning which takes place when youngsters examine real objects and engage in learning activities. Involved in the discovery and inquiry process, students hypothesize, classify, and categorize. In an interdisciplinary approach to the social studies, the MATCH boxes aim for both affective and cognitive learning. Cognitive objectives involve learning facts, information about ancient Greek life, contemporary Japanese life, and the city. Affective objectives help students to deal reflectively with themselves and toward the world around them. Each of the three kits is designed for two to three weeks of study. The program description is divided into five sections and includes information on goals and objectives, content and materials, classroom action, implementation and costs, and program development and evaluation. (SJM)
MATERIALS AND ACTIVITIES FOR TEACHERS AND CHILDREN (MATCH)

Program Report

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Far West Laboratory for Educational Research and Development
Berkeley, California
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A handful of kids in a Boston area school have had it easy. They sit in class, and the MATCH project brings the world to them.

In one classroom, an accident is being staged. Mr. Lindstrom has just run into did it occur? What happened? Who was hurt? As they think of the people who would b graders play the parts--pedestrians, policeman, Mr. Lindstrom's boss, a lawyer, etc. of the many specialized roles played by people in the city and how very dependent peo specialized situations.

Down the hall, a group of students is attired in Japanese kimonos--mother, fathe father, grandmother--and are showing the rest of the class how to eat with chopsticks are pretty intent on picking up their food with the chopsticks.

Another group of fifth graders is working to piece together an ancient Greek roof They have seen a film on the Villa of Good Fortune, have a floor plan, and have many The student leader archeologist of each of six groups presents the objects to his tea statue of a goat, a sculpture of a woman's head, photographs of a door and knocker an of perfumed oil, a strygil, and a photo of a bathtub. Can these "archeologists" solv

The teacher meanwhile lends aid, consults various groups, explains material when as co-worker, making sure all goes smoothly. The children are actively engaged with the world around them and thus learning about themselves and each other.
INTRODUCTION

Kids in a Boston area school have had it easy. They sit in class, being kids, and the teacher brings the world to them.

Room, an accident is being staged. Mr. Lindstrom has just run into another parked car. How did it happen? Who was hurt? As they think of the people who would be involved, the second seats--pedestrians, policeman, Mr. Lindstrom's boss, a lawyer, etc. They are learning a sense of roles played by people in the city and how very dependent people can be on each other in situations.

A group of students is attired in Japanese kimonos--mother, father, son, daughter, grandfather--and are showing the rest of the class how to eat with chopsticks. They smile a little but on picking up their food with the chopsticks.

A group of fifth graders is working to piece together an ancient Greek room in still another classroom. Film on the Villa of Good Fortune, have a floor plan, and have many objects in front of them. Each of six groups presents the objects to his team--here we have a small sculpture of a woman's head, photographs of a door and knocker and door key, a pottery jar, a stryngu, and a photo of a bathtub. Can these "archeologists" solve the mystery?

Meanwhile lends aid, consults various groups, explains material when necessary but mostly serves to make sure all goes smoothly. The children are actively engaged with real objects learning about them and thus learning about themselves and each other.
BASIC INFORMATION

Program Name:
Materials and Activities for Teachers and Children (MATCH)

Format:
Three multimedia kits, each in an area of the social sciences (Japanese Family, Ancient City)

Uniqueness:
Inquiry approach to learning in which students work with real objects (artifacts, models, materials (filmstrips, records, etc.), and engage in simulation and role-playing activities

Content:
Interdisciplinary approach to social studies; students examine characteristics of cities between individuals and groups; nature of everyday life of an ancient Greek household through archeology; family life of various cultures

Suggested Use:
Self-contained, supplementary units in social studies

Target Audience:
Students of all abilities in grades 1-6

Aids for Teachers:
Detailed teacher's guide for each unit; teacher training available from American Science Inc.
BASIC INFORMATION

First, each project will have a guide for Teachers and Children (MATCH) to use. Each project will be carried out in an area of the social sciences (Japanese Family, Ancient Greece, and The City, for example), learning in which students work with real objects (artifacts, models, maps), audiovisual and other media (e.g., records, etc.), and engage in simulation and role-playing activities.

An approach to social studies, students examine characteristics of cities, interrelationships among and within groups; nature of everyday life of an ancient Greek household through the tool of history and the life of various cultures.

Supplementary units in social studies

Lifestyles in grades 1-6

Guide for each unit; teacher training available from American Science and Engineering,
Availability:
Three units available; in the Boston area 13 additional units may be rented from the de

Director/Developer:
The Children's Museum of Boston, The Jamaica Way, Boston, Mass. 02130, Frederick H. Kre

Publisher:
American Science and Engineering, Inc., 20 Overland Street, Boston, Mass. 02215

Information in this Report current as of June 1971
In the Boston area 13 additional units may be rented from the developer.

Jamaicaway,  Boston, Mass.  02130, Frederick H. Kresse, Project Director

and Engineering, Inc., 20 Overland Street, Boston, Mass.  02215

Report current as of June 1971
TABLE OF CONTENTS

1. Goals and Objectives
   1.1 Long-range goals
   1.2 Terminal objectives
   1.3 Detailed objectives

2. Content and Materials
   2.1 Content focus
   2.2 Content and organization of the subdivisions
   2.3 Materials provided
   2.4 Materials not provided

3. Classroom Action
   3.1 Teaching-learning strategy
   3.2 Typical lesson
   3.3 Student testing and evaluation
   3.4 Out-of-class preparation

4. Implementation: Requirements and Costs
   4.1 School facilities and arrangements
   4.2 Student prerequisites
   4.3 Teacher prerequisites and training
   4.4 Cost of materials, equipment, services
   4.5 Community relations
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>1</td>
</tr>
<tr>
<td>Learning strategy</td>
<td>8</td>
</tr>
<tr>
<td>Lesson</td>
<td>8</td>
</tr>
<tr>
<td>Testing and Evaluation</td>
<td>10</td>
</tr>
<tr>
<td>Mass preparation</td>
<td>11</td>
</tr>
<tr>
<td>Requirements and Costs</td>
<td>13</td>
</tr>
<tr>
<td>Facilities and Arrangements</td>
<td>13</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>13</td>
</tr>
<tr>
<td>Prerequisites and Training</td>
<td>13</td>
</tr>
<tr>
<td>Materials, Equipment, Services</td>
<td>14</td>
</tr>
<tr>
<td>Resources, facilities, equipment, services</td>
<td>16</td>
</tr>
<tr>
<td>Focus</td>
<td>4</td>
</tr>
<tr>
<td>Focus and organization of the subdivisions</td>
<td>4</td>
</tr>
<tr>
<td>Provided</td>
<td>5</td>
</tr>
<tr>
<td>Not provided</td>
<td>7</td>
</tr>
<tr>
<td>Learning strategy</td>
<td>8</td>
</tr>
<tr>
<td>Lesson</td>
<td>8</td>
</tr>
<tr>
<td>Testing and Evaluation</td>
<td>10</td>
</tr>
<tr>
<td>Mass preparation</td>
<td>11</td>
</tr>
<tr>
<td>Requirements and Costs</td>
<td>13</td>
</tr>
<tr>
<td>Facilities and Arrangements</td>
<td>13</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>13</td>
</tr>
<tr>
<td>Prerequisites and Training</td>
<td>13</td>
</tr>
<tr>
<td>Materials, Equipment, Services</td>
<td>14</td>
</tr>
<tr>
<td>Resources, facilities, equipment, services</td>
<td>16</td>
</tr>
</tbody>
</table>
5. Program Development and Evaluation

5.1 Rationale

5.2 Program development

5.3 Developer's evaluation of program

5.4 Results of developer's evaluation

5.5 Project funding

5.6 Project staff

Footnotes

Bibliography
1. GOALS AND OBJECTIVES

The developer's goals are discussed here in three sections: "Long-range goals" which lives after they have completed the program; "terminal objectives," which students should achieve by the time they complete the program; and "detailed objectives," which should be achieved from studying program's activities.

1.1 Long-range goals.

The major goal of the MATCH program is for students to begin to think and feel as a real experience with authentic materials and thus to understand the world about them. Since they know that much of learning is nonverbal, students are exposed to real objects such as Japanese crafts, or model city buildings in order to understand and feel what it would be like to be a different culture or what it would like to live in the city. The developers believe that it is not enough for students to learn facts and have become disenchanted with "knowledge as the sole end product of the learning process." They believe that,

One whose objective is amassing facts may never learn how to learn. He becomes conditioned to submit to the finality of authority rather than to question, to consider, to test, to evaluate.

By becoming involved with real objects rather than the printed page, the student's curiosity for freedom to experience his own feelings, and he becomes committed to "reflective doing" rather than "absorbing."

1.2 Terminal objectives

The specific objectives of the MATCH program can be divided into three groups: (a) cognitive, deal with pupil knowledge levels and development of intellectual abilities and skills; (b) a
1. GOALS AND OBJECTIVES

are discussed here in three sections: "Long-range goals" which relate to students' leated the program; "terminal objectives," which students should achieve by the time and "detailed objectives," which should be achieved from studying each of the MATCH program is for students to begin to think and feel as a result of direct materials and thus to understand the world about them. Since the developers believe onverbal, students are exposed to real objects such as Japanese clothing, Greek arti- lings in order to understand and feel what it would be like to be a member of a dif- would like to live in the city. The developers believe that it is not important for i have become disenchanted with "knowledge as the sole end product of the educational hat, objective is amassing facts may never learn how to learn. He ditioned to submit to the finality of authority rather than , to consider, to test, to evaluate.2 real objects rather than the printed page, the student's curiosity is aroused, he has own feelings, and he becomes committed to "reflective doing" rather than "passive

es of the MATCH program can be divided into three groups: (a) cognitive goals, which levels and development of intellectual abilities and skills; (b) affective objectives,
which deal with the child's interest level, attitudes, values and appreciations; and (c) discovery and inquiry.

Cognitive goals. Students should learn about something which is "out there" in the Unit on the city, children form an idea of what the city is, what happens in it, and how to acquire geographic map and spatial relations skills. The Japanese Family unit introduces Japanese culture via the family; in the unit entitled "A House of Ancient Greece," students learn about the everyday life of an ancient Greek household. Using archeology as a tool, they learn to make educated guesses, and the experience of archeologists, can all contribute to historical understanding.

Students are expected to acquire a commitment to social studies based on current disciplines and an awareness that facts are not an end in themselves, but are useful as patterns.

Affective objectives. Students learn about themselves and their capacities, become individuals, and build confidence in themselves. Through role-playing, they empathize with cultures and come to understand and appreciate them.

Discovery and inquiry. Students make hypotheses, test and revise them as when the archeological puzzle of reconstructing life in the Villa of Good Fortune in the Greek unit. Students classify, categorize, and sequence information, thus focusing on levels of thinking high.

1.3 Detailed objectives.

The objectives for each activity are listed at the beginning of each lesson in the Lesson 10 from the unit, "The City," the objectives are:

To have the children recognize and respect differences in life styles.
To remind the children that cities are populated by real people.
To get them thinking about the unique qualities of their own lives in the city.
the child's interest level, attitudes, values and appreciations; and (c) the process of discovery.

goals. Students should learn about something which is "out there" in the world. In the MATCH y, children form an id- a of what the city is, what happens in it, and how it changes. They also hic map and spatial relations skills. The Japanese Family unit introduces children to the re via the family; in the unit entitled "A House of Ancient Greece," students are introduced to fe of an ancient Greek household. Using archeology as a tool, they learn that incomplete data, es, and the experience of archeologists, can all contribute to historical knowledge.

re expected to acquire a commitment to social studies based on current data from social science an awareness that facts are not an end in themselves, but are useful and meaningful in creating

objectives. Students learn about themselves and their capacities, become aware of themselves as d build confidence in themselves. Through role-playing, they empathize with members of different me to understand and appreciate them.

and inquiry. Students make hypotheses, test and revise them as when they work out the archeolo- reconstructing life in the Villa of Good Fortune in the Gree unit. Students also learn to orize, and sequence information, thus focusing on levels of thinking higher than recall.

objectives.

eives for each activity are listed at the beginning of each lesson in the teacher's guides. In the unit, "The City," the objectives are:

ave the children recognize and respect differences in life styles.
mind the children that cities are populated by real people.
ct them thinking about the unique qualities of their own lives in the city.
The Eastern Regional Institute for Education (ERIE) in collaboration with The developed a modified teacher's guide for "A House of Ancient Greece" to include specific objectives [See 1.2]. For example, after completing exercise 2, "E Pluribus Unum," series of archaeological experiences, each student should be able to:

Cognitive objectives

1. State at least three observations of a simple object which are significant based upon them.

2. Construct at least three plausible inferences about a people, based upon object made by them.

3. Demonstrate active participation as a member of a team investigating a problem.

Affective objective

1. Demonstrate that he enjoys the work being done with the unit and its materials.
modified teacher's guide for "A House of Ancient Greece" to include specific cognitive and affective [see 1.2]. For example, after completing exercise 2, "E Pluribus Unum," to prepare students for a theological experiences, each student should be able to:

**Objective**

- Rate at least three observations of a simple object which are significant to constructing inferences based upon them.
- Construct at least three plausible inferences about a people, based upon his observations of a simple object made by them.
- Demonstrate active participation as a member of a team investigating a problem posed by the teacher.

**Objective**

- Demonstrate that he enjoys the work being done with the unit and its materials.
2. CONTENT AND MATERIALS

2.1 Content focus.

The main focus of the MATCH program is on the social and behavioral sciences. Through study of the Japanese family and of ancient Greece, students are exposed to the history, geography, and sciences of Japan and modern and ancient Greece. In the unit "The City," the social sciences of sociology, intergroup relations, community relations, and geography are emphasized.

Other disciplines are also woven into the curriculum—art (in relation to Greek culture); science (in relation to using archaeology as a tool in the Greek unit and in the environment in "The City"); languages (in learning some Japanese and Greek symbols); and about the self in relation to other peoples.

2.2 Content and organization of the subdivisions.

The commercially available MATCH program consists of three self-contained supplements designed to be used over a period of two to three weeks for one to one and one-half. The unit "The City" contains 16 activities from which the teacher can choose eight to ten activities. The unit on the Japanese family contains 13 activities designed for grades 1-3 (K-3, according to the distributor). The unit on the Japanese family contains 11 activities designed for grades 5 and 6; the Greek unit contains 11 activities also designed for grades 5 and 6. The units have been used at numerous grade levels including junior high school. In all of the units, real objects form the basis of learning.

"The City" unit is about citiness. It teaches that any city is the product of many forces—environment and human beings. It includes the inhabitants themselves. It is planned to involve cities and the interrelationships between the individuals and groups which make up the city. Children view films of the city, create and plan cities with model buildings, t
2. CONTENT AND MATERIALS

The focus of the MATCH program is on the social and behavioral sciences. Through studies of the history of ancient Greece, students are exposed to the history, geography, social and economic conditions of modern and ancient Greece. In the unit "The City," the social science disciplines of group relations, community relations, and geography are emphasized.

Lines are also woven into the curriculum--art (in relation to Greek artifacts and Japanese language); languages (in learning some Japanese and Greek symbols); and psychology (in learning relation to other peoples).

Organization of the subdivisions.

The available MATCH program consists of three self-contained supplementary units. Each unit is used over a period of two to three weeks for one to one and one-half hours a day per lesson. The "City" unit contains 16 activities from which the teacher can choose eight to ten; it can be used in grades 5 and 6; the Greek unit contains 11 activities also designed for grades 5 and 6. The developers of the units have been used at numerous grade levels including junior and senior high school. 

The "City" unit is about citiness. It teaches that any city is the product of many forces and is capable of change. It is planned to emphasize characteristics of these forces--including the inhabitants themselves. It is planned to emphasize characteristics of the interrelationships between the individuals and groups which make up the city. The unit is designed to show that children's notions of citiness evolve out of contact with the materials provided in the unit. The unit consists of the following activities: it teaches that any city is the product of many forces and is capable of change. It is planned to emphasize characteristics of the interrelationships between the individuals and groups which make up the city. The unit is designed to show that children's notions of citiness evolve out of contact with the materials provided in the unit.
neighborhood and make a map of it, role play an accident situation, match city sights with these and other activities [see 3.1], the students are expected to obtain a personal view

The unit on the Japanese family is an attempt to view another culture from the inside. Children first to Japanese families and some of the things that would commonly be found in class is divided into five "families"-representatives of various middle class occupations. Each child has a specific role in his family, and remains in this role throughout the course. The family pursues certain activities common to Japanese culture and family life, such as family religious rituals. Through various role-playing activities, the children sense what it is like of a family in a different culture.

"A House of Ancient Greece" introduces students to the everyday life of an ancient Greek family and the use of archaeology as a tool. It emphasizes the process of sifting through evidence of the past from this evidence. The children look at pictures and reproductions of objects that were found in the Villa of Good Fortune. Students divided into teams of archeologists piece together a function and structure of each part of the villa through the use of real objects.

The activities in the individual units are relatively independent and do not have to be sequenced in which they appear in the teacher's guides. "The City" unit guide contains a set of sequences, each with a somewhat different emphasis, from which the teacher can choose [see 3.1]. There is a development in the sequence of activities within the units and a general increase in complexity. Activities are closely linked, as indicated in the teacher's guides, and should be taken in sequence.

The units can be woven into the overall curriculum in several ways: (a) as independent activities; (b) as a base on which to build a more detailed study of Greek or Japanese art, geography, religious rituals, processes; (c) as a basis for comparing Greek or Japanese city life to that of other cultures.

2.3 Materials provided.

Student materials. All of the materials for each unit are contained in a multimedia
map of it, role play an accident situation, match city sights with sounds. Through
es [see 3.1], the students are expected to obtain a personal view of what a city is.
inese family is an attempt to view another culture from the inside out. It introduces
ese families and some of the things that would commonly be found in their homes. The
"families"--representatives of various middle class occupations and backgrounds.
role in his family, and remains in this role throughout the course of the unit. Each
ctivities common to Japanese culture and family life, such as flower arranging or
rough various role-playing activities, the children sense what it is like to be a member
it culture.
Greece" introduces students to the everyday life of an ancient Greek household using
emphasizes the process of sifting through evidence of the past and drawing conclusions
children look at pictures and reproductions of objects that were actually unearthed at
. Students divided into teams of archeologists piece together a picture of the
ach part of the villa through the use of real objects.
individual units are relatively independent and do not have to be presented in the
ear in the teacher's guides. "The City" unit guide contains a chart with some possible
ewhat different emphasis, from which the teacher can choose [see 2.3]. However, there
quence of activities within the units and a general increase in difficulty. A few
icked, as indicated in the teacher's guides, and should be taken up in order of appea-
iten into the overall curriculum in several ways: (a) as independent 2-3 week encounters;
build a more detailed study of Greek or Japanese art, geography, political, and social
for comparing Greek or Japanese city life to that of other cultures and other times.
All of the materials for each unit are contained in a multimedia unit-kit entitled a
MATCH Box. The materials consist primarily of real, concrete objects combined with films, graphs, models, maps, and books. The children can handle and use many of the objects.

"The City" MATCH Box contains the 16mm color-sound film entitled "My City," four books (Corner, The Red Balloon, The Looking Down Game, How to Read a City Map), a picture pool of four aerial maps and a map of an imaginary town called Five Corners, a set of four magnets over the map for a detailed look at a particular section, a record entitled "City Sounds," buildings and a magnetic board.

"The Japanese Family" MATCH Box contains a record entitled "Sounds of Japan," a photo book, a magazine, and a poetry book, a calligraphy box with brushes, ink stone, water dish and the seal. There are five envelopes included--one for each family--each containing a Family histories, nine Family Role cards, five Family job charts, a chart showing how to use the box and a calligraphy card. In addition, there are five boxes of materials for each family. The Tanaka Box contains boy's and girl's kimonos with sashes; the Yamakawa Box contains flower clay, a scroll and dried flowers; the Honda Box contains different types of Japanese shoes; it includes a soup bowl, plates, bowls, dry soup and several pairs of chopsticks.

The Greek MATCH Box contains authentic ancient artifacts (a coin and pottery shard); reproductions of ancient Greek statuary; reproductions of metal artifacts (coins, jewelry, spoon, fish hook and strygil); miscellaneous reproductions and other objects (wax tablet and stylus, clothing, knucklebones, loom weight, olive oil wick, mortar and pestle, etc.); maps, photographs (maps of Greece, photographs of the Villa of Good Fortune and of excavated objects, two films and the Villa); and three reference books on archeology and ancient Greece.

Teacher materials. Each MATCH Box contains a detailed teacher's guide to show how all be used in the classroom. Each guide has a fold-out front cover illustrating the materials they are packaged. There is also a section in the guide called "Initial Set up and Turnar which tells how to set up the materials and check the unit at the end of its use for possib
As consist primarily of real, concrete objects combined with films, recordings, photographs, and books. The children can handle and use many of the objects.

Box contains the 16mm color-sound film entitled "My City," four books about the city (Evan's World, The Looking Down Game, How to Read a City Map), a picture pool of 36 photographs, a set of a map of an imaginary town called Five Corners, a set of four magic windows to be placed in a shed look at a particular section, a record entitled "City Sounds," and 75 wooden book covers.

Each MATCH Box contains a record entitled "Sounds of Japan," a photo album, a Japanese comic strip, a poetry book, a calligraphy box with brushes, ink stone, water dish, seal, and ink for writing, envelopes included--one for each family--each containing a Family Guide, three family job cards, five Family job charts, a chart showing how to use the Family's materials.

In addition, there are five boxes of materials for each family. The Kawai Box contains a bell, cushion, incense burner and sticks, a Buddha statue and an ancestor tablet; the Kawai's and girl's kimonos with sashes; the Yamakawa Box contains a flower bowl, a box of dried flowers; the Honda Box contains different types of Japanese shoes; the Yashida Box contains plates, bowls, dry soup and several pairs of chopsticks.

Each MATCH Box contains authentic ancient artifacts (a coin and pottery shard); actual-size reproductions of metal artifacts (coins, jewelry, spoon, snail, safety pin, and miscellaneous reproductions and other objects (wax tablet and stylus, cloth to drape as a loom weight, olive oil wick, mortar and pestle, etc.); maps, photographs and filmstrips of the Villa of Good Fortune and of excavated objects, two filmstrips of Olynthus, and reference books on archeology and ancient Greece.

Each MATCH Box contains a detailed teacher's guide to show how all the materials can be used. Each guide has a fold-out front cover illustrating the materials in the Box and how to use them. There is also a section in the guide called "Initial Set up and Turnaround information." Each guide gives step-by-step instructions on setting up the materials and check the unit at the end of its use for possible damage and loss.
required replacements. Each guide has a preface with a short rationale of the project, an specific unit, and a brief description of each lesson activity.

The largest section of the teacher's guide for each unit consists of numbered Lesson gives a description of the lesson, outlines the objectives, materials, and arrangements no, details the procedure, gives notes on using the materials and on planning ahead for fi, guide for "The City" includes a chart giving a sequence of activities from which the teach topics are a general view of the city, people and the dynamics of the city, the neighborh to the city, the physical form of the city and maps. At the end of each guide there is a additional books for teachers and children and additional films and filmloops which may be

The ERIE modified guide on "A House of Ancient Greece" contains the above information behavioral objectives for each lesson [see 1.3], background and supplemental material for dures for reviewing and means of assessing student performance including a questionnaire t the objectives of the program. Plans for publishing this guide, however, are still indefi

In addition to the teacher's guides, there are ditto masters of maps and exercises to students.

2.4 Materials not provided.

All required materials for students and teachers are provided.
Each guide has a preface with a short rationale of the project, an introduction to the program, and a brief description of each lesson activity.

Section of the teacher's guide for each unit consists of numbered Lesson Activities. Each section of the lesson, outlines the objectives, materials, and arrangements necessary for setting it up. It also includes a procedure, gives notes on using the materials and on planning ahead for future lessons. The teacher's guide includes a chart giving a sequence of activities from which the teacher can choose. The activities include a view of the city, people and the dynamics of the city, the neighborhood and its relation to the city and maps. At the end of each guide there is a bibliography of useful ideas for teachers and children and additional films and film loops which may be used.

The teacher's guide on "A House of Ancient Greece" contains the above information plus specific materials for each lesson [see 1.3], background and supplemental material for each lesson, procedures and means of assessing student performance including a questionnaire to parents to assess the program. Plans for publishing this guide, however, are still indefinite.

In the teacher's guides, there are ditto masters of maps and exercises to be distributed to students and teachers are provided.
3. CLASSROOM ACTION

3.1 Teaching-learning strategy

The MATCH program is built around an inquiry and discovery strategy which encourages active role in finding things out for themselves. By manipulating real objects, the children are encouraged to handle and use such objects in the units as calligraphy brushes to determine and explore and discover what life actually would be like in Japan, ancient warfare and society. They are encouraged to handle and use such objects as calligraphy brushes and objects that the Japanese or Greeks would have used them. Learning in this way proceeds from the teacher; the child is thus the agent of his own learning—which by exploring religious ceremony or discovering and piecing together the artifacts of an ancient society. Activities call for class division into small groups with a student as leader rather than role is that of co-worker or co-learner. Much open classroom presentation and free

Althought most of the activities rely on discovery and inquiry techniques such as describing, evaluating, setting up, testing, and revising hypotheses—the developers realize that achievement through other teaching-learning methods. Inquiry and exposition skills are used with the intention of affecting attitudes about other people or films are studied with the intention of affecting attitudes about other people. Both followed by practice is used to teach map reading skills.

3.2 Typical lesson.

Most of the lesson activities are introduced in one of three ways: (a) by having objects from a MATCH Box to the children and allowing them to handle them and ask questions; (b) by having the teacher show a film or photograph and allowing children to exclaim and ask questions; or (c) by having the teacher explain the objectives of a lesson, leaving a bit of a mystery for teams from which they proceed on their own.

In Lesson 1 from the unit "A House of Ancient Greece," the children take this
3. CLASSROOM ACTION

g-learning strategy

The program is built around an inquiry and discovery strategy which encourages students to take an in finding things out for themselves. By manipulating real objects, the students use their imagination and discover what life actually would be like in Japan, ancient Greece, or the city. They handle and use such objects in the units as calligraphy brushes or Greek jewelry to experience what a Japanese or Greeks would have used them. Learning in this way proceeds from the materials rather than the teacher; the child is thus the agent of his own learning—whether by exploring the ritual of a Japanese remony or discovering and piecing together the artifacts of an ancient Greek room. Most of the all for class division into small groups with a student as leader rather than the teacher whose role is that of co-worker or co-learner. Much open classroom presentation and free discussion ensues.

Most of the activities rely on discovery and inquiry techniques—students gather data from materials, set up, test, and revise hypotheses—the developers realize that some skills can be taught other teaching-learning methods. Inquiry and exposition skills are often mixed as when stories are studied with the intention of affecting attitudes about other people and cultures. Exposition practice is used to teach map reading skills.

The lesson activities are introduced in one of three ways: (a) by having the teacher present a MATCH Box to the children and allowing them to handle and ask questions about them; (b) by eacher show a film or photograph and allowing children to exclaim and ask questions; or (c) by eacher explain the objectives of a lesson, leaving a bit of a mystery, and dividing the class into niches they proceed on their own.

On 1 from the unit "A House of Ancient Greece," the children take things out of a full wastebasket...
one at a time and try to discover which room the basket stood in, what went on in the room, and were who used it. The objectives are stated in the teacher's guide:

To introduce the children to the methods of archeology.
To show that much can be learned about people from their leavings.
To demonstrate that what is learned from people's leavings depends on careful record keeping, and thoughtful interpretation.

To begin the lesson, the teacher places the wastebasket where all can see it and appoints one child as excavator. His job is to take the objects one by one out of the basket and to discuss them. Important clues should be passed around. The teacher then appoints another child, and it is his job to draw a cross-section view of the basket on the blackboard and note the important items as they are dug up by the excavator.

Next, the basket is excavated piece by piece. The teacher asks the children to give conclusions about the contents and explains that they need to be good detectives to do so. She then asks the children to guess who might have thrown the items in, how long ago, and what the basket has been used for. The teacher should help the class to find answers to such questions.

The teacher's guide mentions several important points about excavating illustrated by the basket:

1. Once the basket has been excavated, it is easy to forget where items were unlaid.
2. We can feel quite sure about some things but can only guess about others.
3. It is possible to come to the wrong conclusions or be fooled by what we see.

By the end of the lesson, the class should come to a conclusion about where the basket was used, and how it was used, and thus be introduced to the process of archeology taken up in subsequent lessons.
Discover which room the basket stood in, what went on in the room and who the people active are stated in the teacher's guide:

Children to the methods of archaeology. What can be learned about people from their leavings?

What is learned from people's leavings depends on careful observation, precise noting, and thoughtful interpretation.

The teacher places the wastebasket where all can see it and appoints a lively student to take the objects one by one out of the basket and to describe them so the class can clues should be passed around. The teacher then appoints another child as cataloger; cross-section view of the basket on the blackboard and note the position of the important up by the excavator.

Excavated piece by piece. The teacher asks the children to give evidence for their entments and explains that they need to be good detectives to do this job well. From the teacher should help the class to find answers to such questions as: What is each item in? How long ago was it thrown in? Has the basket been filled up quickly or slowly? Which items give the best clues? Where does the basket come from?

Mentions several important points about excavating illustrated by this activity:

Has been excavated, it is easy to forget where items were unless careful notes are sure about some things but can only guess about others. To come to the wrong conclusions or to be fooled by what we see.

Son, the class should come to a conclusion about where the basket came from, who used it and the process of archaeology taken up in subsequent lessons.
Teacher’s role.

With materials at hand, learning can proceed from the materials and doesn’t have to proceed from the teacher. She does not have to be the repository and dispenser of information. With materials instead of the teacher serving as the learning medium, the teacher is freed to become a co-worker or co-learner and associate of the students... In a situation like this it seems that the teacher is freer to be herself. Her personality and learning task itself are separated. The children are not placed in the position of having to read her—they can concentrate on the subject that matters rather than on the subject who matters.  

The teacher is responsible for (a) choosing and structuring activities commensurate with the class; (b) introducing lessons and materials; (c) showing films, filmstrips, and photographs and asking appropriate students for various role-playing situations; and (e) guiding class discussion and activities of the class.

Student’s role. The students are actively engaged in the learning process. They watch filmstrips, look at photographs and comment about them, work directly with materials, discover new pictures, share experiences with each other, use their imaginations, and are involved in problem solving situations. Throughout any unit, students are discovering and inquiring—materials, testing, revising them and reaching conclusions. They are involved in a continual encounter, response, and reencounter with the materials.

3.3 Student testing and evaluation.

No tests have been prepared for any part of the MATCH program. Teachers are to observe learning from what they are doing and saying. This is no doubt a direct outgrowth of the collaborative role with the children and the fact that materials enable student performance to develop.
with materials at hand, learning can proceed from the materials. She doesn't have to proceed from the teacher. She does not have to be a repository and dispenser of information. With materials at hand, the teacher serving as the learning medium, the teacher need not become a co-worker or co-learner and associate of the children. In a situation like this it seems that the teacher need not be herself. Her personality and learning task itself is transformed. The children are not placed in the position of having to read her—they can concentrate on the subject that matters more than on the subject who matters. She is responsible for (a) choosing and structuring activities commensurate with the ability of students to read lessons and materials; (c) showing films, filmstrips, and photographs; (d) choosing roles for various role-playing situations; and (e) guiding class discussion and overseeing all the class.

The students are actively engaged in the learning process. They watch films and filmstrips, and discuss them, work directly with materials, discover relationships among experiences with each other, use their imaginations, and are involved in role-playing and situations. Throughout any unit, students are discovering and inquiring—making hypotheses from experience, revising them and reaching conclusions. They are involved in a continual process of observation, evaluation, and reencounter with the materials.

have been prepared for any part of the MATCH program. Teachers are to observe what children are doing and saying. This is no doubt a direct outgrowth of the teacher's more collapsed role the children and the fact that materials enable student performance to become visible. The
Written tests are often relied upon because the teacher has no other signs of student performance... The trouble is that tests provide only a limited type--usually verbal in form. This denies the richness of human expression and is unfair to the many children who happen not to be symbol manipulators.

In the ERIC modification of the teacher's guide, assessment procedures are provided in becoming a better observer of pupil performance. These clearly define what to look for through opinion voting box results (children rate activities as to how they liked them) and temporarily bringing materials to class which are related to the activity studied. In addition, ask parents to complete asking if the child talks about what he is learning at home.

3.4 Out-of-class preparation.

Teacher. The teacher should be thoroughly familiar with the MATCH program, its rating before beginning to teach any unit. He should also familiarize himself with the objects of MATCH Box. He then should choose activities commensurate with the ability level of the students. The key to the success of the MATCH units is that the teacher understand his students and be able to appropriate roles for the role-playing activities. In addition, the teacher must look at each activity before presenting it to the class, familiarize himself with the background material needed are present, observe student behavior, and reproduce ditto masters where necessary. The teacher must work the units into his regular curriculum either as separate two- to three-week end material into a broader spectrum of activities. Although learning proceeds from the material the teacher to make sure that all proceeds smoothly.

Student. There are very few explicit homework assignments for students, although there is material for this purpose. In the unit "The City," students are expected to solve at home to run an anticipated highway through the town of Five Corners. They also may be asked to bring home into class.
tests are often relied upon because the teacher has no other
of student performance . . . The trouble is that tests provide
limited type--usually verbal in form. This denies the richness
an expression and is unfair to the many children who happen
be symbol manipulators.4

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observer of pupil performance. These clearly define what to look for in pupil behavior
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each any unit. He should also familiarize himself with the objects and packaging of the
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MATCH units is that the teacher understand his students and be able to place them in
the role-playing activities. In addition, the teacher must seek ahead and review each
nting it to the class, familiarize himself with the background material, make sure all
present, observe student behavior, and reproduce ditto masters where necessary. He must
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er spectrum of activities. Although learning proceeds from the materials, it is up to
ure that all proceeds smoothly.

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pose. In the unit "The City," students are expected to solve at home the problem of where
highway through the town of Five Corners. They also may be asked to bring objects from
3.5 Role of other classroom personnel.

*Parents.* Parents may be called upon to assist with field trips, help with homework, or assess student performance [see 3.3].
classroom personnel.

Parents may be called upon to assist with field trips, help with homework assignments or to help
formance [see 3.3].
4. IMPLEMENTATION: REQUIREMENTS AND COSTS

4.1 School facilities and arrangements.

The classroom should be large enough to permit the teacher to divide the class into small groups. Moveable furniture would be an asset as some activities call for the whole class to watch a demonstration, while others require small group activities. There should be ample room for displaying the objects, presenting small group activities, and holding seminars. No special type of classroom, school, or staff organization is necessary.

4.2 Student prerequisites.

There are no special student prerequisites for the MATCH program. Because learning processes real objects rather than the printed page, a nonverbal student who doesn't read well or who participates in large class discussions should experience success with this program.

4.3 Teacher prerequisites and training.

MATCH units were designed to be extremely well organized and easily manageable, requiring minimal teacher preparation. Earlier it was assumed that a careful reading of the guides before introducing a unit to the class was all that was necessary in the way of teacher preparation. However, time has shown that teachers are more comfortable and the units better presented following some training or a structured orientation.

During the summer of 1970, ERIE conducted a three-day workshop in the Syracuse, New York area, where teachers with experience with all available MATCH units and the MATCH approach to learning were brought together. The workshop served to prepare teacher/leaders to train other teachers in the use of MATCH units. The workshops were arranged for districts that purchase a minimum of six kits of each unit (18-20 kits) by contacting Science and Engineering, Inc. Workshops are conducted by people who have worked on the program or have taught units in it. In some cases, demonstrations of the units can be arranged at colleges. Interested persons should contact American Science for details and costs of training workshops.
4. IMPLEMENTATION: REQUIREMENTS AND COSTS

...and arrangements. Should be large enough to permit the teacher to divide the class into small activity groups. It would be an asset as some activities call for the whole class to watch a film and others for discussion. There should be ample room for displaying the objects, presenting skits and holding type of classroom, school, or staff organization is necessary.

In some cases, demonstrations of the units can be arranged for preservice teachers and training. Designed to be extremely well organized and easily manageable, requiring a minimum of 18-20 kits by contacting American Science for details and costs of the workshops.

The workshops are conducted by people who have worked on the development of the units in it. However, time has shown that portable and the units better presented following some training or a structured workshop. Earlier it was assumed that a careful reading of the guides before introducing the units was necessary in the way of teacher preparation. However, time has shown that portable and the units better presented following some training or a structured workshop. Of 1970, ERIE conducted a three-day workshop in the Syracuse, New York area to provide all available MATCH units and the MATCH approach to learning. In addition, the bare teacher/leaders to train other teachers in the use of MATCH units. Workshops can be that purchase a minimum of six kits of each unit (18-20 kits) by contacting American Science for details and costs of the workshops.
4.4 **Cost of materials, equipment, services.**

The following chart itemizes information about the use and cost of materials:

MATERIALS, EQUIPMENT, SERVICES, etc.; COSTS

<table>
<thead>
<tr>
<th>Required Items</th>
<th>Quantity Needed</th>
<th>Source</th>
<th>Cost/Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KITS:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The City</td>
<td>1 per several classes</td>
<td>All items from American Science and Engineering</td>
<td>$557</td>
</tr>
</tbody>
</table>

**Replacement listing**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity Needed</th>
<th>Source</th>
<th>Cost/Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film</td>
<td>As needed</td>
<td></td>
<td>$200</td>
</tr>
<tr>
<td>Wooden buildings</td>
<td>As needed</td>
<td></td>
<td>250.98</td>
</tr>
<tr>
<td>and board</td>
<td></td>
<td></td>
<td>25.45</td>
</tr>
<tr>
<td>Maps</td>
<td>As needed</td>
<td></td>
<td>3.00</td>
</tr>
<tr>
<td>Ditto masters</td>
<td>As needed</td>
<td></td>
<td>50.00</td>
</tr>
<tr>
<td>Picture pool</td>
<td>As needed</td>
<td></td>
<td>15.00</td>
</tr>
<tr>
<td>Magic windows</td>
<td>As needed</td>
<td></td>
<td>4.98</td>
</tr>
<tr>
<td>Record</td>
<td>As needed</td>
<td></td>
<td>2.95-3.95</td>
</tr>
<tr>
<td>4 books</td>
<td>As needed</td>
<td></td>
<td>19.95</td>
</tr>
<tr>
<td>Carrying case</td>
<td>As needed</td>
<td></td>
<td>4.00</td>
</tr>
<tr>
<td>Teacher's guide</td>
<td>As needed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following chart itemizes information about the use and cost of materials:

<table>
<thead>
<tr>
<th>MATERIALS, EQUIPMENT, SERVICES, etc.; COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantity Needed</strong></td>
</tr>
<tr>
<td>1 per several classes</td>
</tr>
<tr>
<td>Sting</td>
</tr>
<tr>
<td>Rings</td>
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<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Pipe</td>
</tr>
<tr>
<td>Required Items</td>
</tr>
<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>A House of Ancient Greece</td>
</tr>
<tr>
<td><strong>Replacement listing</strong></td>
</tr>
<tr>
<td>6 kits</td>
</tr>
<tr>
<td>Maps and sketches</td>
</tr>
<tr>
<td>Filmstrip</td>
</tr>
<tr>
<td>Authentic coin</td>
</tr>
<tr>
<td>3 books</td>
</tr>
<tr>
<td>Carrying case</td>
</tr>
<tr>
<td>Teacher's guide*</td>
</tr>
<tr>
<td>Japanese Family</td>
</tr>
<tr>
<td><strong>Replacement listing</strong></td>
</tr>
<tr>
<td>Film (optional)</td>
</tr>
<tr>
<td>Family kits (5)</td>
</tr>
<tr>
<td>Table</td>
</tr>
<tr>
<td>Books and magazines</td>
</tr>
<tr>
<td>Record</td>
</tr>
<tr>
<td>Photo album</td>
</tr>
<tr>
<td>Calligraphy set</td>
</tr>
<tr>
<td>Extra drawers</td>
</tr>
<tr>
<td>Carrying case</td>
</tr>
<tr>
<td>Teacher's guide</td>
</tr>
</tbody>
</table>

* A modified teacher's guide for "A House of Ancient Greece" developed by ERIE will be available in Science and Engineering in the future.
<table>
<thead>
<tr>
<th>Quantity Needed</th>
<th>Source</th>
<th>Cost/Item</th>
<th>Replacement Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 per several classes</td>
<td></td>
<td>$525</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As needed</td>
<td>$58.55-129.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As needed</td>
<td>2.85-4.30</td>
<td></td>
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<tr>
<td></td>
<td>As needed</td>
<td>6.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As needed</td>
<td>13.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As needed</td>
<td>3.95-4.95</td>
<td></td>
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<td></td>
<td>As needed</td>
<td>19.95</td>
<td></td>
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<tr>
<td></td>
<td>As needed</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>1 per several classes</td>
<td></td>
<td>$770.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As needed</td>
<td>$275.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As needed</td>
<td>48.25-130.85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As needed</td>
<td>19.95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As needed</td>
<td>1.50-7.15</td>
<td></td>
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<tr>
<td></td>
<td>As needed</td>
<td>4.98</td>
<td></td>
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<tr>
<td></td>
<td>As needed</td>
<td>8.95</td>
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<td>As needed</td>
<td>8.65</td>
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<td></td>
<td>As needed</td>
<td>42.90</td>
<td></td>
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<tr>
<td></td>
<td>As needed</td>
<td>19.95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As needed</td>
<td>4.00</td>
<td></td>
</tr>
</tbody>
</table>

"A House of Ancient Greece" developed by ERIE will be available from American Heritage in the future.
Recommended Supplementary Items

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity Needed</th>
<th>Source</th>
<th>Cost/Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional teacher's guides for each unit</td>
<td>1 per teacher</td>
<td>American Science and Engineering, Inc.</td>
<td>$4.00</td>
</tr>
</tbody>
</table>

In addition, the three commercial MATCH units can be rented or leased directly from American Science and Engineering, Inc. Rental fees for four full school weeks are: The City ($55); Japanese Family ($65); A.I. ($65). Shipping charges are extra. Also, thirteen other MATCH Boxes can be rented from the Institute of Boston for $30 to $40 for two to three weeks. Because of heavy local demand and limited facilities, the Museum does not ship MATCH Boxes for rental outside the New England states.

The developers also stress that not all the materials in a MATCH Box may be needed; items can be purchased separately. A small class, for instance, might need only four kits instead of the five which are offered. Units may also be purchased without films, which can reduce the cost. One unit can be used for as many as 15 classes.

Other costs. Schools will need to have a 16mm projector and screen, an 8mm filmstrip or overhead projector, and a 35mm color slide projector.

4.5 Community relations.

It can be inferred that this program is probably no more critical to introduce than...
<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity Needed</th>
<th>Source</th>
<th>Cost/Item</th>
<th>Replacement Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher's</td>
<td>1 per teacher</td>
<td>American Science and Engineering, Inc.</td>
<td>$4.00</td>
<td>Reusable</td>
</tr>
</tbody>
</table>

In the three commercial MATCH units can be rented or leased directly from American Science. Four full school weeks are: The City ($55); Japanese Family ($65); A House of Ancient Greece ($30 to $40 for two to three weeks. Because of heavy local demand and a lack of proper shipping relations, the Children's Museum does not ship MATCH Boxes for rental outside the New England states.

Also stress that not all the materials in a MATCH Box may be needed for a classroom. All purchased separately. A small class, for instance, might need only four of the Japanese family of the five which are offered. Units may also be purchased without films, which would greatly increase the cost. One unit can be used for as many as 15 classes.

Schools will need to have a 16mm projector and screen, an 8mm filmstrip projector, and a 16mm filmstrip projector. Inferred that this program is probably no more critical to introduce than any new program.
5. PROGRAM DEVELOPMENT AND EVALUATION

5.1 Rationale.

In 1964, the Children's Museum of Boston proposed a project to the U.S. Office of said in part:

Much of learning is non-verbal. Instead of being mediated by words it is mediated by things. Because they like time and money, most teachers even the ones in over-privileged schools—do not possess the vocabulary things they need to communicate effectively with their pupils... This lack of appropriate media with which to convey knowledge and to develop skills and attitudes is particularly acute at the elementary level where the portion of non-verbal learning is high.5

It was felt that a nonverbal fact could best be communicated by a single object or convey a nonverbal principle or concept, patterns of media or objects were needed. The focus of their project, then, was to investigate ways of combining media that would communication between teachers and pupils on subjects having a high nonverbal content.

Several theories have been combined in the development of the program. Bruner in Instruction, emphasizes the role of inferring or discovery learning and believes that a learning task is necessary for mastery in any field. To support the importance of the and interpersonal relationships to the development of the child, Erickson in Childhood if the child despairs of his tools and skills of his status among his tool partners, his and he abandons hope for the ability to identify with others.

The significance of interpersonal and social interaction in the learning process is Rogers in Freedom to Learn. Rogers states that when the learner is prized as a separate
5. PROGRAM DEVELOPMENT AND EVALUATION

The Children's Museum of Boston proposed a project to the U.S. Office of Education. The proposal was to develop a program of learning that is non-verbal. Instead of being mediated by words, it is mediated by things. Because they like time and money, most teachers--especially those in over-privileged schools--do not possess the vocabulary of things they need to communicate effectively with their pupils. This is a particular problem at the elementary level where the need for non-verbal learning is high.

However, a nonverbal fact could best be communicated by a single object or medium, but in order to communicate a concept or concept, patterns of media or objects were needed. The developers believe that the best way to achieve this is to investigate ways of combining media that would allow meaningful open-ended experiences for teachers and pupils on subjects having a high nonverbal content.

The role of inferring or discovery learning and the importance of the acquisition of skills is supported by Bruner in Toward A Theory of Education. He states that an inquiry attitude toward the development of the child is necessary for mastery in any field. To support the importance of skills, Bruner believes that the ability to identify with others.

The role of interpersonal and social interaction in the learning process is supported by Carl Rogers. Rogers states that when the learner is prized as a separate person, valued in his...
own right, and given the freedom to experience his own feelings and those of others who are threatened, the climate for learning increases.

5.2 Program development.

The Children's Museum of Boston spent a total of 47 months (1964-1968) developing overall strategy of the program consisted of developing and evaluating three distinct MATCH Boxes. By this strategy, the developers sought to conceive the MATCH Box form, establish MATCH Boxes, and find out how they worked in the classroom before developing all of the "generations" involved six stages and the life cycle for each generation was approximately six stages are:

1. Topic selection and Box conception (3 months). Ideas for boxes were generated and the background research was conducted, curricula studied, subject matter special.

2. Early research and development (3 months). Coordinators interviewed subject matter teachers, and certain ones were invited to work on the Box thus forming the definitive research was undertaken into available films, pictures, filmstrips, books, and real materials that might be used in the Box. Sample materials were previewed, and various elementary curricula studied and compared.

3. Tryouts and revision (6 months). Tryouts were spread over six months of development, January through June in public and private schools. Lessons and lesson sequenches.

4. Final development and production (3 months). During this stage, design of the teacher's guides written, materials specified and ordered, packaging designs and graphics designed, the Boxes assembled. Many of the Boxes and materials were field tested. In all, 114 units were built on 16 different topics. Plans were made to evaluate school systems, develop evaluation procedures, and train people to use them.
The freedom to experience his own feelings and those of others without being

Museum of Boston spent a total of 47 months (1964-1968) developing the MATCH Boxes. The
development consisted of developing and evaluating three distinct "generations" of MATCH
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and out how they worked in the classroom before developing all of them at once. All three
dixed six stages and the life cycle for each generation was approximately 21 months. The
ction and Box conception (3 months). Ideas for boxes were generated, discussed and examined;
search was conducted, curricula studied, subject matter specialists consulted, etc.
search and development (3 months). Coleaders interviewed subject matter specialists,
and certain ones were invited to work on the Box thus forming the development team. Exten-
arch was undertaken into available films, pictures, filmstrips, books, and sources for the
ials that might be used in the Box. Sample materials were previewed, sample lesson ideas
and various elementary curricula studied and compared.
and revision (6 months). Tryouts were spread over six months of development cycle, from
hrough June in public and private schools. Lessons and lesson sequences were tried out.
development and production (3 months). During this stage, design of the Boxes was completed,
gides written, materials specified and ordered, packaging designs evolved for each Box,
designed, the Boxes assembled. Many of the Boxes and materials were designed at the Museum.
4 units were built on 16 different topics. Plans were made to evaluate the new Boxes in
systems, develop evaluation procedures, and train people to use them.
5. Evaluation (3 months). Each generation of Boxes was formally evaluated in the school system after its completion. Evaluations were conducted in diverse systems mostly near Boston except for Salinas, California and Somerset, Pennsylvania, the prime source of data on how the Boxes worked. Classroom observers were a second Teachers filled out questionnaires on the program and observers wrote summaries of Evaluation periods ran two to three weeks with the Box being used an hour per day.

6. Data analysis and Box appraisal (3 months). After the Boxes had been evaluated, a and a report on each Box prepared. The Boxes were turned over to the Museum's Sch Department for direct circulation to schools.

Related programs. Aside from the three commercially available Boxes which this Report the Children’s Museum has developed other Boxes available on a rental basis [see 4.4]. These Birds (grades K-2) to teach young children the purposes of classification; The Algonquins (g teach about the Algonquin Indians; Seeds (grades 3, 4) to learn about seeds and seed dispers 1-3) to compare an Eskimo igloo with a Nigerian mud-and-thatch hut to learn that different p call for different ways of life; Animal Camouflage (grades 2, 3); Netsilik Eskimos (grades 3 the seal hunt; Musical Shapes and Sounds (grades 3, 4) to study the relationship of the size instruments; Rocks (grades 5, 6); Medieval People (grades 5, 6) focusing on life in a fictio village; Waterplay (grades nursery-2) to allow children to become aware of what is around th Unlimited (grades 4-6) drawing on children's thoughts and feelings of images; Paddle-to-the-about a story of an Indian's canoeing adventures; and the MATCH Box Press (grades 5, 6) allo print a book.

5.3 Developer's evaluation of program.

As each unit reached the prototype stage, it was formally evaluated. Teachers in the S area, Salinas, California, and Somerset, Pennsylvania filed daily written reports on individ each unit and submitted careful appraisals on the total unit. This data was evaluated by th addition, specialists observed MATCH units in use in the classroom to provide a further pers
on (3 months). Each generation of Boxes was formally evaluated in the schools during the winter after its completion. Evaluations were conducted in a diversified sample of school mostly near Boston except for Salinas, California and Somerset, Pennsylvania. Teachers were the source of data on how the Boxes worked. Classroom observers were a secondary source. They filled out questionnaires on the program and observers wrote summaries of their impressions. on periods ran two to three weeks with the Box being used an hour per day.

Analysis and Box appraisal (3 months). After the Boxes had been evaluated, the data was analyzed on each Box prepared. The Boxes were turned over to the Museum's School Services for direct circulation to schools.

Aside from the three commercially available Boxes which this Report has focused upon, the museum has developed other Boxes available on a rental basis [see 4.4]. These are: Grouping to teach young children the purposes of classification; The Algonquins (grades 3, 4) to learn about the Algonquin Indians; Seeds (grades 3, 4) to learn about seeds and seed dispersal; Houses (grades 3, 4) as Eskimo igloo with a Nigerian mud-and-thatch hut to learn that different physical surroundings imply different ways of life; Animal Camouflage (grades 2, 3); Netsilik Eskimos (grades 3, 4) focusing on Eskimo house inner shapes and sounds (grades 3, 4) to study the relationship of the size and sound of a house to the Eskimo's way of life; Medieval People (grades 5, 6) focusing on life in a fictional medieval French town; Medieval People (grades 5, 6) focusing on life in a fictional medieval French town; Medieval People (grades nursery-2) to allow children to become aware of what is around them; Imagination Training (grades 4-6) drawing on children's thoughts and feelings of images; Paddle-to-the-Sea (grades 4-6) focusing on an Indian's canoeing adventures; and the MATCH Box Press (grades 5, 6) allowing children to validate their ideas about the program.

reached the prototype stage, it was formally evaluated. Teachers in the Syracuse, New York, California, and Somerset, Pennsylvania filed daily written reports on individual lessons within units. They observed MATCH units in use in the classroom to provide a further perspective.
During the development and testing of the 16 units, approximately 350 teachers used additional teachers tested selected lessons. Approximately 12,000 students were involved.

5.4 Results of developer's evaluation.

The following are the results of the field tests on the units "The City," "The Japanese House of Ancient Greece."

The data from the unit "The City" show that teachers were pleased with the Box experience. The students rated the lessons "very successful" 56% of the time, "moderately successful" 36% of the time, and "unsuccessful" 7% of the time. Observers answered positively to the question "Did the activity affect the students?" Some thought them not appropriate to the age group involved. Teachers responded that children were affected by the experience and showed greater interest in the lessons than in other approaches. The Box was well received by teachers and children, with the reservations that some of the lessons were difficult for grades 1-3, some not creative enough, and that the Box should perhaps be limited to a single city.

The Greek Box in general elicited high enthusiasm from teachers and children. In an overall rating of 1-5, teachers placed the Greek Box at 4.5. The response of the teachers involved to the lessons was 87 "very successful", 28 "moderately effective", and 1 "unsuccessful." Observers and teachers felt that children's attention, interest in the subject and class discussions were high. One observer commented, "Yes, I'd say the children learned a lot about Greece, and the process of discovery, analysis, sifting information, etc. The children worked intelligently." One teacher commented, "Oh boy! We didn't have to read any books, we just worked with real things."

In addition, 67% of the observers felt that the lessons did not require the teacher to use media and children. They thought there was a wholeness about the Greek Box. The expedition by teachers to be uncontrived; it is a thing that happened in real life. This quality of "wholeness" greatly interested the children involved.
tent and testing of the 16 units, approximately 350 teachers used complete units and 95
selected lessons. Approximately 12,000 students were involved in the field test.

The results of the field tests on the units "The City," "The Japanese Family," and "A

unit "The City" show that teachers were pleased with the Box experiment. The 14 teachers
ans "very successful" 56% of the time, "moderately successful" 36% of the time and
41s
41s
41s
41s

8

20
The Japanese Box was rated "very high" by teachers regarding its overall success. Teachers rated class interest in the subject as "more than usual." One hundred percent of children knew they had learned something and knew what they had learned. From the view, the Box was a success because it encouraged them to do "fun things" in a school setting to control and plan something on their own (Japanese family skits). Much of the success was due to control and planning strategy. By seeing the rules for a Japanese family's behavior and them out themselves, and by finding out why they came to be the way they are, the child sense out of their own world. As one teacher said:

I think the rest [class with exception of 3] learned something for life: an insight, a glimpse into another world; an art, a grace, a beauty; an at a skill, a curiosity to know more--an understanding of the kinship of man--more of these, every participating member now possesses about Japan.8

5.5 Project funding.

The MATCH program was sponsored by the U.S. Office of Education under Title III of the Education Act (NDEA). Commercial production was financed by American Science and Engineering.

5.6 Project staff.

The MATCH program was developed by the staff of The Children's Museum of Boston, Fred Director; Phyllis O'Connell, Assistant Director. The project's senior staff was composed Sharol Williamson, and Susan Schanck.
The Box was rated "very high" by teachers regarding its overall success. Ninety-six percent of the children showed interest in the subject as "more than usual." One hundred percent of the teachers felt they had learned something and knew what they had learned. From the children's point of view, success because it encouraged them to do "fun things" in a school situation. They also got something on their own (Japanese family skits). Much of the success of the Box rests on its strategy. By seeing the rules for a Japanese family's behavior written out, by acting a role, and by finding out why they came to be the way they are, the children are able to make sense of their own world. As one teacher said:

I think the rest [class with exception of 3] learned something for life--a sight, a glimpse into another world; an art, a grace, a beauty; an attitude, an curiosity to know more--an understanding of the kinship of man--one of these, every participating member now possesses about Japan.8

The Box was sponsored by the U.S. Office of Education under Title III of the National Defense Act. Commercial production was financed by American Science and Engineering, Inc.

The Box was developed by the staff of The Children's Museum of Boston, Frederick H. Kresse, Assistant Director. The project's senior staff was composed of Nancy Olson, and Susan Scharf.
FOOTNOTES

1. Riesz, E. The MATCH project, p. 2

2. Ibid.


4. Ibid., p. 69

5. Ibid., p. 9


7. Ibid., p. 133

8. Ibid., p. 257
FOOTNOTES

ATCH project, p.2


Materials and Activities for Teachers and Children, Vol. II, Appendices, p. 182
BIBLIOGRAPHY


BIBLIOGRAPHY

